

# MPeye

Reduce your patient's risk of  
Age-related Macular Degeneration (AMD)



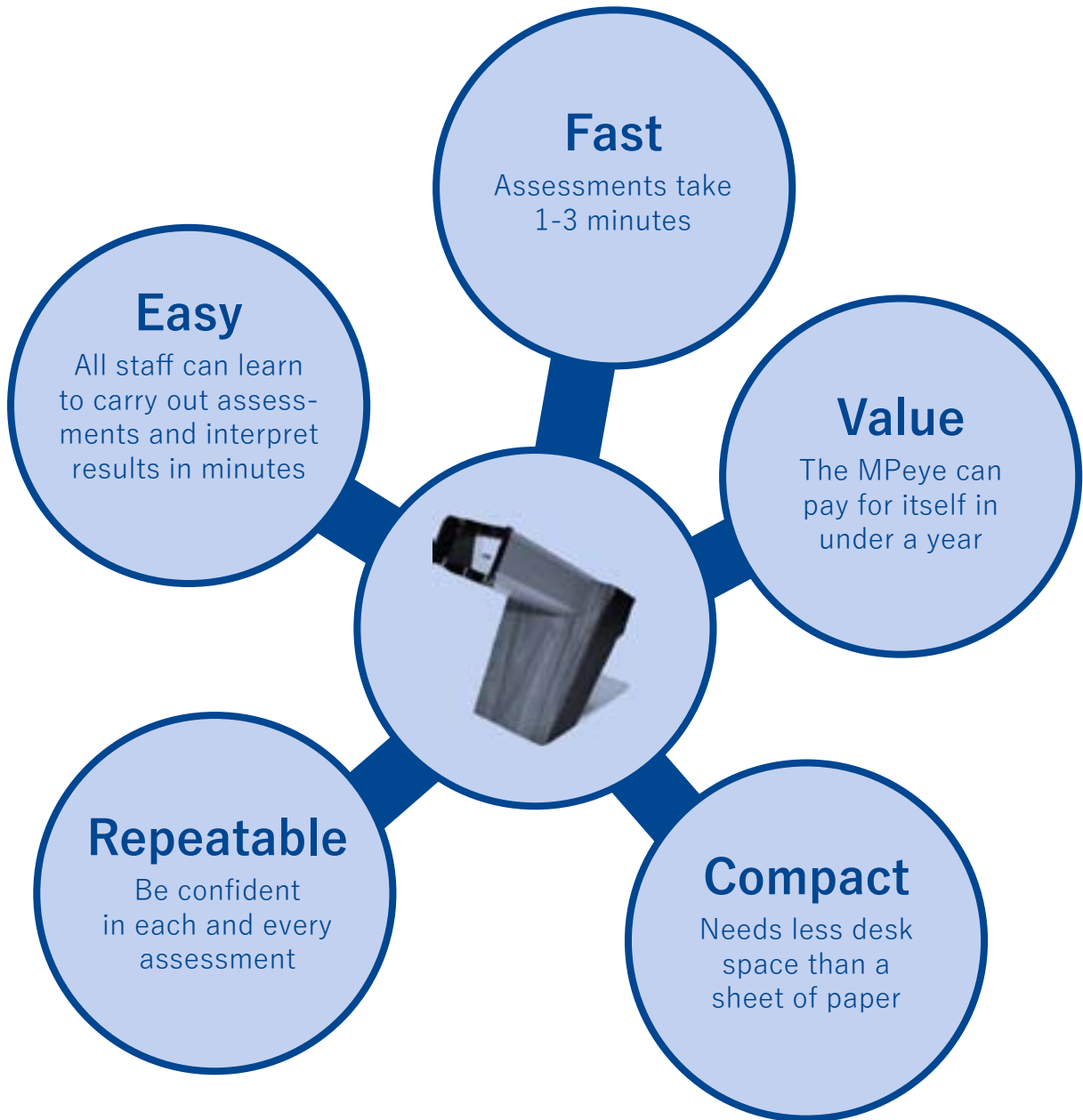
“I purchased the MPeye because it helped me have a conversation with my patients about protecting their eyes for the long-term and got me talking about things they could do to reduce their risk of AMD.”

P. Shah, Optician

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# Rapid assessment of AMD risk



The MPeye reports a single score indicating the strength of your patients' macular pigments, a key risk factor for AMD.

Regular assessments help you identify people who will benefit from additional eyecare products and services.

Empower your patients to make lifestyle changes that maintain and improve long-term eye health.



# Healthy eyes, healthy business

We understand that while the health of your patients is your primary concern, you also need to consider the health of your business. The MPeye helps you identify patients that would benefit most from extra products and services, helping you provide a more comprehensive eye exam and boost revenue.

People with low macular pigment density are more susceptible to damage from High Energy Visible (HEV) light.

You can help them reduce their risk of AMD by adapting their lifestyle to take this into account and in some cases even improving their natural levels of defence.



Quit Smoking



Less Sun



Get Fit



Eat Well



Wear a Hat



Wear Sunglasses



Protective Lenses



Lose Weight



Eye Vitamins

# Age-related Macular Degeneration



**It is estimated that by 2020  
there will be 196 million  
people suffering from AMD  
across the world**

## What is AMD?

AMD is the leading cause of vision loss among people aged 50 and older.

It is a degenerative disease characterized by the accumulation of extracellular by-products of photoreceptor metabolism called drusen that are deposited on the retinal pigmented epithelium. It leaves sufferers unable to see faces, drive, or do detailed work including reading and writing.

AMD is far more prevalent than glaucoma or cataracts, representing 50% of all cases of sight loss. Around 5% of those over 65 years of age will develop late stage AMD, which rises to 15% by 80 years of age.

There are two types of AMD – wet and dry. Wet AMD represents about 10% of cases and is presently treated with Anti-VEGF injections, which can help slow progression. Dry AMD represents the remaining 90%, for which there is no known treatment. Both are incurable.

While there is no one known cause of AMD, research suggests that taking action when you are young can lower your chances of contracting AMD later in life.

Macular pigmentation has been linked to risk of AMD and is a modifiable risk factor. The problem is that most people do not know how well protected they are.

**Prevention is the only option**

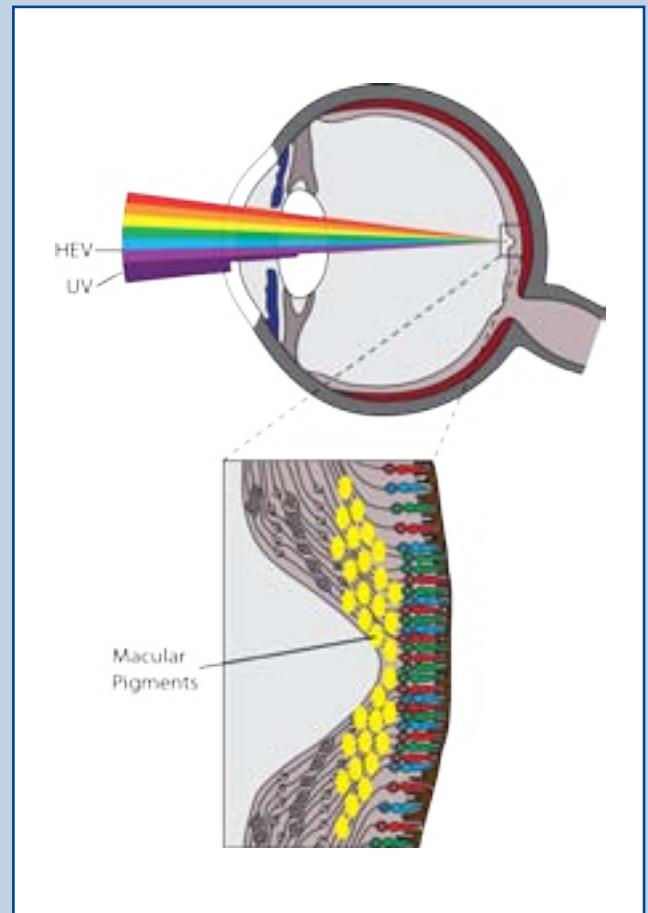
## Light exposure increases risk of AMD

The blue/violet end of the visible spectrum is known as high-energy visible (HEV) light. Like UV radiation, HEV carries enough energy per photon to cause photochemical damage to living cells over time.

The cornea and lens block most UV radiation but HEV light penetrates through to the retina where it causes both thermal (type 1) and photochemical (type 2) damage.

While retinal cells do have repair mechanisms, they do not regenerate like other cells in the body (e.g. skin cells that are also exposed to HEV are replaced every 5 days).

Because retinal cells must last your entire life, once serious damage occurs it is irreversible. The damage accumulates over time and can lead to drusen, AMD and vision loss.



## Macular Pigments reduce risk of damage from HEV light

Macular Pigments - lutein, zeaxanthin and mesozeaxanthin - are only obtained from our diet and provide two major benefits: Act as natural sunglasses blocking as much as 70% of HEV light (Margrain et al 2004). Antioxidants that counter photochemical damage caused by HEV light (Krinsky 1989).

## New method of assessment



The distribution of macular pigments is variable, some people have a central peak, others a smooth curve, and some have a central dip. A single measure in the centre of the distribution does not accurately reflect the total amount (volume) of macular pigment.

The MPeye uses an entirely new technology to assess the full volume of macular pigment in the eye using polarized light that is specifically absorbed by the macular pigments.

# The link between AMD and low MP's

Several studies (see below) show a correlation between low macular pigments and development of AMD however, a causal link can only be demonstrated in a very long-term study.

AREDS II claimed no preventative effect of macular pigments, but 5-10 years in an aged population was insufficient to expect any noticeable change in AMD risk.

Even though there is no clear causal evidence, as research into AMD advances, the link between low macular pigments and AMD seems to get stronger and stronger. The table below lists key factors that link low macular pigmentation with increased risk of AMD and provides relevant evidence.

## Drusen

Large soft drusen is the hallmark for risk of AMD (Sarks et al., 1994)

Low macular pigmentation decreases the age at which soft drusen form\* (McGill, 2018)

## Smoking

Smokers have an increased risk of developing AMD (West et al., 1989)

Smokers have decreased macular pigmentation (Nolan et al., 2007, Hammond and Caruso-Avery, 2000)

## Poor diet

Poor diet, specifically low in leafy green and brightly coloured fruits and vegetables is a well-established risk factor for AMD (Pipis et al., 2013)

Leafy green and brightly coloured fruits and vegetables are the best source of MPs (Sommerburg et al., 1998)

## Obesity

Obesity increases risk of developing AMD (Adams et al., 2011, Zhang et al., 2016, Johnson, 2005)

Increased adipose tissue decreases macular pigmentation (Kirby et al., 2011, Hammond and Caruso-Avery, 2000)

## Light Exposure

Sunlight exposure increases risk of developing AMD (Schick et al., 2016, Sui et al., 2013)

MPs decrease the amount of high energy visible light that reaches the retina (Margrain et al., 2004)

**Epidemiological studies have shown that decreased MPs are correlated with increased risk of AMD.**

(Wu et al., 2015, Bone et al., 2001, Beatty et al., 2001, Bernstein et al., 2002, Kaya et al., 2012, Trieschmann et al., 2003, Obana et al., 2008, Ozawa et al., 2017, Ozyurt et al., 2017)

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\*Macular pigment density was controlled in a 23 year study in which diets normal and poor in macular pigments were fed to Rhesus macaques, which have the same retinal structure as humans. Drusen was assessed using the AREDS categories and formed at 65 human equivalent years in normal diet and 35 human equivalent years in macular pigment poor diet.

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## Technical Specification

Device Model	MPeye
Classification	Class 1 Mains Operated Type B applied part
Protection	ClassII
Ingress Protection	IPX0
Dimensions (H x D x W)	430mm x 250 x 430mm
Input	12V 3A DC
User Input	Android Tablet
Part No.	A-0001-M1

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**INNOVATOR OF THE YEAR 2017**

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