



# FACT SHEET

## Glare:

### Headaches, Light Sources, Tints and Coatings

#### Introduction: Glare

Glare is caused when excess light enters the eye or when normal light levels are bounced around inside the eye, perhaps by cataract or corneal scarring.

Sources of glare include sun, light bulbs, car headlights, street lights, TV and computer screens, including tablets and mobile phones.

Glare can be direct, looking directly at the light source, or indirect when light is reflected off a surface such as a wet road, snow or sand, computer screen, glossy pages or even a spectacle lens surface.

#### Discomfort Glare

This is the sort of glare we all experience on a bright sunny day when the sun is high in the sky. Sunglasses will easily relieve the problem.



#### Disability Glare

This is far more of a problem. Vision is impaired by reducing contrast. An example of 'Disability Glare' would be looking through a dirty or misted windscreen. It is as if we are viewing through a veil, the whole scene looks washed out.



Sunglasses will not help this sort of glare. The only solution is to eliminate the source of the glare, clean the windshield or put the sun visor down.



Sources of disability glare could be: Sun low in the sky in winter. Headlights or other lights directed at you. Reflections from glossy pages. Sun streaming in a window.

## Sunglasses

In cases of direct or indirect glare from the sun, sunglasses, especially *Polarising* sunglasses, can protect from harmful ultra-violet rays and bright visible light. These lenses can be further enhanced with an *anti-reflection coat* preventing sunlight reflecting off the back surface of the lens into the eyes; Maui Jim sunglasses, for instance.

## Night Driving

At night people often find oncoming headlights very difficult (Disability Glare). Sunglasses are too dark and are actually illegal for night driving. It is best to follow the road edge to ensure the glare is off your direct vision. However, some people find Sodium *Yellow Contrast* filters help reduce the intensity of car lights, whilst ensuring enough light reaches the retina to maintain safe night vision. Once again *Anti-Reflection coatings* are beneficial for driving at night; reducing reflections on the spectacle lens from car lights in front and behind the driver.

## PC Screens, Mobile Phones, Tablets, TVs

Electronic devices contain back-lit screens. These technologies tend to emit a lot of *blue light*. Unfortunately blue light is easily scattered inside the eye. Blue light is also important in regulating production of melatonin, a chemical helping us sleep. Late night use of phones and tablets can cause sleep disruption. New lenses available with *blue-protect technology (Nikon)* have a very light brown tint and a blue specific AR coat reducing the blue light entering the eye reducing eye fatigue and glare.

## Fluorescent tubes, PC screens, Headaches

Fluorescent tubes, TV's and computer screens normally operate/refresh at mains electricity frequency (50-60Hz). Sometimes we perceive the flicker produced by these light sources which can lead to eye fatigue, headaches and even migraine. This flicker can be reduced or eliminated with a very light tint, reducing the amount of light entering the eye so the flicker disappears.

## Computer use and the 20/20/20 Rule!

People using computer screens can suffer from eye fatigue (VDE Syndrome). These symptoms are 1) headaches, 2) eye fatigue 3) dry eye. When using a screen at close range specific muscles have to turn the eyes in to look at the screen while other muscles focus the eye lens on the screen. Further the blink rate drops from approximately 16 to 4 times a minute leaving the eye surface prone to drying. The symptoms can actually make people feel they need spectacles for computers.

The 20/20/20 rule is a helpful aid to relieving the symptoms.

Imagine holding a small weight up for 8 hours; your arm would soon tire without a break. Why should your eyes be able to hold close focus all day without a break!

**Every 20 minutes, look away from the screen to something at least 20 feet away for 20 seconds.**

This allows the eye muscles to relax and the blink rate to return to normal, before recommencing work.