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Belinda Gay Giles  
University of Wollongong

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**CONCEPTS OF “SUFFICIENCY” IN WOMEN’S PHYSICAL  
ACTIVITY FOR HEALTH: LAY PERSPECTIVES AND THE  
NATIONAL GUIDELINES**

**A thesis presented as partial fulfilment of the requirements for the award of the  
degree**

**MASTER OF SCIENCE - RESEARCH**

**from**

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**by**

**BELINDA GAY GILES B.A.**

**School of Health Sciences**

**2008**

## ABSTRACT

The relationship of physical activity to population health is currently an area of intense interest because of the economic and social cost of inactivity related morbidity and mortality (Stephenson et al. 2000). Efforts to address the perceived increase in insufficient physical activity are largely unsuccessful (Bauman et al. 2001). National Physical Activity Guidelines for Australians (Commonwealth Department of Health and Aged Care 1999) were published in 1999 within the social and historical context of the Active Australia policy. Evidence suggests older people have a concept of sufficient physical activity that does not comply with the current health promotion definition (Crombie et al. 2004; O'Neill and Reid 1991). Women are most likely to be judged insufficiently physically active (Armstrong et al. 2000).

This was a qualitative investigation of concepts of sufficiency in physical activity for health voiced by Australian women in their fifties. Their concepts are contrasted to a professional concept of sufficient physical activity identified in published definitions, and portrayed in the National Physical Activity Guidelines for Australians (Commonwealth Department of Health and Aged Care 1999). Semi-structured interviews with thematic analysis were used to answer the following research questions:

1. What are the concepts of sufficiency in physical activity for health from the lay perspective of women in their fifties?
2. How do their perceptions compare to the recommendations expressed in the National Physical Activity Guidelines for Australians?

Eleven women in their fifties who spoke English as a first language volunteered as participants. They were contacted through local civic and adult leisure learning institutions.

This study established that lay women's concepts of sufficiency are not expressed in a manner comparable with the National Physical Activity Guidelines for Australians. They do not use the language of 'physical activity'. The study identified eight indicators of sufficiency used by the women. These are:

1. Intrinsic Value Indicators
2. Individual Expression Indicators
3. Moral or Values Indicators
4. Alignment with Family Responsibilities
5. Physical Sense Indicators
  - a. General Sense
  - b. Embodied Sense
6. Body Weight Indicators
7. Ability Indicators
8. Therapeutic or Professional Advice Indicators

From this study, three outcomes emerge to inform understanding about gendered relationships around the commendation of physical activity for health:

- 1) Women comprehend calculative rationalities but do not employ them exclusively to assess the sufficiency of their physical activity.
- 2) The meaning of a physical activity is significant in lay women's determination of an actions relationship to health and therefore its contribution to sufficient physical activity for health.
- 3) The work/leisure boundary impacts on women's physical activity and presents an area of theoretical exploration in future investigation of sufficiency of physical activity for health.

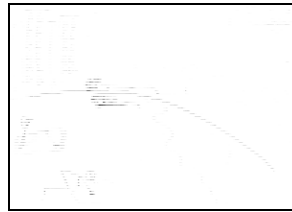
## ACKNOWLEDGEMENTS

Thank you to my precious family.

To Mitchell, for joining me on this long journey lending your strength and discipline.

To Ryan, for helping me show myself how learning stops our star from fading.

To Chelsea, for listening to all of my good advice and giving it back to me unedited.



To Lindsey and Nancy, thank you for being my safety rails, source of support and all the other things a student needs but does not realise until after they have been the recipient of such care.

To the faceless, nameless, persons who developed the postgraduate research infrastructure at the University of Wollongong, congratulations for building something very useful of which you should be proud.

*"Not everything that can be counted counts, and not everything that counts can be counted." - Albert Einstein*

*"I reject your reality and substitute my own." – Adam Savage (Mythbusters, Beyond Productions)*

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## 1 INTRODUCTION

*How much physical activity is enough for health?* This question cannot be answered without some agreement about the parameters to be discussed in the response. This then necessitates an answer to a further question, *How do you judge how much physical activity is enough for health?* As a health professional, making that judgement requires the direct or indirect quantification of metabolic activity (Bowles et al. 2004; Caspersen et al. 1985; Shephard 2003). In 1999, that judgement was translated into recommendations called the National Physical Activity Guidelines for Australians (National Guidelines) (Commonwealth Department of Health and Aged Care 1999). There should not be an assumption, however, that health professional and lay groups approach the conceptualisation of sufficiency- the parameters in the judgement of "how much" - in the same manner.

An aspect of successful promotion of physical activity to a lay population is related to the use of compatible concepts of sufficiency in communications (Tudor-Locke et al. 2003). The use of these facilitates a judgement of sufficient physical activity that aligns with professional recommendations. More importantly for the physical activity research professional, developing an understanding of the lay concept of sufficient physical activity will inform further about the meaning of physical activity in our society (O'Brien Cousins 2000; O'Brien Cousins 2003; O'Brien Cousins and Gillis 2005; Woodgate et al. 2003), and provide a reflective insight into the nature of an important intellectual construct used by our profession (MacDougall 2003). Each of these is important in translating scientific understanding to the actions of daily life.

### 1.1 Research Questions

This study focuses on the concept of sufficient physical activity for health expressed by Australian women in their fifties. There are two research questions:

1. What are the concepts of sufficiency in physical activity for health from the lay perspective of women in their fifties?
2. How do their perceptions compare to the recommendations expressed in the National Physical Activity Guidelines for Australians?

The 1999 Active Australia Survey shows Australian women are less active than their male counterparts at almost every age group (Armstrong et al. 2000). It shows no difference in the percentage of sedentary men and women- those who report

undertaking no leisure time physical activity- with results of 14.6 per cent and 14.7 per cent respectively for males and females (Armstrong et al. 2000). It describes fewer women are sufficiently physically active for health as compared to men. For both sexes, use of a time-and-sessions criterion produces a lower participation rate as compared to a time-alone criterion; in females this is a difference of 43.4 per cent as compared to 53.8 per cent (Armstrong et al. 2000).

Also apparent from this survey, females are less likely to report vigorous physical activity as compared to males (Bauman et al. 2001). Vigorous physical activity is weighted by a factor of two in either time-and-sessions or time-alone methods of calculating sufficient physical activity (Australian Institute of Health and Welfare 2003). Women are more likely to agree strongly with the current “moderate activity” public health messages (Armstrong et al. 2000). Men are more likely to agree with messages of vigorous physical activity (64 per cent) as compared to women (58 per cent) (Armstrong et al. 2000).

Clearly, a professional interpretation of the sufficiency of women’s physical activity for health is related to the moderate intensity activities that women choose to do, the method employed to quantify that activity and, possibly, women’s perception of public health messages. It is the interplay between scientific method, living a woman’s life, and the willingness or otherwise of women to construct their daily lives in accordance with public health messages that influenced the design of this study.

Physical activity is undoubtedly related to prevention, progression and recovery from the so called ‘lifestyle diseases’ (Australian Institute of Health and Welfare 2006). Effective promotion of physical activity is an important question for health and economic systems (Stephenson et al. 2000) facing the impost of these lifestyle diseases. It is a burgeoning area of academic interest in public health (Pate 1995). Presumably, it also has importance for the lay person facing the much more personal impost of these diseases (O’Brien Cousins 2000; Vertinsky 1998). Population participation surveys taken in Australia suggest insufficient physical activity is still problematic despite the publication and promotion of physical activity guidelines (Bauman et al. 2003). Lower than desired population participation figures (Bauman et al. 2003; Stephenson et al. 2000) suggest however, that other factors inhibit the decision to undertake sufficient physical activity (Sherwood and Jeffery 2000). These

inhibiting factors are often referred to as ‘barriers’ by the health promotion profession.

Barriers attract a great deal of academic attention (Booth et al. 1997; Cody and Lee 1999; Humpel et al. 2004; Johnson 1990; Salmon et al. 2003; Schutzer and Graves 2004), but they are not the only factor at work limiting the promotion of sufficient physical activity. International literature (Crombie et al. 2004) reports individuals, or groups of individuals, who claim to have experience of sufficient physical activity for health where measurement of their activity did not confirm this assertion. Neither lack of education of the benefits of physical activity nor lack of motivation to be active could explain these results collected in an older general population (Crombie et al. 2004). Making a judgement of sufficiency that is substantially different from the scientifically established recommendation of participation is problematic to the profession (Fifty-seventh World Health Assembly 2004), and potentially dangerous to the individual (Kampert et al. 1996; Oja 1995; Sherman et al. 1994). It has the potential to undermine motivation to increase physical activity making the existence, or not, of barriers of secondary importance in promotion. All of our contemporary models of promoting health change begin with an awareness of the need for change (Lorig 2001).

Investigating the lay concept of sufficient physical activity and comparing it to the concept promoted in the National Guidelines will give insight into ways lay and professional groups communicate. It will highlight the congruence, or otherwise, in the ways these two groups assess the need for change. The influence of an apparently alternate logic pathway in the lay judgement of sufficient activity (Crombie et al. 2004) necessitates that this investigation must go beyond the level of message recall or comprehension (Egger et al. 2001) of health promotion recommendations. The investigation must provide enlightenment about the alignment at a conceptual level between the health promotion profession and the population they seek to influence. In doing so, it is hoped the findings may help understand why people take the decision to be as physically active as they are.

The final area of significance of this study is centred on the importance of the development of empowerment and participatory models of health promotion. These necessitate a more in-depth knowledge of the lay population’s conceptual basis for the judgement of sufficiency. This in turn necessitates a re-evaluation of the potential

of the National Guidelines in their role as a tool in promoting sufficient physical activity for health. The National Physical Activity Guidelines for Australians (Commonwealth Department of Health and Aged Care 1999) were the first physical activity guidelines published in Australia. They present a professional concept of sufficient physical activity that is possibly dated in a professional environment rapidly developing complexity over time. The profession-devised recommendations require members of the lay public to consider the actions of their daily lives in a conceptual framework of sufficiency that may well be alien to their lay framework. In that circumstance, the alien framework of the professional becomes a barrier to promotion of physical activity to a lay population, and an element undermining empowerment aspirations.

The nature and extent of difference between the lay and health profession's concept of sufficient physical activity for health has the potential to impede communication of an effective physical activity promotion message. Identification by the profession of its own conceptual framework has the potential to improve the academic understanding of physical activity.

## **1.2 No Pre-Established Theoretical Framework**

Although there is no rigid theoretical perspective in the design of this research, it is true to say it comes from a broadly feminist perspective (Seibold 2002). The gendered nature of the participant group carries the implicit suggestion that there are conceptual differences in sufficient physical activity between lay men and women. Survey data show differences exist between the sexes regarding levels of intensity in idealised physical activity (Bauman et al. 2001). The differential weighting of intensity used in calculating sufficient physical activity used in the Active Australia Survey indicates there is an interpretation of sufficient physical activity that may not be in the interests of women. The gendered nature of activities of daily life (Fullagar 2003) suggested lay women's perspective might be different to lay men's, making the application of a feminist perspective a potentially enlightening one.

The influence of critical theory on this study must also be acknowledged. While this is an early exploration of the topic and cannot be said to have employed critical theory, essays on critical theory were read during the course of this study. Their encouragement to question how human volition shapes outcome (Dant 2003:1) and to argue against unquestioning adoption of social formations have been influential.



This encouragement seemed especially relevant in investigating the interplay between lay and professional concepts. These combined influences of feminism and critical theory suggested a need for investigations of ways in which health science may selectively represent the sufficiency of women's physical activity.

Any misrepresentation of women's participation in physical activity has a direct effect on health policy development and promotion of physical activity to women (Fullagar 2003). Fullagar (2003) describes Australian physical activity policy as a male normalised product which limits our understanding of women's physical activity and how to act in their best interests from a public health perspective. Lindbladh et al. (1998) are critical of targeted programs as a whole, and perhaps there is special need for concern about those influenced by participation results from studies with a poor conceptual basis and their consequent unintended menace to women's health. Conceptual anomalies in the framework of health promotion are then institutionalised in public policy and health systems; these, in turn, go on to impact on health inequalities. It is essential that the health promotion profession view physical activity recommendations from important alternate perspectives, and continue the process of questioning assumptions inherent in them even as its members act in the role of physical activity expert. Using rigorous scientific methods to inform, professional assertions can be challenged for their unintended consequences.

### **1.3 Choice of Methodology**

The decision to investigate the lay concept of sufficiency by undertaking a qualitative study using semi structured interview was rapidly determined by the paucity of literature from the lay perspective. This existed in the area of 'sufficiency' specifically and indeed almost any consideration of physical activity. There was a need to establish information on the lay world view rather than continue to rely on the assumption that becoming a professional does not change your understanding from a lay perspective.

This study was designed to allow the women to speak of physical activity within the context of their daily life. It was intentionally framed as a discussion of those women's lives foremost and physical activity secondarily. The assumption that physical activity for health is an important daily consideration of lay people limits previous research in this area in both qualitative and quantitative methodologies.

Interest in the conceptual nature of human endeavour is best investigated using a qualitative approach to allow for the expression of views, perceptions, rationalisations and conceptual constructs in the language of the participants (Rice and Ezzy 1999). Indirect sources which record reflection on the concepts of interest are not obvious and so a direct approach by interview was necessary. Semi-structured questioning was the selection of choice as it incorporates the process of question development as an inductive one (Rice and Ezzy 1999). The process allowed for an optimisation of the richness and meaning of the data by using the technical elements of funnelling, encouraging story-telling, and probing (Minichiello et al. 2003) thus minimising the impart of professional concepts to the constructs of the interview schedule.

#### **1.4 Scope and Limitations**

This study involves an analysis of the literature identifying the health profession's concept of sufficient physical activity, especially that present in the National Physical Activity Guidelines for Australians (Commonwealth Department of Health and Aged Care 1999) and documents associated with the Active Australia policy. A lay concept of sufficiency of physical activity is described from the qualitative data expressed by the participants in the qualitative study, women in their fifties. This thesis compares and contrasts the conceptual approaches- the lay perspective and the professional perspective- discussing the position of the National Guidelines in health promotion.

Evidence to support the promotion of increased physical activity is strong and substantial in significant areas of health impacting on the mortality and morbidity of the Australian people (Australian Institute of Health and Welfare 2006; Blair and Connelly 1996; Blair et al. 1992; Kampert et al. 1996; Pate 1995). The health benefits of physical activity are widely promoted throughout the community (Bauman et al. 2003). The conditions that are prevented or positively influenced by an increase in physical activity represent a large expenditure within our health system and a large human cost (Stephenson et al. 2000). They are also conditions about which people express fear and concern (MacDougall 2003; O'Brien Cousins 2000). This study was conducted in an exploratory sense to reveal any theoretical issues that may require investigation in the conceptualisation of physical activity.

This study will address “sufficiency” as a foray into a significant area requiring more substantial investigation.

## **1.5 Description of the Chapters**

The following two chapters, chapters two and three, are a literature review and analysis of the professional concept of sufficient physical activity and a review of literature reporting on the lay perspective of physical activity. Appendix A contains the strategy used for the review and analysis.

Chapter two, the first of the literature chapters, reviews literature which reports on physical activity and especially that of older women, within several related topics. These topics are: evidence to support the promotion of physical activity in this population group; population participation results; barriers and promoters of physical activity, and; the impact of health promotion interventions. The final topic of chapter two addresses studies of the lay perspective of physical activity. Chapter three, the second literature chapter, analyses definitions relevant to the consideration of sufficient physical activity, discusses the development of the National Guidelines and critiques physical activity surveillance survey methods.

The next chapter, chapter four, is a description of the methods of the qualitative study conducted in this project. Chapters five and six are both data chapters which present the results and reflect the insights from the women’s perspective. In the first data chapter, chapter five, these insights are arranged as the eight indicators of sufficient physical activity identified by the women. Chapter six, then, focuses on the women’s associations of meaning to their physical activity. Following the data chapters, in chapter seven, there is a discussion that compares the lay and professional conceptual framework work, a critique of the National Guidelines and discussion of future theoretical issues in the study of women’s physical activity. Chapter eight is the last chapter and consists of a series of conclusions and recommendations that have arisen from this study.

## **1.6 Chapter Summary**

This introduction chapter identified a problem in the study of sufficiency of physical activity concerning a potential difference between lay and professional concepts. Two research questions were posed:

1. What are the concepts of sufficiency in physical activity for health from the lay perspective of women in their fifties?
2. How do their perceptions compare to the recommendations expressed in the National Physical Activity Guidelines for Australians?

The decision not to use a pre-established theoretical framework was noted. A brief discussion of the decision to use literature analysis and qualitative methodology in the design was outlined. The scope of the thesis was limited to a comparison of concepts of sufficiency expressed in the recommendations of the National Physical Activity Guidelines for Australians (Commonwealth Department of Health and Aged Care 1999) and the concepts expressed by the study participants. The structure of the thesis was described.

## 2 LITERATURE

This chapter is a review of literature addressing questions concerning sufficient physical activity for health for older women. Gender and age are important dimensions in the study of physical activity. Physiological, psychosocial and behavioral differences have been identified and are discussed at length in the following review. Evidence is presented to support the position that gender and age impact on physical activity through the mechanisms of life experiences, roles and identity.

There is no consistent range of ages which describes 'older women'. Literature was included where participants were in the same age range as the participant group for this study, between 50 and 60 years of age, and older.

The analysis is presented in five parts:

1. support for the promotion of physical activity for health,
2. patterns of participation,
3. barriers identified by the profession,
4. intervention trials.
5. literature investigating the perspective of older women.

This review acknowledges and accepts the weight of evidence that supports the positive view of physical activity on health. As such it will not conduct a critical review of the minutia of this evidence but will remain focused on developing and analysing contemporary themes in the literature that reveal a professional concept of sufficient physical activity and especially evidence concerning older women.

### 2.1 Support for the Promotion of Physical Activity for Health

There is evidence, both scientific and mythic, to support the benefits of exercise that reaches back into history (Blair et al. 2004). Literature from physical education, medicine, health promotion, exercise science, theology, philosophy, sociology, urban development, pedagogy and political science will attest to the positive contribution of exercise. Recently this regard has been transferred to physical activity. There are few naysayers against physical activity, and their comments are more often on the

excess of this positive regard and disproportionate emphasis at the expense of other worthy cultural practices.

It is now readily accepted that a dose-response relationship exists between physical activity and all cause mortality (Bijnen et al. 1998; Blair et al. 1992; Byers et al. 1998; Erlichman et al. 2002; Gregg et al. 2003; Kampert et al. 1996; Kushi et al. 1997; Oguma and Shinoda-Tagawa 2004; Sherman et al. 1994). There is confirmation that the dose response relationship that is seen in adult populations exists when the analysis is confined to reports on women (Gregg et al. 2003). There is always reason to be cautious about making assumptions on the individual level about physical activity by interpreting group data, especially that collected by indirect survey instruments (Starling et al. 2001). The potential for significant underestimation of free-living daily activity has been observed when such instruments are referenced to accelerometer studies (Starling et al. 2001). Still, it appears that the weight of evidence falls on the benefits of physical activity for older women.

The benefits of physical activity for older women go beyond simple mortality. Long term physical activity is associated with lower body mass indicators (Bowles et al. 2004), higher functional status (Brach et al. 2003), and reduced experience of tiredness, back pain, and constipation (Brown et al. 2000). Highly physically active older persons appear to have an attenuated decline in cognitive function (McDowell et al. 2003) and cardiovascular disease risk (Oguma and Shinoda-Tagawa 2004).

In interpreting information on physical activity and activities of daily life one must be cautious as much of it is correlational and would seem to reflect a certain amount of the obvious. Koltyn reported (2001) active older women have a greater ability in tasks of daily life and that there is an association in older women (mean age 74 years) between quality of life and physical activity (Koltyn 2001). What is not made clear is the individual relationship between physical activity and disability or incapacitation. In Koltyn's study (2001), physical activity would appear to be lower in women living in assisted care facilities, and again this might reflect more on the physical factors necessitating the choice of care facility than the promotion of health through physical activity. The women from circumstances of independent living in this study (Koltyn 2001) also reported a substantial difference in physical health (effect size of 1.3).

Another study which should be interpreted carefully was conducted by Lee and Russell (2003) in which women in their early seventies, participating in the Australian Longitudinal Study on Women's health in 1996, responded again in 1999 to questions concerning physical activity and mental health. The results demonstrated a correlation between higher levels of physical activity and higher levels of variables indicating emotional wellbeing and suggested that longitudinally the women who maintained or adopted physical activity had better outcomes. Those women who became physically inactive, during the same period, reported a larger negative change in emotional well being when compared to those who had always been sedentary. This last aspect suggests that factors are at work other than the absolute amount of physical activity being undertaken. In this one recognises the need for well designed longitudinal studies that are able to differentiate between changes in emotional well-being that result from changes in physical activity alone rather than result from changes in other factors that simultaneously impact on physical activity.

The professional concept of sufficient physical activity has, at a population level, an outcome measure which is a monetary figure as a result of reports which estimate the dollar cost of physical inactivity in our society (Australian Chronic Disease Prevention Alliance 2004; Stephenson et al. 2000). The argument on economic lines, supporting the promotion of physical activity, has been championed in recent years by the Australian Chronic Disease Prevention Alliance. The potential to reduce health care costs and reduce disease in a more physically active society are seen as paramount in importance (Stephenson et al. 2000). Based on the results of the 1997 National Physical Activity Survey, and its estimate that 44 per cent of the Australian population are "insufficiently" physically active, the direct health care cost of physical inactivity is estimated at approximately \$377 million dollars per year (Stephenson et al. 2000).

## **2.2 Patterns of Participation**

The Active Australia Surveys conducted in 1997, 1999 and 2000 remain our most complete measure of physical activity in our national population. The Active Australia Survey is not structured to evaluate respondents compliance with the National Guidelines (Australian Institute of Health and Welfare 2006). Rather, it asks the respondent to describe their previous week in terms of number of sessions of at least ten-minute duration and then total time spent active in three areas.

Results from the Active Australia Surveys show women to be consistently less “sufficiently active” than men (Bauman et al. 2001). The following results are drawn from a trend report prepared by Bauman, Ford, and Armstrong (2001) and published by the Australian Sports Commission. Table 1 of this thesis illustrates participation figures from the three national Active Australia and National Physical Activity Surveys taken in the years 1997, 1999, and 2000. These results suggest 56 per cent of Australian adult women were sufficiently active in the year 2000 with respect to time alone or 45.5 per cent with respect to time-and-sessions criteria for sufficient physical activity. Australian adult men by comparison were 57.6 per cent and 46.7 per cent respectively. In either gender, the use of a time-and-session criteria rather than a time-only criteria for sufficiency produces a substantially more conservative result- approximately 10% in either gender.

The results also suggest that older age groups are less sufficiently active than the wider adult population. The physical activity levels reported in the Active Australia Survey for the 45 to 59 year age group, the one bearing the closest resemblance to the participants of the study which is the topic of this thesis, are shown to be substantially less than the all adult population participation. In 2000, approximately 50 per cent of this age group were shown to be insufficiently physically active and 43 per cent of the adult population at large using the time-only criteria. When time-and-session criteria are applied 54 per cent of the adult population was found to be insufficiently physically active as compared to 59 per cent of the 45 to 50 year olds. Introducing the consideration of sessions moderated the effect of age.

Figures for the proportion of sedentary persons, said to have reported no continuous walking or physical activity in the moderate or vigorous range during the past week, show little difference due to gender in the 1997 and 1999 surveys but significant ( $p < 0.05$ ) increase in the portion of sedentary men was observed in 2000. Estimates of sedentary males and females could have been expected in the range of 13 to 14 in the early surveys, whereas 17 per cent of males were described as sedentary in the 2000 survey; the figure remained constant for women at 13.1 per cent. The age group of interest had 18.2 per cent described as sedentary. Hidden by the presentation of these figures is any information on the relative decline in activity compared between genders in the age group specific data.



Please see print copy for image




Table 4.1 Summary of results from the Active Australia and National Physical Activity Surveys of 1997, 1999, 2000

Bauman, Ford and Armstrong (2001) also present results of the questions in Active Australia concerning vigorous gardening. The responses provided to these questions are not used to compute sufficiency using either set of criteria. Table 2 tabulates the minutes reported as vigorous gardening, in the form of mean and standard deviation, from the three national Active Australia and National Physical Activity Surveys taken in 1997, 1999, and 2000.

Please see print copy for image



Table 4.2 Summary of gardening results from the Active Australia and National Physical Activity Surveys of 1997, 1999, 2000

The report by Bauman, Ford and Armstrong (Bauman et al. 2001) states Australian adults report approximately 76 minutes per week involvement in vigorous gardening. It is unclear whether this is raw data or a calculated figure which has been doubled to represent the vigorous intensity of this activity.

Despite evidence to support lowered all cause mortality (Bijnen et al. 1998; Gregg et al. 2003; Kampert et al. 1996; Kushi L. H. et al. 1997; Sherman et al. 1994) and better “quality of life” in physically active women (Koltyn 2001), there is little evidence to suggest Australian women are increasing their participation in physical activity. As such women are a population identified as being at risk. This thesis will later argue how this may be an artefact of survey methods, especially with respect to the variant of physical activity described by the methods.

### **2.3 Barriers Identified by the Profession**

Barriers and promoters of physical activity are popular topics of investigation (Bauman 2002). Denton and Walters (1999) discuss the structural and behavioural determinants of health inequalities in Canada. They conclude that for women the structural elements of income, work, family commitments, and social support are more important to women's health than men's health. They determine behavioural determinants of weight and physical activity are more important in women compared with smoking and alcohol consumption in men. Their interest in physical activity is as a behavioural determinant of health.

In 2000, Sherwood and Jeffrey published a review of the behavioural determinants of physical activity. It is a comprehensive review that provides evidence to support the promotion of physical activity provided by individual factors such as motivation, self efficacy, readiness to change and other issues related to previous experience of physical activities that might lead to the development of requisite skills. Factors which might be considered as somewhat external to the individual included barriers as a result of limited time and access or injury, but also promoters such as social support and the nature of the activity undertaken (especially with regard to time and intensity).

A further review by Brownson, Broehmar and Luke (2005) examines the factors that have been found to contribute to declining participation in physical activity in the United States of America (USA). This review takes a much broader definition of physical activity by examining aspects of active transport and growth in suburban dormitory communities, occupational tasks, and the rise of sedentary pastimes such as television viewing. The review of trends reveals some surprising results in that leisure time activities are thought to be remaining level or even slightly increasing as a trend over time. Total physical activity is declining however as a result of a decline in occupation, transport, and home duties coupled with an increase in sedentary activity.

Barriers are also popular topics in the study of physical activity of women, older people and older women more specifically. Schutzer and Graves (2004) reviewed this literature for older adults and proposed five factors satisfactorily summarized the evidence. They found older people more likely to mention health as a barrier as compared to younger people who would mention time pressure. The built

environment regarding access to facilities and the social environment with regard to safety were thought to be important. Physician's advice, or the lack of the receipt of it, was also felt to be a barrier. Knowledge of the benefit of activity was related to older people's satisfaction with their activity- citing a Canadian study by O Neil (O'Neill and Reid 1991 cited in; Schutzer and Graves 2004), and finally a suggestion that the experience of pre-teen exercise, under parental urging, may have a negative effect on adult participation.

With respect to motivating factors Schuster and Graves (2004) note that motivators have a close association with barriers. They describe self efficacy, and specifically the elements of social support and group cohesiveness as essential in the cognitive processes that lead to more sustained participation. In addition systems that prompt (e.g. telephone reminders) and the incorporation of music into an exercise program are motivators.

Health concerns were identified as barriers to participation in physical activity for older women (De Bourdeaudhuij and Sallis 2002). Brown et al. (2002) specifically highlight urinary incontinence. Barriers for physically inactive older adults in the Australian context have been studied by Booth et al. (1997). A random sample of 402 Australian adults aged 60 years and older identified attitudes, environmental influences, self-efficacy, social reinforcement, and social modelling (observation of others in their neighbourhood) as important considerations. The small sample size did not allow for stratification by gender.

Australian adults also reported cost and the weather were barriers to physical activity and enjoyment and preference for activity were associated with higher levels of physical activity (Salmon et al. 2003). From a multi racial study in the USA, barriers to exercise were found to be different for ethnic subgroups but universally there was a preference expressed for exercise taken on one's own instruction (King et al. 2000).

Social support is thought to be important for the accumulation of sufficient physical activity in middle and older aged women and there is evidence of difference between ethnic groups (Eyler et al. 1999). A multi-institutional study of women from diverse racial groups within the USA found active women could be described as young, in good health, and possessing high self-efficacy.

Self-efficacy and an appreciation of outcome benefits were found to be associated with adherence to a physical activity program in older adults (Brassington et al.

2002) where social support was not. The stereotype of socially isolated older persons appreciating the company of other like-minded peers does not seem to be supported by this work. King et al. (2000:354) surveyed American women over 40 and found several factors associated with insufficient physical activity:

American Indian ethnicity, older age, less education, lack of energy, lack of hills in one's neighbourhood, absence of enjoyable scenery, and infrequent observation of others exercising in one's neighbourhood.

Titze et al. (2005) investigated factors influencing leisure running in middle-aged Austrian women who had registered for a seven point nine kilometre women's fun run. Women who adopted regular running used behavioural change processes and enjoyed running. Those who perceived themselves to be in not very good health withdrew from running and significantly more so if they also perceived their local environment to be unattractive. The role of support from the family seemed to be less important for those who enjoyed running, postulated to be associated with the families' understanding of an increased need to support "low enjoyment" individuals (Titze et al. 2005).

Promoters of physical activity are also well described in the literature. Schutzer and Grave (2004) describe self-efficacy prompts and music are promoters. They conclude that the best adherers to regular exercise are fit, active, non-smoking individuals with a low body mass, little experience of chronic pain, and possessing high self-efficacy.

A growing body of literature examines the physical environment and associations to physical activity of the population (Ainsworth et al. 2003; Ball et al. 2001; Booth et al. 2000; Evenson et al. 2003; Eyler 2003; Humpel et al. 2004; King et al. 2000; Krenichyn 2004; Rohm Young and Voorhees 2003; Sanderson et al. 2003; Stahl et al. 2001; Thompson et al. 2003; Titze et al. 2005; Voorhees and Rohm Young 2003). An international study of six countries- Belgium, Finland, Germany, The Netherlands, Spain, Switzerland- found a diversity of physical activity participation rates (Stahl et al. 2001). They found the social environment was a significant factor but were surprised the physical and policy environments were less important than anticipated. Again there is a certain level of the obvious in some of the relationships; those who were active knew of the local opportunities for activity. Others might at first seem paradoxical; awareness of support for physical activity from the media was associated with insufficient activity (Stahl et al. 2001).

Krenichyn (2004) explored the relationship a group of women had with an urban park in Brooklyn, NY, USA. The space was described in terms of its function as a physical activity resource and the features it possessed which promoted its use as a venue for physical activity. The women spoke about its aesthetic appeal, their perception of freedom from dress codes and the sense of mental restoration they experienced in using the park (Krenichyn 2004).

## **2.4 Intervention Trials**

Intervention studies can address the short term, the long term, and the activity mix impact of a program. They have mixed results based on the circumstances of the group. Schutzer and Graves (2004) conclude their review of older people's activity suggesting that the group of individuals most likely to maintain participation in a physical activity program are those who are fit and active already. Van der Bij et al. (2002) reviewed randomized control intervention studies where older persons had been the study group. They found in the short term home and individual interventions had high participation rates initially and that longer studies showed a decline in participation although the variability of this was high. Home based or individual studies either did not report or did not show a long-term improvement in physical activity levels of the participants. Change is possible but it is "small and short lived" (van der Bij et al. 2002).

Attempts to design physical activity interventions for women have been undertaken with more success. In a convenience sample of white middle aged women (mean age of 45 years) who were prepared to pay \$148, significant increases in physical activity at long term follow up (78 per cent of it over nine months duration) were found, (Segar et al. 2002). It should be noted the scale used in this study was referent to leisure time physical activity. Leisure time physical activity is generally thought to be a less significant contributor to the decline in population levels of physical activity (Brownson et al. 2005), indeed Brownson (2005) suggests it may be slightly increasing over time.

Washburn et al. (1999) recently studied the impact of a program on physical activity mix. They questioned whether participating in a vigorous exercise class impacted on the amount of physical activity engaged in during subsequent days. The study participants were long term program participants in a university based training program. The impact was not noticeable in these long-term participants (Washburn

and Ficker 1999). It is a rare biomedical project that showed recognition the participants had a life outside their physical activity intervention and addressed the possibility that interventions limited the physical activity within that 'outside' life. Unfortunately no such insight exists into activity mix in other intervention projects where the population under study is less committed or experienced.

Primary health professionals have a limited impact on long term physical activity levels of their clients (Ashenden et al. 1997; Eakin et al. 2000). Several literature reviews and a meta-analysis of GP based lifestyle interventions reveals there are no significant long term effects on participation in physical activity (Ashenden et al. 1997; Smith et al. 2002). There remains a political and vocational drive to promote physical activity and so despite the reviews which would suggest activity in this sector is ineffective, continued promotion from within the primary health sector is evident (Ashenden et al. 1997; Corti et al. 1995; Joint Advisory Group on General Practice and Population Health 2001).

## **2.5 Investigating the Perspective of Older Women**

The purpose of this literature review is to present findings from investigations of physical activity that inform about physical activity from the perspective of older women.

Conn (1998) conducted a qualitative study, using the theoretical framework of the theory of planned behaviour, of older women's behavioural, perceived control and normative beliefs thought to be influential in decisions to undertake physical activity. Her intention was to compare the beliefs expressed by women about physical activity to those beliefs expressed about exercise drawn from the published literature. This group of older women were over 65 years of age. The study identified three themes: women reported the social benefits of physical activity; women experienced a positive mood associated with physical activity and the consequences of independence and contribution to the community, and; women reported, but less frequently, the behavioural advantages of physical activity such as better sleep, fitness and self confidence. This study typifies a problem with conducting theory driven research in physical activity and the insidious nature of professional concepts. The concept of physical activity employed by Conn (1998) is evident in the question schedule which can only be sensible when a limited meaning of physical activity is applied. The reported question *What are the advantages of being physically active?*

is an example. This is not a sensible question if the term ‘physical activity’ is replaced by a literal one of general movement for instance. *What are the advantages of being capable of general movement?* is a much more metaphysical question. Obviously the concept of ‘physical activity’ used to formulate the question schedule in the Conn study (1998) was activity with some health purpose and defining features.

One excellent study of the differences in conceptual basis was conducted in the USA. Individual in-depth interview and focus groups were used by Tudor-Locke et al. (2003) to explore minority women’s constructs of physical activity. The participants, who were African American and American Indian women over 40, were encouraged to talk about their lives and the importance of physical activity. Definitions of a variety of common concepts associated with physical activity emerged from the talk but were not specifically asked for. The definitions included physical activity, exercise, leisure, recreation, moderate, vigorous, and strenuous. Translation issues emerged when using other languages. An example is given of the translation of “exercise” into Navajo Nation language being “stretching” but having a broader scope than an English meaning.

Apart from problems of translation across languages, the women gave definitions of terms and explanations of meaning of their activity somewhat at odds with researcher definitions (tabulated by Tudor-Locke et al. 2003:196). Leisure time was felt to be something outside the experience of many of these women who saw it as time free from obligation. They did not generally identify time outside their home and family responsibilities, and, if they were to have it, they would expect it to be without obligation- presumably including the obligation to be more physically active.

The discussion of ‘intensity of activity’ was also at odds with moderate or vigorous intensity commonly prescribed. When they discussed physical activity broadly, theirs was often a concept of busyness. This seems to be the counterpoint to their discussion of leisure as relaxation, “just doing nothing (Tudor-Locke et al. 2003:197)”. This paper confirms a different conceptual basis for many of the terms commonly used in promotion of physical activity. The question remains as to whether this is a general ‘laywoman’s experience’ or one conditional on being a member of a minority group.



O'Brien Cousins (2000) found older women are fearful of an immediate negative health impact from exercise they identify as being beneficial to health- they can identify what is 'good for you' but feel it would do them harm personally. They catastrophise the outcomes of their own practice of exercises they identify as being beneficial to others. They feel unsupported by significant others. They feel foolish and incompetent. O'Brien Cousins (2000) poses that decisions made by the women she interviewed were an accumulation of their experiences over a lifetime, not all related to physical activity. Fragility, inexperience, social devaluation and exposure to public warnings of the risks of specific behaviours, underpin these decisions.

Vertinsky (1998:93) writes older women explain their 'insufficient' activity with "declining health and their perception that they are too old". She finds it paradoxical that these opinions coexist with a gathering body of information demonstrating the health benefits of physical activity. Perhaps it is not truly a paradox and there is a way of thinking that makes this logical. The accumulation of health information over a lifetime, the progression of health effects also, suggest a life course perspective is required when investigating the effect of physical activity on health. It also suggests risk management is not as common a consideration as the experience of aging.

The topic of investigation in this thesis has been strongly influenced by the findings of Crombie et al.. They found Scottish General Practice patients aged 65 to 84 years had a high level of knowledge of the benefits of physical activity and felt they were getting adequate physical activity despite evidence that 36 per cent were sedentary and a further 17 per cent largely inactive. This study reports the most powerful deterrent to increasing physical activity was "lack of interest" (odds ratio OR=7.8). This "lack of interest" was also found in a Canadian survey of participation (Stephens and Craig 1990 reported in Lee and Russell 2003).

It is hard to suppress a smile imagining what might be the responses from Crombie et al's (2004) subjects were a community project worker engaged to try and gallantly convince each of the older people that their satisfaction is misplaced and they must change the habits and beliefs of a lifetime. It should not be funny to think that an important concept like "sufficiency"- one that underpins our understanding of the cost of a sedentary population- cannot be agreed upon with those who are the important stakeholders.

Grant (2001) followed an interest in beliefs about playing sport in later life. He notes the amount of change in physical activity recommendations in recent years and over the course of the lifetimes of the people interviewed. Grant interviewed Masters sports -men and -women. (It must be mentioned none of the people interviewed considered themselves “old” at 71 to 79 years of age.) They spoke of their uncertainty about the future but also the sense of identity and the self-knowledge that sport gives them. Their responses raise questions about the part previous health promotion campaigns have played in creating a confusion of health messages. This study gives an insight into the values and motivations of this unusual group of people and helps explain from their perspective what sport means. A similar perspective is notably missing from the consideration of physical activity and health.

The concept of living the health learning accumulated over the course of a life is important in the reading of Grant (2001), Vertinsky (1998), O’Brien Cousins (2000) and Crombie et al.. Tudor-Locke et al.’s (2003) experience of conceptual mismatch suggests physical activity recommendations need to be considered in the context of daily lives and the social environment.

The consideration of health is a complex one that goes beyond the physiological impact of physical activity. The multiple roles in women’s lives are of importance to health (Moen 1992 et al.). Moen et al. (1992) write of women interviewed and then interviewed again 30 years later; they demonstrated a positive relationship to health from three factors: occupying multiple roles, participation in volunteer work intermittently, and belonging to a club or organization. Moen et al. (1992) acknowledge the interaction between causality and selection but would argue it is this inter-relationship between social integration and health that is the essence of the work.

Fullagar (2003) raises the issue of physical activity and health, the emotional well being of women adopting the scripted exercise prescription. She questions whether a negative effect on women’s emotional well being could be induced by such a universal prescription, in keeping with Brown et al’s (2000) observations from the Australian Longitudinal Study on Women’s Health. They identified that the survey respondents cited avoiding “feeling rushed” and the need for “passive recuperation” as important to mental health (Brown et al. 2000:212).

MacDougall shares a concern of professional conceptual dominance in physical activity recommendations in the age of empowerment and community participation health promotion (MacDougall 2003). His 2003 study used focus groups to question the differences between ordinary (lay) and expert (professional) theories of health and physical activity. His participant group of 121 women between the ages of 45 and 54 were drawn from low physical ability groups (community and disease support groups) in the broader context of a study of physical activity and the physical environment in the township of Marion, South Australia. The group was found to be aware of risk factors and benefits of physical activity. They discussed the situation of receiving physical activity advice as being unhelpful but generally were tolerant of this. They demonstrated a so-called reservoir theory of health, where health was a resource that might need preserving, arguing also that health was a 'means' not simply an 'ends' regarding physical activity. MacDougall (2003) felt the relationship between lay and professional concepts of health were analogous to a professional 'scaffold' being given 'context' by a broader lay debate. He also discusses that rational argument seemed to be less significant in the lay discussion of physical activity, and that social, aesthetic and 'feeling better' were reported as more important to the women. MacDougall (2003) rejects the use of ways of studying physical activity that promote concepts of sufficiency and adequacy. His study demonstrates the relationship between lay and professional theories of physical activity can be complex, characterised by both divergence and incorporation (MacDougall 2003).

## **2.6 Social Capital and Health**

Reading the discussion of the qualitative literature on the physical activity of older women requires an appreciation of the activity under investigation in broad context. In order to understand the linkage of that broader context to health, a brief orientation to social capital is necessary. Qualitative physical activity literature often features discussion of the relationship to self, others and community which might be understood using the social capital literature.

The literature of social capital and health conceptualises health as a consequence of access to resources and the resultant improvements in the social determinants of health (Hawe and Shiell 2000). Social capital is created within the social relationships in practice and is able to be exchanged for other forms of capital, all of which in turn can be reduced/realised to economic capital (Portes 1998). Social

capital is a concept which attracts substantial criticism (Hawe and Shiell 2000; Muntaner, Lynch and Smith 2001) while simultaneously remaining an intellectual framework that many find to have intuitive appeal (Hawe and Shiell 2000).

The concept of social capital emerged from the contemporary work of Pierre Bourdieu in the 1980's (Portes 1998:3). He defined it as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition" (Bourdieu 1985:248 cited in Portes 1998). This original concept identified benefits accruing to individuals who participated in social networks and theorised all these benefits were transmutable into economic capital.

The understanding of social capital has been somewhat transformed by its application. In economics, Glen Lourie sought to discuss social capital with respect to racial income inequality (Portes 1998:4), Coleman related social structures and the actions of actors within those structures to facilitate an increase in human capital (Portes 1998:5) and then others such as Schiff, Burt and Baker (cited in Portes 1998:6) all further developed the concept to incorporate the perspective of social control being enacted through these networks and inextricably linking loss of individual freedom with access to greater economic capital (Portes 1998:8). Others have applied less rigorous definitions and this diversification is generally thought to be unhelpful (Hawe and Shiell 2000).

Hawe and Shiell (2000) relate social capital to health promotion in a review which emphasises diversification of definitions of social capital, and subsequent confusion with concepts of community and capacity building. They question the usefulness of the metaphor of "capital" in human interactions which are characterised not by durability but intangibility, not simply by income stream value but also the lived intrinsic value of ownership, and finally in the way social capital differs to economic capital in opportunity to define and transfer ownership (Hawe and Shiell 2000:873). They also warn of the use of the concept of "social capital as rhetoric" suggesting that power relationships can inadvertently be reproduced through health promotion efforts by needs analyses and the use of a "romantic , essentially middle class view of social capital" (Hawe and Shiell 2000:879). They refer to Bourdieu's original definition of social capital as being more useful stating that "Supportive relational ties are not a sufficient antidote to material deprivation and learned helplessness (Hawe and Shiell 2000:879)". They link social capital to the intersectorial approach

of the Ottawa Charter from Health Promotion to concepts of empowerment which go beyond psychological empowerment to real empowerment (Hawe and Shiell 2000). Carpiano (2007) observed an important aspect of social capital with respect to empowerment. He notes that principle consideration should be given to the nature of the resources that are inherent in the relationships which constitute social capital rather than the nature of the relationships exclusively. He expresses the importance of three aspects in future research into social capital as it relates to health (Carpiano 2007:651):

1. the resources that neighbourhood-based networks rooted in trust and norms of reciprocity provide for residents' health and well-being,
2. the power dynamics that exist within these networks that may facilitate or restrict access to such resources for particular residents (e.g., due to gender, race/ ethnicity, age, social class), and
3. the extent to which these resources are linked to the material conditions of neighbourhoods and surrounding areas.

Portes (1998) warns of the likelihood of constructing circular arguments where the concept of social capital is applied beyond the individual level to communities or nations. He is critical of the work of Putnam (1993 cited Portes 1998:20) and warns of proposing social capital as causal and outcome variables simultaneously; "... if your town is "civic," it does civic things; if it is "uncivic," it does not." (Portes 1998:20). It would appear that a knowledge of social capital concepts is important but the academic debate is not one to be engaged in unless there have been concerted considerations in the theoretical and methodological design of a study.

## **2.7 Chapter Summary**

Health policy seeks to promote participation in physical activity. National Guidelines and surveillance surveys describe sufficient physical activity from a calculative perspective- a perspective requiring quantification to produce understanding. A substantial body of literature exists to support the benefits of increased physical activity for women. Health interventions have been successful in the short term. There is evidence that a lay concept of physical activity may act to reinterpret public health efforts. Investigation of this lay perception has been limited but fruitful, showing divergence in the way older women take decisions around physical activity. Such research is limited on the lives of Australian women. Study of the physical

activity of older Australian women should include the perceptions of the women themselves.

This review of the literature presents evidence that supports the conclusion that physical activity is beneficial to the health of older women, that participation by older women in physical activity could be increased, that it is possible to identify barriers and promoters of physical activity for this grouping. The qualitative literature suggests the physical activity for older people and women specifically does exist in an environment that may be described by barriers but that this explanation does not provide insight into why the well informed but inactive continue to remain satisfied with their physical activity decisions. The social context of activity may prove to be important. Lay concepts of sufficiency have not been studied extensively; they appear to be characterised by their complexity and propensity to be divergent from professional concepts. Professional concepts are rarely investigated and also require analysis and articulation.

### **3 IDENTIFYING A PROFESSIONAL CONCEPT OF SUFFICIENCY**

There is no single stated expression of the professional concept of sufficient physical activity shared across the health profession. Such a concept must be identified from commonalities found among several sources of information. These sources are published definitions of physical activity and related concepts, public health recommendations, and population surveillance surveys and their methods. Each of these sources emerges from an expert group or consultative process and represents the most influential thinking within the profession. None of these sources address gender or even sex differences in these definitions.

In this chapter, these three sources of information will be addressed in turn to develop a view of the professional concept of sufficient physical activity. First, the central definitions around the concept of sufficient physical activity will be analysed. They are the definitions published by the profession for: physical activity; physical activity for health; sufficient and insufficient physical activity, and; the component behaviours of work and leisure. Second, two public health recommendations will be discussed for their expression of, and influence on, the professional concept of sufficiency. These are, from the USA, the joint physical activity recommendation released by the Center for Disease Control and Prevention (CDC) and the American College of Sports Medicine (ACSM) and, locally, the National Physical Activity Guidelines for Australians. Finally, the methods of two Australian population surveillance surveys will be examined for their impact on, and reflection of, the professional concept of sufficiency. These are the Active Australia and National Health Surveys.

#### **3.1 Definitions**

##### **3.1.1 Physical Activity**

In an attempt to introduce a standardised terminology, Caspersen et al. (1985:126) defined physical activity as:

Any bodily movement produced by skeletal muscles that results in energy expenditure.

This definition highlights the physiological systems focus and quantitative expenditure or calculative rationality brought to the professional concept of physical activity by the sport or health sciences.

The definition of physical activity adopted in the National Physical Activity Guidelines for Australians is not referenced so its exact origin is difficult to comment on; it reads:

Physical activity refers to any activity that involves significant movement of the body or limbs. (Commonwealth Department of Health and Aged Care 1999).

This definition differs from that of Caspersen et al. (1985) in its use of the word ‘significant’, an indication that some judgement must be made to assess whether a movement is sufficient to be regarded as physical activity. In a more recent publication, *Towards A National Physical Activity for Health Action Plan: Be Active Australia* (National Public Health Partnership 2004:4), the definition of physical activity reads:

Intentional bodily movement involving the large muscle groups.

The reference to the size of the muscle group is likely to be related to the desire to consider aerobic actions with a cardiovascular health effect (Astrand and Rodahl 1977).

A different emphasis to the physiological systems focus is evident in the definition of physical activity adopted by the World Health Organisation (WHO 1997:1) which reads:

Physical activity is all movements in everyday life, including work, recreation, exercise, and sporting activities.

This wording places greater importance on the meaning of the movement and its context within a life.

All these definitions of physical activity share a common feature in that they profess to retain a broad characterisation of physical activity while revealing the subtle limitations placed on the concept by the profession. The profession’s concept of physical activity does not include activity that is reflexive, the activity of small muscles or initiated by technological interventions; the movement must be large and intentional. The professional concept necessitates the ability to measure an action’s energy expenditure for the movement to be considered as physical activity. There must be an assessment of the significance of this expenditure and the physical characteristics of muscle producing the action.



Within the WHO (1997) definition, the emphasis on the ‘everyday’ nature of physical activity signifies the professional concept of physical activity requires the assessment of actions people commonly have experience of; this is a shift in focus from intentional activities such as sport and exercise. The consideration of ‘everyday’ activities for their health benefit is a relatively recent influence in public health replacing the consideration of exercise for health benefit (Blair et al. 2004). This change in focus is not without difficulty, which arises from the way ‘everyday’ activities of work and leisure are gendered concepts (Davidson 1996; Fullagar 2003; Gurtler 2005). The assumed commonality of the experience of those actions across different lives is an area shown to receive little critical attention by the profession (Fullagar and Owler 1998; Shephard 2003). Notable exceptions to this (Ainsworth et al. 2003; Conn 1998; Rohm Young and Voorhees 2003; Sanderson et al. 2003; Tudor-Locke et al. 2003; Rohm Young et al. 1998) do not seem to influence greatly the conceptual development of the term physical activity.

The professional concept of physical activity is governed by consideration of a movement’s significance. Consideration of significance, in this context, requires the skills of the professional- the knowledge of muscle size drawn from the study of anatomy, the comprehension of modes of assessing energy expenditure drawn from the study of work physiology, an understanding of intention drawn from the behavioural sciences, and the capacity to dissociate an activity from its everyday meaning in order to address it as an abstraction, an intellectual position developed to various degrees across all health sciences. So considered, the professional concept of physical activity is likely to be alien to the lay person untrained in these areas. The profession’s governance of significance (used here in the common language sense of steering and control) and, through it, sufficiency, locates control of physical activity with the profession. It becomes possible for the profession to describe an activity as not being physical activity because that activity is inconsistent with the imposed limits of significance. This rather odd situation develops from definitions which profess to be broad encompassing characterisations of physical activity.

### 3.1.2 Physical Activity for Health

The term physical activity for health demonstrates the profession’s interest in activity as a preventive health and rehabilitation agent (Australian Institute of Health and Welfare 2006; Oja 1995; Stephenson et al. 2000). An activity can only be considered

by the profession to be significant to health if it can be measured and demonstrated to be related to improvement in a measurable health outcome or indicator (Friis and Sellers 2004:345). This process is the domain of epidemiologists and those who conduct intervention studies.

The concept of physical activity for health is complex. The term attempts to fix a relationship between the form and intent of an activity. With respect to the form, as has been discussed, the term physical activity has been adopted in an effort to broadly include activities of everyday life, and create a distinction from other narrower, component forms such as exercise, sport, training, work or leisure. With respect to intent, physical activity for health is not physical activity for fitness or physical activity for enjoyment or physical activity for a broader experience of the human condition. The intent of physical activity for health is to improve health. Difficulty arises when one goes on to question whose intention is being discussed. Whose intention is being discussed in the situation where the actor's intention is to perform an action of everyday life not garner a health benefit? It can only be the profession's intention. Physical activity for health is a term which further demonstrates the professional governance of physical activity and, it should be noted, there is an ongoing international effort to strengthen the profession's position (Bull et al. 2006).

The promotion of physical activity for health, in its current state of conceptual development, is complicated by the vacillation between the intention of the actor and that of the profession. The promotion of physical activity for health encourages the actor not simply to undertake more activity, but also to adopt the conceptual framework promoted by the profession. That framework essentially changes, for the actor, the meaning of many activities of daily life. That is, the profession's promotion encourages the actor to reconceptualise the meaning of health. This reconceptualisation is especially evident in promoting the adoption of more active alternatives in domestic and work duties- two activities not traditionally undertaken inefficiently for their direct contribution to physiological health. The promotion of physical activity for health is a process which invades the conceptual framework of the actor in all circumstances except those where the actor's initial intention was to elicit a health benefit. In essence, where the actor changes the meaning of every day activities to produce a benefit, this suggests physical activity for health resembles what Caspersen et al. (1985:5) defines as exercise:

Planned, structured, and repetitive bodily movement done to improve or maintain one or more components of physical fitness.

Where Caspersen et al. (1985:2) defined exercise for fitness training as involving the intentional targeting of fitness in a physiological system, (e.g. the aerobic capacity, efficiency, ATP cycle, power output, flexibility), physical activity for health training might be seen as targeting health outcomes such as falls prevention, preserving bone density, maintaining functional range of movement, and attenuating cognitive decline (Erlichman et al. 2002; Fifty-seventh World Health Assembly 2004; Kampert et al. 1996; Koltyn 2001; Lee and Russell 2003). Close examination of health promotion strategies reveals the professional conceptual framework has altered very little from its beginnings in sport and exercise science, now for health, now using the activities of daily life for overload.

Further evidence of the profession's use of a 'training for health' approach to physical activity for health can be found in the form and language employed to define physical activity for health. Armstrong, Bauman and Davies (2000:4) state:

Physical activity for health benefit comprises several components (e.g. intensity, frequency, duration and type) that can be carried out in different settings or contexts (e.g. leisure-time, occupational, incidental and transport).

The components mentioned are familiar exercise for fitness training components, often described in exercise science by the acronym FITT representing frequency, intensity, time and type (McArdle et al. 2001). It would appear that the adoption of physical activity over exercise has broadened the scope for the application of training principles. It seems to run somewhat counter to the spirit that "high levels of fitness are not required for health (Commonwealth Department of Health and Aged Care 1999:1)". Making statements that health and fitness are different ends does not change the fact that the profession seeks to use an almost identical framework to achieve them and in doing so changes the meaning of activities of everyday life and imposes training principles upon them. The professional concept of physical activity is a training concept where the profession's intention is to have actors evaluate their actions for health benefits.

### 3.1.3 Sufficient and Insufficient Physical Activity

A central feature of the professional concept of sufficient physical activity is the construct of a divide between a level of physical activity that is sufficient and a lower

level that is insufficient. Over time and across cultures the details of that assessment change (Blair et al. 2004; Bull et al. 2004). Reader (1996), in his history of the Australian National Heart Foundation (NHF), comments on the leading role the NHF adopted from the early 1950s in the promotion of activity recommendations in early programs of cardiac rehabilitation because as late as 1947 medical text books were promoting bed rest for cardiac patients and a life on the invalid pension was the most likely outcome of a heart attack (Reader 1996:139).

Blair et al. trace the evolution of physical activity guidelines and in doing so confirm the existence of recommendations of this nature across the greater part of human history and also their changing form and content. Currently, the variety of physical activity guidelines and recommendations in existence (Bull et al. 2004; Pate 1995) support the notion that although a single shared definition of sufficient physical activity does not exist, the concept of sufficiency of physical activity is accepted by the profession. The profession accepts that it is possible to make the judgement of sufficiency of physical activity despite their inability to agree on one method (Brown et al. 2004; Brown et al. 2004; Shephard 2003; Washburn et al. 2000).

Generally, in the Australian context, the term sufficient physical activity for health has two definitions and both of these are drawn from the method of the Active Australia Survey (Australian Institute of Health and Welfare 2003). These are:

1. Sufficient activity time, requires registering 150 minutes of moderate activity per week on the survey, and
2. Sufficient activity time and sessions, requires registering both 150 minutes of moderate activity and five session per week on the survey.

Both measures of sufficiency are premised on accumulating an overload of approximately 1000 calories per week (Australian Institute of Health and Welfare 2003). The professional concept of “sufficient” physical activity for health is thus presented with a strong influence from the need to secure the adequacy of the ‘dose’.

The concept of insufficiency is also expressed using the term sedentary. From the Active Australia Survey, to be sedentary, one must report “no leisure-time physical activity or walking during the past week (Australian Institute of Health and Welfare 2003:17)”. This is not to say those persons are comatose, they simply do not report any exertion in an allowable activity of ten-minute duration at a moderate intensity in the time period covered by the survey.

The term is misleading. An individual, who gardens and does housework but maintains all other activities at a less than moderate intensity or in bouts with a duration less than ten minutes, is considered to be insufficiently physically active. Woolf-May et al. (1999) demonstrated cardiovascular change with bouts of moderate physical activity between five and ten minutes, so it would appear it is possible to develop cardiovascular fitness while being categorised as sedentary or insufficiently active. Sedentary persons are identified by the activities of the week prior to the survey administration date. Little evidence is presented as to whether such a period can be described as representative of activity as a whole; reports suggest a seasonal variation at least (Matthews et al. 2001; Uitenbroek 1993).

### **3.2 Public Health Recommendations**

The second source of information indicating the professional concept of physical activity is public health recommendation statements (Commonwealth Department of Health and Aged Care 1999; Pate 1995). This section will start with a description of the current national statement, the National Physical Activity Guidelines for Australians (Commonwealth Department of Health and Aged Care 1999) before it is possible to discuss the development of the National Guidelines. The section then continues describing early influences from the USA, in the form of the joint statement released by the CDC and ACSM, to give the international context for the consultative process used to develop the Australian National Guidelines. Finally the process used to develop the National Guidelines is discussed to demonstrate the professional concept of sufficient physical activity. The professional concept of physical activity is influenced by the power and political realities of an expert consultative process.

#### **3.2.1 National Guidelines: What do they say?**

The National Physical Activity Guidelines for Australians refer to the “minimum levels of physical activity required for good health (Commonwealth Department of Health and Aged Care 2005:1)”. They are:

1. Think of movement as an opportunity, not an inconvenience.
2. Be active every day in as many ways as you can.

3. Put together at least 30 minutes of moderate-intensity physical activity on most, preferably all, days
4. If you can, also enjoy some regular vigorous exercise for extra health and fitness (Commonwealth Department of Health and Aged Care 2005).

The four National Guidelines have remained unchanged since their original publication, although there are differences in the surrounding text and images between two pamphlets produced in 1999 and 2005 by the Commonwealth of Australia (Commonwealth Department of Health and Aged Care 1999; 2005). These pamphlets are contained in Appendix B.

The language of the first National Guideline constructs physical activity as an inconvenience to the population and this reflects the status quo position in the professional concept of physical activity. It also demonstrates the profession's early use of health belief models and other cognitive strategies for promotion of increased physical activity (Lorig 2001). The profession's concept of physical activity is of a behaviour that requires cognitive change as well as behavioural change. This first guideline is evidence that a professional concept of sufficient physical activity represents physical activity as being problematic among the population, requiring this cognitive and behavioural change.

The second National Guideline encourages diversity of activity and the accumulation of what is often called by the profession 'incidental activity'. This guideline is described elsewhere (Egger et al. 2001) as the first level of a hierarchy of activity proposed by the National Guidelines. It does not denote an intensity or a duration and should be interpreted as the lowest level on the hierarchy. During early consumer testing of the draft Guidelines, the term 'incidental activity' was found not to translate well to the general population (Egger et al. 2001). The second guideline communicates the message using alternate language.

Recommendation of moderate accumulated activity is carried in the third National Guideline. Although there are four guidelines in the Australian statement, the third National Guideline receives the majority of promotion and contains reference to moderate intensity and the concept of physical activity (Commonwealth Department of Health and Aged Care 1999). The language of this guideline encourages accumulation, moderate intensity and physical activity (as opposed to exercise). It

suggests a minimum accumulated duration and implies that more physical activity, more often, is desirable.

The fourth National Guideline reveals something of the profession's concept of health. In this guideline it is possible to identify a view of health as an outcome on a continuum, where it is possible to achieve 'extra health' in the way it is possible to achieve 'extra fitness'. The language of this guideline also carries a suggestion that vigorous activity is required for 'extra health'. This seems to contradict the argument presented for moderate activity promotion based on dose response studies. The dose response relationship for physical activity and health outcomes (Bijnen et al. 1998; Blair et al. 2004; DeBusk et al. 1990; Oguma and Shinoda-Tagawa 2004) supports the promotion of moderate intensity activity (Blair and Connelly 1996; Pate 1995). making further moderate activity a viable alternate to vigorous activity for those who seek "more health". This contradiction is probably an unintended consequence of modelling the National Guidelines as a hierarchy (Commonwealth Department of Health and Aged Care 1999).

Recently, two further recommendations have been published which supplement the National Guidelines: *Australia's Physical Activity Recommendations for 5-12 Year Olds* (Department of Health and Ageing 2004), and; *Australia's Physical Activity Recommendations for 12-18 Year Olds* (Department of Health and Ageing 2004). These recommendations suggest 60 minutes of accumulated moderate and vigorous activity daily and the placement of a two hour limit on electronic device use. Early in 2006, the National Heart Foundation released physical activity recommendations for persons with existing cardiovascular disease (Briffa et al. 2006). The concept of tailoring recommendations to sub groups has been a contentious consideration throughout the development of the National Guidelines and is further discussed in Section 3.2.3.

### 3.2.2 CDC and ACSM Statement

Of all international policy (Bull et al. 2004), one statement, released by the Centre for Disease Control and Prevention (CDC) and American College of Sports Medicine (ACSM) (Pate 1995), has proven the most influential on the professional concept of physical activity. It reads:

Every US adult should accumulate 30 minutes or more of moderate-intensity physical activity on most, preferably all, days of the week (Pate 1995:402)

Its influence on the third National Guideline is immediately evident. The American College of Sports Medicine had been releasing recommendations on the appropriate intensity, duration and frequency of overload for fitness since 1945 (Blair et al. 1992). Several revisions of the ACSM recommendations had preceded the 1995 joint CDC ACSM statement (Blair et al. 2004). It was the CDC ACSM statement, and the literature review that supported it, that formed the first recommendations proposing physical activity, not exercise, with a public health agenda (Blair et al. 2004). The statement was also the first to suggest that physical activity of a moderate intensity accumulated over the period of a day would be as beneficial to health as any previously recommended exercise regime (Pate 1995). The ACSM cautioned the statement be read as physical activity for health, not for fitness or other athletic purposes (Blair et al. 2004).

Physical activity for health had become the focus of recommendations when a report from the US Surgeon General prompted a review of the information by an expert committee (Blair et al. 2004). The rise of non communicable disease interests in the western world had affected public health concerns for decades before and cardiovascular interests in the USA had been gaining influence since 1940 (Reader 1996). This explains the strong cardiovascular emphasis of the joint statement, over broader recommendations addressing other health interests such as obesity, injury prevention and mental health. The expert committee members were eminent scientific figures from schools of medicine, epidemiology, kinesiology, exercise science, health education and public health (Pate 1995). They authored the CDC ACSM statement, stating a desire to lower the public's perception of a requirement of vigorous intensity activity for health (Pate 1995).

Great importance was placed on the findings of one study by DeBusk (1990), that showed there was no significant difference after eight weeks of training between two groups using different durations of moderate exercise, one to a total of 30 minutes in ten minute blocks, the other for a period of 30 minutes continuously. This study was used to include the concept of accumulation of moderate exercise into physical activity recommendations. The USA expert committee always conceived that discussion of physical activity would also include intermittent and lower intensity



physical activity. In the background to the statement published in the Journal of the American Medical Association, this sentiment is expressed in this way:

Intermittent activity also confers substantial benefits. Therefore, the recommended 30 minutes of activity can be accumulated in short bouts of activity: walking up the stairs instead of taking the elevator, walking instead of driving short distances, doing callisthenics, or pedalling a stationary cycle while watching television. Gardening, housework, raking leaves, dancing and playing actively with children can also contribute to the 30 minute-per-day total if performed at an intensity corresponding to brisk walking (Pate 1995:404).

Familiar components of the professional concept of physical activity, previously identified by considering published definitions, are also identifiable from the recommendation statements. The activities discussed are the 'everyday' activities such as domestic duties and taking a role within a family. The emphasis on energy expenditure is apparent and resembles Caspersen et al's (1985) definition, further qualified to a prescribed rate of expenditure as opposed to a sum total. More specific mention of the intensity is made elsewhere in the paper in the unit of measurement for activity known as the MET, or metabolic equivalent. The intensity of brisk walking is approximately three METs, and moderate activity is generally considered to be in the range of three to five METs (Armstrong et al. 2000). Accumulation has been introduced but so too has the concept of significance of an activity based on intensity and duration.

### 3.2.3 National Physical Activity Guidelines for Australians

Although strongly influenced by the CDC and ACSM statement, the National Guidelines (Commonwealth Department of Health and Aged Care 1999) are not an adoption of the American recommendation. The National Guidelines were developed by an expert consultative process involving members of the Australian health science and fitness community (Egger et al. 1999; Egger et al. 2001).

Egger et al. (2001) describe the impetus for the development of National Guidelines as being from the NHMRC strategic plan *Acting on Australia's Weight: A strategic plan for the prevention of overweight and obesity*. Certainly, the authors of that planning paper were appointed by the Department of Health and Family Services to develop National Physical Activity Guidelines for Australians (Egger et al. 1999). The drafting of the National Guidelines involved the consultant group circulating an initial set of draft Guidelines which were then discussed and modified over a two day

workshop of scientific physical activity experts, on day one, and health and physical activity field experts, on day two. The pre workshop draft of the Guidelines had in fact previously been proposed by Egger and Swinburn to NSW Health as part of the promotion against obesity (Egger et al. 1999; Egger et al. 2001). At that time NSW Health had conducted early consumer research groups and discovered that the concepts of accumulation and ‘incidental exercise’ were not well translated (Egger et al. 2001). These concepts were reworded in the draft presented by the consultant group to the workshop (Egger et al. 1999; Egger et al. 2001).

The workshop of experts made the concept of physical activity recommendations more complex. Suggestions were made that special guidelines be developed for children and Indigenous Australians (Egger et al. 1999; Egger et al. 2001). Further opinion emerged that women, the elderly and the chronically ill should be given special consideration (Egger et al. 1999; Egger et al. 2001). Initially, support existed for a special guideline statement for pregnant women regarding supervision of vigorous activity (Egger et al. 2001). Calls from the Indigenous community and other experts at the workshop for specialised guidelines were later rationalised as unnecessary because of the generic nature of the guidelines under development (Egger et al. 2001). Perhaps it seemed unsupportable to release National Guidelines for Australians which in essence were recommendations for young non-Indigenous male adults who did not suffer from a pre existing condition.

The development of the National Guidelines used a modified Delphi technique (Egger et al. 2001). In this complex quantitative methodology, structured questionnaires are circulated to experts and expert groups seeking consensus on a proposal (Linstone and Turoff 1975). Qualitative comments provided in earlier rounds are quantified and incorporated into feedback in later rounds (Egger et al. 1999). The National Guidelines used a modified process where three rounds of feedback were used to establish a further draft rather than the four rounds of the unmodified technique (Egger et al. 1999). The experts and expert groups involved were government departments, health and sport associations, health promotion units, and representative from the fitness industry (Egger et al. 2001). The reported response rate was over 50 per cent (Egger et al. 2001) but possibly not by much as the consultant group did not report the rate specifically.

Delphi is a controversial technique in that it is exposed to both researcher and subject bias (Snyder-Halpern et al. 2001). It is a technique that requires a consistently high response rate, assured anonymity of the respondents and rigorous application of the method (Snyder-Halpern et al. 2001). The modified method used to develop the Guidelines employed fewer than four rounds of feedback, a decision which is likely to have lowered the quality of the solution (Erffmeyer et al. 1986; Linstone and Turoff 1975). The Delphi technique is established on the concept of diminishing returns where progressively lower response rates are interpreted as acquiescence rather than apathy. The outcome of a Delphi process is a consensus opinion (Hanafin 2004; Linstone and Turoff 1975), so despite the scientific evidence used to support the draft recommendations, the final form of the National Guidelines of Physical Activity for Australians is the result of a social process. The concept of sufficient physical activity a socially constructed, not scientifically verified, phenomenon.

The media were used to publicise later draft Guidelines before a series of focus groups and intercept interviews were conducted to assess the public's ability to understand the recommendations (Egger et al. 1999). The public testing of the draft Guidelines was undertaken as consumer, not participant, research (Egger et al. 2001). The population sample was stratified by age gender and occupational status (Egger et al. 2001). There was an intentional skew towards persons who were inactive based on an assumption that the inactive are less informed about physical activity (Egger et al. 2001). Crombie et al's (2004) work with the elderly justifies the questioning of this assumption, however it is not uncommon for health promotion to be based on the assumption non compliance is an artefact of lack of information (Lorig 2001). The framing of the public as consumers of National Guidelines rather than stakeholders is an interesting one and would seem a little out dated (Wise and Signal 2000). In any case, the modifications suggested by the public vetting were minor and yet further vetted by the expert scientific panel. The outcome of this final professional vetting became the form of the National Guidelines recommended by the consultant group to the Commonwealth.

What emerges from this consideration of the CDC ACSM statement and development process for the National Guidelines is a view of the political importance within the profession of the concept of sufficient physical activity. The professional concept of sufficient physical activity is not solely based on scientific considerations but is also a significant element in the professional interactions of the profession.

Previously with respect to intention, it was argued that the profession's intention alters the meaning of an individual actor's behaviour. In the discussion presented above, it can be seen that in order to participate in the professional discussion, an individual must adopt the framework of physical activity or resist the force of an international professional movement. The concept of physical activity, and acceptance of the governance associated with it is currently, in effect, a professional requirement.

### **3.3 Surveillance Surveys**

Surveillance surveys are the final source of information to be considered for their contribution to the professional concept of sufficient physical activity. It can be seen from the discussion presented to this point, that theoretical definitions present a concept of physical activity that is embellished by the social and political processes of the profession recommending sufficient physical activity for health to a population. Surveillance surveys have different interpretations of sufficiency and measure different dimensions of physical activity between survey instruments (Australian Institute of Health and Welfare 2003; Shephard 2003, ABS 2005). In this final section, the professional concept of sufficiency of physical activity will be revealed through a discussion of the methods of surveillance surveys and the interpretation given to results which purport to represent the physical activity of the lay population.

The most challenging aspect of critiquing surveillance surveys is resisting the urge to rant in frustration about their inadequate conceptual basis and methods. Internationally, there is no agreement about what movement should be quantified in what manner under the name of 'physical activity' (Brown et al. 2004; Brown et al. 2004). Despite the desire expressed by Caspersen et al. (1985) that a common definition of physical activity could be established, diversity continues. Recently, an international effort to standardise the assessment of physical activity at the population level has been initiated but the measure developed, the International Physical Activity Questionnaire (IPAQ), is criticised for its inclusion of low intensity activity and corresponding propensity to produce high rates of sufficient participation (Brown et al. 2004). The preference for survey instrument seems to be related as much to the personnel involved in their creation as it does to any validation studies (Australian Institute of Health and Welfare 2006; Brown et al. 2004; Brown et al.

2004; Shephard 2003). The literature does not contain a debate on appropriate targets for population participation rates, although studies exist (Brown et al. 2000) that draw into question an idealised 100 per cent population participation goal. The concept of sufficiency in population terms is one without an established goal or rational target.

Ambiguity in the criteria used to define physical activity in population surveys permits interpretations of essentially different phenomena as physical activity (Australian Institute of Health and Welfare 2003, ABS 2005). Significant intentional physical activities are excluded from some surveys on the basis that they cannot be reliably quantified by self report survey methods (Shephard 2003). Some surveys require responses describing an idealised period of time- even a life time-, although these are not commonly applied in Australia (Brown et al. 2004; Brown and Bauman 2000; Shephard 2003). Common Australian surveys require the accurate recall of the activities of the previous week, or fortnight (Brown et al. 2004). Surveillance surveys use a variety of delivery and prompting devices (Shephard 2003). The inclusion and exclusion criteria, with regards to allowable activities, are rationalised based on non uniform assumptions and are dependent on the investigators' construction of what activities constitute physical activity (Brown and Bauman 2000).

### 3.3.1 Active Australia Surveys

The dominant representation of participation in sufficient physical activity for health in use in Australia today is drawn from the method of the Active Australia Surveys (Armstrong et al. 2000; Australian Institute of Health and Welfare 2003). The survey has been used nationally on four occasions. The first as part of the *Active Australia* campaign in 1997 (Bauman 1998), the second and third in 1999 and 2000 as part of the National Physical Activity Surveys (Australian Institute of Health and Welfare 2003; Bauman et al. 2001) and the fourth within the Australian Diabetes, Obesity and Lifestyle Study of 1999-2000 (Australian Institute of Health and Welfare 2003). In addition, this survey has been used in Queensland (Brown et al. 2004), South Australia and New South Wales for state-based evaluations (Australian Institute of Health and Welfare 2003). It is an influential source of information used to describe physical activity participation in Australia and is considered to be less constrained to leisure physical activity than surveys undertaken by the Australian Bureau of


Statistics in the Population Survey Monitors conducted in the period 1993 to 2000 (ABS 2007).

In the Active Australia Survey (Armstrong et al. 2000; Australian Institute of Health and Welfare 2003; Australian Institute of Health and Welfare 2006), respondents are asked nine questions to recall their participation in categories of activity from the previous week in terms of time and sessions. These are illustrated in Figure 3.1. Note there is no indication this is a leisure activity survey. Participants agree to participate in a national survey of “physical activity”.

Questions one and two require a response concerning walking for recreation, exercise or transport; as the annotations for interviewer show, participants are responding to a survey of physical activity not restricted to leisure activity and as such occupational walking would be rightly included in their response. Questions three and four require a response on vigorous gardening or yard work. Questions five to eight specifically exclude consideration of household chores (and gardening and yard work). Instructions to interviewers in the subtext include use of example activities such as jogging, cycling, aerobics, and competitive tennis to prompt recall of vigorous physical activity. Additional ‘prompt’ activities were included most of which might be considered ‘aspirational’ on the part of many people. These included high intensity sports and leisure activities such as cross country hiking through rough terrain, boxing, high impact aerobics and down hill skiing. Question seven and eight on moderate activity follows earlier recall of vigorous activity. The prompt activities for moderate intensity are gentle swimming, social tennis and golf. Question nine elicits responses on a scale of agreement to common statements about physical activity, health, and Active Australia policy initiatives.

## **Active Australia Survey**

Please see print copy for image



Please see print copy for image




Figure 3.1 Active Australia Survey (Australian Institute of Health and Welfare 2003)



For the purpose of understanding the physical activity of women, the Active Australia Survey is a severely limited instrument. This is due to inadequacies in method and concept:

#### 3.3.1.1 Method Inadequacies

The inadequacies of method in the Active Australia Survey, and especially its ability to describe the physical activity of women, are related to the wording of the instrument and the ambiguity of the method in sentinel reports (Armstrong et al. 2000; Australian Institute of Health and Welfare 2006). The Australian Institute of Health and Welfare (AIHW) published in 2003 a document titled *The Active Australia Survey: a guide and manual for implementation, analysis and reporting*. It details the nine questions which constitute the Active Australia Survey with an annotated version for interviewers.

On reading the survey instrument alone it seems gardening and yard work of a vigorous intensity are recorded in questions three and four and used in the calculation of time-and-sessions or time-only measures of sufficiency. It is a reasonable assumption that, as the respondents took the time to answer these questions, they would be used in the calculation; indeed it seems a matter of ethics to do so. One must read the complete AIHW implementation document (Australian Institute of Health and Welfare 2003) to understand that questions three and four are not included in the calculation of sufficient physical activity. Reference in the AIHW document professing an interest in “participation in walking, moderate activity, and vigorous activity” (2003:14) to calculate sufficiency fails to indicate that the vigorous activity reported separately as activity in the garden or yard, is not included.

From the perspective of a respondent to the Active Australia Survey, there is nothing intuitive about how their information will be interpreted. They are required to classify memories of activities into subgroups some of which are not used to represent their activity, some of which are weighted by a factor of two. Value is attributed to reported activities after the interview at a time where they are unable to communicate an informed description of their behaviour.

More troubling than this is recognition that the question schedule was not held constant. Validity of the Active Australia Survey is said to have been established by test retest reproducibility and the correspondence of the survey’s results to other

surveillance surveys (Brown and Bauman 2000). Across the four presentations of the Active Australia Survey there is inconsistency in the method with regards to the context of the questions used to calculate participation. This is despite statements made by Bauman et al. (2001):

The methods used in the 2000 physical activity survey are the same as those used in the earlier surveys in 1997 and 1999 (Bauman et al. 2001:1).

This is not a complete explanation of the evolution of the survey method. Each survey was conducted nested into a changing set of additional questions. Armstrong et al. (2000) states:

Unlike the 1997 survey, the 1999 survey did not include questions on the frequency and duration of participation in vigorous-intensity household and domestic chores and hours of television watching. (Armstrong et al. 2000:14)

The context of the participants' response has been changed. The 1997 question schedule has several questions which alter the reported recollection of time across the previous week. Participants are considering their behavior in a different series of categories as compared to the 1999 and 2000 surveys. This has an impact on the participants' opportunity to impose credibility checks. The length of a survey changes and this has a relationship to its reliability (Shephard 2003). From this perspective, the change in the method brings into question its reliability and ability to monitor trends over time.

When results from the Active Australia Surveys are cited it is common for reference to this variant of leisure time physical activity concept (one that is not exclusively leisure and not inclusive of all leisure as is further discussed in the following section) to be lost or abandoned for the more easily articulated term of 'physical activity' (Australian Institute of Health and Welfare 2006; Bauman et al. 2001). Any list of references to illustrate those committing this error would be incomplete; the practice is too wide spread. What is possible to note is that the publication reporting on trends of physical activity observed across the Active Australia Surveys of 1997, 1999 and 2000 (Bauman et al. 2001) does so without the mention of the word leisure in the text. In fact the word leisure appears only once in this report in the information at the bottom of Table 5 page 6. It is simply not possible to develop an indication of who uses Active Australia Survey data in a professional context cognisant of the 'leisure time' limitations on the concept of physical activity being described. The Bauman et al. (2001) report does little to establish clarity of the method as the report, instead of

a full description of the method, includes a reference to another document (Armstrong et al. 2000).

In writing the survey method or their evaluation of survey validity no one involved presupposes these surveillance surveys are reporting anything more than a dimension of total physical activity (Brown et al. 2004). The problem occurs when this understanding is lost on somewhat more removed consumers of the survey results such as health service planners and the wider health profession. These consumers go on to make statements about 'sufficiency of physical activity' without recognition that the statements are more correctly about 'sufficiency of the physical activity as assessed from the dimension of leisure not including gardening but including some non leisure continuous walking'. Where the results of surveillance surveys are reported without a full disclosure of the limitations of the method, assumptions are made that are not supportable. As a result women have come to be known as an insufficiently physically active group (Bauman et al. 2002).

These inadequacies undermine the validity of the Active Australia Survey in its use as a measure of population participation in physical activity. They also highlight the professional concept of sufficient physical activity is influenced by the method of the instruments used to assess participation.

### 3.3.1.2 Conceptual Inadequacies

Reliable estimation is considered paramount in the validity of surveillance surveys (Brown et al. 2004). Non leisure physical activities are found to be difficult to quantify accurately using a recall method (Washburn et al. 2000), consequently the Active Australia Survey (as with other surveillance surveys) creates a definition of physical activity that excludes certain activities from the computation of physical activity. It is clearly stated by the Australian Institute of Health and Welfare that the Active Australia Survey was:

designed to measure participation in leisure-time physical activity  
(Australian Institute of Health and Welfare 2003:1).

The Active Australia Survey is reportedly a leisure activity survey and yet its method permits non leisure activity to be included. The survey does not exclude occupational walking so long as the walking is continuous for a period of ten minutes at a moderate rate (Australian Institute of Health and Welfare 2003).

Not all leisure activities are included in the surveys either. The Active Australia Survey excludes from consideration physical activity described as 'yard work' which includes gardening. Baxter and Western (1998) report that married women in Australia undertake two point four hours of gardening each week. Bhatti and Church (2000) report findings from Britain, stating 67 per cent of persons claim to garden as a hobby, on at least a frequent basis. The yard is an environment which offers opportunities of vigorous activity. While excluding gardening, other non-gardening activity is weighted by a factor of two. The survey was constructed on an assumption of 1000 calories overload per week of physical activity would be sufficient for health. A person electing to perform vigorous activity in the form of gardening or yard work in the week prior to the survey rather than perform vigorous activities accepted in the calculation of sufficient physical activity, has incurred a double disadvantage from this method. The message seems clear; for recognition of vigorous activity, employ a gardener and take up a leisure time pursuit such as cross country skiing, hiking over rough terrain, or martial arts: there does not seem to be any questions raised about the measurable intensity of these environment dependent activities (Australian Institute of Health and Welfare 2003; Shephard 2003). The omission of recognition for the significant activity of gardening simply shifts the validity argument from internal to external considerations.

The exclusion of housework in the Active Australia Survey is of special interest to the study of sufficient physical activity in women, as women are more often responsible for the domestic aspects of daily life (Baxter and Western 1998; Cotrane 2000). An Australian survey conducted in the mid 1990s, the same era as the Active Australia Surveys, shows married women in Australia reported undertaking an average of 42.7 hours of housework each week as compared to 16.8 for married men (Baxter and Western 1998). Studies from the USA conducted a little later suggest a similar disparity with women reporting over 30 hours per week in domestic activity, three times the amount of men (Cotrane 2000). The exclusion of this category of activity in Active Australia Survey introduces a substantial gender disparity. In the Active Australia Surveys, conducted in 1997 1999 and 2000, the average married woman is discussing a variant of leisure activity that might have occurred in a week shorter by nearly 26 hours (Baxter and Western 1998) as compared to her husband's.

The decision to exclude physical activity in the house, garden and yard from the Active Australia Survey seems a curious one in the light of the public advertising

campaign running at the time the surveys were being implemented, described by Fullagar (2003:53). The campaign depicted the home complete with family members undertaking unstructured tasks under the caption “the gym”, evidently encouraging such activities and their inclusion in a more physically active lifestyle. At the same time, surveillance surveys were recording change in the population’s sufficient participation in a concept of physical activity that specifically excluded these tasks from consideration as physical activity for health. The health profession was promoting the concept of physical activity in its broadest interpretation, but continuing to conduct surveillance research in a different narrow concept.

The nature of work and leisure is also influenced by gender, where women’s work and leisure activities often prove difficult to distinguish (Davidson 1996) and most especially so in the domestic area. Sometimes this is pleasantly so, in the case of play with children, sometimes not so, in the case of holding a garage sale at the end of a long week at the office. The concept of a work/leisure continuum, rather than dichotomy, is thought to be more useful in the study of women’s leisure activities (Henderson et al. 2002; Lenskyj 1988). The survey of leisure time physical activity has limited validity in the context of women who may feel they take no true leisure time (Tudor-Locke et al. 2003). One of the great potentials in the adoption of a concept of physical activity by the health promotion profession ought to have been the acknowledgement of the physiological overload women encounter as part of domestic activity around the home. The Active Australia Survey design cannot provide recognition of this.

As a result of these conceptual limitations and exclusions, the profession’s concept of sufficient physical activity for health reflected in the results of the Active Australia Survey is a leisure activity concept. Unfortunately, the variant of physical activity that is measured is in fact leisure activity that is not entirely exclusive of non leisure and not entirely inclusive of all leisure.

### 3.3.2 National Health Surveys

An alternate surveillance survey of Australian physical activity is the National Health Survey collected in face to face interviews conducted in 1995, 2001 and 2004-05 (ABS 2005). The 2004-05 survey was conducted in over 19,500 households across Australia by staff trained by the Australian Bureau of Statistics (ABS 2005). The National Health Survey is designed to provide surveillance information on the

Australian National Health Priority areas and physical activity is of interest in its relationship to several disease states (ABS 2005). The National Health Survey is considered a secondary source of information as compared to the Active Australia Survey when reporting physical activity (Australian Institute of Health and Welfare 2006). The acceptance of the Active Australia Survey is related to its use of ten minute bouts in the calculation of sufficient physical activity, or the National Health Surveys' inability to reflect the framework of the National Guidelines (ABS 2005). The similarity in personnel steering the Active Australia Survey and acting in an expert capacity in the development of the National Guidelines is probably significant (Australian Institute of Health and Welfare 2003; Egger et al. 2001)

A summary of results for the 2004-05 National Health Survey notes that the survey collects information on exercise undertaken for sport, recreation (presumably including gardening) and fitness (ABS 2005 page 10). The report for the 2004 survey notes results are not necessarily indicative of physical activity as they obviously exclude activity associated with occupation (ABS 2005 page 10) and the three National Health Surveys show there has not been a significant change in the amount of exercise reported in the Australian adult population at large. In a return to the point demonstrating the profession's propensity to shift seamlessly through variants of physical activity, the Australian Institute of Health and Welfare uses the National Health Survey results to support this statement in Australia's Health 2006:

Data from the 1995, 2001, and 2004-2005 National Health Surveys (NHSs) also suggest little change in physical activity patterns, with the proportion of people aged 18 years or more reporting sedentary levels of physical activity (that is, less than 100 minutes of exercise over two weeks) remaining around 30-35% (ABS 2006d).

By their own admission, neither the Active Australia survey nor the National Health survey truly assesses physical activity, but rather a variant of leisure physical activity. Despite this, both are quoted as sources of information on the physical activity of adult Australians (Australian Institute of Health and Welfare 2006). This is the case even in the nation's premier report of health statistics, *Health Australia 2006* (Australian Institute of Health and Welfare 2006), even in sight of statements that describe the variants as methodological limitations. The professional concept of sufficient physical activity for health is permeated with this practice of considering the 'concrete' measures of variants of physical activity as a more 'abstract' concept of physical activity.

### 3.4 Chapter Summary

The professional concept of sufficient physical activity can be discussed by examining published definitions, public health statements and the methods of population surveillance surveys. While attempting to remain broadly inclusive, physical activity is in fact a concept that uses sufficiency to exclude some movement from recognition as physical activity. A professional governance of physical activity is established and through this, by proposing health intention as the predominant consideration of sufficient physical activity, the profession is then positioned to influence the conceptual as well as behavioural frameworks of the lay population.

Activities of daily life are transformed in the professional framework to ‘overload’ in a training style programme that changes the meaning of every day activities. Recent recommendations are dominated by cardiovascular interests and achieving a ‘dose’ of 1000 kilocalories per week. There are contradictions where sedentary persons may be sufficiently active to obtain cardiovascular training from activity not included as physical activity.

Physical activity recommendations are produced as outcomes of a professional process which attempts to produce a statement of sufficient physical activity. The language of the National Guidelines reflects the professional concepts. They construct a status quo position where the population consider physical activity as being an inconvenience and the promotion of incidental activity of low intensity or short duration as existing within a hierarchy of time and intensity. They recreate a professional concept of health that allows for the individual to obtain ‘more health’ especially from vigorous activity.

The CDC ACSM statement was the first public health statement to propose accumulation and moderate intensity and physical activity. The National Guidelines were strongly influenced by the CDC and ACSM but were the result of a Delphi style process. The concept is revealed as one which is expert driven and the adoption is important in the professional behaviours of the profession. The framing of the public as consumers of health statements also reveals the power relationships that are important in the concept of sufficient physical activity.

Surveillance surveys represent the applications of the professional concept of sufficient physical activity to the population. Their use of leisure variants of physical activity undermine their representation of participation particularly that of women.

The inadequacies of their method reveal a professional concept of sufficient physical activity that tolerates conceptual error and allows essentially different variables of physical activity to be described and applied in the discussion of physical activity. The seamless transition between variants of leisure physical activity reveals the existence of a more abstract concept of physical activity- one that allows these different variants to be describing one phenomenon.

A difficult situation arose when exercise science adopted the term 'physical activity', in an attempt to broaden the sources of allowable overload, it also entered into the activities of daily life. In doing so, it became involved in a conceptual area that crosses the work/leisure boundary. One of the consequences of that reconceptualisation is the introduction of a gender bias in the understanding of sufficient physical activity. The professional concept of physical activity has become a requirement in the interaction with other health professionals. The concept assists the health professional in establishing their position within the profession and is associated with the governance of meaning in the physical activity of the lay person.



## 4 EXPLORING LAY CONCEPTS OF SUFFICIENCY

To address the research questions posed for this study, there must be a comparison of professional and lay concepts of sufficient physical activity for health. The professional concept was identified through literature analysis and reported in the previous chapters. The lay concept has rarely been studied and it is necessary to conduct a qualitative exploration directly. This current chapter describes the method of the qualitative study that identifies a lay concept of sufficiency..

### 4.1 Paradigm and Methodology

Milburn (1996) describes the need for the reintroduction of culture into the consideration of health promotion theorising. Looking at elements of our professional culture contrasted to a lay perspective using qualitative techniques has the two fold benefit to understanding; firstly, an aspect of professional culture and, secondly, health from the lay perspective. Milburn (1996) describes this lay perspective as being more integrated with other culturally significant decisions and practices seemingly outside the narrow practice defined by a positivistic health promotion approach. This view of altering perspective on what is familiar to the health professional seemed appropriate in a study attempting to cast light on what is a paradox (from a professional perspective), apparent satisfaction with insufficient levels of physical activity.

There is a paucity of literature from the lay perspective discussing physical activity and little of it directly refers to the issue of sufficiency. Undertaking the design of a meaningful quantitative study of a world view not yet well recorded would be a seemingly impossible task. It is for this reason the decision to use qualitative methodology was able to be undertaken with speed and confidence. This is an early investigation in a relatively untested area. Indirect sources of data were considered for the lay perspective, such as electronic chat room postings and letters published in magazines and newspapers. None of these were deemed likely to provide enough reliable, unedited, candid reflection on a relatively obscure concept. A direct approach by interview was judged as necessary and desirable. A semi-structured individual interview approach was chosen. The individual interview, as a private interaction with the interviewer, was chosen to remove the influences of group

dynamics (Rice and Ezzy 1999). This was considered to best reflect the environment in which the individual undertakes decisions about physical activity for health.

In the investigation of views, perceptions, rationalisations and conceptual constructs, using a qualitative approach allows for expression in the language of the participants (Minichiello et al. 2003). A qualitative methodology had already been used successfully in a study conducted by Tudor-Locke et al. (2003) in discussing concepts around physical activity to indicate the influence of first language. Semi-structured questioning directed by a loosely scripted question schedule was also the method of choice in this study to minimise the imposition of interviewer constructs during the interview. This approach was thought to provide for the most useful dialogue to develop in order to prompt wide ranging discussion and allow the participants to develop a detailed impression of their world view (Rice and Ezzy 1999; Tudor-Locke et al. 2003).

The theoretical and conceptual framework were emergent in this study. In qualitative studies such as this, with an inductive basis, the conceptual framework can properly be established during the analysis phase in response to the themes developing in the data (Punch 2000; Seibold 2002). This is the approach that was employed in this study. That is not to claim that there were no pre-existing theoretical influences in the design or analysis of this work. The context of this study, being an examination of conceptual constraints from one's own professional training, requires acknowledgement that pre-existing, and variously recognised, influences exist. Two recognised influences seem important.

A feminist influence can be identified in the choice of topic, selection of participant group and significance of the study. The interests of women and representation of women as a group at risk (Brown et al. 2000) in physical activity were significant concerns underpinning the design of the investigation. Seibold (2002) describes the common principles of feminist investigations as being where women's experiences and vantage point are central to a critical and active effort to improve the lot of women (Seibold 2002:5). It is making a contribution to the scientific basis underpinning the promotion of women's health in an empowerment model that drives the action aspect of this line of enquiry.

Feminist writings on the construct of language were not accessed until late in the writing of this thesis. The idea that language both expresses and constructs meaning,

by shared learned symbols was an academic artefact of this researcher's early study in introductory sociology. The Linguistic Relativity hypothesis is described by Ian Robertson in his text *Sociology* (1981:73) as where "speakers of a particular language must necessarily interpret the world through the unique grammatical forms and categories their language supplies". Sapir (1929 cited in Robertson 1981:73) is quoted forcefully arguing that language creates different worlds not simply labels within the one. That meaning is contained within the facilities of language and that power could be exerted through linguistic concepts were assumptions that were integral to the design of this study. These assumptions profoundly underpinned the choice of a qualitative methodology to explore the experience of lay women. Later reading of Spender (1980) and Weatherall (1998) reinforced the importance of a feminist perspective in the study of concepts expressed by women.

The influence of critical theory on this orientation of this study must be acknowledged but not overstated. During the design and conduct of this study, reading of essays on critical theory were formative and especially the encouragement contained within them to question how human volition shapes outcome (Dant 2003:1). Dant's (2003) urging to argue against unquestioning adoption of social formations resonated with the desire to challenge learned ideas and shared, but possibly not clearly articulated, aspects of a professional knowledge. This encouragement was relevant in instigating investigation of the interplay between lay and professional concepts.

Critical theory as a body of work has its own traditions and approaches to issues of subjectivity, language and power relationships in social political structures and dominant ideologies (Joseph 2008). Contemplating work and non work Dant (2003) described the writting of a series of critical theorists, starting with Marx's distinction of work and labour, he then lays out a critical theory pathway through the work of Adorno and Korkheimer's discussion of leisure and amusement to Delphy and Smiths distinction of the internal and external motivations of an individual to undertake the non work of domestic labour ending in the communicative cultural intangibles of late modernity as discussed by Lazzarato or Hardt and Negri. This discussion prompted questioning of the symbolic meaning of professional vs lay concepts and the way they reflected work vs non work perspectives; this emerged in the line of argument taken in this thesis. It prompted questioning of the place of objectivity vs subjectivity

in classifying activity as being of benefit to health and therefore the viability of imposing a valid concept of sufficiency for health onto a population. It linked with and strengthened the meaning of the feminist arguments of dominance through language and culture to women's physical lives and the physical activities that characterise and give carriage to those lives. This work was not undertaken as a piece of critical theory but it was enriched by critical theory.

The perspective of health as a human right and especially the perspectives offered in the Ottawa Charter (WHO 1986) influence the basis of this thesis. Health is embedded in the human rights adopted and proclaimed by the General Assembly of the United Nations in the 1948 Universal Declaration of Human Rights under article 25, section 1, which states:

Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control. (United Nations 1948)

The Ottawa Charter for Health Promotion (WHO 1986) establishes the concept of health as one embedded in personal empowerment and equity:

“People cannot achieve their fullest health potential unless they are able to take control of those things which determine their health. (WHO 1986:1)”.

That charter defines health promotion action as comprising initiatives in public policy, environmental change, community action, personal skills development, and health services orientation, all change oriented and future focused. The more recent Bangkok charter (WHO 2005) pledges action to achieve the objectives of “Health for All” by developing the concept of health promotion in a global environment.

These charters act as a framework in which models of health promotion might be applied to achieve the desired health promotion outcomes. The models are not of themselves compliant with the higher ideals of health promotion envisaged under each charter. The practice of health promotion require careful planning and consideration to avoid transgressing the autonomy of the individual (Lindblad et al. 1998) and thus jeopardising core principle of the charters- empowerment and equity.

These charters articulate clearly the need for equity with respect to gender. The Ottawa Charter states:

“Moving into the Future...those involved should take as a guiding principle that, in each phase of planning, implementation and evaluation of health promotion activities, women and men should become equal partners. (WHO 1986:4)

This call for evaluation which addresses gender equity seemed important when embarking on a critique of physical activity- one of the dominant conceptual frameworks in health promotion. These four influences- health science training, feminism, critical theory and the social health agenda for physical activity- combined to suggest the importance of an investigation of alternate concepts held by the health profession and women around the promotion of physical activity.

## **4.2 Participants**

Recruitment was not a limiting issue in this study. Eleven women agreed to be interviewed; a further two were asked but felt unable to do so. Ethics approval had been given for 30 participants, however, a sample of this size proved unnecessary as saturation of themes occurred at an earlier stage. The final two interviews, were conducted several (six) weeks after the majority were completed, due to one woman's travel plans and a family wedding.

Volunteers were sought through adult leisure learning institutions in the Sutherland Shire, a local government area in the southern region of greater metropolitan Sydney, NSW, Australia. These institutions were chosen as they were not directly sporting or health/medical associations. This was felt to be important in order to allow a breadth of experience with physical activity to emerge. Approach was made initially by public address by the institution's course co-ordinator at the commencement of a lesson period. The interviewer then approached each table of 16 to 20 women to ask if anyone at the table was interested. Those women who indicated a willingness to hear more about the study were then approached by the interviewer individually and a time for interview established with those who agreed to participate. Volunteers were given an information sheet at this time containing a description of the study and relevant contact details for the interviewer (Appendix C). They provided their telephone number to the interviewer who contacted them to confirm the appointment prior to the interview.

In doing so, the sampling technique can be described as non-probability and purposive. Age, gender and first language criteria directed sampling. The population for the study was defined as Australian women who were currently aged 50 to 59

years and spoke English as a first language. The exclusion of women with a first language other than English was proposed based on the demonstration by Tudor-Locke et al. (2003) that first language influences conceptual responses to terms common in the discussion of physical activity.

Homogeneity of physical activity experience was considered an unachievable and undesirable goal as greater diversity was seen as valuable in establishing what might be a more general perspective. As a result, physical activity experience was not included in the criteria for selection. It was important, however, that none of the women who participated could be considered health promotion professionals. Working in the health sector was not an exclusion criterion per se, nor was an interest in health or exercise science from the position of an enthusiast. One participant was working as a hospital nurse but did not consider herself to be in a health promotion role. Other participants were members of gymnasias but did not profess to have a heightened state of knowledge about exercise science.

The sixth decade of life was chosen for this study as it is a time of biological and life role change in women. Menopause, which occurs at this time in the majority of women, is often associated with a re-examination of identity (Seibold 2002). Most women with children have passed through the intense period of childcare thought to limit participation in physical activity (Bauman et al. 2002). Other life transitions become topical, such as retirement planning and the onset of health concerns where disease and death become more common in age peers (Australian Bureau of Statistics 2002). There is the opportunity of a re-examination associated with the loss or decline of aging parents. In 1999-2001, a 50 year old woman could expect a further 34.1 years of life (Australian Bureau of Statistics 2002) and there is a suggestion that physical activity provides more benefit in terms of all cause mortality to women under 75 years of age (Gregg et al. 2003).

### **4.3 Research Procedures**

#### **4.3.1 Semi Structured Interview**

An issue-focussed semi-structured interview technique using an interview schedule was chosen for this study because it allows for the exploration of meanings and interpretations of peoples experiences in the subjective sense (Rice and Ezzy 1999). In this technique, a schedule of questions is used to assist the dialogue between interviewer and interviewee but without undue reverence to the order of the questions or their specific wording. Alternatives to the semi-structured interview have the potential to introduce a concept of 'one knowledge' and become an assessment of the completeness of the women's education/learning /training/knowing. This was felt to be inappropriate for the objectives of a study exploring the potential for conceptual diversity.

During the interview a relationship develops between interviewer and interviewee, although this is largely established non verbally on the part of the interviewer. The interviewer must create an open, accepting and interested environment to facilitate the development of the interviewees' reflections. This is done in such a manner as to avoid directing the interviewee to adopt a prescribed or predetermined point of view or reactive identity. The interview is a dialogue and it would be wrong to say that the interviewer was not influential in the interviewees' reflections. It is important that the interviewer approach the experience with an expectation of the unknown and the insightful. Semi-structured interview is a technique that requires some skill on the part of the interviewer for this reason.

Reading abounds on the technique of interviewing and some of this was accessed prior to conducting the interviews (Rice and Ezzy 1999). It should be said that the process of transcription, reflection, and critique after the experience of conducting preliminary interviews was more important in developing an understanding of the technique. A study diary was kept during the interview period for the purpose of reflecting on the skills of interviewing and developing and refining the question schedule in accordance with the experience.

#### 4.3.2 Interview Schedule

The interview schedule of questions was refined in light of the experience of initial interviews. Question prompts are used to encourage a comprehensive coverage of topics and to stimulate discussion in a preconceived means to avoid the imposition of unintended constructs from the interviewer. That being said, the form of the sentence the question is presented in, the context of the preceding discussion, and the pathway of the overall discussion, differ with each interview in response to the different relationship developing. The interviewer prompts and follows the lead of the interviewee and allows the interviewee to explore topics to their satisfaction. Handled in this way, the interview is a useful and meaningful experience for both parties (Liamputtong and Ezzy 2005). In order to achieve this level of refinement of the interview schedule, data analysis must be undertaken concurrently with data collection (Rice and Ezzy 1999).

A preliminary interview schedule for this study is attached in Appendix D. Within this study the women were asked to talk about their daily lives such that insights could be gleaned about their physical activity and health concepts in the context of their lives. The schedule was arranged to avoid directing talk narrowly on the women's concept of sufficient physical activity for health before they had adequately considered the broader view of physical activity in their daily lives. The interview was intentionally framed as a discussion of those women's lives foremost, and physical activity as an aspect within them. The assumption that physical activity for health is an important daily consideration of lay people limits previous research in this area in both qualitative and quantitative methodologies.

The participants were encouraged to describe their current daily activities, how they saw their lives in the future and also idealised descriptions for 'women in general'. This line of questioning was used to encourage the expression of generalised concepts around activity, broadening their considerations from the concrete. It was also important to ask the women to speak about their daily activities in order to enable work, leisure, intentional and consequential behaviours to be explored for their relationship to physical activity. The importance of this aspect emerged as the study progressed. This approach was very effective in providing the participants with the opportunity to translate their daily activities into a concept of physical activity for health and demonstrate how they subjectively evaluate that construct for sufficiency.



The transcripts of the interviews show topical, free-flowing, reflective comments from the women.

#### 4.3.3 Transcription

Qualitative data were collected in the form of written transcriptions produced from digital recordings of the interviews. Participants signed an informed consent form that gave permission for the recording. The equipment used was an Olympus Digital Voice Recorder 2200 with Olympus DSS Player Pro Release 3.3. Software (Olympus America Incorporated 2004). Personal information was collected for the purpose of contacting the participants and to comply with the conditions of the approval given by the University of Wollongong Human Ethics Committee. No quantitative information was collected. Age was determined from the transcripts or information offered by participants when volunteering for the study.

#### 4.3.4 Rigour

Qualitative studies use the concepts of truthfulness and rigour (Denzin and Lincoln 2005). Truthfulness requires the researcher to present the introspections of the participants without preconception, in the interests of representing the tone and intention of those who gave the interviews. Analysis introduces the researcher as an instrument of interpretation but one that captures the essence of the material generated within the interview (Liamputtong and Ezzy 2005).

Rigour in a qualitative study involves the thorough collection and consideration of all data. It requires a number of considerations in the method and conduct of the research. Adequate time in which to conduct the study is important; in this case, three years of part time study was allowed. A process must be employed to ensure quality observations. This included development of the craft of conducting an interview, use of field notes and drawing on the expertise of my supervisory team to make suggestions and indicate areas of need.

Attention to rigorous process was also given to the analysis stage. Careful consideration was given to all the data. Several strategies were used to ensure this. Firstly, the action of the researcher transcribing each of the interviews personally was invaluable in the process of understanding the intention and meaning of passages of

speech, the memory of which had been overwhelmed by the process of conducting the interview.

NVivo software Version 2.0 (QSR International Pty Ltd) was used to facilitate the mapping of the themes, although its contribution was limited to augmenting the more complete analysis of themes that had been conducted by manual means. A training course was undertaken in the NVivo software (The Research Farm, Bowral, NSW) shortly after the first two interviews were conducted to ensure skilful approach to the task of analysis using this tool. Concurrent data analysis and data collection contributed to the rigorous application of method. This was achieved through the ongoing review and improvement of the interview schedule as the project continued.

#### 4.3.5 Interview Process

The interviews were conducted in a location convenient to the premises of the leisure learning group. The venue was generally a library meeting room but on two occasions the participants chose an alternate venue, a local coffee shop on one and the tea room of the leisure learning group on another. For each of the interviews, the choice of venue was important as the women were the decision makers establishing, in even this small way, their centrality in the discussion. Even where the coffee shop proved full of distractions, the public venue calmed the uncertainty of the participant and the convivial environment seemed to provide a rationale for holding a discussion of thoughts and feelings.

The tea room of the leisure group provided a familiar environment, and the association with the leisure group was important for this participant. The library meeting room was located close to the local government building in which the learning group meets. The members associated these locations and their group meetings with the free exchange of detail and information about their lives and this enabled a very rapid rapport to develop between interviewer and the participants. I was welcomed into their space and it was clear from the detailed intimate nature of the discussion that these women were speaking reflectively.

#### 4.4 Ethical Considerations

Permission to conduct the study was granted by the Human Ethics committee of the University of Wollongong after submission of an application including, the written Informed Consent, Participant Information sheet, and study protocol. These are

included in Appendix C. Information sheets were given to all at the time they volunteered and again at the commencement of the interview. The materials alerted the participants to their ability to terminate their interview at any time and withdraw permission for the use of the transcript. The written informed consent forms were prepared in duplicate, one copy held by the participant, the other by the interviewer.

Study materials have been stored in duplicate in secure locations. Material that identifies the participants using their real names and details (informed consent material and code books) are stored separately to the data files and study materials which use pseudonyms as identification. Recordings in the interviewer's possession, transcripts (both printed and electronic), and study materials (including notes and study diary) are all kept in access protected electronic format with back up copies in a second secure location. Hard copy transcripts are kept with these backup files. The use of pseudonyms was adopted in the transcription to protect the identity of the participants. Written transcripts (both electronic and printed) were also edited to provide pseudonyms for the persons referred to in the interviews, often the children and family members of the participants. The code book is a file held electronically with the printed copies of the informed consent.

#### **4.5 Analysis of Data**

The choice of semi structured interview allows the women to share their stories in a way that can be arranged into themes to tell how they determine sufficient physical activity for health. The participants had related stories to explain their lives and these introspections had first to be seen as a narrative wisdom before being classified as theme and issue; the participants often constructed a tale with a moral and message they wanted to deliver. Thematic analysis was then used, considering the transcripts for their ability to identify indicators within the concept of sufficiency. The women may have expressed opposing opinions within an indicator, but this simply reinforced the indicator as being an important conceptual consideration.

Quotes are presented in the following results chapters as illustrations of the indicators or concepts of sufficiency expressed rather than simply for their literal content. Where a participant relates a story from their perspective, it can be heard on the literal level as a perspective and simultaneously understood as a reflection of a broader concept. When a participant speaks about her family's influence on her daily

activity she can be understood to have commented on her concept of sufficiency and its Alignment with Family Responsibilities rather than simply giving evidence on the literal level as to whether their influence is a barrier or promoter.

NVivo Version 2.0 was used to search the linguistic content of the transcripts and to compile indicator reports. The term physical activity was the focus of a linguistic search when it became evident, through reading of the transcripts as a whole, that its use was limited to occasions in the interview. The indicator reports were constructed in NVivo 2.0 with quotes classified under each identified indicator. This occurred after the indicators had been established by reading the transcripts and using a manual colour coding to identify themes. This process ensured the complete consideration of the data and the systematic interpretation of the indicators. The process of data analysis was established on a thorough initial understanding of the data set as a whole. Saturation of themes was said to have occurred when no further themes emerged after the addition of a further three interviews and the distinction between themes became clarified to the extent that all significant passages of discussion from interviews could be readily classified.

#### **4.6 Chapter Summary**

The method of the qualitative study, which had followed a literature based analysis of the National Guidelines, was described. The qualitative investigation used semi structured interview and thematic analysis to establish indicators of sufficient physical activity for health. Eleven women aged in their fifties from the southern region of Sydney, NSW, participated in interviews where they were asked to reflect on the actions of their daily lives and their concept of sufficient physical activity. Transcriptions were then analysed manually and with the assistance of NVivo.

## 5 RESULTS: INDICATORS OF SUFFICIENT PHYSICAL ACTIVITY

The results of the qualitative investigation did identify a lay concept of sufficient physical activity that was different to the process assessment articulated in the National Guidelines. This chapter identifies the women's use of a concept more closely related to 'exercise for health' over 'physical activity for health'. Theirs is a multifaceted, adaptive complex concept of sufficiency- it appears situation and person specific. It is here described in its eight indicative parts. This concept contrasts significantly with the calculative concept of sufficiency used by the health promotion profession.

### 5.1 The Women's Words

The 11 women in this study were invited to speak about physical activity, but they did not. They spoke largely about exercise for health. Even on the rare occasions when the term 'physical activity' was used, the discussion turned immediately to that which conforms to the definition of exercise- intentional activity to elicit an effect.

...I don't know that I consciously do physically active physical activity (sic) I [pausing] and its interesting that I do more physically active physical activity (sic) now than I ever did um I do more exercise, cycling, swimming and walking particularly...(with the dog). (Bernadette)

The women discussed walking or doing classes or laps in the pool or skiing or going to the gym or choosing a sport when they spoke specifically about physical activity. The only activities that one finds referred to in the transcripts as physical activity that may not be classified as exercise in the definitive sense were sex and reference to gardening. It should be noted here that gardening was discussed as a common activity in the descriptions of daily life by the women but was not mentioned in the more pointed discussion of physical activity as the interview developed.

In the transcripts, I used the term 'physical activity' 66 times across the 11 interviews, and the term 'physically active' a further 12 times. I have no distinct recollection or recorded evidence but it would be fair to assume, the terms were used further in the discussion surrounding the recorded conversations. The informed consent and participant information sheets use the term physical activity in the title of the project.

The women recognised that I used the term physical activity and on one occasion acknowledged that directly:

So, you know when you are asking about physical activity? (Bernadette)

Another time the term was used reflecting my language, like the response to an essay question where the term was a key word in the question:

My ideal physical activity [pausing], just walking, yoga, meditation.  
(Lynn)

And delivered on another occasion in this sense as a conclusion:

... So I would say that, yes, certainly my physical activity is decreasing.  
(Carroll)

For the purpose of this analysis I will continue to use the term ‘physical activity’ as it seems a point of methodological rigor to do so; I did not ask the women questions about their “exercise”; they interpreted my language and responded from their own conceptual framework, and I, in turn interpret their responses into mine. It is important to note while reading this discussion that this is the first indication that alternate conceptual frameworks are being employed.

A significant finding from this study is that lay women continue to use the term and concept of exercise for health despite being engaged in a conversation about physical activity for health.

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The women in this study spoke of their considerations in judging their own physical activity and that of other women. If the women who participated in this study had been employing the calculative rationality used in the National Guidelines to assess the sufficiency of their activity one could expect to have heard discussion of duration and intensity of overload. Further to this, one could have anticipated discussion of reducing risk of disease. It is true to say there is evidence of some of this in the transcripts, expressed in lay language. It does not, however, appear to be a principle means of assessing sufficiency of physical activity. The women did not tally the number of ten minute sessions spent each week involved in activity of various intensities.

The assessment of sufficient physical activity by the women used a complex adaptive process drawing on issues of identity, ability, physical utility, continued personal growth and enjoyment. Their responses can be categorised into eight indicators of sufficiency. These are:

1. Intrinsic Value Indicators
2. Individual Expression Indicators
3. Moral or Values Indicators
4. Alignment with Family Responsibilities
5. Physical Sense Indicators
  - a. General Sense
  - b. Embodied Sense
6. Body Weight Indicators
7. Ability Indicators
8. Therapeutic or Professional Advice Indicators

When considering these categories it was not possible to identify an indicator that aligned with the time and intensity indicators used in the National Guidelines and surveillance surveys. Although the women used reference on occasion to numerical measurement of their activity it was infrequent and usually an illustration of one of the other indicators. A woman commenting that she had walked ten kilometres each day for a period or another that her father ran 12 kilometres every day of his life, should not be taken out of context and interpreted as time or intensity indicators. The former comment was an expression of the intrinsic enjoyment of reaching a predetermined goal, the second, a celebration of a moral value. The limited reflection on time and intensity were reflections of Therapeutic or Professional Advice.

The eight indicators identified will be discussed in turn below.

Another significant finding of this study is that lay women use a complex and adaptive concept of sufficiency in physical activity for health which appears to have eight indicators and be different from the calculative concept proposed by the National Physical Activity Guidelines for Australians. Even the Therapeutic or Professional Advice Indicator is only in part related to the National Guidelines.

#### 5.1.1 Intrinsic Value Indicators

Enjoyment and meaning of the activity were used by the women to judge sufficiency. The Intrinsic Value Indicator manifested itself in comments about boredom with an activity, effecting a sense of escape from other responsibilities, gaining a sense of

accomplishment and doing things they liked to do (often around their home or neighbourhood). Their judgement of whether they were undertaking sufficient activity was influenced by whether they felt satisfied with their level of involvement for the intrinsic experience of the activity. The decision to undertake more or less activity related to whether they would enjoy doing more or gain more enjoyment if they were doing less.

The women were not hedonistic in their use of enjoyment as an indicator. The women also reflected across time and the cumulative intrinsic benefits of the activity to make a determination. The meaning of the activity was significant to their determination of sufficiency. This is an indication of the complex and adaptive nature of the women's concept of sufficiency in physical activity.

The women did not share a general agreement about what activities were thought to be enjoyable. Some women indicated walking was a favourite activity, relating the social benefits and those of appreciating the places in which they live. Still others felt intentional physical activity of this nature was a chore or a futile exercise. Some women claimed outdoor activity to be their preference, deriding the use of gymnasias; other women affirmed a great belief in community centre tai-chi classes and a General Practice based gymnasium referral scheme. There was evidence these preferences changed over time and circumstance. Irrespective of these preferences, there was universal agreement that an activity had to be enjoyable to confer a health benefit.

Enjoyable activity was described as being beneficial to health, but the women interviewed spoke against unenjoyable physical activity being of benefit. Jeanette voiced this most clearly in her discussion of delivering pamphlets for three hours a week in the course of her work as a real estate agent. She drew a distinction between this activity and her preferred activity of walking with friends ("We may not have the slimmest hips, but we have definitely got the slimmest lips"). She was not at that time walking with her friends and remained unwilling to consider herself currently sufficiently physically active even after it was suggested that perhaps others might believe that she was. She conceded that delivering pamphlets was "still exercise" but explained:

You don't really see things, all you're doing is looking for letterboxes and you are just shoving stuff in, it's not the same. You know, whereas if you are walking, it's pleasant. (Jeanette)



The women consistently describe the meaning of the activity as being important in the concept of sufficiency. They spoke of sufficient physical activity being a measure of satisfaction in the attainment of different ends, that is, its intrinsic value. Sufficient physical activity was achieved when the amount proved an effective means of psychological restoration, of socialising, of feeding a marital relationship, of self expression or of connecting to the neighbourhood in which they lived. The extent to which they were satisfied with the achievement of each of these effected their judgement of sufficient physical activity.

The next finding from this study is that lay women relate the meaning of their physical activity to its association to health. Further discussion of the meaning of activity to women's concept of sufficiency will be developed in the next chapter; this will further inform us about their perception of 'incidental' physical activity in health.

#### 5.1.2 Individual Expression Indicators

The women also expressed an indicator of their concept of sufficiency that was related to identity and the expression of individualism. Although not present in all interviews, there is evidence in most of the interviews that these women were involved in a period of re-evaluating self. Consequently, the discussion of physical activity was imbued with a sense that a higher order project was underway in these women's lives and that physical activity was not the significant consideration in this.

Physical activity was not unrelated to this process of self evaluation. This is an observation that, in some context, physical activity for these women was an expression of self investigation not a device used in the process. In this way, judging sufficient physical activity was as sensible as judging sufficient wearing of red or sufficient relocating of household or any other outward manifestation of the investigation of self.

In the course of the conversations, the women revealed the importance of physical activity as an expression of identity. There were reflections on challenging childhood images about being "sporty" or reminiscences about being someone who had "always danced". There were declarations of freedom from long held clothing and makeup restrictions related to body image concerns expressed around physical activity. There were frank revelations about past life experiences and the importance

of understanding these and their enduring effects. There was talk of dreams needing to be lived, opportunities taken, far away places seen and research of new knowledge to be conducted. And from these conversations it became clear that physical activity would be a result, but it was a consequence or requirement of living a life, not a goal within it. To these women, in this context, sufficient physical activity is indicated by its utility to give you the life you dream of, and is a reflection of fully living that life.

Illustrating this sense of self expression from just one story is difficult; I would like to use the words of a very reflective and intelligent woman who related her dabbling in yoga and active transport in this context:

...in the beginning I was scratching, really scratching but I decided to stick with my guns and paint and teach painting rather than go for doing something that I didn't want to do. So I've decided that now that I'm the age I am, because I've given up a lot of times, over my time of having children and being married and leading a routine. I started painting when I was young. I went to art school when I was sixteen and a half and thinking there is a hell of a lot that I actually haven't done or I stopped myself from doing. I did commercial art first and I didn't start really painting until about 1990 and then I sort of stopped and started there, but I really decided once I'd done my fine art degree, I'm not going to stop again. I'm going to continue on and see because otherwise... (Pauline)

Otherwise! At some level, consideration of sufficient physical activity does not seem to size up against the 'otherwise' in these women's stories.

### 5.1.3 Moral or Values Indicators

There is evidence to suggest that the concept of sufficient physical activity is associated with a code of morality or value system. Several of the women made reference to particular physical activities as expressions of moral behaviour by themselves or others. I have mentioned above the reference by one of the women to her father's lifelong habit of taking a daily 12 kilometre run as being a good thing.

Another woman spoke of the morality of her own judgement and behaviour:

Never have I driven my kids to school. Ever. And I think it is a very bad thing actually, because it makes them into drivers for their kids. (Bernadette)

This comment becomes even more identifiable as a moral statement of sufficiency when taken in context; she elsewhere identifies herself as a person who holds a deep concern for environmental issues.

In more general terms, Lynn expands on this way of knowing sufficiency. She suggests the individual decisions of people, based on their own concept of good, determine their own concept of sufficiency of physical activity.

I think it's an individual thing really. You'll get some people that will take notice of (guidelines)... and some people won't. I think that you know in general what's good for you and what's not. You know what I mean? (Lynn)

Taking the experience of listening to 11 women speak about their lives, about the decisions they make in them, about how they spend their time, as a whole body of work, it is possible to know what she means. In some sense, the complexity of these decisions suits itself to being handled by a moral or value system presided over by a cognitive and emotional being. A frequency and intensity statement just is not adequate for the task.

#### 5.1.4 Aligns with Social and Family Responsibilities

Sufficient physical activity was related to its impact on social and family responsibilities for each of these women. They made it quite clear that sufficient physical activity levels were determined by their impact on time and energy available to the central roles in their lives. This was not limited only to where the women had contact with parents or children or grandchildren; it was also true for several single women with distant adult children referring to the social networks from which they drew support.

Alice described the priority of physical activity to her:

So I just figure that I'm there for them (the late adolescence children) and if I went and did something a little more structured exercise-wise it would come out of my sleeping day...this (craft course) is my relaxation, This is my enjoyment. This is my fun. I don't drink, I don't smoke, I don't go out to dinner. This is my social life,... apart from you know P & C and school meetings and stuff. (Alice)

Bernadette describes how even on a micro level, the engagement of husband and children in other activities determines when enough is enough. For others the sense of responsibility is extended to the dog where children are not around. Carroll and Alice are referent to the dog's needs and preferences when discussing their own sense of sufficiency.

The women listed priority activities, often those they had enjoyed and valued sharing with their mothers. These included craft, baking and sharing books. Sufficient physical activity then comes within the time remaining.

#### 5.1.5 Physical Sense Indicators

The women spoke about knowing sufficient physical activity by a physical sense. Their comments indicate two related concepts of physical sense. The first is a general sense related to wellness or lethargy. The second could be a sense of harm or amelioration related to a specific body part, what might be called an embodied sense.

##### 1. General Physical Sense

The expression of a general sense is related to wellness, lethargy or fatigue. The general sense could be an alternate way of saying the women experience a knowing related to the sufficiency or otherwise of their physical activity- irrespective of whether they would be judged so by others. Maxine explains the relationship between these factors of the general physical sense indicator:

If you feel like you want to sit around all the time then I guess you're not doing enough, but if you're doing enough that you're motivated to keep going, I guess you're doing enough. (Maxine)

In doing so Maxine expresses a common theme of knowing what sufficient physical activity is by how you feel within yourself. Others expressed this in terms of knowing sufficient physical activity by a general sense of tiredness, by feeling 'healthy', and by 'listening to your body'.

Identity is an important consideration here. Narelle explained to me how she knew she was healthy as simply because she did not feel sick. Recovering from joint replacement surgery, and admitting to overweight and hypertension, did not prevent Narelle from holding an identity of herself as a healthy woman. She openly scoffed at the idea of following medical advice to loose weight when she felt so healthy. She had undertaken a physical training program prior to her joint replacement surgery but had desisted when the temperature of the indoor pool she attended had been let fall too low for a period of time.

One of the common themes in this indicator was that of 'emotional' tiredness. The women all spoke of an emotional capacity for living. Lola was recovering from a period of breakdown and described the need to temper plans and keep boundaries. Other women commented on having to meter their physical activity to cope with all

their other activities. These comments show a strategic rejection of moderate intensity activity and warrant consideration of how women maintain physical labour and multi tasking over prolonged periods.

## 2. Embodied Physical Sense

The other physical sense expressed by the women comes from comments related to the physical sensations associated with specific areas of their physical self. The women spoke about sufficient physical activity being that required to be of benefit to their embodied self. Often this was part of a conscious therapeutic intervention aimed at reducing physical pain or limitation associated with specific activities or their experience of aging.

But I've got to keep myself going so I just say I'll look for whatever I need to do that helps keeps me going. (Lynn)

This was related to activity undertaken in the spirit of self help for a physical symptom, often as yoga or range of movement activities. The other sources of an embodied physical sense indicator were exhaustion and muscle soreness associated with unaccustomed activity.

### 5.1.6 Body Weight Indicators

Comments about body weight were indications that women had a very strong association between the weight and the sufficiency of physical activity. Reference was made by several of the women to tracking their weight over their lifetime. The women related information about body weight from their teenage years, the period immediately after children, and as they aged.

The connection between body weight and sufficiency of physical activity was literal and direct. In discussing sufficient physical activity reference to weight was common:

As you can see I am not tall and thin. (Narelle)

I've maintained my weight the same weight as when I was a young 15 year old and now I am 52 because my weight has only fluctuated a couple of kilos up or a couple of kilos down I suppose I think to my self "Oh well I'm OK I'm not over weight. Do I really need to go to the gym and walk on the treadmill for an hour. So I suppose I choose to eat sensibly and drink sensibly and maintain my body weight. (Carroll)

Body weight, and to a lesser extent physical sense indicators, were the kind of outcome indicators of sufficiency that I had been anticipating prior to conducting the study. The surprising aspect of their discovery was that they, again, were not the predominant determinant. The lay woman's concept of sufficient physical activity is not a one-dimensional phenomenon.

#### 5.1.7 Ability Indicators

Ability indicators were one of the more easily communicated concepts of sufficient physical activity, often involving the words 'huff and puff' or the expression of ability related to a particular action. Related to the concepts of physical sense, these indicators are drawn from the women's awareness of their physiological response to physical activity. The women spoke in some instances of pride in new found abilities but the concept was also expressed in relating stories of discomfort around participation in activity they were unaccustomed to.

This concept was related in terms of the experience of breathlessness in response to activity:

I used to go bush walking and abseiling and things when I was in my early fifties and I find that I'd get out of fitness more quickly and maybe the walking that I do every morning, even though it's easily regularly, isn't enough because when I challenge myself to do more distance walking or walk up a hill or carrying some painting gear or something... I'm walking and thought 'I feel really worn out'. Recovery time was a bit more than it normally was. Even though I've been doing a bit of exercise it is still not enough to let me overcome that extra that I was doing. (Pauline)

and muscle soreness after activity:

I used to ski. I haven't skied for three years, if I was to go skiing tomorrow I would certainly know about it. But then I imagine most people would feel that way too even at the age of 20, 30 or 50. (Carroll)

It was also reflected in comments around a desire to be able to continue to function in their activities of daily life into the future. The women spoke of a recognition that sufficient activity is a judgement taken under consideration of circumstances of age, pain or disability:

You would keep finding it hard to get off the chair and if you're finding it hard to do things or to walk well you have to do more of that or else it will jam up on you...Like I said we go fishing, well we sit on the jetty and dangle your legs. Well you've got to get up from sitting there. How are you going to get up? You're not going to be able to get up, my mum couldn't if I took my mum there she wouldn't be able to get up off the

floor but she's 85, I'll give her that. But I'm saying if you were young and in your fifties or whatever and you were sitting on the floor and you couldn't get up there's something wrong isn't there...This is if you're not in pain and this is if you're not disabled I'm talking about. Because I had a (family member) that couldn't do things but that was because he was disabled. (Lola)

This indicator also demonstrates the rejection of universal recommendations of sufficiency demonstrated by these women and their propensity to personalise and modify those recommendations in their application.

#### 5.1.8 Therapeutic or Professional Advice Indicators

The last of the indicators to be discussed is a way of knowing sufficient physical activity that is in part calculative and also related to the medical model of health. The women were aware of my health studies interests from the information sheet and consent form they had been given and signed before the interview. Some of them made comments that demonstrated they had assumed I had a background or personal interest in physical training. In light of this, I was surprised by the limited mention of professional advice.

The women spoke about the advice they had received from doctors, trainers at the gymnasium and weight control companies. They related various recommendations that were variations on frequency and duration messages, not intensity:

I think if you do about half an hour or three quarters of an hour of a day or if you don't do it everyday at least three times a week, try and put in three quarters of an hour to an hour. (Victoria)

sometimes expressed with a caveat that they were not reasonable:

All those things my doctor keeps telling me.... But that I don't take any notice of. (Narelle)

and had been personalised or addressed with another of the previously discussed indicators:

because I've thought about getting one of those little pedometers but I haven't bothered. I think I do enough for what I'm happy with. I probably could do more like go for a walk but I know that I don't sit down much during the day and I know that I'm up and down the stairs a lot and stuff like that. So I'm guessing. (Alice)

The evidence of tampering with the calculative rationality of therapeutic or professional recommendations reinforces the complex nature of the lay concept of sufficient physical activity. If the lay concept was as simple as the expert concept, it might be possible to translate the current National Guidelines into the language or

conceptual framework that might more closely resemble theirs. The conversations with these women are evidence that National Guidelines are only a part of the information and process that informs their concept of sufficiency.

## **5.2 Overview of the Indicators**

The complexity of the relationships between the indicators is central to understanding the way these women conceptualise sufficiency. The women in this study were often participating in physical activity, or not, based on the immediate opportunities and circumstances in their lives. The concept of risk was understood and minimised. To illustrate this I present the comment of a 52 year old allied health professional to demonstrate a combination of Intrinsic Enjoyment, Alignment with Social and Family Responsibilities, General Physical Sense, and Body Weight Indicators with Therapeutic or Professional Advice Indicators.

During the course of our interview this burdened but determined woman, emphasised she was aware of the consequences of her lifestyle in terms of its immediate impact on her weight and the heightened sense of risk due to a family history of osteoporosis. Her main preoccupation presently was raising three teenagers in the wake of a marriage separation 12 months earlier. During the interview she identified, with some irritation, that a pedometer would be an appropriate tool to calculate her activity but immediately followed this with a very forceful statement of her intent not to employ one.

I just figure that what I get is probably not sufficient for my age and weight and the fact that I have very severe history of osteoporosis but I guess I'll deal with that when the time comes and it is more important that at the moment that I do what I do.

(Alice)

The indicators of sufficiency expressed by the women in this study are more closely related to their moral judgement of what is important in their lives than to a numerical compliance to duration, frequency, and intensity.



### 5.3 Chapter Summary

The concept of sufficient physical activity is expressed in terms of ‘exercise for health’ and in eight indicators. These are:

1. Intrinsic Value Indicators
2. Individual Expression Indicators
3. Moral or Values Indicators
4. Alignment with Family Responsibilities
5. Physical Sense Indicators
  - c. General Sense
  - d. Embodied Sense
6. Body Weight Indicators
7. Ability Indicators
8. Therapeutic or Professional Advice Indicators

Consideration of sufficient physical activity from the perspective of lay women in their fifties is a complex, multifaceted adaptive process. The calculative rationality of the National Guidelines forms a part of this concept, but one which could be described as being insignificant and tampered with.

## 6 RESULTS: MEANINGFUL PHYSICAL ACTIVITY FOR HEALTH

In the previous chapter, the significance of the intrinsic value of an activity was discussed as an indicator of sufficiency. In this current chapter, this idea is further developed describing the women's use of activity in therapeutic self care. Evidence is presented of the importance the women placed on the meaning of an activity in its relationship to health. Their perspective draws into question the strategy of promoting 'incidental' physical activity by emphasising incidental occupational and domestic chores, as opposed to the promotion of physical activity women enjoy and identify as related to health. Finally, evidence from the data set is presented which indicates potential in further investigation of this relationship between meaning and health, using a unit of analysis other than the individual.

### 6.1 The Women's Words

Two related themes emerged from the interviews by the women. The first theme was their application of certain activity as a therapeutic intervention. The second theme was that the meaning of an activity is important in determining its relationship to health. The association the women created between these two themes suggests a rationale for their adoption of a concept of 'exercise for health' and rejection of a concept of 'physical activity'- the concept that encompasses and is inclusive of domestic, occupational, and incidental activity. It also explains their rejection of a time oriented concept of sufficiency.

#### 6.1.1 Therapeutic Use in Self Care

The women employ various physical activities in their own self care with regard to the use of physical activity as a therapeutic intervention. Victoria discusses her participation in Tai Chi and the primary health gymnasium referral program:

The Tai Chi I have been doing...I just find it so amazing for my mind and body. I even sometimes find if I'm at home and get a bit rushed and carried on for some reason or another, I'll just go outside and just do a Tai Chi meditation, even if it's only for three minutes and that just calms me down, it's just great. But the gym, I need exercise and I need motivation...I had fibromyalgia syndrome some years ago and I find if I don't keep moving my body I get really bad muscular pain so I feel that's just probably a bit of it still...(Victoria)

Yoga and tai chi were mentioned by a number of the women in this role of active meditation and muscular pain relief.

The women spoke of using resistance training to improve ability, mobility and bone density. They spoke of using it after surgery, injury and in the experience of pain and discomfort. Even those who were not currently undertaking resistance exercise made mention of the potential benefits of it with regard to their personal circumstances. In her early fifties, Carroll was contemplating change:

I realise that I will indeed have to start doing something like yoga or Pilates or some weight bearing exercises to strengthen my body because at the moment I realise I am very weak and unable, even at my age. I am finding that I can't unscrew the jar off the pasta sauce or just recently, when building a new deck, just picking up a couple of planks of decking (was difficult). I'm weak, weak as a kitten because my job, being in administration, all I ever do is lift up a pen or use a computer. So I am not really used to lifting any weight or bearing any weight and I realised that unless I start doing some weight bearing exercises that I imagine I will be at high risk of broken hip or broken bones. (Carroll)

They discuss the use of expert opinion as a tool:

...before I try anything I prefer to get a little bit of information from the experts so that I don't do any kind of damage to myself... That's one of the ways I go about things. I'd like to do a bit of weight lifting. Only a little bit but I would have to get the information from an expert to see how that would suit me and how I would approach it. So I won't do it until I get that information... I think it's silly to throw yourself into things before you know anything and if your body can cope with it. Not entirely, there are some things (that don't need further information)... like walking's ok and Yogalates or Yoga but anything different (needs information) like weight lifting. (Lynn)

This tool is one of their choosing, as expert advice, medical advice especially, is described as an opinion they seek in adopting new exercise behaviours:

Tuesdays I go to the gym in the morning with a friend. We decided between us that we'd do a five week thing that the Sutherland Shire GP's have. It was ten lessons for about \$50 or something so we decided we'd do that and we liked it so we rejoined the gym and we've now rejoined a second time. (Victoria)

Medical opinion can just as easily be disregarded when not sought:

I know I do have to get back into it. And I know I have got to loose weight, all those things my doctor keeps telling me.... But that I don't take any notice of. (Narelle)

There was evidence of strong opposition to medical review of activity and evidence of strong support for medical involvement at the behest of the woman.

The women's discussion of weight control usually refers to walking. The women undertook walking for other reasons related to social and family roles. Walking with friends, spouse, or dog was discussed in terms of personal health but also in the role of the women adopted as carer for other.

When I walk with this one friend who is overweight... we don't get as far as I do if I am by myself. Because she (does not) walk fast. And if I am going for a walk, I like to really walk. (Jeanette)

#### 6.1.2 Meaning Relates Activity to Health

The women also related stories that indicated quite clearly that some physical activities, even quite strenuous ones were not considered to be valuable for health. Jeanette worked as she delivered pamphlets and felt comfortable identifying herself as not currently sufficiently physically active. When this description was challenged, she explained it was not pleasant and so was not good for her health.

...you don't really see things all you're doing is looking for letterboxes and you are just shoving stuff in it's not the same... whereas if you are walking ...its pleasant.... I mean I love walking around looking at everybody's gardens and things like that but when you're on a... when you've got so many flyers to put in and you know you've got to get them done you're not sort of .... You're not smelling the roses... But no it wasn't a pleasure. But getting up of a morning and you wear your daggies and you're walking across the bridge, or something like that, is entirely different. It's not a job then. (Jeanette)

Physical activity is a form of pleasure, enjoyment and socialising for the women. They reject physical activity as being of benefit to health when it is associated with work. When the women related descriptions of moderate intensity tasks in the course of their day, hanging out washing or child care duties, they were discussing the onerous nature of their work, not its health benefits.

They related health to the need for time away from their responsibilities:

... If I do another ten minutes like your type of activity, like go for a walk or something, I don't think I've got time. I really don't think I've got, because, because, doing that, to me, doing that physical acti...that ten minutes or that 30 minutes of physical activity, isn't self time for me. Self time for me...is... doing decoupage. Or um sitting down at the sewing machine and making cushion covers. So I want that ten minutes. I want that 30 minutes for me (emphasis on the meee). (Bernadette)

Not all of the women saw physical activity as an intrusion on time for themselves.

(Since joining the gymnasium) I feel good about myself. It has made a huge difference and I'm doing it for myself. I'm doing it for me no one else. (Victoria)

It was generally accepted that women needed to make more of this time for self:

Being on my own I've got more time perhaps than a woman of my age who is still having a family at home or a husband or something. But I still think that most women don't make the time to do an outside activity or a lot don't. (Pauline)

Self time was thought to be interrupted if their spouse or family were present. The concept of boundaries, outside interests, and self determination in this time were critical. These points of discussion were frank and clear statements made by all the women in relation to their circumstances. The language of partitioning is clear and evident when the women discuss their lives and the activities in them.

In the previous chapter it was shown how the women spoke of sufficient physical activity being a measure of satisfaction in the attainment of different ends. The use of an activity's intrinsic value, its outcome assessment, or its success in achieving satisfaction of a need, are all evidence of the task orientation the women held.

The judgment of the meaning of an activity was made around whether it proved an effective means of fulfilling a psychological, familial, marital, social, or community responsibility. The extent to which they were satisfied with the achievement of each of these effected their judgement of the activity's relationship to their own health. Some activities were strenuous but not considered for their value as a physical overload: for these women it is the meaning of an activity that relates it to health.

### 6.1.3 Incidental Activity

There is evidence that their perception of incidental physical activity in health is a learned, or reactive, one, reflecting the women's knowledge of a professional concept of sufficient physical activity.

One participant made direct reference to incidental physical activity. It is likely the casual position she holds in administration with an international weight loss organisation has sensitised her to the language and concept.

Because I go to (international weight loss organisation) and they talk a lot about incidental exercise as well, so I make sure I do a lot of incidental exercise. (Maxine)

The transcripts reflect the influence of expert promotion of incidental activity in another way. After noting this comment and its relationship to expert influence I returned to study my own influence on the women's discussion of incidental exercise. It was evident in all circumstances. Most telling, on an occasion where the National Guidelines reference to moderate cumulative periodic activity was being describing in this way:

*You can accumulate the moderate in ten minute sessions, for example ten minutes of vacuuming in the morning or ten minutes of walking the dog around the block quickly as long as it all adds up to 30 minutes a day. (Interviewer: Self)*

This was immediately rebuffed with:

Personally I don't know that that is relaxing exercise... I know that my friend and neighbour, who is quite a house proud person, spends a lot of time vacuuming and cleaning her house and washing because she has a family of five to cater for, but she never would go just for a walk as a fitness exercise. I don't know how fit she is because I don't think it's relaxing. (Pauline)

Consistently, inclusion of incidental activity around the house was in response to disclosure of the National Guidelines:

*What do you think of them (the National Guidelines) for yourself and for women in general? (Interviewer: Self)*

For for me as an individual, I would say that living in a two storey house and probably up and down the stairs quite a bit... just things like vacuuming the house upstairs and down, dusting, cleaning windows, cleaning the shower, I would say probably the 30 minutes a day in ten minute stints... I'd say I would probably meet that requirement. (Carroll)

In this instance the language of 'requirement' is telling. The women resisted incidental activity conceptually, even when they appeared to acquiesce initially.

*Would you consider yourself to be physically active under that definition? Do you think that your day would have ... most days would have three lots of ten minutes? You know gardening vacuuming that kind of thing. (Interviewer: Self)*

Oh well probably. Probably. Mmm but I am still not fit, still would huff and puff if I've got to walk up a hill. (Narelle)

This study indicates women will consent to consider their activity in terms of the cumulative requirements of the National Guidelines while holding a view that incidental physical activity is not necessarily providing a health benefit. Their view of health giving activity does not conform to the professional concept of sufficient physical activity for health but they are capable of comprehending and applying it. Lay women understand the calculative rationalities of the expert concept of sufficient physical activity but they do not employ them exclusively or primarily when

reflecting on the physical activity of their own lives. Calculative rationalities can be understood as that practice of assessing the body objectively, from a position of mind-body opposition, such as measuring, weighing and comparing (Fullagar 2003:56). This is another significant finding of this study.

A concept of exercise for health presents to these women protected time- 'self time', in lives that are not easily partitioned into leisure and occupational physical activity. In these lives, that they describe as dominated by domestic and occupational activities, they use a concept of exercise and not physical activity. Their objective is not related to gaining acknowledgement for accumulating overload in the occupational aspects of the actions of their lives. It is more closely related to a view of health as opportunity to rest, recuperate, and take pleasure in their lives.

#### 6.1.4 Evidence Suggests New Directions

These results lead on to the final exploration of this data set and the entree into a more theoretically refined future study. This data set is small and the study was not designed to identify any specific line of enquiry, however, it was always meant to be an exploration of the possible direction future projects might take to understand women's activity for health. This data set provides a glimpse through a portal into a view of health promotion that is less restrained by the individual unit of analysis used in the medical model and more firmly footed in intersectorial and participant perspectives of health.

The physical activity described by the women in this study was meaningful most often because it was a reflection of their social connections. The meaning of their activity derived from its relationship to nurture and sustain 'self' often with a view to supporting 'other'. The relationship of women to their community and their family is one which is unique and more deserving of purpose designed investigation than the scale of this project allowed. However; even within the constraints of this study, significant insights were identified with respect to the consideration of women's activity as it relates to creating and maintaining place and affecting the health of themselves and others.

In the discussion of their activities the women's comments suggest an alternative to the traditional approach of biomedical health science which uses the individual as the unit of analysis. When the women in this study spoke of their physical activities, they

were often revealing information about a health at the family level unit of analysis or even the neighbourhood level. This is an emerging level of consideration (Cohen et al. 2006) that has the potential to illuminate health science consideration of the significance of meaning in physical activity for health, relating place, health, and physical activity in a way not previously discussed. It is an approach which is likely to identify the value that women's activity adds to these higher levels and more complex units of analysis.

At the level of the neighbourhood, the women speak about the how their activities are to the benefit of others in the community. The example quoted previously of walking at a level less than beneficial to the individual to encourage a friend is a simple example of activity needing wider consideration for its impact at the level of the community. Another simple example, because of the direct form of the relationship between the parties, is evident in discussion of walking to school with the dog, recognising the effect it has on establishing a connection to a local child deemed to be at risk socially because of his decaying family situation. Another canine example relates to taking over dog walking chores in order to allow an adult child time to study and develop a first-love relationship.

Another direct example is of a slightly different kind because the activity would not traditionally be considered at the individual level as being physical activity. It is the rather sedentary activity associated with acting as a volunteer or steering committee member, providing the infrastructure for the conduct of events such as fun runs and Tai chi classes attended by others in the community. These are the direct effects where actor- or 'agent'- and their physical activity provide a direct benefit to 'immediate other'.

There are other more complex and indirect examples of why a neighbourhood unit of analysis may be more appropriate for the study of women's activity. These emanate from the flow on benefits to health of 'community others', those not directly created by the agent but as a consequence of the 'agent's' physical activity. In this circumstance 'immediate others' are enabled to contribute to the health of 'community other' because of the activity initiated by the agent. Some of these benefits cannot be observed by increases in physical activity of the 'immediate other' or 'community other', some may. This needs the women's words to explain less concisely but more clearly.



The women garden. They discuss a relationship with their garden that is intimate and essential:

I garden. I garden.... doing my garden is actually clearing the bush. I've got a great big lot of bush at the back and we have only just moved here not long. And so I get down there with the dog and I am just stuffing, stuffing green bins all the time and I could do that for the rest of my life because it's a vast amount of area down the back which is lovely... it's not ours and so I am doing it for somebody else but that doesn't matter. At least when I am doing it I am enjoying it. I'm not down there going, "(grunts of resentment) I don't want to be doing this." I am actually down there thinking "Oh (expression of wonder) this is just magic" because the air is beautiful the birds are there... (Bernadette)

They share memories of putting in gardens with their mothers, debating the movement of plants with their husbands, feeling torn between a distant home with a tenant tendered garden and their current pot plants around a rented home. They related stories of working in vegetable patches until muscles are stiff and sore, sharing gardening with grandchildren, and as a persistent subtext, enjoying walking the neighborhood looking at the gardens of others. These are warm and intimate disclosures about the places they live and the people they share them with.

The actions of these gardeners create the places of these neighborhood strollers; but there is evidence of a further indirect effect. This other effect can be identified most clearly in the words of Alice who articulates the importance of the relationship to neighborhood; she speaks about her decision to remain in the family home after divorce:

Everyone says to me well I guess you'll be leaving now and I go "No, I'm staying. This is the kid's home." In a couple of years time things might be different but at the moment I'm not pulling them out of school and I'm not changing a thing. They've had enough disruptions, so we're staying...I now wave to about probably six or seven different groups of women as I'm driving home from work in the morning; all out for their walk. See the kids have all gone to school early... they get up and walk, wave at the various people and they'd all wave back because they walk at the same time as I'm coming home from work. (Alice)

The gardener tends a garden. The gardens attract the walkers. The walkers give the worker a wave, and the worker wants to stay in this place called "home". Humans are social animals and the effects of their physical activities are not limited by the boundaries of their physical body.

When the actions of women are considered at an individual-level unit of analysis, their gardening can only be recognised for its health effect on themselves as the

‘agent’, the direct physiological effects of the activity. No framework exists to acknowledge the additional health benefits of their actions on the ‘immediate others’ in their direct social contact (the walkers), no value can be added for the interpersonal aspects of health and the opportunities presented by the infrastructural support created by the ‘agent’ to the benefit of ‘community others’.

Nor indeed does a framework exist to acknowledge the indirect impact on individuals in the wider community with whom the initial ‘agent’ or the ‘immediate others’ interact *indirectly*. The indirect benefits to the “community others” occur when those individuals interact with the products of the ‘agent’ or ‘immediate others’ and in doing so draw a further health benefit. Those benefits might be observing a wave that means ‘home’ or the sense that a neighbourhood is ‘safe’ to walk in. A community level unit of analysis can therefore allow the physical activity or inactivity of an ‘agent’ to become a health benefit in ‘others’ within the community. It depends on the meaning of the activity, not its intensity, duration, or frequency.

With one exception, the women in this study did not profess to be sufficiently physically active. They did, however, note their role in child minding that allowed adult children, grandchildren and spouses to be active. They spoke about volunteer work in local charity fun runs. They spoke of joining overweight friends on under exerting walks. They spoke of their role in establishing life long networks from dance classes, making new networks through learning bowls. They spoke of their work in council run bush care programs. They spoke of tending house for friends and family. And they spoke about their gardens. The health benefits of the physical activity, and sometimes inactivity, of these women could only be fully recognised in a community level unit of analysis.

Whereas the sense of safety might translate into measurable physical activity in someone within the community, the wave will not. It is for this reason that the variables that measure health benefit of physical activity need to be broader than the physiological variables of exercise science. This ‘glimpse through the portal’ from exercise science to social science reveals a way to study physical activity that allows the exploration of the meaning of women’s activity and its impact on health at a level of analysis other than the individual.. This is the kind of study of sufficient physical activity for health that better reflects developments in health promotion as a cross sectorial profession, moving towards a more sophisticated theoretical framework as

compared to its beginnings in positivistic biomedical science or simple health education. This framework might allow persons who are equally inactive but participating in different communities to have different health outcomes. Further discussion of this occurs in the following chapter.

## **6.2 Chapter Summary**

The final results chapter described two themes and the association between them. These themes were physical activity as a therapeutic intervention and that the meaning of an activity is important in determining its relationship to health. The association between these themes provided insights into incidental activity and the choice of an 'exercise for health' concept which impacts on the lay concept of sufficient physical activity. Further evidence which suggests directions for future study of physical activity using a unit of analysis other than the individual level were identified and those directions described.

## 7 DISCUSSION

The problem this thesis addresses is one of recognising the conceptual parameters that surround the determination of sufficient physical activity for health, in order to make comment on the National Physical Activity Guidelines for Australians. To do this it was necessary to describe a professional concept of sufficient physical activity and establish the existence of a lay concept. This required identifying from the literature the professional concepts of physical activity and sufficient physical activity, discussing these within the context of their development and application. It also required the conduct of a qualitative study to identify the form of a lay concept.

The following discussion will address four issues in order to answer the research questions:

1. What are the concepts of sufficiency in physical activity for health from the lay perspective of women in their fifties?
2. How do their perceptions compare to the recommendations expressed in the National Physical Activity Guidelines for Australians?

The first research question is addressed by issues one to three. Issue one is the comparison between the lay and professional concepts of sufficiency in physical activity establishing that the concepts are quite different. This is done by conceiving what might have been expected in the interviews if the concepts of sufficiency had been the same. The second issue of discussion concerns the importance of language and addresses the study findings on the use of 'exercise' and 'physical activity' in lay and professional concepts of sufficiency. This is argued from the position of the inherent limitations of the surveillance survey method and the problems they introduce into physical activity as a professional concept. The third issue is a discussion of the sufficiency indicators from the lay women's perspective identified in this work. They are reviewed with reference to views of health and existing models of health promotion.

The fourth issue addresses the second research question concerning the National Guidelines directly. It relates to the importance of the women's association of meaning in physical activity for health especially as associated with the gendered

effects rising out of the work/leisure dichotomy. Finally, the discussion concludes with a description of the possible direction of future theoretical investigation, especially that using an alternate unit of analysis; studying the physical activity of the social group rather than the individual.

## **What are the concepts of sufficiency in physical activity for health from the lay perspective of women in their fifties?**

### **7.1 A Tension Between Perspectives**

To commence the discussion of this comparison of concepts, it is useful to reflect on what *could* have been expected in the data set had the women in this study used a concept of sufficiency that closely resembled the professional one reflected in the National Guidelines. The contrast employs a slightly tongue-in-cheek tone, in order to highlight the discrepancy between the professional concept and activities common in women's lives. The following factors are proposed:

- 1.) **Discussion of minutes of exertion.** For example, discussion of whether walking eight minutes to school, to stand around chatting with neighbours and listening to the principal's morning notices in the play ground before walking five minutes home (now unhindered by the slow progress of children heading to school), constituted 13 minutes of physical activity or none at all.
- 2.) **Discussion of the appropriateness of physical activities to be included regarding intensity.** This might have been discussion of whether climbing a step ladder over the course of a day at work, accessing archived files for an audit, would be considered moderate activity or vigorous, as it certainly felt vigorous at the time but perhaps that is only because it was an unaccustomed activity and it had been a hard week all around.
- 3.) **Discussion of the nature of the activity as to whether it constituted an activity in the house, garden, or yard.** Perhaps this might have been discussion of whether climbing a six foot fence, to retrieve from next door a ball the youngest has just thrown too high for you, is included as garden or yard work. Or discussion that attempted to discern whether volunteering to clear the bush on property adjacent to one's own was gardening, or house or yard work, when it undoubtedly was not a garden, and could not technically be called your house or yard either. The issue of receiving payment in kind

from the local government nursery and whether that meant it could still be considered as leisure, not paid employment, could be taking an imagined scenario too far.

4.) **A willingness to discuss the long-term benefits of incorporating a set amount of activity into their day with respect to reduction of disease.**

There is no need to imagine here as to some extent there is evidence of this in the transcripts, except that the amount of activity does not seem to be set and there is the practical difficulty in finding such small reference in a data set rich with other ideas.

5.) **They would speak about frequency, intensity, duration and type of activity, but especially the amount of activity over the week, and the number of sessions.** This discussion could well have taken the form of weighing up the benefit of getting an appalling parking spot at Westfield day in day out for the whole of the week during the busy pre Christmas period and the relative benefits of searching out this parking spot down hill from the centre so that the 'down-hill-but-loaded' section of the trip might still contribute to the calculation of vigorous activity.

6.) **They would consider physical activity in the 'dose' like manner that the professional would use to discuss it.** Perhaps this might have been identifiable in the discussion of activities they get an opportunity to do when they are not undertaking excluded activities such as child/grandchild minding, walking to work in heels while avoiding a sweaty blouse, making home, engaging in community and social networks, and keeping the garden tidy. As the waking hours of a woman's week are reduced by these exclusions, firstly, there may have been very little to say and, secondly, the mention of 'dose' may have lead the conversation on to uncomfortable discussion of alternate pharmaceutical means of coping with such a life.

Even without the only partially tongue-in-cheek illustrations, this is not what was found. It is true to say, with persistence, it is possible to identify several of those six aspects in the description of the activities of the women's lives, but they are not the dominant conceptual indicators which emerge from the transcripts. There is reflection on time, intensity, nature of activity and the long term benefits to health of physical activity, but they are scattered references in a wider framework of meaning.

There is certainly no reference to sessions or dose. From that, it can be concluded that the women understand the calculative rationalities of the expert perspective but equally clear is the conclusion that calculative thinking along these lines is not the basis of how these women construct and relate their lives when asked to reflect on the topic of sufficient physical activity.

The conversations in this study occurred in contrived circumstances. Each of the participants knew they were engaging in an interview with a physical activity professional. The participant information sheet and informed consent made knowledge of this unavoidable and yet each of the participants spent the majority of the interview talking freely about alternate ways of considering their activity. They spoke of its meaning, its utility and the sense of enjoyment, or otherwise, that it gave them. They did not dwell on the question of whether they were undertaking sufficient physical activity. They spoke about what influences their decision; an indication that these women were not thinking within their framework, they were thinking about their framework. It is the fact that the professional concept of physical activity is so insignificant to their stories that makes it deserving of the mocking illustrations above. The serious side to this discussion is how might these positions become reconciled?

MacDougall (2003) also noted in his study of physical activity, the disparity between the risk management rationale of the professional (expert) perspective and that of lay women regarding the importance they placed on their immediate experience. The women described health as a “means not an ends” (MacDougall 2003:390) to physical activity. They rejected the assertions of the health promotion profession that health is an end point. In much the same sense, the participants in the study reported in this thesis described a broadly satisfying life in the same terms. The rejection of the calculative risk factor approach and adoption of a perspective focussed on the immediate ramification of action has been seen in other circumstances. O’Brien Cousins (2000) discusses the risk assessment that older women make of activity, but it is an immediate risk of harm not a calculated risk of harm over time. This view of activity is more in keeping with the intrinsic and embodied concepts expressed by women in this study.

## **7.2 The Importance of Language**

### **7.2.1 Physical Activity or Exercise**

The first findings of this study showed a conceptual confusion with regards to the use of the terms physical activity to describe variants of physical activity in the professional literature. This exists simultaneously with the change of focus in the profession from exercise recommendations to physical activity. It should be clear, but is not, that the adoption of physical activity recommendations is not simply substitution of the term physical activity for exercise. Caspersen et al. (1985:2) expresses quite forcefully that the two are not synonymous. Exercise is “physical activity that is planned, structured, repetitive and purposive in the sense that improvement or maintenance of one or more components of physical fitness is an objective” (Caspersen et al. 1985:2). It is the planned, partitioned, and purposive aspect that means ‘exercise for health’ conforms to the women’s activities of ‘self time’. The profession has chosen to work in a different conceptual framework- the one of physical activity. The significance and impact of this choice will be demonstrated over the course of this discussion.

Interest in the concept of physical activity over exercise entered the health promotion domain with the 1995 joint CDC ACSM statement in the USA (Pate 1995). From this point, health promotion left recommendations of intentional activity- exercise- and moved into the broader consideration of work and leisure physical activity. In doing so the conceptualisation of sufficiency became exponentially more complex and, the evidence suggests, problematic. Language is important; concepts and language are essentially inseparable.

The professional rationale for the adoption of ‘physical activity’ over ‘exercise’, as the principle health concept for promotion, justifies the choice based on physical activity being able to give recognition of activities thought to be significant contributors to caloric expenditure within daily lives (Blair and Connelly 1996). Without information to the contrary, it is easily imagined that people who profess to lead busy, time-poor lives (Sherwood and Jeffery 2000), would be keen to garner credit for the manual elements of those lives. This is justified in terms of evidence that suggests stability or increase in voluntary activities but decline in activities of



daily living such as active transport, leisure and incidental movement (Brownson et al. 2005). What this rationale does not address is the reality of the lay population who live in a technologically rich environment, within a built landscape, in a variety of social contexts. The women of this study reject the language and concept of physical activity because health, for them, is associated with keeping meaning in the actions of their daily lives and preserving some time for themselves.

The limitations of information on population participation in physical activity have been noted in the literature analysis contained in the early chapters of this thesis. This analysis offers the truly disturbing insight of the perpetuation of the notion that a reasonable estimate of the Australian population's physical activity exists. This is evident in the application of those figures in reports, such as *Health Australia 2006* (Australian Institute of Health and Welfare 2006), and needs analyses, that it would appear have no better measure to source from. Even the research team for Active Australia Surveys were critical of their methods (Armstrong et al. 2000) but no further improvement has been made to our method of estimating population participation in Australia and repeating a survey with such limitations in method is not warranted either. The limitations of this survey are tied to the linguistic and conceptual distinctions that must be drawn when using population surveys of physical activity. This is a distinction that is not necessary when surveying exercise or using biomedical measures of overload, but is necessary when asking individuals to report on the activity of their daily lives.

Other work has reflected on the conceptual shift from exercise to physical activity. Conn discusses the differences between beliefs expressed by women participating in two studies: the first study (Conn 1995 cited in Conn 1998) investigated 'exercise' the second (Conn 1998) 'physical activity'. In comparing the results of these studies, one finding thought to be significant is that women speaking about physical activity showed a greater propensity to discuss their social lives than women speaking about exercise. The discussion of 'exercise' had revealed a preponderance on the pressures of their limited time (Conn 1998). The observation in Conn's study (1998) is in line with what has proven to be significant in this current study. Women using the concept of exercise for health perceive it as being a limited partition of time and the consideration of physical activity, and therefore its sufficiency, must occur in the wider social context of their lives.

The Conn study (1998) was a serendipitous exploration of the change in language. The synonymous use of physical activity and variants of physical activity is such a common occurrence in the literature and more so in the experience of receiving health advice, that it represents a substantial investigation in its own right and is of too large a scope to undertake in this thesis. Physical activity is a terminology championed over 'exercise' to the point of social correctness. Some illustration, however, is necessary for the development of this next argument. Yet there must be tolerances as linguistic and conceptual overlaps occur.

Even within the experience of conducting the qualitative investigation in this study, tolerance of conceptual overlap was necessary. The women in this study did not use the term physical activity in the general discussion of their lives. The special circumstances of its use have been described in the results section above and are limited to mirroring or reacting to the language of the interviewer. The decision to continue to discuss physical activity was one taken as a point of maintaining a rigorous methodology. Without undermining the whole argument about linguistic and conceptual clarity, it must be said that achieving it is not a simple thing. Concepts are by their very nature overlapping. This study was not in the privileged position of Conn to make a comparison between outcomes had the questions been phrased about the women's 'exercise for health'. In this thesis every attempt has been taken to indicate and differentiate by language between these concepts.

It is the level of tolerance that is shown in the literature at large, and the lack of awareness of the impact of its too liberal application, that can be problematic. In Krenichyn's (2004) study of women's use of an urban park, the discussion was typical of one that moves between 'physical activity' and 'exercise'. It is hard to determine what physical activities the women were discussing that could not be most accurately described as exercise; all those reported shared the same sense of intention in their nature. In the context of this piece of work, exercise is a valid and substantial subset of physical activity undertaken in the park by the fairly homogenous participant group; it is tolerable that the two terms are used interchangeably.

The practice of tolerating the use of the term physical activity to mean a variant of physical activity is less acceptable in studies where comparisons are made between groups demonstrated to have different work/leisure patterns. Differences exist in racial groups (Rohm Young et al. 1998), those experiencing different seasonal

conditions (Uitenbroek 1993), gender groups (Talbot et al. 2003), mental health (Salmon et al. 2003), and child care responsibilities (Cody and Lee 1999); almost as many groups exist as factors that might describe them and alter work/leisure profiles. The problem also exists in the National Guidelines (especially where their recommendations determine the choice of surveillance method) which are addressed to all Australians, recommending the adoption of the concept of physical activity and alterations in the perception and meaning of activities of daily life. In this circumstance, tolerance is much less acceptable and shortly it will be argued this change in meaning runs contrary to the interests of women.

The biological sciences, the original knowledge domain of the study of human movement, do not experience this problem of linguistic definition. Where the objective is to quantify caloric expenditure of activity, the meaning of the activity or the language used to describe it not really important; theirs is the language of “functional loads” and “muscular activity” (Astrand and Rodahl 1977). These issues only rise where the physiology must leave the laboratory and be applied to lives and health. Currently our consideration of physical activity for health is no more complex than seeking to include, in a definitive way, various activities of daily living into an intellectual framework of training and exercise. The National Guidelines profess an attitude shift but it exists only within the familiar framework of exercise overload. The process of National Guideline development being expert driven, and evidence based, extends the conceptual influence of the positivistic core of literature and limits consideration of these guidelines from a lay perspective. The study of physical activity in health promotion is hampered by the synonymous use of the terms physical activity and its variants.

### **7.3 Indicators of Sufficiency**

#### **7.3.1 Lay Indicators of Sufficient Physical Activity**

The eight indicators which emerged from this study have been discussed in the main part as they were described. These are complex and adaptive indicators which are not likely to be useful to the investigator looking to design an alternative positivistic surveillance survey. They are non the less significant considerations in the lives of lay persons making a determination about their physical activity. As such they are more likely to be of use to that aspect of the health promotion profession seeking to

facilitate behavioural change, especially within participant action and empowerment models.

These indicators are unlikely to change the conceptual framework of the surveillance surveys, but this thesis has argued that an improved method of surveillance is essential to the further understanding of physical activity in our society and the efficacy of the measures the profession takes to facilitate this. Without feedback the profession is lost, without understanding the meaning of physical activity from the lay perspective the profession will not travel far enough to become so. These indicators show the language of the older lay woman, one of the groups the profession seeks to influence.

The indicators are significant for their contribution to understanding the meaning of physical activity in the context of older women's lives. The importance of associating meaning to physical activity reorientates the professional's focus on physical activity. The goal no longer presents itself as how to put more physical activity into life, but how to put more meaningful physical activity into life. This is a word of caution for the promoter of the bad car space under the guise of active transport- attaching a meaning to an activity is not the same thing. The indicators the women discussed in this study are so central to their lives that they can already be shown to outweigh the significance of the existing sources of Therapeutic and Professional advice.

The importance of guidelines in the process of behaviour change would appear to be overstated. For the women in this study, National Guidelines form one small part of one of the eight indicators used to judge sufficiency in physical activity. In their sixth decade of life, the women in this study have lived through a formative period in health promotion and managed to maintain a perspective only slightly influenced by its conceptual framework.

### 7.3.2 View of Health

Different views of health are associated with conceptual differences of sufficient physical activity. MacDougall used focus groups to study the ordinary theories of Australian women with low physical ability aged 40 to 54. He describes them as displaying a "reservoir" theory of health, one that represents the body having a finite capacity for activity that it is possible to "overdo" and overexert. He (MacDougall

2003) argues this runs counter to the message of the National Guidelines which suggest a hierarchy that promotes physical activity being for prevention and rehabilitation in a “more is better” manner. Reservoir theory is a view of health that runs counter to a sense of growth and regeneration, to overload and physiological overcompensation, one that encourages a view of the body as being in either steady decline or requiring rest and recharge (MacDougall 2003). MacDougall describes the theory as being potentially:

...incompatible with a theory involving words such as ‘sufficient’ and ‘adequate’ physical activity.:393

A similar view of health is evident in this study where the women acknowledge the possibility of over exertion and accept decline as a reality. However, the women of this study directly contradict MacDougall’s argument by discussing their use of ‘exercise for health’ as prevention and rehabilitation. Listening to the body is a significant factor in the embodied sense of their concept of sufficiency of physical activity, as it was also significant to MacDougall’s group (MacDougall 2003). The difference in the view of health drawn from these studies may be related to the narrower focus MacDougall took in his interviews, asking directly about physical activity rather than the broader decisions of daily life, or the population group of younger but physically limited women and their different experience of decline. Health, as expressed by the women of this current study, is not an aspirational goal achieved at the end of a program of reducing risk of disease. It is intimately connected with living a meaningful life full of realisation of personal goals.

#### **7.4 Models of Health Promotion**

Conn (1998) notes the women in her study did not construct participation as a risk management strategy for avoiding disease. There is not a world view in which fear of disease will motivate individuals to action. One must question, in a professional health promotion environment, whether the removal of barriers and its consequent effect on promoters, is likely to result in increased activity and decreased disease. Dissatisfaction with the course of one’s daily life would seem a necessary precursor to motivation towards greater participation in physical activity in a disease avoidance world view. As demonstrated by both Crombie (Crombie et al. 2004) and O’Neill and Reid (1991), older people show an irritating satisfaction, from a professional perspective, with the level of physical activity they undertake.

Most models of health behaviour change have recognition of the need to change as their first element. In light of Schutzer and Grave's (2004) observations concerning self efficacy and the propensity of already active persons to adhere to physical activity programs, perhaps the women in this study have provided insight into the alternative constructs that are more significant to them rather than fear of a disease. Through this the behavioural change models might be directed at behaviour to a more valid end from the perspective of a lay population. The overwhelming positive regard for physical activity problematises people who do not comply with the expert concept of undertaking sufficient physical activity. The women of this study have indicated other aspects of their consideration of sufficiency that might be appealed to in a more positive and empowering way. Development of self, strengthening of social bonds, enjoyment and even a moral or spiritual element might provide meaning and a rationale for participation.

Zeibland et al. (2002) make a common recommendation from their study of weight change in middle age suggesting, as people are aware of the relationship to cardiovascular health of diet and physical activity, perhaps promotion based on "the less widely known health risks such as diabetes and cancer" may be more motivating. The study in this thesis would suggest that changing the disease will have very little to do with the conceptualisation of a physically active life. The women of this study discussed physical activity as it relates to living their current life and rarely contemplated preventive strategies as they relate to disease. Risk management and harm minimisation pall into insignificance in the discussions of the women of this study. The women spoke of risk factors for several chronic and debilitating diseases in a nonplussed manner. They were not motivated by fear of the progression of disease. This study shows women to be aware of their weight outcome. Perhaps a better strategy might be to encourage women to establish a healthy weight early in life and then maintain it within limits across the whole of their life; that is the aspect they speak of, not prevention of cardiovascular disease. This is the real challenge of participation models of physical activity promotion, the acceptance of a different end-point of satisfaction, even more so that that end point may be a metered decision across several adaptive measures.

With only knowledge of the process measures of the National Guidelines at the commencement of this study, it might have been expected that a simple outcome measure, or class of outcome measures, would be found as a measure of sufficiency

used by the women as an alternative to ‘time by intensity’. The National Guidelines do not discuss immediate experience of physical activity, in fact the first National Guideline comments how one must stop thinking on activity as an inconvenience (if you did not before, you will need to now). Very little of our promotion of physical activity discusses the immediate experience of physical activity. Health science is more likely to report the long term physiological, especially cardiovascular, effect of participation. The hierarchical presentation of the National Guidelines is a format which stresses physical activity is a delayed gratification and that ‘extra health’ benefits have to be earned by regular participation in vigorous activity. Delayed gratification is what the women of this study want ‘self time’ to escape. They judge their participation in an activity during this time on its intrinsic value.

Associated with this, the concept of ten minute bouts of exercise did not find favour with the women.

Well I wouldn’t like it. Because I think just doing something for ten minutes you know... that to me is ...wasting time. I would much rather do it in a big lot. (Jeanette)

This is most likely to be related to the use of physical activity for leisure, enjoyment, and social connectivity, but also to the task focus that women have been demonstrated to display (Lenskyj 1988).

## **How do their perceptions compare to the recommendations expressed in the National Physical Activity Guidelines for Australians?**

### **7.5 Association and Disassociation of Meaning**

#### **7.5.1 Partitioning**

This study has referred to an article published by Caspersen et al. (1985) of definitions around exercise science. It is a sentinel paper in this respect, as it appears to be the (often unreferenced) source of many later adoptions and adaptations of the definition of physical activity, including that used in the National Guidelines. In the Caspersen et al. paper (1985:127) it is stated:

Physical activity is complex behaviour, however, and may be meaningfully partitioned into other categories mutually exclusive of each other...

This notion of creating meaningful partitions needs further examination in light of the recounts given by the women of this study. This partitioning may be achievable to the bio scientist looking to isolate actions in a life, but this approach is designed to create categorical partitions, not meaningful ones. Caspersen et al. (1985:127) go on to say:

Examples (of the mutually exclusive categories) might be to divide all physical activities into those that are of light, moderate, or heavy intensity; those that are wilful or compulsory; or those that are weekday or weekend activities. All of these are acceptable ways of subdividing physical activity. The only requirement is that the subdivisions be mutually exclusive and that they sum to the total caloric expenditure due to physical activity.

The interviews with these women share lives that are not easily subdivided into mutually exclusive categories. They employ strategies that alter the intensity of their work to allow the completion of other higher priority work, especially in the presence of progressing physical limitations. Their weekends and weekdays are not discrete; they speak of preparing a hot lunch for shift working husbands while the children are at school, simultaneously contemplating the upcoming Saturday and Sunday as ‘soccer mum’ while he is working the day shift.

Their domestic leadership role often makes compulsory seemingly wilful tasks, like walking the family dog, or wilful seemingly compulsory tasks, like maintaining the area around a house. An identical task can have both interpretations; women can wilfully assist their adult children, perhaps by doing their laundry (one example from the transcripts) while doing their own laundry is a compulsory task. Or a task might have different interpretations by different women; in another example from the transcripts, one woman might consider the care of a grandchild a part of their compulsory activities, while another woman might consider theirs a wilful activity.

The women in this study did not understand their lives in discrete and mutually exclusive categories that could be summed calorically. The partitions created by them were meaningful with regards to ‘other’ and ‘self time’, or work and pleasure. The term “busy” seems to relate to how many tasks they are addressing simultaneously rather than serially.

My husband goes to work and gets the money but he doesn’t do any of the thinking stuff, I have to do all the thinking stuff. (Maxine)

There was a constant subtext in the descriptions of their days, a monitoring of their actions, the financial impact, the developmental impact on their children, the impact



on their spousal relationships, the impact on the global environment, the urban space and members of local community in which they lived, and so on.

I always seem to be busy but yet it's hard, when you put it into words it doesn't seem like I do much. But I am always doing things; I am not sitting watching TV. Never have the TV on until my husband comes home. He turns it on. And then I have got a mother who I... not look after... but I have got to keep an eye on her so I see her a couple of times a week. Basically it, I mean I am going all the time. (Narelle)

These women deal with the complexity of their lives by using an adaptive conceptual framework that avoids the necessity to compartmentalise their actions. There is one exception. They compartmentalise a concept of 'self time'. In a 'busy' life the women rely on a complex and adaptive concept of sufficiency of physical activity. When they choose to use a concept of exercise for health it may be related to the difficulty in communicating that complexity. The opportunity exists for a professional concept to devise a measure that avoids the partitioning of activity. The reality is the health promotion profession has not yet done this.

Self reported population surveys of physical activity are not able to overcome the dilemma of partitioning action. Where the health promotion profession seeks to quantify the caloric expenditure of activity it needs to do so using means that do not rely on creating these partitions. Direct measurement is an expensive (Shephard 2003; Starling et al. 2001), resource dense (Starling et al. 2001) option, but there is a belief that physical inactivity is costly and killing members of our society (Stephenson et al. 2000), particularly women (Bauman et al. 2001), and this financial argument cannot continue to be offered as a barrier to knowing how physically active the population is. There is an alternative but it requires embracing the complexity of the relationship between work and leisure, and exploring realities outside the positivistic paradigm (Henderson et al. 2002).

#### 7.5.2 Work and Leisure in Physical Activity

Students of leisure are familiar with two constructs, the work/leisure dichotomy (Davidson 1996; Lenskyj 1988) and the work/leisure continuum (Lenskyj 1988). By introducing a concept of physical activity, one which includes leisure and occupational activities, students of health promotion must also contemplate these constructs in term of physical activity. Just as importantly there must be an understanding of the gendered nature of the work/leisure dichotomy (Davidson 1996;

Lenskyj 1988) and recognition of the impact this has on our current understanding of physical activity for health.

The notion of partitioning is also a consideration in the theoretical choice between the modelling of the relationship between work and leisure as a dichotomy or a continuum. Davidson's (1996) study of a woman with children's experience of a holiday being simultaneously additional work and leisure highlights the difficulty of constructing partitions to describe a woman's actions. This study supports Lenskyj's (1988) assertion that the work/leisure dichotomy is a male defined construct and that a woman's time is better described by consideration of a work/leisure continuum. Lenskyj (1988:235), contesting the use of a dichotomy, highlights the rationale for women "establishing both spatial and temporal markers separating women's work from women's play." This is the 'self time' that underpins the selection of 'exercise for health' and the apparent rejection of the concept of 'physical activity for health' as identified in this study.

Brownson (2005) reviews the determinants of physical activity and identifies that a reduction in housework is an issue in declining physical activity. This may well be the case but there would be very few women who would conceive a reduction in housework to be a bad thing. The particular circumstances of women's work make the suggestion of doing more ludicrous. Promoting physical activity to women must be achieved through well conceived multisectorial means to avoid ludicrous recommendations that encourage people in a technologically advantaged society to adopt archaic domestic practices or bad parking spaces as health policy.

## **7.6 Future Study**

### **7.6.1 Possible Directions**

Numerous directions for future investigation were identified by this study. One direction might be to continue in a positivistic mode and establish directly the level of physical activity of the Australian population. Another might be to evaluate the construct validity of the Active Australia Survey to assess its relationship to change in physiological or health outcomes (Bowles et al. 2004), or indeed any other activity that might improve knowledge of the Australian population's participation level in physical activity rather than a leisure based variant.

The National Physical Activity Guidelines for Australians (Commonwealth Department of Health and Aged Care 1999) support a calculative process evaluation focussed on time and intensity of activity, as do most physical activity recommendations internationally (American College of Sports Medicine and Armstrong 2005; Bull et al. 2004). There are other means that might be useful for understanding sufficient physical activity. Recent moves in health promotion have diversified away from the process measures of the National Guidelines to use outcome measures. Use of waist to hip ratios and absolute waist circumference is being argued in recent obesity and diabetes prevention programs (Franzosi 2006). Our choice of effective promotion relies on identifying the conceptual basis through which to best communicate the physical activity for health targets and message. This study demonstrated conceptual difference and suggested further investigation of other lay populations might provide a more comprehensive picture of what outcome parameters lay populations use to judge the sufficiency of their physical activity.

In addition to improving communication of the health promotion message to the lay population, investigation of the conceptual basis of sufficiency also provides the health profession with an opportunity to question the basis of their own conceptualisations. The concept of physical activity for health, as opposed to exercise, was adopted as the term of choice in the public health lexicon around the time of the CDC ACSM statement (Pate 1995). The recency of this change means much work is still to be done understanding the long term impact of the recommendations, at both the conceptual level and the knowledge level. Time will undoubtedly change what a woman in her fifties knows and does in relation to physical activity. This study could be repeated in a further ten years to assess the evolution of the concept of sufficiency or (and) the impact of the concept introduced into a woman's life ten years earlier than the women in this study. Any of these areas of investigation could be championed to further the positivistic knowledge base of health promotion. Other, more adventurous, investigations into possible alternative conceptual frameworks are also possible.

#### 7.6.2 Species Being Work and Alternate Units of Analysis

The feminist and critical influences on the design and conduct of this study were noted earlier in this thesis. It is under these continued influences and the experience of conducting this study that a preferred future direction has been identified. The

book by Tim Dant (2003), entitled *Critical Social Theory*, uses the works of Lefebvre, Barthes, Gorz, Touraine and Baudrillard, from the so called Gallic tradition in critical writing, to discuss themes in critical writing, including work and non-work. Within this discussion of the modern concept of work from the political economy stance of Marx, Dant describes labour, species work and leisure. A reading of this work in concert with the experience of conducting this study of women's physical activity has suggested a way in which these concepts introduce limitations to our understanding of women's work. The concept of physical activity crosses the work/leisure barrier in a way the concept of exercise never did. Through the work/leisure dichotomy (or continuum) and its association with physical activity for health, these concepts also influence our understanding of women's health.

An element of interest is the concept of species-being work. Species-being work is activity that produces a tangible outcome from work not undertaken for the purpose of survival; it has an element of the human creating objects of art by transforming nature. It seems women's physical activity which is simultaneously work and leisure, such as the making of a home or the attendance of a dance class, cannot translate into species-being work because it often has no tangible outcome. The intangible elements of social structures were very often the topics of discussion in the interviews of this first study and I wonder whether they and the cultural elements that are created by such activity might represent the feminine recognised alternative to the tangible structures of masculine normalised species-being work.

The relationship of this to the theoretical basis of health promotion is through the understanding of women's physical activity for health, but especially the health benefit that results through the indirect means at a community level. The last observation recorded in the results section of this thesis captured a glimpse of how the physical activity of an agent within a community can have a direct effect on the 'agent', an effect once removed on the 'immediate others' that interact with the agent or the direct product of their work, and then an effect twice removed on 'community others' the immediate others interact with. This multiplying effect of one 'agents' activity across the health of a community is reminiscent of recent work in collective efficacy conducted in the study obesity using neighbourhoods as units of analysis (Cohen et al. 2006). The work by Cohen et al. (2006) directs attention towards the embodiment of social capital and capacity aspects of health. A similar discussion of physical activity is needed, especially by women in their role of creating homes.

Physical activity is an area under explored in terms of abstract conceptualisation. Understanding the 'not restricted to self' activities of women is limited in an individual model of physical activity, it requires the exploration of a conceptual framework which is in direct contrast to the individualistic core of physical activity research published to date. Such a framework will emphasise the social nature of our lives, the actions within them and health.

The women described activities of their lives that can be simultaneously work and leisure. The professional artist taking further training is simultaneously performing work and leisure. The full time home maker relaxes with her youngest son while simultaneously working to look after her grandchild, undertaking identical tasks. The energetic mother of two younger children walks her dog and simultaneously provides support to a child from another family in the community. The single mother baking with her daughters, the Rotarian organising charity days, and the community group office holder attending meetings, these are all women undertaking simultaneous leisure and working roles. With the exception of 'self time'- this is defined by each woman in her own way but consistently, the discussion of physical activity revealed how the women discern work and leisure activities through the concepts of enjoyment and self determination.

The indicators of sufficient physical activity that these women revealed are as integrated and complex as could be imagined. Their conceptual framework shares these eight common indicators, but the influence of each indicator is related to the circumstance of the woman, or person, whose activity they are describing. This framework allows the women to accommodate self and other needs. It allows them to accommodate short and long term objectives. It allows them to balance the desires to live a long life and a pleasant and fulfilling one too. It allows them to achieve something more remarkable than 30 minutes of moderate physical activity; it allows them to achieve 24 hours of a woman's life. This study supports a position that National Guidelines are of limited value, and the concept of sufficiency reflected in them is not shared by the lay population of this study.

## **7.7 Chapter Summary**

There are differences in the concepts of sufficiency of physical activity for health expressed from the professional and lay perspectives. The contrast between the perspectives can seem ludicrous when manifested in recommendations of inefficient

domestic and work practices. The adoption of physical activity recommendations over exercise recommendations runs counter to the conceptual framework identified in the qualitative study conducted and suggests different views of health are employed by lay and professional groups. The adoption of physical activity for the promotion of health has gendered implications around the work/leisure dichotomy. Assessment of the concept of sufficiency in physical activity has revealed issues around partitioning of activity, validation of survey techniques and discussion of variants of physical activity. Further positivistic work is required to address the limitations of current surveillance survey results which confound our understanding of women's physical activity. The tools currently used to measure physical activity have gendered implications and a consideration of physical activity using a neighbourhood unit of analysis may provide recognition of health effects generated by the physical activity of an 'agent' but realised by members of their community.

## 8 SUMMARY OF FINDINGS

### 8.1 Findings

The study findings have been indicated as they were developed through out the text of this thesis. Collated they are as follows:

- The professional concept of sufficient physical activity is flawed by methods that confuse measured variants of leisure time physical activity with a more broadly conceived abstract concept of physical activity and limit consideration to exclude significant activities of daily life.
- Lay women use the term and concept of exercise for health despite being engaged in a conversation about physical activity.
- Lay women use a complex and adaptive concept of sufficiency in physical activity for health which appears to have eight indicators and be different from the calculative concept proposed by the National Physical Activity Guidelines for Australians.
- The indicators are:
  1. Intrinsic Value Indicators
  2. Individual Expression Indicators
  3. Moral or Values Indicators
  4. Alignment with Family Responsibilities
  5. Physical Sense Indicators
    - General Sense
    - Embodied Sense
  6. Body Weight Indicators
  7. Ability Indicators
  8. Therapeutic or Professional Advice Indicators
- Lay women relate the meaning of their physical activity to its association to health.
- Lay women understand the calculative rationalities of the expert concept of sufficient physical activity but they do not employ them exclusively or primarily when reflecting on the physical activity of their own lives.

## 8.2 Conclusion

Nye (2004) makes the observation that all thinking is just a rearrangement of thinking; this has been the central experience of this thesis. Language imposes constraint and so there is rarely a novel thought just a progression of the arrangement of them. This holds for the shift in philosophy from exercise to physical activity, lay to professional. These philosophical shifts need to be examined in the language of women.

This study has demonstrated the need to investigate the possibly limited role played by calculative rationalities- measuring, weighing, and comparing, (Fullagar 2003:56)- in judging sufficiency of physical activity for older women and with that the limited relevance of the National Physical Activity Guidelines for Australians. Physical activity for these women has a complex relationship to health and the living of a full and satisfying life. Health and exercise science blundered into a fundamentally different area of consideration when the concept of exercise was broadened to physical activity and in doing so has necessitated the creation of more sophisticated ways of considering physical activity. Those ways must include consideration of the health effects of an individual woman's physical activity expressed in the member of the community she lives in.



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## APPENDIX A SEARCH STRATEGY

### *Search Strategy for the Analysis of a Professional Concept*

A search strategy was developed that would identify key documents in the development of the National Physical Activity Guidelines for Australians, provide a social context for National Guideline development, state definitions of physical activity and inform on the professional concept of sufficient physical activity. This was conducted in concert with a more general review which sought to identify literature that informs on recommendations for physical activity, especially a lay concept of sufficiency from the perspective of older Australian women. The review and analysis were conducted over the period February 2004 to September 2006 using the resources of the University of Wollongong.

### *Cross Disciplinary Environment*

In the last 50 years the academic study of exercise science has emerged, driven by the biological and behavioural sciences (Blair et al. 2004; MacDougall 2003). It has an individualistic, positivistic core of literature. With respect to improving health, with very few exceptions, the literature argues for greater participation in physical activity, often discussed as exercise, sport, training and, more recently, exertion in occupational activities or those of daily life.

The humanities are relatively underrepresented in this area of academic investigation. A sociology of (especially) sport exists, though it is not a popular area of reading for either the public or sociologists (Washington and Karen 2001). It is suggested there is a reticence to think about the social construction of sport by those involved in it, and an equal reticence to think about sport by those involved in sociology (Bordieu 1988:153 cited in Washington and Karen 2001). There is even less published interest outside this sporting area in what is known as 'physical activity'. In part this can be attributed to the recency of the emergence of this concept in health sciences.



### *Multiple Terms*

Physical activity for health is a cross sectorial, cross disciplinary issue, and the review of literature required for an investigation into the conceptual basis of the health promotion profession most assuredly so. Mounting a literature search in the area is made more difficult by the necessity to employ a number of constituent concepts, behaviours and terms encompassed by the term 'physical activity'. Constituent terms include "leisure", "sport", "recreation", "exercise", "exertion", "occupation", and "work". This impediment to a simple search process is highlighted, not to garner sympathy, but as first evidence on the need to investigate the conceptual complexity of the adoption of a concept of 'physical activity' rising out of the health sciences.

Specifically, the terms experimented with successfully for this review were 'Active Australia', 'physical activity and women', 'physical activity and barriers', 'physical activity and qualitative', 'physical activity and policy', 'physical activity and beliefs'. The decline in incidence of new articles suggested these terms, and the exhaustion of related but unsuccessful search terms (including amongst them middle age, empowerment, concepts, abstractions, feminism, social constructionism and a bevy of other desperate attempts to find academic writing that gave a voice to Australian women on the topic of physical activity for health), should have indicated a search strategy that had saturated the topic. This was not the case.

### *Modus Operandi of the Search*

The academic investigation of physical activity for health still lends itself to search strategy with an experimental process of literature identification and one reliant on an academic network willing to share knowledge of seminal publications. Such a strategy is often employed by undergraduate students new to a topic and working collaboratively, often across year groups. The success of a search strategy that has non systematic and collective wisdom aspects is largely related to this conceptual complexity and cross disciplinary nature of the consideration of physical activity in health studies.

This process of creating a collective professional knowledge is important to the overall understanding of this thesis as a starting point of differentiation between lay and professional knowledge. Acknowledgement must be given to a number of

undergraduate students who, in submitting assessment tasks on unrelated physical activity topics, uncovered relevant and enlightening academic writing which needed to be added to the search to make it more complete. Many of the documents reviewed in this analysis were found in files and professional archives of work associates. Identifying the importance and influence of collective knowledge is also relevant to the other line of argument that will be developed over this thesis, that there is a need for the health profession to explore its conceptual bases.

### *Electronic Databases*

In employing the modern instrument of electronic data bases in a literature search, the student of physical activity is made aware of the fact these have not reached a level of development that favours cross disciplinary topics. For this review it was necessary to search using the facilities of the several of these electronic databases: Proquest 5000 Science Direct, Scopus, Annual Reviews, Australian Bureau of Statistics and less productively Australian Public Affairs, Taylor and Francis online, Synergy and Sociological Abstracts.

Also essential in conducting this search strategy was the search engine Google. In the absence of a central register and source of government reports this search engine was able to provide access to reports that are dated over the last ten years.

### *Analysis*

The analysis of the literature was conducted in themes. These themes went on to become the subsections of the literature chapters.

**APPENDIX B NATIONAL GUIDELINES**

*National Physical Activity Guidelines for Australians*

**APPENDIX C TRIAL MATERIALS**

*Informed Consent and Participant Information Sheet*

## **Information sheet**

Title: Concepts of “sufficiency” in women’s physical activity for health: lay perspectives and the National Guidelines

My name is Belinda Giles and I am undertaking research for a Master of Science: Research in Public Health at the University of Wollongong. I have an interest in the daily activities of women and the things they do that influence their health.

We each lead very different lives and have to make decisions on how we fit all the necessary things into our own. What we need to do, what we have to do, what we want to do, what we like to do. All these things compete for our precious time and attention. Very little research has been done by listening to what Australian women do and how they make the decisions about what, and how much, gets done, especially for their health. You and I will talk about what you do in a normal week, what seems important to you for your health and what you would like to do in an ideal world.

Giving your consent means that you will allow me to record an interview with you and transcribe it. When I write my reports for university and science publications I will discuss the information from our interview anonymously and as part of a collection of such information gathered from all the women in this study. This research benefits our understanding of women’s health decisions in the context of their lives and will inform efforts to improve women’s health.

Your participation in this research is voluntary and you are free to withdraw from the research at any time. You will be given a copy of the interview recording.

If you have any inquires about the research you can contact me directly: 9528 9431 or my supervisors at the university Nancy Humpel: 02 4221 5441 Lindsey Harrison: 02 4221 4087. If you have any complaints about the way the research is or has been conducted, you can contact the Complaints Officer, Human Research Ethics Committee, University of Wollongong, 02 4221 4457. If you have any feelings you would like to discuss with a counsellor as a result of the interview you can contact Lifeline 131 114.

Thank you for your consideration of this project.

Kind regards,  
Belinda Giles

## **Informed consent**

Title: Concepts of “sufficiency” in women’s physical activity for health: lay perspectives and the National Guidelines

Belinda Giles

By signing this consent form I consent to the following:

1. I will be interviewed by Belinda Giles of Wollongong University as part of her Master of Science- Research (Public Health) degree in the Graduate School of Public Health. This research is being supervised by Nancy Humpel PhD and Lindsey Harrison PhD.
2. The interview will focus on activities of my daily life and health.
3. The interview will last a maximum of 1 hour 15 minutes and will be audio taped.
4. My name will not be revealed to anyone and any information I give will remain confidential.
5. My participation is voluntary. I am free to refuse to participate and/or withdraw from the interview at any time. I have been given the opportunity to ask questions about the research and my participation.
6. I will be given a copy of this consent form.
7. If I want further information or have any queries about the research, I can contact Belinda Giles on (02) 9528 9431 or (0419) 605 568 or Nancy Humpel (02) 4221 5441 or Lindsey Harrison (02) 4221 4087.
8. If I have any concerns or complaints about the conduct of this research, I can contact the Complaints Officer of the University of Wollongong Human Research Ethics Committee on (02) 4221 4457.
9. I understand that the information collected from my participation will be used for the production of a thesis, journal publications and presentations at scientific conventions and I consent to this.

Signed:\_\_\_\_\_

Name (please print) :\_\_\_\_\_ Date    /    /

## APPENDIX D INTERVIEW SCHEDULE

### Interview schedule

- Could you give me an idea about the usual structure of your day?  
The sorts of things you usually do?
- What sorts of things do you do to keep you healthy?
- I notice you did not mention physical activity

OR

I notice you mentioned INSERT- Can you tell me more about that?

and then see if they go on to place that behaviour under the words "physical activity".

- Any constraints?
- Ideally, what would you like to do if you didn't have these constraints?
- How would you know if you were sufficiently active?
- The National Guidelines say each of us should accumulate 30 minutes of moderate activity most days and do 3 or 4 sessions of vigorous activity each week. What do you think of this recommendation for yourself and for women in general?
- How do you think your physical activity/exercise/fitness routine/sport/kayaking has changed over the years?
- What would you like your future physical activity/exercise/fitness routine/sport/kayaking to be like in the future, ideally?
- What else would you like to tell me about being physically active?

### Certification

I, Belinda Gay Giles, declare that this thesis, submitted in partial fulfillment of the requirements for the award of Master of Science- Research, in the School of Health Sciences, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Belinda Gay Giles

29<sup>th</sup> July 2008