DIABETIC RETINOPATHY
DETECT & DELAY ONSET & PROGRESSION

FOOD FOR GOOD VISION
PLUS EASY RECIPES FOR HEALTHY EYES
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A WORD FROM THE PRESIDENT

LOOKING AHEAD —2015 & BEYOND...

It gives me much joy and pride to declare that the 10th International Diabetes Federation-Western Pacific Region Congress was a resounding success. More than 3,000 delegates from 20 countries gathered to exchange ideas in tackling the diabetes epidemic. There were 400 local medical workers and professionals registered for this four-day event. The congress received excellent feedback from delegates for a job well done. I would like to thank Dr. Kevin Tan and his organising committee for their tremendous contribution and unwavering commitment.

We have lined up a number of exciting projects, both software and hardware, which will be carried out over the next three to five years. We hope to announce it in next issue of Diabetes Singapore, so do watch this space for more initiatives to help you manage your diabetes. There are many challenges ahead but we are looking forward to partnering you on this journey to a healthier you.

At DSS, we always emphasise the need for regular examinations to detect complications. In this issue, our eye is on a disease of the retina that affects one third of patients with diabetes. Diabetic retinopathy is the major complication of the eye associated with diabetes and represents the leading cause of legal blindness especially in the working-age population of developed countries. Because patients usually do not display any symptoms, it is essential to do regular eye checks so that the disease can be treated in its early stage to prevent vision loss.

If you need advice on where to go for eye checks and how to manage your blood sugar, our well-trained staff at three of our DSS education centres will be able to assist you.

DSS HQ @ Bedok
Tel: 6842 6019/3382

Hong Kah Diabetes Education & Care Centre
Tel: 6564 9818, 6564 9819

Central Singapore Diabetes Education & Care Centre
Tel: 6398 0282

On this note, I wish all readers an active lifestyle and good health in 2015. Cheers!

Yong Chiang Boon, PBM
President, Diabetic Society of Singapore

Diabetic Society of Singapore is a non-profit organisation affiliated to the International Diabetes Federation and the National Council of Social Service. DSS gratefully accepts donations of any amount to help fight diabetes. All donations are tax exempt. Cash donations must be made in person at our HQ. Cheque donations should be made payable to Diabetic Society of Singapore. You may also make online donations via www.sggives.org/diabetes.
Diabetes Self-Care Management Sharing Program (Mar to Dec 2014)

Rodiah Hashim

DSS completed a series of Sharing Programs in December 2014, sponsored by MSD Pharma (Singapore) Pte Ltd. Each program consisted of two full days of sharing sessions on diabetes management for nurses of community hospitals, nursing homes and home care services.

Topics outlined during the sharing included diabetes overview, diet, blood glucose monitoring and its interpretation, oral hypoglycaemic agent, Insulin, exercise, sick day care, oral, skin & foot care and diabetes management during Ramadan.

In all, a total of 181 staff from 16 community hospitals, nursing homes and home care services attended. The response to the program was indeed encouraging:

“All topics that have been discussed were all informative and will be beneficial for our everyday task particularly when dealing with clients with diabetes.”

“It’s a very good course and relevant to me.”

DSS hopes that participants were enriched and empowered to provide better care and management to patients with diabetes under their care.

PAST OUTREACH PROGRAMS

<table>
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<tr>
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DIABETIC SUPPORT GROUP (DSG) CALENDAR (JAN TO MAY 2015)

24 Jan 15, 4pm
Park Connector (PCN) Walk – Central Route 1 (6.4 km)
Stadium MRT Passenger Service

28 Mar 15, 4pm
Park Connector (PCN) Walk – Central Route 2 (5.3 km)
Toa Payoh MRT Passenger Service

25 Apr 15, 4pm
Connector (PCN) Walk – Central Route 3 (5.6 km)
Admiralty MRT Passenger Service

16 May 15, 11.30am
Healthy Baking and Vegetarian Cooking @ Bedok DSS Bedok Multi-function room

FOR THE LATEST ON DSS EVENTS, LOG ONTO www.diabetes.org.sg

Care to join us for our next DSG outing/meeting?
Ring Juliana at 9278 2084 for information.

Please bring your own blood glucose meter for all DSG activities.

Bring an umbrella and wear a good pair of walking shoes for outdoor activities.

KTPH WDD Celebration

Rodiah Hashim

DSS was invited to participate in Khoo Teck Puat Hospital’s WDD Celebration on 15 Nov 2014.

The event was held at the Learning Centre and included drama performances, health screening and talks. Booths by participating partners offered education and sale of diabetes-related products.

Our DSS support group was on site to encourage and recruit people with diabetes and their care givers to join them in their monthly walk activities to connect with others and share their experiences.

With them was Miss Poh Lay Hoon who autographed the book she had written about her struggles with type 1 diabetes. The books, in Mandarin, are on sale at all DSS centres for only $10 per copy.
Diabetes is a major global health problem. According to the World Health Organisation (WHO), there are 347 million people worldwide who have diabetes and diabetes is projected to become the seventh leading cause of death globally by the year 2030\[1\]. Diabetes is also a major cause of disease burden in Singapore.

According to the National Health Survey 2010\[2\], one in nine, or about 11% of Singaporeans aged between 18 and 69, has diabetes. One in seven, or 14.4%, has impaired glucose tolerance (IGT) which, as you will be aware, can progress to diabetes if lifestyle changes are not made. Undiagnosed diabetes is also a significant issue, just like the rest of the world. About one in two Singaporeans with diabetes is unaware of the condition.

I would like to specially commend the Diabetic Society of Singapore for its good work since its inception in 1971. Besides helping diabetic patients manage their condition through programmes, activities and workshops, the Society provides an avenue for these patients and their loved ones to share their experiences on dealing with the disease and provide support to those who are newly diagnosed.

The Society has also gone the extra mile to raise awareness of diabetes among the general public through health screenings, public forums, and outreach talks at schools and community clubs.


WORLD DIABETES DAY
Managing Diabetes Made Easy

Kohila Govindaraju

World Diabetes Day of Singapore 2014, organised by Diabetic Society of Singapore (DSS), was held on 23 November 2014, Sunday at Suntec Singapore Convention and Exhibition Centre.

The WDD Singapore 2014 theme was “Managing Diabetes Made Easy,” underscoring the importance of eating a healthy breakfast daily and regular physical activity. Today, unfortunately, many skip breakfast to their own detriment and more teens than ever before have type 2 diabetes. It is a trend DSS hopes to stop in its tracks.

Guest of Honour, Parliamentary Secretary Ministry of Health, Prof Muhammad Faishal Ibrahim, officiated the opening ceremony promptly at 9am to the applause of visitors who started queuing as early as 8.30am.

The event, planned and executed by DSS, took great pains to highlight the importance of physical activity and healthy eating to prevent type 2 diabetes and the serious complications of diabetes. People with diabetes, healthcare professionals, stakeholders and volunteers involved in diabetes care and prevention were mobilised across the country for this major annual event.

Starting the day with a healthy breakfast helps individuals manage their weight and keep blood glucose levels stable. Eating a healthy diet and being active for at least 30 minutes have shown to be effective in preventing the onset of type 2 diabetes.

The public talks started with two speakers on nutrition covering practical tips on ‘How to Kick Start your Day with Healthy Low GI Breakfast for Better Sugar Blood Sugar Control’ and ‘Healthy Eating for Diabetes’, followed by an interesting flow of topics by doctors such as ‘Advances in the Treatment of Diabetic Eye Diseases’, ‘Individualising Treatment in Type 2 Diabetes’, and ‘Preventing Amputations in Diabetics, Charcot Foot’.

Participants had the opportunity to interact with both dietitians and nutritionists, and the Singapore Nutrition and Dietetics Association, focusing on how to choose healthy local food choices if you have diabetes. Students from Temasek Polytechnic also provided guidance on the amount of sugar to use in local desserts and drinks.

What is healthy living without exercise? We got people moving by inviting them to zumba dance, work out with resistance bands and participate in quick exercise demo sessions.

People at risk were also encouraged to take blood glucose tests. DSS, working with participating partners, organised HbA1c and blood glucose monitoring initiatives. A series of activities organised by the exhibitors highlighted the importance of devices such as glucometers and the public had their blood glucose and blood pressure tested for free.

WDD Singapore closed on a high note—with the DSS New Membership Draw!
PARTICIPATING PARTNERS & SPONSORS
Abbott Diabetes Care
Ace Trading & Management Services Pte Ltd
Aeras Medical Pte Ltd
AstraZeneca Singapore Pte Ltd
Bayer (South East Asia) Pte Ltd
Becton Dickinson Holdings Ltd
Bio-Rad Laboratories (Singapore) Pte Ltd
Boehringer Ingelheim Singapore Pte Ltd
Colgate-Palmolive (Eastern) Pte Ltd
Eli Lilly (Singapore) Pte Ltd
Equal
Gardenia Foods (S) Pte Ltd
Imexlink Trade Pte Ltd
Johnson & Johnson Medical Singapore
Kingston Medical Supplies (Pte) Ltd
Lilly-NUS Centre for Clinical Pharmacology Pte Ltd
Lion Corporation Pte Ltd
Medimex Singapore Pte Ltd
Medtronic International Ltd
Mundipharma Pte Ltd
Nestle Singapore (Pte) Ltd
Novartis (Singapore) Pte Ltd
Novo Nordisk Pharma (Singapore) Pte Ltd
Pfizer Pte Ltd
Pharmaforte Singapore Pte Ltd
Roche Diagnostics Asia Pacific Pte Ltd
sanofi-aventis Singapore Pte Ltd
Servier Singapore Pte Ltd
Sibert Asia Pte Ltd
Siemens Pte Ltd
Soyjoy Singapore
Sunshine Bakeries
Terumo Singapore Pte Ltd

PARTICIPATING ORGANISATIONS
Health Promotion Board
Podiatry Association (Singapore)
Singapore Nutrition & Dietetics Association
Singapore Physiotherapy Association
Temasek Polytechnic

DSS wishes to thank all participating partners, sponsors and organisations for their support and contributions in making WDD 2014 a great success.
Adolescence is a tough time for all kids and their parents.

Teenagers with diabetes carry extra burdens. That child who was always so good about type 1 diabetes management may suddenly rebel against the routine.

He or she may refuse to monitor blood sugar levels, go on food binges, be evasive about test results. Your teenager may be grumpy, angry, distant.

The Psychological Challenges: Sexual Identity, Independence, Self-Care

Sexual identity and independence are challenges for many teens and their parents. For teenagers with diabetes, they present some special issues. The demands of self-care also can create unique pressures. To develop a sexual identity, a person has to accept his or her own body. While this is difficult for all teenagers, type 1 diabetes makes it even harder. After all, successful people in movies and on TV are shown as young, beautiful, and physically perfect. Teenagers with diabetes know they are not perfect. They wonder if they'll be accepted by the opposite sex and by their peers.

Sometimes, fear of rejection will cause them to isolate themselves from their peer group. But isolation is even worse for self-esteem. If this happens to your child, you should try to break this potentially damaging cycle.

To achieve independence, teenagers often form bonds with their friends. But peer groups require conformity, and conformity creates conflict for teenagers with type 1 diabetes. How can they act just like their friends and still keep control of their type 1 diabetes? Helping your child feel comfortable with the boundaries of his or her diabetes management program can be a positive step in dealing with peer pressure.

Adolescents are expected to become totally self-sufficient in their diabetes routine.

While this self-reliance helps build confidence, for some it creates another kind of pressure and anxiety. When their blood sugar levels go out of control—inspite of their best efforts—they may feel frustrated, weak, and inadequate. They may react in one of two ways: denial of the disease, or with aggressive behaviour, which may be acted out through food binges or skipping their insulin.

It is important that you and your teenager understand the dynamics of blood sugar during the teenage years.

The Physical Challenge: Blood Sugar Control

One of the most frustrating and persistent problems during adolescence is the inability to control blood sugar. Research has shown that physiological changes are at work. It is believed that a hormone called Growth Hormone (GH), which stimulates the growth of bone and muscle mass during puberty, also acts as an anti-insulin agent. Moreover, falling blood sugar stimulates the release of adrenaline, which in turn triggers the release of stored glucose. The result: blood sugar levels that swing from too low to too high.

You and your teenager should both realise that poor blood sugar control is not all his or her fault.
Tips for Helping Your Teenager

Understanding and recognising the limits of your control are key elements in helping your teenager with Type 1 diabetes work through the challenges of adolescence. Three areas of special importance are:

01 Understand the Need for Spontaneity.
Teens want to be spontaneous—to be able to do things, eat things, try things. Type 1 diabetes requires the opposite. A teen with type 1 diabetes must realise that freedom only comes with knowledge and responsibility. Only by fully understanding and controlling his or her diabetes can a teen achieve the flexibility he or she craves.

02 Understand the Need for Control.
Teens want to be masters of their own lives. They want to define their own identities. To accomplish these objectives, they have to keep testing their limits. You can help show how they can use the discipline and control of diabetes care to gain strength and mastery in other parts of their lives.

03 Recognise the Limits of Your Control.
Be realistic. Accept the fact that you can’t watch over your teen every minute of the day. You, too, have to learn that it’s your child’s type 1 diabetes, not yours.

By no means do these suggestions mean you should turn your back on your teen and allow him or her to self-destruct. You can talk with your teen about the choices he or she is making. Talk about grown-up matters, like career, marriage, and alcohol. Talking with your teenager shows you think of him or her as an adult and helps keep the lines of communication open during this difficult period.

Get your teen involved in type 1 diabetes support groups and diabetes camps, where he or she can meet other teens with type 1 diabetes. If you believe your child is in serious trouble, don’t be embarrassed about seeking professional help.

Parents and Type 1 Diabetes

Your child isn’t the only one struggling with the emotional challenge that diabetes presents. You are too, and you need support—because it will help you and because it will help your child.

You’re not alone in your struggle, and there’s no reason to feel alone. Get involved in support groups and type 1 diabetes organisations. Your child will benefit from being around other young people with type 1 diabetes, and you will benefit from sharing information and insights with other parents who know the pitfalls, frustrations, and anxieties of a life with type 1 diabetes.

Source:
Diabetes mellitus has increased in prevalence worldwide and in Singapore, the prevalence of diabetes has also increased; 13% of the people living in Singapore now have diabetes.

Diabetic retinopathy, a disease of the retina due to diabetes affecting its small blood vessels, is identified in one-third of patients with diabetes.

One-third of such patients may have vision-threatening retinopathy defined as severe retinopathy where there is increased bleeding of the retina or macular edema where the central part of the retina is swollen.

Diabetic retinopathy is the major complication of the eye associated with diabetes and represents the leading cause of legal blindness in the working-age population of developed countries.

Regular eye examination is important for the detection and monitoring of diabetic retinopathy. Systemic control of the blood glucose, blood pressure and possibly blood lipids plays an important role in delaying the onset and the progression of diabetic retinopathy.

When more severe forms of diabetic retinopathy are detected, laser therapy of the retina, injections of medicine into the eyeball and vitreoretinal surgery are useful to help preserve and even improve vision of patients.

**Screening**

Regular eye examination of patients with diabetes is crucial for the detection and monitoring of diabetic retinopathy as the patients will usually have no symptoms. This enables the more serious forms of diabetic retinopathy to be treated early to prevent vision loss. Those with milder forms of the disease can then be followed up regularly to detect any progression. They can also be counselled actively on the importance of good systemic control of blood glucose, blood pressure and blood lipids.
Systemic Control

Blood Sugar Control

High blood sugar levels promote the development of diabetic retinopathy. High blood sugar levels are associated with increased glycated haemoglobin. Haemoglobin is found in red blood cells and in the presence of high blood sugar, glucose combines with the haemoglobin to form glycated haemoglobin (HbA1c). Blood level of HbA1c indicates the control of diabetes in the patient over the last three months. Two large studies of patients conducted in the US and UK showed that good blood sugar control (as measured by HbA1c) reduced the onset and progression of diabetic retinopathy in diabetic patients who relied on insulin injection or oral medications to control blood sugar. Every percentage reduction in HbA1c lowered the risk of diabetic retinopathy by about 30%.

Blood Pressure Control

High blood pressure worsens diabetic retinopathy as the high blood pressure damages the small blood vessels of the retina. Many studies have shown that hypertension (high blood pressure) is an important risk factor for the development of diabetic retinopathy. A large study of patients conducted in the US has shown that increase in blood pressure is associated with increase in occurrence of both mild and severe forms of diabetic retinopathy. A large study of patients conducted in the UK showed that good blood pressure control reduced the risks of progression of diabetic retinopathy by one-third, visual loss by half, and the need for laser treatment by one-third in diabetics who relied on oral medicine for control of disease. One type of blood pressure lowering medication such as enalapril can also reduce the progression of all forms of diabetic retinopathy, including serious forms.

Blood Lipid or Cholesterol Control

High blood lipid may contribute to the development of diabetic retinopathy. More severe forms of diabetic retinopathy are associated with increased blood lipid levels. One type of lipid lowering drug, fenofibrate, has been found to reduce the need for laser treatment of diabetic retinopathy.

Treatment of the Eye

Laser Therapy

Laser therapy has been the tried and tested method of treatment of severe forms of diabetic retinopathy. Laser therapy prevents the worsening of diabetic retinopathy and stabilises the vision of patients. There are two types of laser therapy for diabetic retinopathy.

One type of laser therapy is called pan retinal photocoagulation, where laser therapy is applied to the entire retina except the macula (central part of the retina). This helps to reduce bleeding and the worsening of diabetic retinopathy.

Another type of laser therapy is called focal or grid laser where laser is applied to the macula so as to reduce the swelling in the macula. However, laser destroys the retina and has side effects such as poor adaption to the dark surroundings and decreased side vision.

Injections of Medicine into the Eyeball

The unhealthy retina of the eye produces a substance called vascular endothelial growth factor (VEGF) which causes diabetic retinopathy, resulting in bleeding and central retinal swelling. A few medications such as ranibizumab, bevacizumab and aflibercept can act against the VEGF. They are injected into the eyeball to control the diabetic retinopathy. Their effectiveness and safety have been proven in many large studies of patients. These patients need more regular follow-up appointments, investigations and numerous injections of medications. The medications can be used alone or combined with laser therapy, depending on the form of diabetic retinopathy.

However, injection of medications into the eyeballs is associated with systemic side effects such as uncontrolled hypertension and stroke; and side effects of the eyes such as infection, cataract and retina detachment. Therefore, the medications should be used with caution in patients with diabetes and diabetic retinopathy.

Vitreoretinal Surgery

The vitreous (jelly of the eyeball) occupies the central space of the eyeball. Severe forms of diabetic retinopathy cause bleeding into the jelly and scars can form within the jelly which can pull off the retina, leading to retinal detachment. Vitreoretinal surgery which involves cutting of the jelly to repair the retina has been used effectively for the treatment of prolonged bleeding or retinal detachment within the eyeball. The aim of the surgery is to stabilise the eye and to maintain vision. There has been a marked improvement in the techniques and technology of the equipment used for the surgery, making the operation safer and faster, with faster recovery of patients. However, surgery has its own risks and complications such as infection, severe bleeding and blindness. The risks and benefits of the surgery must be weighed carefully before the patient proceeds to surgery.

Future Directions

There has been a vast improvement in the understanding of development of diabetic retinopathy. More medications are being researched which may be used in future to improve the treatment of diabetic retinopathy and prevent vision loss. Laser treatment is destructive to the retina even though it can treat the eyes with diabetic retinopathy and preserve the vision. Regenerative medicine in the form of stem cell treatment may play a role in reversing the effects of diabetic retinopathy and laser treatment. Nevertheless, despite better treatment options for diabetic retinopathy, screening is still important for early detection of disease while good systemic control of high blood sugar, high blood pressure and blood lipids is still key to preventing the onset and reducing the progression of diabetic retinopathy.
Recipes for Healthy Eyes
Agnes Wong Xiao Yan
Dietitian
National Healthcare Group Polyclinics

CARROT & CORIANDER SOUP
serves 4

INGREDIENTS

Carrots 400g, grated
Potato 1 (medium – 80g), chopped
Onion 1, chopped
Fresh coriander ½ cup, chopped
Canola/corn oil ½ tablespoon
Water 6 cups
Salt To taste
Pepper To taste

METHOD OF PREPARATION

1. Heat the oil in a pan, add the onion, and then fry until softened. Add in the potato and cook for 1 minute.
2. Add the carrot and water, bring to boil then reduce the heat. Cover and cook for 20 minutes until the carrot is cooked. Remove and cool.
3. Tip into food processor with the coriander. Blend until smooth.
4. Heat the soup in a pan.
5. Add the seasoning.

NUTRITION INFORMATION per serving
Energy 90 kcal
Protein 2g
Carbohydrate 16g
Total Fat 2g
Saturated Fat 0.2g
Cholesterol 0
Dietary fibre 3.7g
Sodium 229mg
Carbohydrate exchange: ~1 exchange
BRAISED WHOLE GRAIN SPAGHETTI WITH SLICED CHICKEN

serves 4

INGREDIENTS

Whole grain spaghetti 300g
Chicken breast 150g, thinly sliced
Cabbage 100g, shredded
Carrot 50g, shredded
Spring onions 50g, chopped
Shallots 2 stalks, chopped
Fresh coriander 30g
Sunflower oil 2 teaspoons
Light soya sauce 1 tablespoon
Oyster sauce 1½ tablespoons
Water 100ml

NUTRITION INFORMATION per serving

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Carbohydrate exchange: 4 exchanges

METHOD OF PREPARATION

1. Blanch spaghetti for 10 seconds and rinse in cold water for 3 minutes.
2. Heat wok and add oil. Quickly sauté shallots and chicken slices.
3. Add spaghetti and stir fry.
4. Quickly add cabbage, carrot, spring onion, water and seasonings.
5. Serve on plate and garnish with fresh coriander.
FOOD FOR GOOD VISION

Foo Jia Min
Senior Dietitian
Changi General Hospital

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.

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
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.

Table 1: Recommendations of Serving Sizes of Different Food Groups

<table>
<thead>
<tr>
<th>Food Group</th>
<th>Number of Servings/Day</th>
<th>Example of 1 Serving</th>
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| Brown Rice and Wholemeal Bread | 5-7                   | 2 slices bread (60g)  
                              |                                                                     | ½ bowl* rice (100g)          |
|                             |                        | ¼ 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

References
PORTION SIZE MATTERS!

When people are diagnosed with diabetes, they often do not know where and how to begin. A good start is adjusting the amount of food you have been eating every day. Fill your plate with non-starchy vegetables and reduce your portions of starchy foods and meats. Many restaurants nowadays offer enormous plates of food and drinks in mega-sized cups. Over time, bigger starts to become the norm and soon you’ll start eating more, even at home. The amount you eat or drink plays a vital role in your energy balance strategy. When served larger portions, you tend to consume more than you realise! Some common food can provide total calories recommended for the whole day! So, watch out for that large-sized portion of fries - that already adds up to 1,000 calories!

1. Divide your plate into 3 portions: 1 half and 2 quarters

2. Fill the largest section with non-starchy vegetables: Spinach, turnips, greens, cabbage, mushrooms, okra, cauliflower, carrots, bell peppers, bak choy

3. Fill in the small sections with grains and starchy foods: Whole grain bread, tortilla, brown rice, pasta, dhal, cooked beans, peas, potatoes, sweet potatoes
There are ways to manage your portion size. Share a meal, eat half or use a smaller plate. Choosing smaller portions will help you to consume less, maintain a healthy weight and manage your blood sugar levels better.

4. Fill in the other small section with protein: Skinless chicken or turkey, Salmon, tuna, catfish, Shrimp or oysters, Lean cut beef or pork, Tofu or an egg.

5. Add a serving of fruit and a serving of dairy.

6. Complete your meal with plain water or unsweetened tea or coffee.
S taying healthy and managing your weight can be pretty simple if you make smart food choices. Whole foods ensure a healthy weight for anyone looking for a healthy life.

Choosing whole grains, fresh fruits and vegetables instead of processed food plays a major part in weight management. Processed food products that contain whole grains will not act the same way that whole grain does. For example, oatmeal cookies will not be as filling as a bowl of rolled oats. The reason is that whole grains in their pure form break down slowly and help to stabilise the blood sugar.

Sugar is hidden in everything from tomato sauce to salad dressings, and in many places where you would least expect it, even health foods like yoghurt. So, do not be fooled by marketing gimmicks!

**Gluten free**

People easily confuse gluten free with healthy foods. Those who have true intolerance of gluten will benefit from cutting out gluten. For people with celiac disease, a gluten-free diet is essential. For others, a gluten-free diet can lack vitamins, minerals and fibre.

Many people do not know what gluten is and have been completely eliminating this protein! Gluten is a protein that shows up in many whole grains including wheat, rye, kamut, barley, etc. It is the binding protein that makes your cakes fluffy.

The key is to vary your carbohydrates. Ancient grains like quinoa, millet, buckwheat, chia seeds, bulgur, sorghum are high in fibre. They help to prevent some cancers, heart disease and blood pressure. Grains are highly beneficial. Do buy them in their natural, unprocessed form.

**Organic**

A very hot word these days is ‘organic’. We happily grab those products, because they are pesticide free. But it is very hard to bear that there is no additional nutritional value for the price this word ‘organic’ carries.

**“All Natural”**

Be wary of products marketed as “All Natural” as the phrase is quite meaningless. These foods are often high in sugar. Drinking water is still the best.

**“Low fat”**

Low fat yoghurt may be low in fat but loaded with sugar. The ‘sugar overload,’ is not exactly what people are looking for in something touted as probiotic-rich healthy food. Go for plain yoghurt with no sugar added. Top it with fresh fruit or nuts.

**Fruitless fruit juice**

It is really very hard to know that some drinks contain only the food dye that gives the drink an appealing and attractive colour.

Such drinks contain neither fruit juice nor chopped fruits in it despite the name of the drink. In fact, artificial food dyes may cause hyperactivity in some children!

Always balance your meal with vibrant fresh fruits. Whole fruits are rich in vitamins, minerals and fibre.

**Shakes**

Some manufacturers of chocolate or strawberry shakes claim they boost nutrition. But if you read the nutrition label you will find sugar is the second ingredient.

Sugar listed in the second place indicates that the product is high in sugar. It is obvious that these drinks are most likely high in calories, and certainly too much for children.

You might want to try making your own shake with low fat milk or yoghurt and fruit such as banana, papaya, strawberry, and blueberry that not only give colour but also add flavour to the drink!
SHAPE UP

Arthritis is the inflammation of the joints. Exercise is recommended because it helps to increase strength, range of movement or flexibility, reduce joint pain and reduce fatigue. It is common for individuals who have stiff and painful joints due to arthritis to avoid exercise, as they are likely to believe that exercise may worsen the pain and stiffness. Contrary to this, the lack of activity of exercise can actually make the joints worse as the lack of exercise weakens the supporting muscles around the joints, thus creating more stress on them. Exercise also helps to maintain a healthy weight thus reducing the load on the joints.

What is the ideal exercise? There is no one exercise that fits all. Depending on one's fitness level and existing medical condition, physiotherapists can assess and prescribe individualised exercises. These may include range of motion exercises for the shoulder, wrist, fingers, ankle, and knee. Strengthening exercises are important to build strong muscles that support and protect the joints. Using light weights such as lightweight balls, water bottles filled with water or elastic bands, you can carry out weight training two or three times a week. Low intensity or low impact aerobic or endurance exercises will improve or maintain your fitness level. Examples include walking, swimming, cycling for at least 20 minutes, splitting the time into five or 10 minute blocks. Balance training is also essential for reducing falls.

If your joints or muscles feel sore before or after exercise, apply heat (such as warm towels or hot packs) for 20 minutes to relax the muscles and joints. Before applying heat, ensure that the joint area is not red or inflamed. If there is an inflammation, apply ice for 15 to 20 minutes.

Listen to your body and start with low intensity exercises if you have not done any exercise for a long time. Consult a professional if you are unsure.

JOINT EXERCISES

Cindy Ng Li Whye
Principal Physiotherapist, Singapore General Hospital

Try these low intensity exercises if you suffer from arthritis:

With a towel around the heel, gently pull the knee up with the towel. Hold for a few seconds then relax the knee. 
Repeat 2 sets of 10 repetitions

Attempt to push arms up toward ceiling, keeping elbows straight and back against the floor. 
Repeat 2 sets of 10 repetitions

Keeping feet flat on the floor, shoulder width apart, squat as low as it is comfortable. Use support as necessary. 
Repeat 2 sets of 5 repetitions

Illustrations by Hannah Lee