

# FOOD FOR GOOD VISION

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As the saying goes, the eyes are the windows to the soul. Through our eyes, we experience the beauty of the world we live in and connect with our family and friends. As we age, the eye will undergo a natural process of degeneration which can lead to gradual loss of vision. The most common aged-related chronic eye diseases are cataract, glaucoma and aged-related macular degeneration. Besides these age-related factors which can cause loss of sight, diabetic neuropathy is also one of the leading causes of blindness in Singapore.

Diabetic retinopathy is caused by abnormal growth and damage to the blood vessels of the retina which is the light detector at the back of the eye. The risk of diabetic retinopathy increases with the duration of diabetes. About 60% of patients with a history of diabetes for 15 years or more will experience some impairment of blood vessels in the eye but only some of these patients are at risk of developing blindness.

Firstly, it is important for people with diabetes to have good control of their blood sugar which will reduce their risk for all major diabetic complications including retinopathy. Choose to consume controlled portions of unprocessed whole grain

foods such as oats, wholemeal bread and brown rice to help maintain blood sugar levels. Besides diabetes, high cholesterol and hypertension are also associated with increased risk of glaucoma. Limit intake of high fat processed foods (e.g., deep-fried foods, fast foods and processed meats) to maintain healthy blood cholesterol levels. Limit high-salt processed foods (e.g., canned foods, salted preserved foods and cured meat) to maintain optimal blood pressure.

Emerging research indicates that specific nutrients such as vitamins C and E, zinc, lutein, zeaxanthin, and omega-3 fatty acids are important for good eye health. These nutrients can assist in slowing down the progression of age-related causes of visual impairment.

**Vitamin C** (ascorbic acid) is an antioxidant which helps to support the health of ocular blood vessels. It is commonly found in most fruit and vegetables. Our daily need for Vitamin C is 75mg for females and 95mg for males respectively. This can be achieved by eating the recommended two servings of vegetables and two servings of fruit daily. Citrus fruits like oranges, lemons, limes and grapefruits are especially high in vitamin C. An example of one serving of fruit is a small

apple or orange or a slice papaya or watermelon. An example of one serving of vegetables is three-quarters of a cup of vegetables. However, a recent study seems to indicate that a higher minimum dose of around 300mg of vitamin C per day is required for the prevention of cataract.

**Vitamin E** is another antioxidant which protects the eye tissue from damage and destruction by free radicals. Since it is not made by the body, it is important to consume it in your diet. It can be found in nuts, fortified cereals, sweet potatoes and plant oils. The current daily recommended intake of vitamin E is 22IU per day. To increase your intake of vitamin E, have a handful of almonds or sunflower seeds as a snack which will provide about 11IU of vitamin E.

**Zinc** is an essential trace element which assists in the production of the protective pigment in the eye, melanin, by transporting vitamin A from the liver to the retina. Large amounts of zinc can be found in the retina tissue.

Deficiency in zinc can result in poor night vision and cloudy cataracts. Red meat, seafood, poultry, eggs, mixed nuts, peas, tofu and baked beans are good sources of zinc. The daily recommended intake for

**Table 1: Recommendations of Serving Sizes of Different Food Groups**

Food Group	Number of Servings/Day	Example of 1 Serving
Brown Rice and Wholemeal Bread	5-7	2 slices bread (60g) ½ bowl* rice (100g) ½ bowl noodles or beehoon (100g) 4 plain biscuits (40g) 1 thosai (60g) 2 small chapatis (60g) 1 large potato (180g) 1½ cup plain cornflakes (40g)
Fruit	2	1 small apple, orange, pear or mango (130g) 1 wedge pineapple, papaya or watermelon (130g) 10 grapes or longans (50g) 1 medium banana ¼ cup*** dried fruit (40g) 1 glass pure fruit juice (250ml)
Vegetables	2	¾ mug** cooked leafy or non-leafy vegetables (100g) ¼ round plate+ cooked vegetables 150g raw leafy vegetables 100g raw non-leafy vegetables
Meat and Others	2-3	1 palm-sized piece fish, lean meat or skinless poultry (90g) 2 small blocks soft beancurd (170g)

Source: Health Promotion Board, Singapore

zinc is 8mg for females and 11mg for males. One palm size of beef provides 5mg of zinc, one palm size of salmon provides 1.3mg of zinc while one large egg provides 0.5mg of zinc. According to the Singapore Health Promotion Board, two to three servings of meat and alternatives are recommended daily (refer to Table 1 for serving sizes).

**Lutein and zeaxanthin** are carotenoids which are found in high amounts in the retina tissue. They help to reduce the risk of chronic eye diseases including age-related macular degeneration and cataracts by filtering harmful light rays. Carotenoids are not produced by the body but can be best consumed from food. Dark green leafy vegetables like kale, spinach and collard greens are good sources of carotenoids.

Recent studies have shown that there may be health benefits for lutein supplementation at 10mg per day and zeaxanthin at 2mg per day. One cup of cooked kale will provide 24mg of lutein while one cup of spinach provides 20mg of lutein.

**Docosahexaenoic acid (DHA) & Eicosapentaenoic acid (EPA)**, two essential fatty acids, are especially important for normal eye development and visual function as they support body cell structure, sensory and immune function. Low levels of DHA is associated with diabetic retinopathy, age-related macular degeneration and dry eye syndrome.

The American Heart Association recommends an intake of 0.5g to 1g of EPA and DHA daily. High amounts of DHA and EPA are found in fatty fish including salmon, tuna and mackerel. A palm size of salmon (90g) will give 1.8g of DHA/EPA while a palm size of tuna will give 1.3g of DHA/EPA. It is recommended that you consume a palm size of oily fish at least three times a week.

To maintain good eye health, remember to have a balanced and healthy diet consisting of a variety of fresh fruit and vegetables, whole grains, nuts and seeds as well as oily fish. Limit your intake of sugar, fat and salt. Other lifestyle tips for good eye health include quitting the smoking habit, exercising regularly and maintaining a healthy weight.

#### References

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