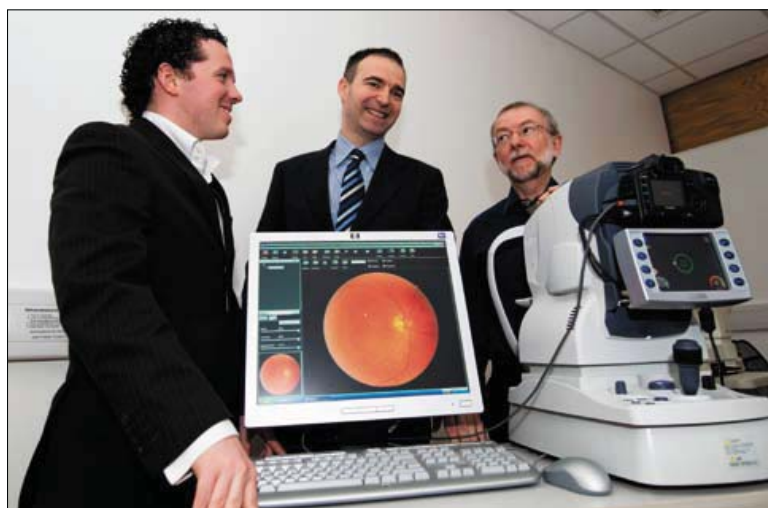


# Is your lifestyle putting you at risk of blindness?



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Age-related Macular Degeneration is an eye disease which may affect over 100,000 people in Ireland. Identifying potential risk factors has never been of greater importance.

**I**t is estimated that 15 per cent of the population in Ireland know of someone with the blinding disease of age-related macular degeneration (AMD), a disease that significantly reduces lifestyle quality and independence. The Waterford Ophthalmic Research Fund (WORF), the Macular Pigment Research Group (MPRG), and Sightrisk Ltd. are working together to prevent this devastating eye disease.

Age-related macular degeneration is a disease of the macula, the central part of the retina, which results in loss of central vision. It is the leading cause of age-related blindness in the western world, and it is estimated that this disease affects approximately 80,000 people in the Republic of Ireland, and a further 30,000 people may suffer unknowingly from AMD. The increasing worldwide prevalence of AMD is largely attributable to increasing longevity and lifestyle changes associated with western society. People with AMD lose their ability to read, recognise faces, watch television and drive. AMD therefore has a significant impact on independence and quality of life. It is predicted that the current prevalence of AMD will double by 2020. In addition, the cost of vision loss and visual impairment to society and to health care providers continues to rise, with significant economic implications.

Macular pigment is a yellow pigment found at the macula. Macular pigment is composed of the dietary carotenoids, lutein, zeaxanthin, and meso-zeaxanthin. Macular pigment absorbs short-wavelength (blue) light pre-receptorally, and scavenges and neutralises free radicals. It is unsurprising, therefore, that this pigment is believed to protect against AMD, because both blue light damage and free radicals are known to contribute to this condition. Current research has shown that diet is one of the most important risk factors, along with family history and smoking.

The Waterford Ophthalmic Research Fund (WORF) was established in 2004 by Mr. Stephen Beatty, and is a registered charity (NO. CHY16598). WORF aims to facilitate and support healthcare workers in the South East of Ireland who are involved in the educational aspects of blindness and visual impairment, and to facilitate research into the causes of blindness. WORF currently supports several projects aimed at investigating means of preventing AMD. One of these groups is the Macular Pigment Research Group (MPRG, [www.wit.ie/mprg](http://www.wit.ie/mprg)), which was established in 2001 at the Waterford Institute of Technology, Ireland. The MPRG currently employs 13 researchers, five part-time and eight full-time. The research is aimed at enhancing

the current understanding of AMD, with emphasis on the role that nutrition might play in the prevention, delay, or modification of this disease.

Smokers, people with a family history of AMD, those who are overweight and those with a poor diet lacking in antioxidants are at increased risk of developing AMD. Recent research by the MPRG has shown that individuals between the ages of 20 and 60 years who are at increased risk of developing AMD have a relative lack of macular pigment.

The MPRG believes in prevention rather than cure, and therefore the priority is to provide screening for AMD and to identify potential risk factors. The MPRG is working closely with Whitfield Clinic's Institute of Vision Research in Waterford to provide screening for AMD. This AMD risk assessment clinic is the first of its type in Ireland. The clinic's objective is to identify the "at risk" individual rather than the AMD sufferer. Following a full AMD risk assessment, the doctors inform and advise the "at risk" individual how best to reduce their risk of developing AMD.

In addition to vision, dietary and blood analysis, part of this screening process will utilise the Sightrisk risk assessment calculator. This is a web-based tool developed by vision scientists, mathematicians and ophthalmological consultants. The tool can be found at [www.sightrisk.com](http://www.sightrisk.com), a website which is primarily a source of information provided by leading experts in the fields of vision and nutrition. After the user inputs the information into the online calculator, the patient's risk factors, such as family history of AMD, cigarette smoking, BMI, and intake of fruit and vegetables are taken into consideration and the software predicts the risk of the patient developing AMD at any given age from 55 to 100. The software also identifies areas where the patient can best improve his or her lifestyle to minimise the risk of developing AMD in later life. The Sightrisk software is already in use in many optometry practices across Europe. Sightrisk software has helped to identify thousands of "at risk" individuals who are now benefiting from the advice, encouragement and incentive to actively improve their lifestyle and therefore significantly reduce their risk of developing this devastating disease in later years.

To make a donation to Waterford Ophthalmic Research Fund (WORF) visit [www.mycharity.ie/charity/WORF](http://www.mycharity.ie/charity/WORF) or contact Lorna Rushe at [lrushe@wit.ie](mailto:lrushe@wit.ie) or on 051 845505

This article was supported in part by Sightrisk Ltd.



## Sightrisk Case Study

**A** 48 year old patient has had regular eye examinations for a number of years. At his routine visit in March, he mentioned that his mother had recently developed age-related macular degeneration (AMD) and was concerned that he might also be at risk. Learning that he was, he made an appointment to have a Sightrisk AMD risk assessment.

His results clearly demonstrated his risk of developing AMD with increasing age, reaching the upper calculated limit of 95 per cent in his 90s. His age 70 reference point risk was 46.32 per cent. Major studies of AMD are in agreement that the prevalence of AMD is around 10 per cent to 11 per cent at the age of 70. The Framingham eye study, one of the earliest, and more recently the Blue Mountains and the Beaver Dam eye studies, which are ongoing, all suggest around this level.

The patient's potential areas for improvement were also clearly demonstrated and each of these was fully discussed in turn. He is typical of patients who are becoming increasingly health conscious and who welcome informed advice from professionals.

At his six-month follow up, his risk at the age of 70 had fallen from 46.32 per cent to 26.75 per cent. This has been achieved by a significant reduction in cigarette smoking (he has yet to give up entirely), improvements to diet and nutrition, and active protection from light exposure.

Measurements of his macular pigment level, a significant indicator of macular health, were taken at his initial visit and again at his six-month follow up. Six months could be considered too short an interval to expect any improvement in this area; however his readings were marginally higher at the second visit. Measurements will be repeated at his next visit.

Although the patient's current cumulative risk is still some way above his fully optimised risk, he is now fully aware of how to reduce his risk further, and the improvement to date has been visibly demonstrated by the calculator. Most importantly, he has been offered advice, encouragement, and of course incentive to significantly reduce his risk of suffering from the devastating effects of AMD in later years.

• [www.sightrisk.com](http://www.sightrisk.com)