

Feeling great, looking good



**A guide to how a healthy lifestyle
can help prevent sight loss**



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1 Introduction

Whether on the radio, the internet, in the papers or on TV – we are all used to daily messages about ways to stay healthy. The benefits of exercise, maintaining a healthy body weight, low blood pressure and cholesterol levels, healthy diet and modest consumption of alcohol always feature in advice on a wide variety of conditions such as obesity, diabetes, heart disease and cancer.

Rarely do we link this type of information to the health of our eyes. Although almost 90 per cent of people say that sight is the sense they most fear losing (1) most of us are not aware that there are active steps we can take to reduce the risk of sight loss.

This report aims to provide authoritative guidance on the steps we can take to safeguard our sight providing an added incentive to adopt (or continue leading) a healthy lifestyle.

2 Smoking – the number one threat to eye health

Active smoking has been suspected as a contributory factor to eye disease for approximately ten years. However, it is only fairly recently that a direct causal link between smoking and blindness has been established (2). Smoking causes age-related macular degeneration (AMD) and cataracts (3). Oxidative damage caused by smoking is likely to play a role in both eye conditions. Reduced blood flow in the eye, the increased formation of abnormal blood vessels and reduced levels of lutein and zeaxanthin are the results of smoking that may lead to AMD. The heavy metals found in tobacco smoke have been shown to accumulate in the lens with direct toxic effects that may contribute to cataract formation. While cataracts are treatable and should not lead to blindness they remain a major cause of sight loss in the UK. By contrast, treatment options for AMD are limited and smokers not only double their risk of developing AMD, they also tend to develop it earlier than non-smokers.

Significantly, a recent study suggests that passive smoking is almost as dangerous (4). People who have been exposed to passive smoking over a period of five years almost double their risk of developing AMD. Therefore, smokers not only jeopardise their own eye sight, they also increase the risk of sight loss in those around them. And the more they smoke the higher the risk.

Moreover, latest research suggests that people with a genetic predisposition for developing AMD, in other words, those with close family members with AMD, not only double their risk of developing this condition: according to one study their risk is eight times that of a non smoker. The genetic pre-disposition alone confers a two-fold increased risk (5). Other research even suggests that the increased risk may be as high as 34 times that of a non-smoker (6)!

Recommendations on smoking

The message on smoking is loud and clear. Smoking causes blindness and the only sensible advice is not to smoke.

People who smoke not only increase the risk to their own sight, they also harm the sight of those around them. However, the good news is that the increased risk of developing eye disease can be reversed over time. It is important to recognise the effort it takes to give up smoking. Not everybody is successful without help. Smoking cessation clinics are run by most GPs, some pharmacists and even optometrists. For helpline numbers please see annex 1 on page 18.

3 Alcohol consumption

Moderate consumption of alcohol does not appear to have any negative impact on eye health. However, excessive alcohol consumption in pregnancy can lead to foetal alcohol syndrome (FAS). This not only increases the risk of low birth weight and mental disability in newborn babies, it can also cause reduced visual acuity that cannot always be rectified by glasses (7). Out of 1,000 live births between one and three children are born with FAS and as many as one in 100 is born with some form of the condition. FAS is therefore more prevalent than Down's syndrome and spina bifida.

In addition, the combination of heavy smoking, poor diet and excessive alcohol consumption can lead to what is called toxic tobacco-alcohol amblyopia, a condition that leads to reduced visual acuity and loss of central vision (8).

Recommendations on alcohol consumption

Since moderate alcohol consumption has not been linked to any eye health problems we recommend that people aim to stay within the limits set in guidance from the Department of Health, especially during pregnancy. For further information on alcohol and health please visit the Department of Health website www.dh.gov.uk/PolicyAndGuidance.

4 The importance of good nutrition

Good nutrition is very important for both general and eye health. The body needs nutrients to grow cells, repair wear and tear, protect against infection and to function properly. There are many books on nutrition that fully explore how to eat a balanced diet. In addition a lot of information about healthy eating is available on the NHS Direct website at www.nhsdirect.nhs.uk or the website of the British Nutrition Foundation (BNF) at www.nutrition.org.uk

In this report we will focus on evidence that poor nutrition can contribute to the formation of cataracts and the development of AMD.

4.1 Nutrition in AMD

There are a number of factors that increase the risk of AMD such as a family history of the disease and smoking (see above). Another aspect that is linked to nutrition is the way we process oxygen as we get older.

Oxygen produces chemicals called “free radicals” which damage cells or prevent them from regenerating as they used to. Our bodies do have a natural protection against the effect of free radicals, but under certain conditions this protection is not good enough. Any damage caused by increased free radicals is called “oxidative stress”.

In AMD it is thought that free radicals damage the eye’s retina (the light sensitive layer inside the eye). These free radicals are mostly neutralised by the body’s defences. Most vitamins and some minerals can help the body and our eyes to combat the effect of free radicals. These are known as antioxidants and their role in maintaining eye health is explored below.

The role of antioxidants

Vitamins that act as antioxidants have been linked with eye health in various studies and clinical trials. The main study that has looked into the link between antioxidants and AMD is the Age-related Eye Disease Study (AREDS study) (9),(10), (11). This study focused on the role of the antioxidant vitamins A, C and E in slowing down the progression of AMD. It did not study whether the formula could be used to prevent AMD in people without signs of the disease. The results of this trial indicated that taking a specific high dosage of vitamins C and E, beta-carotene, zinc, and copper (to balance the side-effects of large doses of zinc), could help to “significantly reduce the risk of developing advanced stages of AMD by about 25 per cent” for people who already had moderate AMD.

The antioxidant vitamin and mineral dosage recommended as a result of this trial is very high, much higher than the recommended daily amount of vitamins we should consume. It is also much higher than the amount people can obtain naturally from their diet. Taking such high levels of supplements can cause other health problems. For example, the high dose of zinc can cause a copper deficiency, leading to kidney and urinary tract problems. Copper was added to the AREDS supplement dose to counteract this effect. Similarly, taking large amounts of beta-carotene has been shown to increase the risk of lung cancer in smokers. Also, people on medication for other conditions such as cancer, kidney problems, heart disease or diabetes need to be especially cautious. It is essential that patients with AMD consult their doctor before taking high doses of vitamins or minerals and only take what has been recommended by their doctor.

In terms of prevention, the two antioxidants lutein and zeaxanthin have been a focus of attention. They are thought, by some experts, to play a major role in the health of the macula, the central point of the retina that is responsible for focused vision and essential for daily living tasks such as driving, reading and recognising faces. Lutein and zeaxanthin are concentrated in the macula and constitute the macular pigment. It has been suggested that they may play a significant role in preventing oxidative damage to the macula thereby preventing the development of AMD rather than just slowing down its progression. What is particularly significant is the fact that some studies have shown lutein to improve some measures of visual function (12), (13). However, samples studied were small and there is an ongoing debate as to whether an increase in the consumption of lutein and zeaxanthin should be recommended or not (14). Controversy particularly surrounds the question as to whether it is beneficial to take lutein and zeaxanthin supplements in addition to a balanced diet. Since the original AREDS study did not look at the effect of lutein and zeaxanthin, a second phase of the study will be looking at the effect of adding these two antioxidants as well as omega-3 fatty acid supplements to the AREDS formula. It will also look at the effect of using lower dosages of zinc and excluding beta-carotene to avoid the side effects these cause (15).

The role of dietary fat intake

Research suggests that a diet high in polyunsaturated fats, and particularly the consumption of fish that is rich in omega-3 fatty acids, decreases the risk of developing AMD and may slow down the progression of this condition from moderate to severe (16).

4.2 The role of nutrition in the formation of cataracts

The role of antioxidants

A number of studies have looked into the possible preventive effects of antioxidants on the formation of cataracts. As with AMD there is some evidence that dietary intake of vitamins (especially A, C and E) may play a protective role but less certainty about the benefits of the use of antioxidant supplements (17),(18),(19).

Recommendations on nutrition

A healthy, balanced diet that provides sufficient amounts of antioxidants is generally good for you, and it may help you safeguard your eye health.

Rich sources of vitamins A, C and E are fruit and vegetables such as oranges, kiwis, grapefruit, dried apricots, green leafy vegetables including kale and spinach, tomatoes, peppers, raw carrots, green peas, green beans and Brussels sprouts. They can also be found in nuts, seeds, dairy products and eggs. Lutein can be found in yellow peppers, mango, bilberries, and green leafy vegetables such as kale, spinach, chard and broccoli. Zeaxanthin can be found in orange sweet peppers, broccoli, corn, lettuce (not iceberg), spinach, tangerines, oranges and eggs. Many of these overlap with food types in which vitamins A, E and C are present.

In addition a healthy diet should also include a high intake of omega-3 rich fish (at least three times a week) since this has been shown to help prevent AMD and also appears to slow down the progression of this condition.

As a result of the research into nutrition and eye health there are now many different vitamin supplements for eye health on the market. The exact type and amount of vitamins and minerals in these supplements varies. Such supplements can play a role where people find it difficult to eat the recommended amounts of fruit and vegetables (five portions a day), an issue particularly for older people living in nursing homes.

However, experts agree that taking supplements is not a substitute for a healthy diet and that antioxidant needs can be met with a healthy, balanced diet containing the sources of antioxidants mentioned above. Recent recommendations from the National Institutes of Health in the US draw attention to the dangers of over-supplementation which reinforce concerns about inappropriate supplement use (20). As explained above, a balanced diet should be sufficient to help your eyes stay healthy. People who feel that they need supplements should talk to their doctor first, particularly if they have been diagnosed with AMD and are considering taking supplements based on the AREDS formula.

5 Sunglasses: not just a fashion item

Many people buy sunglasses as an essential fashion accessory for the summer or to protect them against glare when they are driving in the bright summer sunlight rather than as a way of protecting their eyes from eye disease.

Research suggests that sunlight exposure is mainly a risk factor for cataracts, a treatable condition that nonetheless causes about a quarter of sight loss in people over 75 in the UK. We distinguish various types of cataracts according to their location on the lens. The evidence for this link suggests that sunlight exposure increases the risk for some but not all types of cataracts (21). The increased risk varies between 2.5 times and four times the risk of someone who is not regularly exposed to sunlight without protection and the risk increases over time. A study in the United States reported that even low levels of exposure to UV-B in sunlight increases the risk of developing cataracts by about 10 per cent, and 18 per cent in African Americans (22). The concern about the depletion of the ozone layer and the increase in ultraviolet B radiation has led to concerns about a possible increase in cataracts. A US study estimates that the prevalence of cortical cataracts could increase by as much as 6.9 per cent depending on the level of ozone depletion causing an additional 830,000 cases of cortical cataract by 2050 (23).

AMD has also been linked to sunlight exposure even though ultraviolet light does not reach the macular and is therefore unable to damage it (24), (25), (26). However, there is some evidence that blue or visible light (400-700 nm wavelength) may increase the risk of developing AMD (27).

Recommendations on sunlight protection

Based on the scientific evidence presented above, it makes sense to protect our eyes against sunlight exposure. To do so, we can wear sunglasses or a wide brimmed hat, especially in the summer in the middle of the day. It is important to wear sunglasses that properly block out the light and do not let it in through the sides or top, so glasses need to be big enough and have an appropriate tint. Look out for sunglasses with the CE marking which shows that they meet European safety standards.

6 Conditions that increase the risk of eye disease

6.1. Diabetes

It is well established that people with diabetes are at risk of developing diabetic retinopathy, an eye condition that affects the tiny blood vessels of the retina, causing them to break down, leak or become blocked. If untreated, this can lead to sight loss over time. By contrast early diagnosis, laser treatment and surgery have been shown to prevent sight loss in 90 per cent of individuals with diabetes.

For people with diabetes it is important to realise that the likelihood and severity of diabetic retinopathy increases the longer they have diabetes, and it is likely to occur earlier and be more severe if diabetes is poorly controlled. It is estimated that nearly all people with type 1 diabetes will have diabetic eye disease 20 years after diagnosis and amongst people with type 2 diabetes as many as 60 per cent will show signs of the condition (28).

In the UK between 1.8 and 2.1 million people have diagnosed diabetes whereas between 550,000 and one million are estimated to have the condition without having been diagnosed. The number of people with diagnosed diabetes is expected to rise to 2.5 million by 2010 (29) and given the differences in estimates it could be much higher.

Recommendations on diabetes

The Government aims to ensure that by April 2007 all people with diabetes will receive an invitation for their annual screening for diabetic retinopathy. At present the level is just below the 80 per cent target that was set for March 2006. People with diabetes who do not receive an invitation should contact their GP for an annual screening appointment. Those who have received an invitation should make it their priority to have the screening. The risk of sight loss through diabetic retinopathy should also be a strong incentive to manage their diabetes well since this reduces the risk of developing this condition.

In addition, it is important to reduce the number of people with undiagnosed diabetes who are not being screened and may therefore be at a higher risk of developing diabetic retinopathy. There are a number of symptoms that indicate that somebody may have diabetes including excessive tiredness that cannot be explained by other causes, being thirsty all the time or needing to go to the toilet frequently, especially during the night. For advice on the symptoms of diabetes please visit the Diabetes UK website at www.diabetes.org.uk

6.2. Obesity

There are a number of factors, which seem to predispose an individual to obesity. It is clear that obesity runs in families, is more common in some ethnic groups and is seen more frequently in developed countries. Being overweight or obese increases the risk of many diseases and health conditions, including the following: hypertension, high total cholesterol, Type 2 diabetes and coronary heart disease.

In the studies reviewed, obesity is defined as a body mass index (BMI) of 30 or over, whereas a BMI of 25–29.9 indicates being overweight. A panel advising the World Health Organisation has proposed that the risk of obesity-related diseases amongst the Asian community rises from a BMI of just 23.

Obesity is increasingly being discussed as a risk factor for sight loss. A recent review of association states that obesity is a risk factor for all four major causes of sight loss: AMD, diabetic retinopathy, glaucoma and cataracts (30). Other eye conditions, such as retinal vein occlusion, and hypertensive retinopathy, can also result from high blood pressure and raised levels of cholesterol due to obesity.

Having looked at the evidence, we feel that it is important to get a clear understanding of the strength of the links with each of the conditions mentioned.

AMD

Although the strongest modifiable risk factor by far for age-related degeneration is smoking it is important to recognise that obesity may increase the risk of developing dry AMD, the type of AMD that has been linked to oxidative damage. Dry AMD tends to progress more slowly than wet AMD and only causes severe sight loss in 10 per cent of cases. However, the sight loss experienced by people with dry AMD is likely to impede their ability to carry out daily activities such as driving, reading a newspaper or watching television. The increase in the risk of developing dry AMD, associated with being overweight or obese, varies between a 1.5 times increased risk (for people with a BMI of over 25) and doubling of the risk (for people with a BMI of over 30) compared with that of a person who is not overweight. More significantly still is the fact that obesity appears to increase the rate of progression of wet AMD, the type of AMD that can lead to severe sight loss and legal blindness within as little as three months.

People with a BMI of over 25 double their risk of experiencing a rapid progression of the disease. The link has also been shown for people with a higher hip/waist ratio, in other words those with higher levels of abdominal fat. Furthermore, there is evidence that people who have a genetic predisposition for developing AMD (ie who have a gene defect that has been linked with AMD) need to be particularly careful to avoid weight gain since their risk increases from a four fold risk with normal weight to an eleven fold risk if they are obese (31).

Diabetic retinopathy

The evidence for obesity as an independent risk factor for diabetic retinopathy is less convincing. However, obesity significantly increases the risk of developing type 2 diabetes. Somebody whose BMI is over 30 is already up to 10 times more likely to get diabetes. Over a ten-year period those with a BMI of over 35 are up to 80 times more likely to develop the condition than someone with a BMI of less than 22. The younger the age when somebody becomes obese and the higher the level of obesity, the higher the risk. For instance, a woman with a body mass index of over 35 at the age of 18 has a 74.4 per cent risk of developing diabetes in her lifetime. By contrast, the risk for a woman aged 65 who is overweight (BMI of 25-30) rather than obese is considerably lower at 18 per cent (32).

Given the seemingly inexorable rise in obesity levels in the UK these statistics are very worrying. At present (based on the 2004 Health Survey for England) (33) two in three adults (64.5 per cent) and one in three children (34 per cent) are overweight or obese. 44 per cent of men and 40 per cent of women are overweight, whereas 22 per cent of men and 23 per cent of women are obese. Alarming, 23 per cent of men and 24 per cent of women aged 16-24 are overweight and 8 per cent of men and 12 per cent of women in this age group are obese. This is the group that has the highest lifetime risk of diabetes unless they decrease their weight. What is more, increased obesity levels in children point to a continuing trend. The Health Survey for England suggests that 25 per cent of boys and girls aged 11 – 15 are overweight or obese. When we consider that more than 70 per cent of obese children and more than 85 per cent of obese adolescents become obese adults it is clear that the World Health Organisation is not exaggerating when it talks about an impending obesity epidemic (34). Given the high lifetime risk of developing diabetes associated with early obesity, this obesity epidemic is likely to translate into a diabetes epidemic. This in turn is likely to increase the number of people risking sight loss through diabetic retinopathy as 60 per cent of people with type 2 diabetes will go on to develop this condition.

The risk is particularly high in people from ethnic minority backgrounds (Asian, African and African/Caribbean) who are four to five times more likely to develop diabetes (35). A mixture of genetic and environmental factors (including higher levels of obesity in African and African/Caribbean populations) is likely to be the cause. Importantly, comparatively small increases in weight can trigger diabetes in people from Asian backgrounds. It is thought that this is due to a tendency amongst Asian people to put on weight around the waist. This means that an Asian person may have a BMI that would be regarded as not overweight in a white person (BMI below 25) (36) yet still have a significantly increased risk of developing diabetes and its associated complications.

Cataracts

Evidence for a direct link between obesity and cataracts appears to be more consistent. For people whose BMI is over 30 the risk of developing cataracts can be as high as double that of people who are not overweight. Although cataracts are largely treatable, one in four cases of sight loss in people over the age of 75 is due to cataracts. Improved access to treatment should lower this high number of people with unnecessary sight loss. However, preventing cataracts in the first place makes sense both in terms of protecting people's sight and in terms of reducing costs to the NHS.

Glaucoma

Finally, the link between glaucoma and obesity. A large Japanese study came to the conclusion that there is a strong link between obesity and intra-ocular pressure which can lead to glaucoma unless it is carefully monitored and managed with medication if necessary (39). However, this study does not differentiate between different forms of glaucoma and fails to take into consideration other risk factors such as race which may have skewed the results. It has also been found that the method of testing intra-ocular pressure in obese patients can affect the outcome. More research is required to establish whether the link between obesity and intra-ocular pressure also applies to non-Japanese populations and whether obesity is an independent risk factor for glaucoma, and not just for intra-ocular pressure.

Cardiovascular disease and the eye

Obesity is a significant risk factor for the development of cardiovascular disease, and high blood pressure. This can result in atherosclerosis or the "hardening" and narrowing of the arteries and veins.

Hypertension (high blood pressure) affects the blood vessels in the retina of the eye, which are very thin and delicate. Changes to the status of these blood vessels are called hypertensive retinopathy (40). If blood pressure is left uncontrolled the result can be sight loss caused by leakage of the blood vessels and swelling of the nerve in the eye.

High levels of cholesterol in people who are obese can result in a thickening and hardening of retinal arteries that in turn may press on retinal veins, causing a blockage called retinal vein occlusion (41), (42). Due to the blockage the vein cannot drain the blood out of the retina causing some of the blood to leak out onto the retina. In addition, clear fluid leaks out resulting in so called "water logging" of the retina. This damages the sight, although the patient does not experience any pain. It has been found that obesity quadruples the risk of retinal vein occlusion.

Recommendations on obesity

As we have seen, obesity may be an independent risk factor for a number of sight threatening eye conditions. Most importantly, the sharp increase in obesity levels in the UK population over the past twenty years and particularly the rise in obesity amongst children has already led to an increase in the number of people with diabetes. This in turn will lead to an increase in the number of people with diabetic retinopathy. It is important to recognise that 90 per cent of type 2 diabetes is associated with obesity and that even modest weight reductions, especially if combined with moderate exercise can halve the risk of developing diabetes (43).

In addition, obesity has been linked to an increased risk of developing AMD, cataracts, retinal vein occlusion and high intra-ocular pressure, a risk factor for glaucoma.

Against this background it is important to raise awareness of the fact that healthy eyes may be one of the many positive side effects of a healthy weight (in general BMI below 25, for Asian people below 23). For people who decide to take action to reduce their risk of sight loss it is important to aim for controlled and sustainable weight loss. This is particularly important for those who already have diabetes (to avoid dangerous glucose level fluctuations) but also applies to those who are overweight and aim to reduce their risk of developing the condition.

Many people find it difficult to control their weight. Visit the British Nutrition Foundation website at www.nutrition.org.uk for dietary advice. If you require help with developing a sustainable weight loss strategy, please visit your GP.

7 Regular eye tests – the key to sight loss prevention

The sections above provide valuable advice on avoiding key risk factors for eye disease. A healthy lifestyle significantly reduces the risk of sight loss, particularly in people who have a family history of eye disease. However, not all sight loss is preventable through lifestyle changes alone. Given the large genetic element in eye disease, the single most important step to prevent sight loss is regular eye tests. Many eye conditions have no symptoms at all in the early stages. Damage is being done that may not be reversible. This is where an eye test is an eye health check that everybody should have on a regular basis whether or not they wear glasses.

Optometrists can check the back of the eye to discover early signs of eye disease such as AMD or diabetic retinopathy. They can measure the pressure in the eye to determine

whether somebody is at risk of developing glaucoma, they may even be able to identify conditions other than eye disease such as diabetes or hypertension. Unfortunately, one third of adults in the UK have not had an eye test within the past two years. Amongst people from African and African/Caribbean origin, less than half have had an eye test in the past two years and as few as 38 per cent of those aged over 55 (44). This is alarming, particularly when we know that half of all sight loss could be prevented, often through early detection allowing for timely access to treatment (45).

Recommendations on eye tests

We recommend that people aged between 16 and 59 should have an eye test every two years. Children and those aged over 60 should have an eye test every year. An annual eye test is also recommended for those with a family history of glaucoma. People with diagnosed diabetes are urged to accept the annual invitation to screenings for diabetic retinopathy as well as having regular eye tests as appropriate for their age. People shouldn't wait until they experience symptoms of sight loss. When they notice something is wrong it may be too late to restore the sight they have already lost.

8 Conclusions

We are constantly presented with healthy lifestyle choices and we all know how difficult it can be to decide which of the, sometimes conflicting, advice to follow. The problem with eye health is that most people do not even know where to start because eye health is not something they learnt about at school and prevention of sight loss rarely features in the news or in magazine articles. Campaigns to convince us to stop smoking, eat healthily, protect ourselves from the sun usually have a different focus dealing with other, well known risks.

This report is an attempt to address the general lack of information on eye health and what we can do to increase the chances of avoiding sight loss in later life. It presents recommendations that people can choose to follow or ignore but if there is one single piece of advice that we would recommend to everybody it is to have regular eye tests. A regular eye test does not require any lifestyle changes. Instead it ensures that, whatever risks people take, they improve their chances of finding out if anything is wrong with their eyes before they notice it themselves. It ensures that they have the best chances of successful treatment where treatment is available. As so often, genetics and the environment work together to determine the level of risk an individual has of developing eye disease. Even if someone follows all the healthy living advice presented in this report, some risk remains that is linked to our family history and the simple fact of ageing. You'll never regret an eye test – an eye test can save your sight.

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Annex 1 Smoking cessation helplines

If you are a smoker and want to reduce your risk of developing smoking related eye conditions, you may want to contact one of the following numbers for advice on strategies to stop smoking or visit www.nwash.co.uk

Quitline: 0800 00 22 00

Helpline: 0800 169 0 169

Urdu: 0800 169 0 881

Punjabi: 0800 169 0 882

Hindi: 0800 169 0 883

Gujarati: 0800 169 0 884

Bengali: 0800 169 0 885

Textphone : 0800 169 0 171

NHS Direct: 0845 4647

A close-up photograph of a woman's face, focusing on her right eye. The eye is a prosthetic, appearing as a light blue, glass-like sphere. A single tear is falling from the corner of her eye down her cheek. She has blue eye makeup on her eyelids. Her hair is dark and pulled back.

You'll never regret an eye test

Over 50 per cent of sight loss is avoidable.

Even if your vision is perfect, an eye test can detect problems you don't know you have – and save your sight.

Open your eyes. Visit www.rnib.org.uk or call 0845 766 9999 to find out more about the campaign to protect your sight, or donate to the Royal National Institute of the Blind.



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Contact us

RNIB

105 Judd Street
London WC1H 9NE
Telephone 020 7388 1266
Fax 020 7388 2034

RNIB Cymru

Trident Court
East Moors Road
Cardiff CF24 5TD
Telephone 029 2045 0440
Fax 029 2044 0550

RNIB Northern Ireland

40 Linenhall Street
Belfast BT2 8BA
Telephone 028 9032 9373
Fax 028 9043 9118

RNIB Scotland

Dunedin House
25 Ravelston Terrace
Edinburgh EH4 3TP
Telephone 0131 311 8500
Fax 0131 311 8529

Visit www.rnib.org.uk for all the latest information from RNIB.