

# 'Eat your greens; it's good for your eyes': Investigating truth behind familiar parental battle cry

April 27 2012

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Parents have long tried to persuade children to eat their greens by promising it will give them better eyesight, but is there any truth to this age-old adage? This is the question an Irish researcher who has just received a funding boost from the European Research Council (ERC) is setting out to answer.

Vision tends to deteriorate as we get older but Dr. John Nolan, from Waterford Institute of Technology, will investigate if changes in diet can help reduce the numbers of people diagnosed with age-related [macular degeneration](#) (AMD) as they enter their twilight years. Approximately 15

million Europeans suffer from AMD and this figure is only set to rocket over the coming decade amid Europe's [aging population](#).

Set to receive a EUR 1.5 million Starting Grant for the next 5 years of research on the project he leads, "Enrichment of macular [pigment](#) and its impact on vision and blindness" (CREST), Dr. Nolan aims to develop a targeted approach that could optimize the nutrition of the eye.

The hope is that this research will lead to improvements in [eyesight](#) for people who suffer from impaired vision. As well as helping AMD sufferers - more than half the blindness cases in the developed world are caused by AMD, and besides the physical consequences, there are also significant social and [psychological consequences](#) such as loneliness and depression - the findings from the project will also potentially even be useful for those who are considered to have 'normal' vision.

Dr. Nolan is Principal Investigator at the Waterford Institute of Technology's Macular Pigment Research Group whose mission is to study the role of eye nutrition for vision and prevention of blindness.

The problem largely stems from deterioration in the central part of the retina, called the macula. As we age, our eyes' cells accumulate damage from the effects of oxidising chemicals, such as [free radicals](#), and from blue light. There is now growing evidence that a lack of macular pigment (MP) in this part of the eye is associated with more retinal damage from these sources, and a correspondingly increased risk of AMD.

Dr. Nolan explains: "The question we are asking is how to optimise this pigment at the back of the eye. Our approach is to optimize nutrition for the eyes, which we hope will protect the retina through the ageing process - and even produce improved 'super-vision' for those with normal eyesight."

The key seems to be chemicals called carotenoids, 60 of which are found in the typical Western diet. However, only three of them occur in MP in the retina: lutein (L), zeaxanthin (Z) and meso-zeaxanthin (meso-Z). And the concentrations of these pigments vary from individual to individual.

As well as contributing to retinal damage, blue light is also the part of the spectrum most subject to scattering - which causes glare. To combat this, the pigment absorbs [blue light](#). Dr. Nolan describes this process as effectively being 'sunscreen for the eye.'

"Our study will enrich MP through diet and supplements, and then measure the impact on improving vision. These pigments are also antioxidants - so increasing them could potentially have a double protective effect."

The ERC funding will also help Dr. Nolan measure any improvements in eyesight and combat limitations in today's methods of measuring vision. ERC funding has already helped Dr. Nolan's team assemble the advanced equipment needed for new tests. The standard tests use white backgrounds and black letters, which are not sensitive enough to measure improvements in young people's eyesight or in those with normal [vision](#). The new tests Dr. Nolan will develop will go beyond this classic test format and assess the need for corrective lenses. They will look into the effects from colour and contrasts.

**More information:** Waterford Institute of Technology: [www.wit.ie/](http://www.wit.ie/)  
European Research Council (ERC): [erc.europa.eu/](http://erc.europa.eu/)

Provided by CORDIS

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battle cry (2012, April 27) retrieved 26 June 2024 from  
<https://medicalxpress.com/news/2012-04-greens-good-eyes-truth-familiar.html>

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