Our centres will be closed during Chinese New Year from 12 noon 27 January till 30 January 2017, and will reopen on 31 January 2017.
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DSS management committee 2016/2018

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The fight continues...

International Diabetes Federation (IDF) in partnership with its member associations developed the first Global Diabetes Scorecard designed to track the progress that national governments are making on diabetes and other non-communicable diseases (NCDs). Data have been collected and countries measured on their actions in six critical areas:

1. National diabetes plans and policies;
2. Health systems and access to care;
3. Monitoring and surveillance systems;
4. Government budgeting and finance for diabetes;
5. Engagement and rights;

According to the score card, Singapore is performing strongly in its policies of health systems and access, while rights and empowerment is clearly an area where more efforts are needed. The response to the diabetes challenge will be strengthened with the introduction of a national diabetes plan and relevant preventive policies. Engagement with the Member Association would benefit people with diabetes. The good news is that a large proportion of diabetes-related deaths (25.4%) have been prevented due to the relatively high levels of investment in diabetes-related health expenditures.

Together with the Ministry of Health, DSS aims to continue our fight against diabetes, in the elderly as well as the young, and also those who have Gestational Diabetes (GDM). Our first Diabetes Singapore issue of the year looks at how teens can manage diabetes without feeling they are alone or helpless. You can take diabetes by the horns and fight it. We hope the teens, young adults and their caregivers will find our articles on teen nutrition, how to value yourself, and how diabetes management has progressed over the years, both useful and inspiring.

We want to thank those who attended World Diabetes Day last year and hope you all had a fruitful day. We invite you to join us again for our outreach programs, public forums as well as WDD 2017 and Diabetes Support Group (DSG) activities. We also thank all the regular volunteer writers and contributors who continue to serve on the editorial team so faithfully every issue, every year, these past many years.

May you all have a healthful new year and we look forward to sharing more good articles with you in the months ahead.

Mr Yong Chiang Boon
President
Diabetic Society of Singapore
WORLD DIABETES DAY SINGAPORE 2016
FOCUS ON DIABETES: PREVENTION, DETECTION & SCREENING

World Diabetes Day (WDD) is commemorated around the world on 14 November. The annual event in Singapore is organised by the Diabetic Society of Singapore (DSS). This year, WDD Singapore was held on Sunday, 13 November 2016 at Suntec Singapore Convention & Exhibition Centre.

In line with our government’s efforts to stem the rise of diabetes, our theme this year was “Focus on Diabetes”, with the tagline—“Prevention, Detection and Screening”. The event was officiated by the Guest of Honour, Mr Gan Kim Yong, Minister for Health.

In his speech, Mr Gan reminded that there are about 400,000 Singaporean residents with diabetes and if we do not take action today, estimates show that there will be one million Singapore residents with diabetes by 2050. He also highlighted how the War on Diabetes is a whole-nation effort which requires the commitment of everyone in Singapore.

Mr Gan also launched a new television commercial as part of the “Let’s Beat Diabetes” campaign, encouraging viewers to make positive lifestyle changes as a step towards preventing the onset of diabetes.

Mr Benson Lu, a youth member of DSS, was on stage to share his experience living with Type 1 diabetes. Also on stage was a healthy cooking demonstration by Chef Law Chin Chin. Chef Law prepared an easy-to-make dish called ‘Crispy Tofu Stack with Fruity Dip’.

Participants learnt about prevention of diabetes through making smart food choices and reading food labels. Nurse educators were on hand to share with participants about diabetes management through the diabetes conversational map. Eye and foot screenings were also available.

A few rounds of talks were held on the topic close to the hearts of many Singaporeans: food. The talks, titled “Let’s Eat Right to Beat Diabetes!” were engaging and interactive. The invited speakers took the opportunity to remind participants on the importance of knowing what goes into our bodies and eating right.

As in previous years, one of the main draws for WDD was the exhibition and sale booths by pharmaceutical and industry partners. Booths came prepared with exciting activities, goodies and attractive promotions, keeping the hall abuzz right till the end of the day.

For more information on DSS events, workshops, health screening, mobile clinic, talks and programs, please check out our website: www.diabetes.org.sg
DSS BUZZ

DSS would like to thank all volunteers, partners and sponsors for their participation, contribution and support in making WDD 2016 a great success.

Partners & Sponsors
- Abbott Laboratories (S) Pte Ltd (Diabetes Care)
- Abbott Laboratories (S) Pte Ltd (Nutrition)
- Aerias Medical Pte Ltd
- Ascensia Diabetes Care
- AstraZeneca Singapore Pte Ltd
- Becon Dickinson Holdings Pte Ltd
- Boehringer Ingelheim Singapore Pte Ltd
- Cityneon Events Pte Ltd
- Eli Lilly (Singapore) Pte Ltd
- Gardenia Foods (S) Pte Ltd
- Golden Health Rice
- Imexlink Trade Pte Ltd
- Johnson & Johnson Pte Ltd
- Merck Pte Ltd
- MSD Pharma (Singapore) Pte Ltd
- Nestlé Health Science
- Novo Nordisk Pharma (Singapore) Pte Ltd
- NTUC FairPrice Co-operative Limited
- Pfizer Pte Ltd
- Pharmaforte Singapore Pte Ltd
- Roche Diabetes Care Asia Pacific Pte Ltd
- Sanofi-Aventis Singapore Pte Ltd
- Servier Singapore Pte Ltd
- Terumo Singapore Pte Ltd

Partner Organisations
- Association of Diabetes Educators of Singapore
- Health Promotion Board
- Lions Community Service Foundation Singapore
- Lions International
- Podiatry Association (Singapore)
- Singapore Heart Foundation
- Singapore National Eye Centre
- Singapore Nutrition And Dietetics Association
- Singapore Physiotherapy Association
- Temasek Polytechnic

OUTREACH PROGRAMS OCTOBER & NOVEMBER 2016

4 October 2016
Lunchtime Health Talk @ Seiko Instruments Singapore Pte Ltd

15 October 2016
Outreach at KDF Public Forum

20 November 2016
Outreach at Healthy Minds, Happy Lives Carnival @ Jurong Spring

26 November 2016
Outreach at Eye Care Day For The Family by Singapore National Eye Centre (SNEC)
DSG DIARY 1 OCTOBER 2016
Tiong Bahru Heritage Walk

We had lovely weather for our Tiong Bahru Heritage Walk - sunny but cloudy and cool. We started from the MRT station after we had our blood sugar checks.

Our guide, Mr Choo Lip Sin, gave us an interesting overview before we set off. Tiong Bahru was built in the Art Deco style by the British in the 1930s to provide better living conditions for the people. It actually had flush toilets from the start, as well as the area’s characteristic service alleys and spiral staircases. Some examples can still be seen as parts of the estate have been conserved.

We visited the tomb of Mr Tan Tock Seng, one of Singapore’s founder ancestors. It is on a hill facing the sea, a site believed to have very good fengshui. However, the family gave up the land for a free public school and younger members are subsequently buried at Bukit Brown cemetery. Tiong Bahru means ‘new cemetery’, but the areas nearby the first Singapore Improvement Trust (SIT) estate were initially mostly middle class, as the rental fees were not affordable to the masses. The roads are also named after prominent businessmen and community leaders of the 19th century. Europeans and Eurasians lived there, too. We visited the air raid shelter under the famous horseshoe block. It was beautifully built, with air vents and glass blocks to provide light. This well-ventilated place still smells fresh! It lies disused as it can no longer function as a bomb shelter given today’s more powerful weapons of war. Instead, a new shelter is located at the MRT station nearby.

Of course, we could not go without first immersing ourselves in Tiong Bahru’s rich food heritage! Our guide recommended many famous food outlets. I must say that the yong tau foo I ate was really delicious!

1. Program subject to change due to weather conditions or unforeseen circumstances. Please look out for email updates.
2. Please wear good walking shoes.
3. Check your feet for cuts/wounds, and alert event coordinators if you have any. Please do not proceed with the activity if you have cuts or wounds on your feet.
4. Let’s cultivate great exercise habits! Bring along your own blood glucose metre!
5. Please bring along an umbrella, drinking water as well as snacks (e.g. biscuits, in case of hypoglycaemia).
6. Meals will be at your own expense, unless stated otherwise.
Samantha also saw that diabetes is not all of her and she is not to be blamed for having diabetes.

Daryl started to feel much better about himself and also more motivated to maintain his health goals when he explored possibilities for his personal goals.

Acknowledging her good qualities helped Joanne to feel proud of herself.

And when Muhammed plucked up the courage to share with some of his close friends in class, they were supportive and encouraging.

All names have been changed.
Valuing “YOU”

Hey, you.
Yes, you.

Living with diabetes is indeed no small feat. Not only do you have what other teenagers have on their plate—physical changes from puberty, stress from school, family and friends—but you also have to handle a complex regime of blood glucose testing, insulin administration, diet and exercise. Sometimes you feel different and sometimes feelings of giving up on self-care creep in. Things can be better. We share how some other adolescents cope effectively by “valuing” themselves.

Veer off Self-Blaming
Samantha, 15, felt at odds with herself. She disliked herself because she has diabetes and it makes her different from others. Sometimes she also blames herself when she “forgets” her self-care regime. Samantha later recognised and decided that it was not helpful to keep disliking and blaming herself as it made her stressed and did not get her anywhere. Samantha also saw that diabetes is not all of her and she is not to be blamed for having diabetes.

Allow Space for Personal Goals
Daryl, 16, felt unmotivated to follow his self-care regime. He was frustrated that his health goals are an obstacle to his personal goals of participating in sports. After speaking to his doctor and working with his soccer team coach, he was able to work out arrangements that helped him balance both goals. Daryl started to feel much better about himself and became also more motivated to maintain his health goals when he explored possibilities for his personal goals.

Look Out for Your Qualities
Joanne, 15, often felt there was nothing good or special about herself. She often received messages from some people around her that she is not well and weak. It was only after she shared with another younger person with diabetes that she realised that she has qualities such as perseverance, meticulousness (evident from her regular self-care regime) and a caring spirit (evident from her sharing with others). Acknowledging her good qualities helped Joanne to feel proud of herself.

Understanding of Others
Kavati, 14, shared how talking about her condition and regime with one of her close friends, Rani, in the school debate club helped her. She did not feel so alone or have to “hide” her condition. Rani also shared that she did not see Kavati as any different from others but saw her as a friendly and helpful person, a fact that Kavati was not aware of herself.

Enlist Help Of Others
Muhammed, 17, recalls that it was hard for him to manage his diabetes when he first entered secondary school. Thankfully with the help of his teachers and parents, they found ways to fit his insulin injection into his schedule. And when Muhammed plucked up the courage to share with some of his close friends in class, they were supportive and encouraging. This helped Muhammed to sustain his motivation to carry out his self-care regime.

You are special as a person and not because you have diabetes. You have unique qualities, skills and knowledge that others do not have. Learning to value yourself and discovering the values in yourself can help you to have an even more valuable life.

About the author: Henry Lew works as a psychologist and enjoys coming up with creative ways to engage his patients and readers.
AN INTRODUCTION
Diabetes management: The Young, and The Pregnant

Type 1 Diabetes was once known as Juvenile Diabetes, as it commonly occurs in childhood and adolescence but may also occur at a later age. Characterised by insulin-making cells (beta cells in pancreas) destruction attributable to an autoimmune process, patients with Type 1 diabetes are insulin-dependent. Such patients are not commonly obese, although the prevalence of overweight/obesity in children and adolescents with Type 1 diabetes is increasing as in the general population. These patients may also have other autoimmune disorders—such as Graves’ Disease, Hashimoto’s Thyroiditis and Addison’s Disease.

On the other hand, obese children, who remain obese in adulthood are more likely to develop a variety of health problems such as Type 2 diabetes, heart disease and joint problems.

Both nature and nurture can bring about Type 2 diabetes. While ageing and a family history of diabetes can increase the risk of diabetes, other controllable factors such as body weight, dietary habits and exercise patterns can also play a part. Dietitians at polyclinics regularly receive referrals from doctors and concerned parents regarding teen obesity. Schoolchildren tend to gain some weight during long holidays as a result of festive bingeing and reduced physical activity.

Fast food, *hawkers food with high fat content, sugary snacks and sweetened drinks are conveniently available and popular among teens as well as young adults. Childhood food consumption and exercise patterns will eventually have a significant health impact during adulthood.

<table>
<thead>
<tr>
<th>Hawker food with higher calories/ fat content</th>
<th>Dietitian’s tips</th>
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<tbody>
<tr>
<td>Chicken rice (607kcal, 23g fat)</td>
<td>Remove chicken skin, opt for plain rice, top up vegetable portion</td>
</tr>
<tr>
<td>Lontong (798kcal, 40g fat)</td>
<td>Do not finish soup base</td>
</tr>
<tr>
<td>Char kway teow (744kcal, 38g fat)</td>
<td>Request for less oil; do not to add extra sauce; consider soup or dry noodles eg fish slice beehoon soup (349kcal, 8g fat), dry fishball noodles (370kcal, 8g fat)</td>
</tr>
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* data from Energy & Nutrient Composition of Food, Health Promotion Board
According to the Ministry of Education, obesity in schoolchildren has risen—from 10% in 2000 to 12% in 2014. Based on projections, rising obesity in teens will further push up the rate of diabetes in Singapore.

Currently, stallholders of school canteens are encouraged to use healthier ingredients, and drinks have to meet the Health Promotion Board’s (HPB) reduced-sugar requirement. It is important that all of us, including you and me, adopt healthier eating habits—you can start by challenging yourself to reduce your intake of sweetened beverages today!

**Gestaional Diabetes (GDM)** is defined as glucose intolerance which first occurs during pregnancy. Hyperglycaemia occurs when pancreatic beta cells fail to compensate for the body’s insulin need during pregnancy. The prevalence of GDM is increasing, driven by advancing maternal age and obesity.

To manage GDM effectively, it is important to control blood glucose levels and weight gain while maintaining a healthy diet. According to the MOH Clinical Practice Guidelines for Diabetes Mellitus, dietary control should be used in the first instance to attain glycaemic goals in GDM.

Nutritional counselling and meal planning should be individualised, taking into account the patient’s body weight, weight gain and physical activity. In general, the diet should contain more complex carbohydrates, more fibre, and less saturated fat; meal and snack carbohydrate intake should be consistently distributed throughout the day.

If nutritional therapy does not consistently maintain a fasting or pre-meal blood glucose of <5.5 mmol/L, and/or a one-hour postprandial glucose of <7.8 mmol/L or a two-hour postprandial glucose of <6.7 mmol/L on two or more occasions within a one to two-week interval, insulin/pharmacologic therapy should be considered.

Currently, there is no evidence that treating GDM decreases the risk of developing Type 2 diabetes later in life. It is highly recommended that a woman continues lifestyle modifications which include healthy eating, regular exercise and weight management even after delivery to prevent diabetes.

**About the author:** Estonie Yuen is a senior dietitian at National Health Group Polyclinics.

Reference:
4. Ministry of Health Singapore (2014). Clinical Practice Guidelines For Diabetes Mellitus (Published March 2014)
SPECIAL FEATURE

Diabetes in Teens: What’s New?

Some teens may be newly diagnosed with diabetes. Others may be moving on to a new set of doctors and nurses after having been looked after by a paediatric endocrine team. Many might be asking themselves what it means to have diabetes, especially since many educational materials seem directed not at them, but at older individuals with diabetes.

So, is it better to be a teen with Type 1 diabetes (T1DM), or Type 2 diabetes (T2DM)?

An Australian study of 354 individuals with T2DM and age of onset between 15 and 30 years from 1986 to June 2011 were compared with 470 patients with T1DM with a similar age of onset. The study showed that over the 20 years or more of follow-ups, there were more cardiovascular deaths, higher prevalence of albuminuria, higher chance of nerve damage and macrovascular complications in those with young onset T2DM versus those with T1DM.

It appears that young-onset T2DM is the more lethal phenotype of diabetes and is associated with a greater mortality, more diabetes complications, and unfavourable cardiovascular disease risk factors when compared with T1DM, in a study from Australia, published in Diabetes Care 36:3863–3869, 2013. A study from Finland about people with early onset T1DM showed that their survival has improved over time, compared to those with late onset T1DM, BMJ 2011.

As a specialist in the field of paediatric diabetes for the last 25 years since the early nineties, I have seen many changes in how we treat diabetes, what medicines we use and how we monitor progress and glucose control.

For example, the new rapid acting analogues are better able to control glucose spikes so that ice cream and cakes which were once out of the question for children with diabetes, can now be special treats when taken in moderation and, preferably, after a meal so that glucose spikes are moderated and lots of insulin is active.

Also, we are now able to encourage teens to go all out and excel in sports, because if the doctor and patient work together to tweak doses, sporting excellence and good diabetes control can go together, and extreme sports such as endurance bike rides, marathon runs and even scuba diving are real possibilities in the well controlled, knowledgeable person with diabetes.
The advent of newer continuous glucose monitoring systems has changed how we monitor glucose readings. What about new technologies?

Well, just as widespread blood glucose monitoring was a game changer about 20 years ago, widespread use of continuous glucose monitoring equipment will be a game changer in the coming years, because products like the DEXCOM CGM, the Abbott Freestyle Libre and the new Guardian Sensor 3 CGMS systems promise to make it easier, more affordable and more patient-centric.

The key issue is that these new CGMS devices are now good enough that you might give a dose of additional insulin based on the data provided and that you can start taking over control of your diabetes rather than having to see a doctor for every insulin change.

The first, the Medtronic Guardian and Enlite 2 systems allowed patients and their doctors to see for the first time how many undetected lows they might be having, e.g. in the afternoon, during sport or at night during the course of a week. This made it much easier for patients and doctors to adjust their basal insulin or insulin pump basal settings.

Newer systems do even more—the Freestyle Libre (Abbott) which is available only overseas is able to let patients wear a CGMS sensor on their arms for 14 days and either get on the spot readings by passing the reader over the sensor or download serial data to build up a continuous picture of their readings.

Dexcom (also not available in Singapore) is a conventional CGMS system but is not tied to a pump manufacturer and has an easy smart phone type interface young users find intuitive.

Even conventional blood glucose meters have become better and some can measure blood ketones, an important capability which can keep T1DM patients out of hospital for diabetic ketoacidosis (DKA), while others come with an built-in algorithm which can help guide correction doses and meal doses for insulin.

The Medtronic 670G and Guardian Sensor 3 Continuous glucose monitoring system was just given FDA approval in September 2016. The 670G is considered a “hybrid closed loop” system because it is not fully automated—it still requires manual food and correction insulin boluses, as it only automates basal insulin. At least four other companies are poised to launch similar systems in the coming months and trials already are in place for a fully automated system which is able to take care of even meal boluses on their own.

It is, however, sobering to note that because of cost and because not everyone can tolerate the placement of CGMS...
We are now able to encourage teens to go all out and excel in sports, because if the doctor and patient work together to tweak doses, sporting excellence and good diabetes control can go together, and extreme sports like endurance bike rides, running marathons and even scuba diving are real possibilities in the well controlled, knowledgeable person with diabetes.

What I see most, besides the technology, is the locus of control, which has passed from doctor and closer towards the patient.

When I first started in the field of paediatric diabetes, the top three problems were:

1. Lack of good rapid acting and reliable, predictable long acting insulins and lack of oral drugs that could help control blood sugar levels. Few patients were on basal bolus, most were on twice a day mixed insulins and some were on fixed ratio mixed insulins (e.g. Mixtard 70/30). The rapid acting insulin analogues would only come in the late nineties beginning with Humalog, then Novorapid and then Apidra, and the long acting analogues Lantus and Detemir were to appear around 2003 onward.

2. Lack of knowledge on the part of patients and doctors, so that people with diabetes were not getting access to the best management strategies that would have helped them to both get good quality of life and also minimise their long term complications rates.

3. Limitations in technology: blood glucose machines were less portable and were relatively beyond the reach of many people. Most people were using urine glucose testing to guide their insulin regimes. Continuous glucose monitoring and insulin pumps were not yet available, and the concept of the artificial pancreas was just a dream.

In the mid nineties, the DCCT or Diabetes Care and Complications Trial in the USA showed conclusively that intensified care (basal bolus injections and insulin pumps) compared to standard care (twice a day insulin) led to tighter control, better HbA1C and lower diabetes long term complications rates, while the EDICT trial that followed showed that even 10 years after going back to standard care, those in the intensively treated group had better survival and lower complication rates more than those who received standard care. Sadly, this knowledge has not always translated into action.

While all the current insulin analogues rapid and long acting are coming to the end of their exclusive patented period, I find that many young people are still on twice a day mixed insulin regimes instead of using basal bolus (three to five times per day) using analogue insulins to achieve better and smoother control.

Cost has been often cited as a factor but, in reality, the additional cost of better insulin per day translates into two cups of coffee or two soft drinks at coffee shop prices per day, or, at the most, a latte a day if you a big-sized person. Perhaps mindset change and more patient and healthcare provider education is needed here.

About the author: Dr Warren Lee (MBBS  M Med Paeds FRCP London FRCPCH UK, FAMS) is a paediatric endocrinologist in private practice at Camden Medical Centre. He founded the Endocrinology Service at KK Hospital and is now a part-time senior consultant at the KKH Endocrinology Service.
Berry ice pops
SERVES 4

Ingredients

1 cup unsweetened frozen berries
1 small banana
60g non-fat Greek berry yoghurt
½ cup skim milk

Method of preparation

1. In a blender mix together all ingredients until smooth.
2. Pour smoothie mixture evenly into four ice pop moulds. Insert ice pop handle on top. Place upright and freeze until solid.

Nutrition Information Per Serving

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About the author: Chan Sau Ling is a dietitian with National Healthcare Group Polyclinics.
Quinoa with cranberries & walnuts
SERVES 6

Ingredients
2 cups low fat, reduced-sodium chicken broth
1 cup quinoa
½ cup dried cranberries
3 tablespoons baked walnuts (chopped)
1 teaspoon dried parsley

Method of preparation
1. Heat the chicken broth in a pot over medium-high heat and bring it to a boil.
2. Stir in the quinoa, cover and reduce heat to simmer for 15-20 minutes.
3. Add the cranberries and cover for 5 minutes.
4. Turn off the heat and let the quinoa stand for 5 minutes.
5. While the quinoa is cooking, mix together the dressing ingredients.
6. Pour the dressing over the cooked quinoa. Add the walnuts and mix well.
7. Sprinkle with dried parsley, ready to serve.

Dressing
½ teaspoon Dijon mustard
2 tablespoons balsamic vinegar
1 clove minced garlic
3 tablespoons olive oil
¼ teaspoon ground black pepper

Nutrition Information Per Serving

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About the author: Chan Sau Ling is a dietitian with National Healthcare Group Polyclinics.
Spinach & Tangerine Salad

SERVES 4

Ingredients

- 1 cup spinach (30g)
- 1 medium tangerine
- 1 small diced red pepper
- 1 cup sliced cucumber
- 2 tablespoons of chopped spearmint leaves
- 2 tablespoons of lemon juice

Method of preparation

1. Mix spinach, tangerine, diced red pepper, sliced cucumber in a bowl.
2. Combine mint leaves and lemon juice and add to the salad.

Nutrition Information Per Serving

- Energy: 120kcal
- Protein: 4g
- Carbohydrate: 23g
- Total Fat: 2g
- Saturated Fat: 0g
- Dietary fibre: 5g
- Sodium: 43mg
- Calcium: 117mg
- Iron: 5mg
- Carbohydrate exchange: 1.5 exchanges

About the author: Kohila Govindaraju is an accredited nutritionist and director of THE BERRIES Nutrition Consulting, an avid blogger (kohilag.wordpress.com) and prolific author of magazine articles on food and nutrition, including a book titled How to Lose Weight Without Hunger published by PatientsEngage.
Ingredients

100g lentils
4 tablespoons sliced onion
2 tablespoons diced scallion/ green onion
100g cherry tomatoes, halved

Dressing

2 tablespoons freshly squeezed lemon juice
2 teaspoons olive oil
¼ teaspoon ground black pepper
1 tablespoon chopped coriander leaves

Method of preparation

1. Cook the lentils until tender.
2. Add green onions, scallions and tomatoes.
3. Whisk the dressing ingredients together.
4. Drizzle the dressing over the lentils and combine.
5. Refrigerate before serving.

Nutrition Information Per Serving

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<tr>
<td>Protein</td>
<td>7g</td>
</tr>
<tr>
<td>*Carbohydrate</td>
<td>20g</td>
</tr>
<tr>
<td>Total Fat</td>
<td>1g</td>
</tr>
<tr>
<td>Saturated fat</td>
<td>0.25g</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>0 mg</td>
</tr>
<tr>
<td>Dietary fibre</td>
<td>3 g</td>
</tr>
<tr>
<td>Sodium</td>
<td>6 mg</td>
</tr>
<tr>
<td>Carbohydrate exchange</td>
<td>1 exchange</td>
</tr>
</tbody>
</table>

About the author: Kohila Govindaraju is an accredited nutritionist and director of THE BERRIES Nutrition Consulting, an avid blogger (kohilag.wordpress.com) and prolific author of magazine articles on food and nutrition, including a book titled How to Lose Weight Without Hunger published by PatientsEngage.
Do you ever wonder whether your teenager will eat you out of house and home? They seem to be always hungry and they never stop looking for food. Growth and development are in high-speed during the teenage years and the demands for calories during this period in early adolescence are more than at any other time of life. A number of physiological, physical and behavioural changes occur and these changes require an increase in the amount of nutrients. Though it is obvious that adolescents need sufficient energy and nutrients for their growth and development, some are inactive and eat more than they need and become overweight.

What do teens need to help them grow?

1. **CARBOHYDRATES**
   Teens need carbohydrates that are vital to their health for various reasons. Carbohydrates help fuel the brain, kidneys, heart, muscles and central nervous system. It is the main fuel source of energy. But not all carbohydrates are equal. Some studies quote that eating breakfast made with “slow-release” carbohydrates, such as oatmeal three hours before exercise will help burn more fat efficiently. Whole grains are good sources of complex carbohydrates that take a longer time to digest and are higher in fibre, selenium, magnesium and potassium than refined grains and products. Whole fruits and vegetables add water, fibre and bulk that are packed with fewer calories and at the same time help us to feel full faster.

2. **PROTEIN**
   Protein is an essential micronutrient for growth, and tissue repair. An athlete’s performance depends on muscle strength and these muscles are made of protein. It is not just the protein consumed in one sitting that will aid muscle strength. Regular exercise along with high biological value proteins spread throughout the day will help build up muscle. The protein recommendation per day is two servings of meat and alternatives. Athletes may require a higher amount of protein than recommended, which is calculated by a sports physiologist/nutritionist, based on the intensity of the activity.

3. **CALCIUM**
   Taking calcium-rich foods like low-fat dairy products, green vegetables, eg watercress, broccoli, almonds, and fish with bones will help to increase the bone mass in young people.

4. **IRON**
   Iron requirements increase during adolescence to help with growth and muscle development. Girls especially need more iron to replace their menstrual losses. So, teens should focus more on iron rich foods. Iron from meat sources are readily absorbed by the human body. Though meat is a good source of iron, teens should go for lean protein that is low in saturated fat. Nuts, whole grains, dark green leafy vegetables and figs are also loaded with iron. Iron in egg and vegetarian sources are not easily absorbed by the body.

5. **VITAMIN C**
   Vitamin C from fruits will help absorb the iron from these sources. So, it is wise to take fruits rich in vitamin C along with these foods. For example, spinach and egg salad garnished with orange slices and lemon and mint dressing is a good and natural shot of iron. In addition, it is also loaded with vitamins and minerals and fibres.

6. **FIBRE**
   Adolescents should have sufficient fibre, too. Fibre is a carbohydrate that aids in digestion and keeps cholesterol in control. Fibre latches onto your food and chauffeurs it through your body. Fibre is a natural laxative that promotes the movement of material through the digestive system and benefits those struggles with constipation. Teens should aim to have two servings of fruit and two servings of vegetables and two to three whole grain products every day.
FATTY FOODS
It’s probably not the best news young people will like to hear. But here goes: mixed meals (made of cheese, meat or both and sodium) like burgers, sandwiches, pizza, tacos, rice, pasta are major sources of saturated fats. Move from high saturated fats to polyunsaturated and monounsaturated fats. You could change the ingredients of these mixed dishes to healthier choices such as vegetables, whole grains, lean meat and low-fat cheese.

SODIUM
Most of the sodium consumed by teens comes from salts added during commercial food processing and preparation. Commercially processed or prepared mixed dishes and soups account for almost half of their sodium consumption. Reading food labels to compare sodium content of the product will help you choose more wisely. Limiting sauces, mixes and instant products like flavoured rice, instant noodles, ready to eat pasta will help reduce the sodium consumption. High sodium intake will increase blood pressure and cause calcium losses that lead to bone demineralisation and that will increase the risk of osteoporosis, causing fragility and breakages even in young people.

DESSERTS & BEVERAGES
In order to maximise the amount of nutrients you take in, consume nutrient dense foods that are naturally lean and low in solid fats, sugars, refined starches and sodium. Cakes, pies, cookies, doughnuts, pastries, ice cream, frozen puddings, candies, and syrups make up more than 75% of intake of all added sugars. Beverages account for almost 40 to 50% of added sugars consumed by teenagers. Reduce your sugar consumption to 11 teaspoons per day. As a gauge, one packet of sweetened drink contains about five to seven teaspoons of sugar. Choose beverages with no added sugars in place of sugar-sweetened beverages. Better still, drink plenty of water.

EATING DISORDERS
Keep a lookout for eating disorders in teen girls, particularly those aged between 12 and 18 years. During middle and late adolescence, girls eat roughly 20 to 30% fewer calories per day than boys. However, some eat far far less than they should or not at all. Anorexia nervosa is an illness where girls tend to keep their body weight low either by consuming much less than they should or nothing at all. Some girls overuse laxatives or overdo the exercise to keep their body weight low. Bulimia nervosa is another illness where the sufferers are obsessed with the fear of gaining weight. They have a recurring pattern of eating large amounts of food, followed by self-induced vomiting.

BALANCING ACT
Eating balanced meals is the best way to prevent eating disorders. Awareness of food and exercise will help teens avoid mistaken notions about food, weight and body shape. Young people should do regular exercise at least for 60 minutes of moderate intensity activity (walking, cycling, dancing) five or more days a week.

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References
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Gestational diabetes mellitus (GDM) is defined as the onset signs of glucose intolerance during pregnancy. It is one of the most common pregnancy complications, with research showing that women with hypertension, who are overweight and those with higher level of abdominal fat are at a higher risk of developing GDM (Barakat et al, 2012; Padayachee et al, 2015). Although the diabetes goes away after giving birth in most women, the potential complications of untreated GDM during pregnancy can affect both the baby and the mother in the short and long term. Acute short term hyperglycaemia may lead to hypertension and preeclampsia in the mother and the development of foetal macrosomia (big baby).

In the long term, the risk of developing Type 2 Diabetes (T2DM) increases seven-fold for the mother, and babies of GDM pregnancy are also associated with obesity with T2DM in the later part of their lives. Those born with macrosomia have also been linked to an increased risk of developing cardiovascular disease and leukaemia over their lifetime. Exercise has shown to be a safe and effective medicine in preventing and managing GDM before conception and during pregnancy with practically no side effects.

The benefits of exercise in pregnant women are well documented (Barakat et al, 2012; Padayachee et al, 2015). For women already engaging in regular moderate-intensity physical activities, the chance of developing GDM during pregnancy are shown to be lower. During pregnancy, regular physical activity may prevent developing GDM and improve postprandial control of hyperglycaemia in women diagnosed with GDM. Other benefits of regular exercise during pregnancy include reduced risk of other pregnancy complications (e.g., preeclampsia), maintained or increased cardiovascular fitness and greater ease of labour and delivery.

A chronic or longer term physical activity programme is needed for optimal effect on GDM (Dempsey et al, 2004; Barakat et al, 2012). Recent studies that lasted throughout the pregnancy comparing diet and exercise intervention generally agrees that those receiving exercise therapy were found to have greater glycaemic control with lower fasting glucose level and postprandial glucose concentration. In contrast, a study (Lesser et al., 1996) that measures the postprandial glucose and insulin concentration following a single bout of moderate intensity exercise (60% Vo2max) did not show any positive effects of exercise on glycaemic response in six GDM subjects.
Current guidelines for GDM consist of aerobic, resistance training and conditioning exercises. The recommendation is at least 30 minutes, three to four times a week of aerobic activities together with twice per week of resistance training and once per week of conditioning exercises consisting of stretching and light body weight exercises such as lateral leg raise and pelvic tilt exercises.

Current exercise prescriptions mostly emphasise aerobic exercises then resistance training. However, research shows that resistance training can provide additional benefits not seen in aerobic training such as increase in muscle mass which enhances blood glucose uptake. Exercise should be carried out in a well ventilated room ideally with temperature control to reduce the risk of increasing foetal temperature. Thus, aerobic exercise within 45 minutes is recommended, or shorter if exercising in higher temperatures and humid environment.

When selecting sports and performing exercise movements, precautions should always be observed to protect the mother and child. Sports that involve contact (eg basketball); risk of falling (eg horseback riding, gymnastics); exercises in supine positions; motionless standing; and scuba diving should be avoided (Padayachee et al, 2015). Exercise should be terminated if symptoms of vaginal bleeding, dizziness, headache, chest pain, muscle weakness, preterm labour, decreased foetal movement, amniotic fluid leakage, calf pain or swelling and dyspnoea without exertion (Parayachee et al, 2015).

In general, exercise benefits both mother and child with little adverse effect when precaution measures are practised. A longer term exercise plan starting from second trimester is recommended for consistency and optimal effect. Exercise should target low impact moderate intensity aerobic activities adding some weight training and body weight conditioning exercises. Adequate warm-up and cool down stretching exercises are important to prepare the body for upcoming activity and for recovery after exercise. Avoid prolonged exercise under the sun and high body temperature.

About the author: Ray Loh is an exercise physiologist at the Sports Medicine and Surgery Clinic, Tan Tock Seng Hospital.
UNDERSTANDING DIABETES AND ITS CONTROL
SELF-CARE MANAGEMENT WORKSHOP 2017

Understanding the Management of Diabetes
A 4-week comprehensive Self-Care Management Workshop

TOPICS COVERED

* Guidelines on diabetes self-care
* Glucose testing and recording
* Understanding medications
* Foot care

* Oral care
* Nutrition
* Exercise
* Complications of diabetes
* Travel

Course Fee: $21.00 per person (4 sessions)
Duration: 2-hour weekly session for 4 weeks (4 sessions)
Target group: People with diabetes and their caregivers

Understanding Diabetes and Its Control Schedule 2017

Central Singapore DECC
Blk 22 Boon Keng Road #01-15
Singapore 330022
Tel: 6398 0282

June
2, 9, 16, 23
Friday
6.30-8.30pm

CHINESE
March
3, 10, 17, 24
Friday
6.30-8.30 pm

MALAY
February
3, 10, 17, 24
Friday
6.30-8.30 pm

South West DECC:
Blk 528 Jurong West Street 52 #01-353
Singapore 640528
Tel: 6564 9818

October
6, 13, 20, 27
Friday
6.30-8.30 pm

September
4, 11, 18, 25
Friday
6.30-8.30 pm

ENGLISH
April
6, 13, 20, 24
Thursday
6.30-8.30 pm

CHINESE
August
3, 10, 17, 24
Thursday
6.30-8.30 pm

For registration, please call the respective centres.

Supported by Lions Diabetes Program

Please note that the above dates may be subject to change.