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Dietary fats and macular degeneration

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Abstract
Atherosclerosis in the blood vision and common eye diseases do not support any adverse vessels of the eye has been in non-institutionalised residents, associations between high proposed as a possible 49 years or older, living in Blue intakes of dietary fats or mechanism underlying macular Mountains area, west of Sydney. subtypes of fats and the degeneration, which has raised Dietary data were collected from incidence of either early or the possibility that different 2895 people at baseline using late age-related macular dietary fats may increase or a validated food frequency degeneration. However, this decrease risk. Several recent questionnaire. Incidence of early study did confirm previous articles have examined possible and late age-related macular findings that fish consumption associations between dietary degeneration was assessed after is protective. The likely fat and progression of a mean follow-up of 5.1 years. mechanism is the protection macular degeneration. Some Contrary to expectations, low against oxidation and epidemiological studies have intakes of total fat were degeneration of the retina suggested dietary intake of fat associated with an increased afforded by long-chain n-3 and all its subtypes, including risk of macular degeneration. polyunsaturated fatty acids, vegetable and unsaturated especially DHA. fats, increase the risk of No significant association was progression.2! These findings found between 5-year incidence Our finding that low intakes of have caused some concern of macular degeneration and total fat and n-3 polyunsaturated in the lay, medical and dietary intakes of total saturated fatty acids were associated with nutritional communities.

Keywords
degeneration, fats, dietary, macular

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Dietary fats and macular degeneration

by Vicki Flood

Atherosclerosis in the blood vessels of the eye has been proposed as a possible mechanism underlying macular degeneration, which has raised the possibility that different dietary fats may increase or decrease risk. Several recent articles have examined possible associations between dietary fat and progression of macular degeneration. Some epidemiological studies have suggested dietary intake of fat and all its subtypes, including vegetable and unsaturated fats, increase the risk of progression. These findings have caused some concern in the lay, medical and nutritional communities.

Assuming atherosclerosis is common to the pathogenesis of both macular degeneration and cardiovascular disease, it appears unlikely that all subtypes of dietary unsaturated fats would increase the incidence of the former and decrease the risk of the latter. Therefore the suggestion that all unsaturated fats may increase the risk of macular degeneration is unconvincing. In the light of this previous research and controversy, further research was needed, especially in the context of the Australian food supply.

THE BLUE MOUNTAINS EYE STUDY

Our research team recently examined the association between dietary fat and fatty acid components and the 5-year incidence of age-related macular degeneration as part of the Blue Mountains Eye Study. This is a population-based cohort study of vision and common eye diseases in non-institutionalised residents, 49 years or older, living in Blue Mountains area, west of Sydney. Dietary data were collected from 2695 people at baseline using a validated food frequency questionnaire. Incidence of early and late age-related macular degeneration was assessed after a mean follow-up of 5.1 years.

Contrary to expectations, low intakes of total fat were associated with an increased risk of macular degeneration. No significant association was found between 5-year incidence of macular degeneration and dietary intakes of total saturated fatty acids, total polyunsaturated fatty acids, trans fats, nuts, margarine or butter. Low intakes of monounsaturated fatty acids had a marginally non-significant increased likelihood of incident macular degeneration.

The consumption of fish was protective. Eating fish once a week was associated with a 40% reduction of incident early age-related macular degeneration, whereas at least three times per week was linked to reduced incidence of late macular degeneration. Low intakes of total n-3 polyunsaturated fatty acids and α-linolenic acid were associated with increased risk, suggesting they too are protective.

CONCLUSIONS

To our knowledge, this is the first cohort study of longitudinal association between dietary fat intakes and the incidence of age-related macular degeneration in a representative older population. Our findings do not support any adverse associations between high intakes of dietary fats or sub-types of fats and the incidence of either early or late age-related macular degeneration. However, this study did confirm previous findings that fish consumption is protective. The likely mechanism is the protection against oxidation and degeneration of the retina afforded by long-chain n-3 polyunsaturated fatty acids, especially DHA.

Our finding that low intakes of total fat and n-3 polyunsaturated fatty acids were associated with increased risk is interesting. It is possible that low intakes of essential fatty acids could result in abnormal metabolism and renewal of cells in the retina, leading to increased risk of macular degeneration.

This study did not confirm previously reported associations between macular degeneration and high dietary intakes of unsaturated fat, including mono- and polyunsaturated fatty acids. We caution against altering current advice regarding dietary fat recommendations to the community.

References

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