

The Vision Centre
ARC Centre of Excellence in Vision Science
MEDIA RELEASE

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STOP IT ... OR YOU'LL GO BLIND

Australia should adopt an aggressive public health campaign to combat the growing epidemic of vision loss in later life, a leading scientist has urged.

Don't smoke, keep fit, eat a healthy diet rich in fish oils, low in fats and high in antioxidants are all ways to slow the degeneration of the macula, the eye's most critical region for clear vision, says Professor Jan Provis of the ARC Centre of Excellence in Vision Science (The Vision Centre) and The Australian National University.

"Thanks to the macula humans have remarkably acute vision. It's the little spot on the inside back of the eyeball that does most of our useful seeing, such as reading, recognising faces and spatial resolution. It's usually fine for the first 50 years of life but then it starts to degrade and this leads to partial and sometime total loss of sight," she explains.

Age-related Macular Degeneration (AMD), Bests' Disease, Stargardts' Disease and Macular Telangiectstasis are just some of the conditions which can have devastating consequences for people still otherwise active.

"Our research indicates that this is due to an evolutionary trade-off which has occurred in humans and other primates over time. We have developed extremely acute vision, partly because the number of blood vessels in the macula – and its central region, the fovea - is quite low. Having too many blood vessels would obscure our vision, so we have settled for a compromise: sharp vision in youth - but an unstable macula that deteriorates over time.

"Our eyes consist of very large numbers of neurons which combine to enable us to see well, and these demand quite large amounts of oxygen. However having fewer blood vessels the neurons in the macula can easily be starved of oxygen causing them to die in large numbers and this contributes to the typical decline in vision from mid-life onwards that most of us experience."

While there is little that can be done at the present state of knowledge to reverse this degeneration, the good news is that there are things we can all do to slow or prevent it, she says.

“These mainly consist of keeping our blood circulatory system in good order. We know that various lifestyle choices like smoking, eating a fatty diet and not enough fish and fresh fruit all tend to damage the health of capillaries – the fine blood vessels that deliver the oxygen to critical regions throughout our bodies. This applies equally to the capillaries that supply oxygen to the macula.”

Professor Provis and her team have identified 25 genes that regulate blood vessel growth within the macula. They hope this may eventually lead to therapies for treating macular disease. And she is confident it will also yield better public health advice on how to avoid it.

“In my view we now understand enough about this process of degeneration of our eyesight with age for Australia to mount an aggressive public health campaign to encourage people to keep their circulatory system in better order from a younger age.

“This would undoubtedly include advice such as don’t smoke, avoid fatty foods, keep fit and eat a diet that is rich in fresh fish, fruit and vegetables.”

“For an ageing population, the loss of vision is major concern as it carries major public health and caring costs, limits people’s independence, their ability to support themselves and to enjoy their later years. It can be addressed in the same way that we are addressing conditions such as heart disease, skin cancer and diabetes – through education and changes in our behaviour.”

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