2.7 Possible risk factors for eye disease

A number of factors have been postulated to cause eye disease. The most common factors are smoking, alcohol, diet and ageing:

- Smoking is thought to affect eye health through oxidative stress. Antioxidants help maintain lens transparency, so smoking may interfere with the protection from antioxidative nutrients (Kelly et al. 2005). Oxidative stress in the RPE may contribute to macular degeneration (Bailey et al. 2004).

- Alcohol is a difficult risk factor to isolate because it is often associated with smoking and can inhibit the absorption of nutrients. Alcohol may work directly on the proteins in the lens itself and indirectly by affecting absorption of nutrients important to the lens (Hiratsuka et al. 2001).

- Good nutrition is thought to promote eye health, but it is unclear whether there are associations between eye diseases and certain dietary factors such as:
  - fatty acids — found in the retina, these are essential for eye development and may protect against the growth of abnormal blood vessels; changes in the composition of fatty acids in the membrane of the lens may cause cataracts
  - lutein and zeaxanthin, and carotenoids — these are found in the lens and the pigment of the retina and also in green leafy vegetables, which have antioxidant properties and which may protect against cataract and macular degeneration
  - nutritional supplements (eg riboflavin, thiamin, vitamin C, vitamin E, vitamin A, zinc); for example, vitamin A is required in the production of rhodopsin, the visual pigment used to see in low light levels.

- As discussed above, many structures in the eye change as we age, and this can result in eye disorders and diseases.

- Near work such as reading, watching TV or looking at a computer screen has been associated with the development of myopia.

- Both visible and ultraviolet light may damage the eye. In particular, the cornea is a good absorber of ultraviolet (UV) light and if it is damaged this can lead to cataracts.

In addition to diabetic retinopathy (discussed above), diabetes is also thought to be a risk factor for other eye diseases such as cataract (AIHW 2005). The eye may be adversely affected by problems with blood sugar levels, microvascular damage and associated conditions such as poor nutrition and obesity.