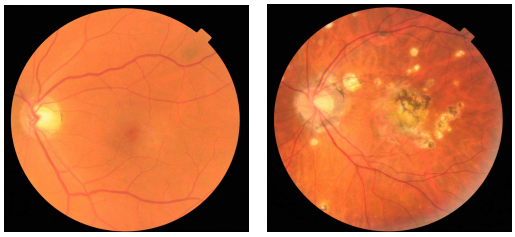
Aston University
Life & Health Sciences

Multispectral Retinal Image Analysis: a new technique for the assessment of macular pigment

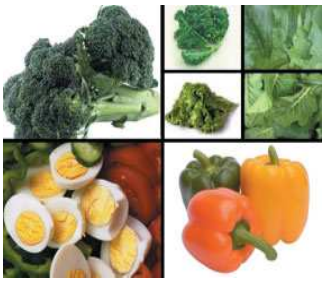
Age related macular degeneration (AMD) is the leading cause of legal blindness in the Western World in people over 50. Macular pigment is a substance at the back of the eye and is thought to have a protective role against the development and progression of AMD and is a combination of lutein and zeaxanthin, both of dietary origin.



Mild AMD | Advanced AMD

Aims

We are developing a user-friendly imaging tool, multispectral retinal image analysis (MRIA), to quantify macular pigment in individuals with good and poor central vision, so that low levels of this substance can be flagged in both groups and appropriate dietary measures can be taken either to reduce the potential risk of developing AMD or to slow/reduce its progression.



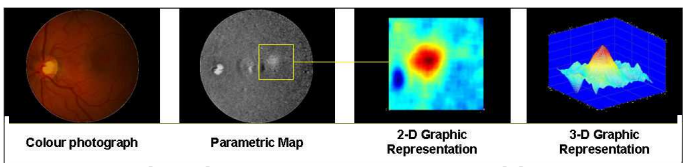
Foods rich in lutein and zeaxanthin

Methods

We are recruiting subjects from 3 groups: under 50 years of age with no evidence of eye pathology; over 49 years of age with no evidence of eye pathology and over 49 years of age with AMD. Each subject has 2 imaging sessions in which we compare MRIA results with those obtained from the current clinical gold standard technique, heterochromatic flicker photometry (HFP).

Conclusions

HFP is difficult to use in individuals with poor vision, it requires significant subject input and is relatively time-consuming. If MRIA proves to be an effective tool in measuring macular pigment in subjects with good and poor vision, we believe it would represent a significant step forward compared to HFP, as it is more user-friendly and quicker to use; it could there-fore eventually be introduced as part of a normal optician review in an attempt to flag subjects with low levels of macular pigment so appropriate dietary changes can be suggested and it could be used in the eye clinics to indicate whether subjects with AMD have sufficient levels of macular pigment to eliminate one of the many risk factors associated with this debilitating disease.



Macular Pigment measurement with MRIA

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