

PREVENTION AND MANAGEMENT OF DIABETES & 3-HIGHS, YOUR GREAT COMPANION!

DIABETES AND 3-HIGHS ALLIANCE



Diabetes and insights from COVID-19

Professor Juliana Chan

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As we enter 2020, the world is challenged by two global epidemics of diabetes and COVID-19. Globally, 450 million people have diabetes whose vulnerability continues to unfold during this global epidemic of COVID-19. The poor outcome of people with diabetes and chronic diseases during these acute emergencies is a wakeup call. It reminds us of the importance of preparedness for the unpredictable and that health is undeniably, one's most important asset.

At the time of writing, more than 5 million people are affected by COVID-19 worldwide with a death rate of 6%. With continuing spread of the infection, the number of deaths due to COVID-19 is expected to continue to rise.

Busy economic activities, frequent travelling for work or pleasure and overcrowding have markedly increased our risk of contracting new infections. The lack of previous exposure to these new infective agents and insufficient body defense have made these agents including viruses, bacteria and parasites, particularly virulent which can be potentially lethal.

People with diabetes have impaired body defence to infection by external agents. Research studies including analysis of the Hong Kong Diabetes Register conducted by Chinese University of Hong Kong showed that people with diabetes have 2-3 fold increased risk of developing infections at all sites including the lung, kidney, and skin. The infection risk and outcomes is closely related to control of blood glucose, body weight and blood pressure as well as the presence of heart or kidney disease.

People with diabetes have impaired function of their white blood cells with reduced ability to fence off infections by external agents. During their fight against these foreign particles, there are additional demands on the heart and kidney function. Thus, the risk of developing complications including death may increase by 2-3 fold during these acute emergencies especially in those with pre-existing organ damage.

Diabetes is a silent killer. It is also the major cause of many critical illnesses. High blood glucose on a long term basis can damage all blood vessels and nerves which can affect the structure and function of all organs. The consequences of these silent damages often manifest themselves during time of emergencies. The rapid changes in lifestyles, especially in those with genetic or hereditary factors has led to increasingly early onset of diabetes and critical illness, which will become a time bomb for our healthcare systems and society.

Good control of diabetes is an important investment. During one's journey of living with diabetes, he/she needs support from his/her healthcare teams, friends and families. Through mutual learning and support, it is more effective to change habits and attitudes. By turning challenges to opportunities, one can transforming one self, not just to protect themselves but also their loved ones.

The mission of Asia Diabetes Foundation is to gather and use personalized data to help people prevent the preventable, stay healthy and protect their wealth. We cordially invite you to become part of this alliance to realize our shared vision.

Genetics and Diabetes

This article provided by GemVCare.

Each cell in the human body contains genes and around 20,000 of these are protein-coding. These genes are inherited from the parents and are similar to a blueprint since the human body will produce proteins and control its structure and functions based on this “blueprint.” Since there are variations among individual’s genes, they enable us to be different in appearance and physique.

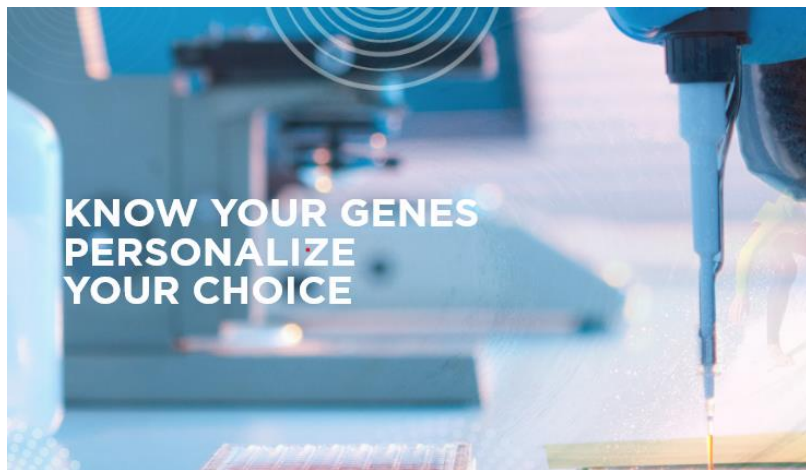
Understanding Genes and Diabetes

As technology advances, human has been trying to encode this genetic blueprint and studying genes and diabetes and their relationship with related diseases. Evidence from studies show that if an individual’s direct relatives (e.g., parents, siblings) have Type II diabetes, they are up to 3 times more likely than others to get it later in life. Studies also find that some genetic variations in individuals may affect the development of the pancreas, the generation and secretion of insulin, and the insulin sensitivity of cells.

Currently, diabetes genetic studies have discovered over 100 genetic variations associated with Type II diabetes, and diabetes and its complications are caused by multiple genetic changes. However, not all genetic variations will induce disease instantly, other risk factors of diabetes also contribute to our well-being. In addition, studies from foreign countries find that among different races, their diabetes-related genes are also different. These variations can lead to different incidence of diabetes in different groups of people. Using Asia as an example, 1/5 of Chinese diabetic patients see onset of the disease before 40 years of age and it is probably associated with race-related genes.

Cause of Type II Diabetes

Type II diabetes results from genetic and variable risk factors. If an individual naturally has multiple high-risk genes and is also affected by adverse environmental factors (e.g. obese, smoking, etc.), plus a delay in diagnosis and treatment because the diabetic symptoms are not obvious, these factors will all increase the risk of developing diabetes. On the contrary, if one has a limited number of high-risk genes and cares about one’s health as well as aware of the risks, then this individual has a relatively lower chance of developing diabetes. Although genes are irreversible, variable risk factors (such as weight) can be changed to reduce the risk. Therefore, the earlier you know about your physical conditions, the better you can prevent yourself from developing diabetes.



True or False Type I Diabetes?

Type I diabetes is mainly due to the immune system attacking islet cells which will result in increased blood sugar due to the insufficient production of insulin. Studies also find that multiple genes are associated with Type I diabetes and the functions of these genes are mostly related to the immune system. Another subtype of diabetes, namely “Maturity Onset Diabetes of the Young (MODY)”, is induced by a single gene mutation.

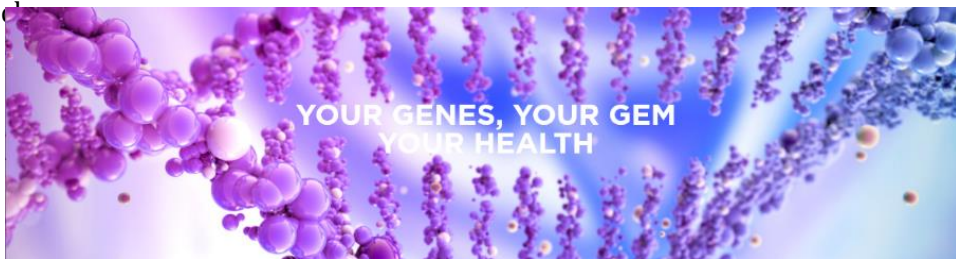
Similar to Type I diabetes, MODY patients usually show onset symptoms from a young age, and also due to the similarity between these two types, young “MODY” patients are often misdiagnosed with Type I diabetes and receive therapies for Type I diabetes, causing unsatisfactory treatment results.

Understanding Precision Medicine

The study of genetic blueprints not only can analyze different types of diabetes, the genome can also reflect the effectiveness of drugs and associated reactions. In the past when we wanted to know the effectiveness of a particular drug on an individual, it took quite some time to observe its benefits and reactions, and only then would the type of drug and dosage be adjusted according to the situation.

However, with the help of genetic information, precise decisions can be made to avoid using drugs with poor or undesirable results, and we can personalize a precise medical regimen. We believe in the near future, medical staff can use genetic tests as a common practice to perform risk prediction for people who are at a higher risk of developing diabetes.

On the other hand, diabetes patients can be diagnosed with the correct type and/or subtype, their conditions can be better assessed, and a management regimen of precise treatment can be applied to reduce complications. For further information about genetics and diabetes, please seek professional medical advice and consult a doctor.



Overweight increases the risk of diabetes, nutritional milk helps to control blood glucose level and reduce weight

Dr. Michelle Yuen

Specialist in Endocrinology, Diabetes and Metabolism

Overweight people are three times more likely to develop diabetes and obese people are more than seven times

People with a family history and those who are overweight or obese are all at high risk for type 2 diabetes. Dr. Michelle Yuen, an endocrinologist, stated that overweight or obesity can increase insulin resistance and overweight people are three times more likely to develop diabetes than a normal weight person. People with obesity are almost seven times more likely to develop diabetes. In view of this, losing weight can greatly reduce risk of diabetes if you are overweight or obese. Several things we can do to reduce weight.

Endocrinologist recommends reducing weight by having good eating habits, selecting food wisely and doing exercise

Dr. Yuen recommended eating speed should be slowed down and you don't have to be all full. It's important for selecting food, she recommended to intake food with low sugar and low oil. For those busy working populations, sometimes it is very difficult to eat healthy as they often rely on fast food. She added if there's insufficient time to cook, one can consider replacing meal with nutritional milk, so that calorie and nutrition intake can be balanced. The American Diabetes Association suggests that one to two cups of nutritional milk per day can be used for meal replacement. Research showed that weight can be reduced by having one to two cups of nutritional milk per day to replace meals. For exercise, Dr. Yuen recommended a minimum of 150 minutes of aerobic exercise every week, including running, cycling, swimming, etc., depending on your interests. If you want to achieve weight loss, it is recommended to increase these aerobic exercises to 60 minutes a day, hence reducing the risk of diabetes.

Carbohydrate Counting

For people with diabetes, the emphasis in a healthy diet is an even distribution of carbohydrates in main dishes, soups, fruits and snacks. Carbohydrates will convert to glucose after consumption and digestion and provide energy to the brain and muscles. Carbohydrates will also affect the blood glucose level. The blood glucose can be well managed if the intake of carbohydrates is planned properly. Sources of carbohydrates include sugar, grains, fruits, dairy products, beans and starchy vegetables. They can be classified in 4 types, namely sugar, starch, fibre and sugar alcohol.



Sugar (also known as free sugar)

raises blood glucose faster with low nutritional value. People with diabetes should reduce their intake of sugar. Example: glucose, sucrose, honey, fructose



Starch

has a slower absorption rate than free sugar. The nutritional value of whole grains, fruits and dairy products is relatively high and should be the major foods in a diet. Example: congee, noodles, pasta, rice, potato, taro, bread, biscuits, fruits, dairy products



Fibre

only a small amount of fibre will be absorbed by the body. It has less effect on blood glucose levels. Fibre can help to stabilize blood glucose levels, increase satiety, and control cholesterol, blood pressure and weight. Example: vegetables, fruits, cereal, dry beans



Sugar alcohol

is a nutritive sweetener (with calories content) that can be used to replace sugar to reduce the intake of sugar and calories. Example: xylitol, maltitol, lactitol

In general, the daily carbohydrate intake should account for about half of the total daily intake of calories. Women need about 40-60g carbohydrates per meal while men need about 50-80g; and they may also need 10-20g of carbohydrates between meals or before sleep. Nevertheless, due to the difference in age, height, weight, gender, health status and activity level of an individual, the required amount of carbohydrates is also different. Please consult your doctor or dietitian for your appropriate meal plan.

Tips of finger pricking for blood sugar monitoring

This article provided by AXA.

Diabetes patients are suggested to monitor their blood glucose level regularly for more effective control of blood glucose level to reduce complications. Self-monitoring of blood glucose can help understand factors affecting blood glucose level which are important for adjustments on medication, diet and exercise in a way for effective blood glucose control.

Target of blood glucose control

Glycated haemoglobin (HbA1c)

- The target level of glycated hemoglobin (HbA1C) should be less than 7% is generally appropriate, which has shown to reduce complications.
- However, for some younger diabetes patients who has short diabetes history and without significant cardiovascular disease, they can set the optimal HbA1C value at 6.5% if achievable with simple drug regimen, no hypoglycaemia or adverse outcome.
- The HbA1c target at 7 – 8% or greater, may be appropriate for patients with advanced diabetes complications, especially those with severe hypoglycemia in the past.

Fasting and postprandial blood glucose level

You should remember the “5678” as blood glucose target level!

"5678" Blood glucose target

To manage your blood glucose level, you should remember the "5678" blood glucose target. This refers to the finger-prick reading of 5-6mmol/L when fasting and 7-8mmol/L after meals.

Source: Prevent the Preventable, Asia Diabetes Foundation (www.dibetesrisk.hk)

Fasting or preprandial blood glucose target level: 5-6 mmol/L
2 hours postprandial blood glucose target level: 7-8 mmol/L

Frequency and timing of self-monitoring of blood glucose

Both frequency and timing of testing blood glucose should be individualized depending on a variety of needs, patients should set self-monitoring blood glucose plan with healthcare professionals

How often?

- Fasting blood glucose – means fasting for at least 8 hours overnight, taken first thing in the morning before you eat or drink anything.
- Checking before meals (including breakfast, lunch, dinner)
- Checking after meals – 2 hours of post-meal, the clock for when to check starts counting down at the first bite of the meal.
- Random check – anytime in a day, or just before sleep, midnight or suspect hypoglycemia checking also counted.

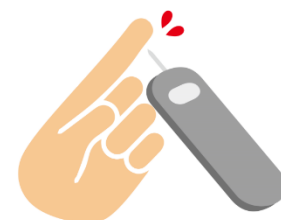
Patients need more frequent blood glucose checking, if you are:

- In a plan for pregnancy or during pregnancy
- Blood glucose level is not in control, and fluctuate frequently
- A change in daily routine such as traveling, physical activity or diet plan
- Being sick e.g. infection
- Changing dosage of medications

Advice for Self-monitoring blood glucose

What you need to prepare for blood glucose test

- Alcohol swab
- Test strip
- Lancet
- Blood glucose meter
- Lancet device



4 Steps of Self-monitoring blood glucose

Step 1: Prepare a lancet and the glucose meter. Put the lancet into the lancet device and select the blood collection depth that needed. Insert a new test strip into your meter. The meter will show a number code, check if the code is match with the number code on the package of the test strips.

Step 2: Use an alcohol swab to sterilize the puncture site, let the site dry before testing. Prick your finger with the lancet to get a small drop of blood.

Step 3: The blood goes on the test strip you inserted into the meter which will analyze the blood, then show you the blood glucose reading on its display automatically.

Step 4: Record the blood glucose reading in a log book.

Hints for Self-monitoring blood glucose

1. If you are using an alcohol wipes to sterilize your fingertips, remember to let it completely dry before you prick the puncture site. Otherwise, the blood glucose reading may be affected.
2. Use the sides of the fingertips instead of the tip to relieve finger discomfort and pain.
3. Make sure you have proper amount of blood for a reading. Round blood drops are preferred.
4. Please do not over-squeezing your fingers to avoid squeezing too much tissue fluid to affect the results.
5. Test strips should be stored in closed vials to be protected from moisture. Please do not use test strips that are beyond their expiration date or being exposed to moisture, as the results might not be accurate.
6. In winter, try warming your hands up on a warm mug or wash hands with warm water before doing your test, blood is more likely to flow out.

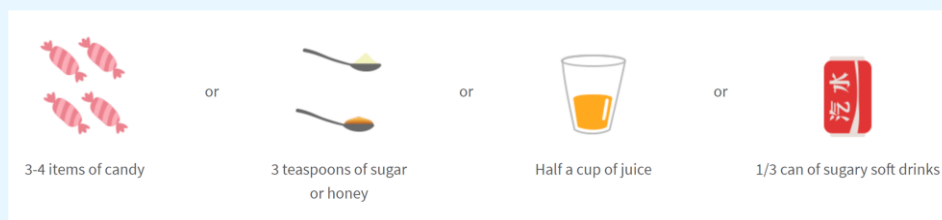
Remarks: Health Information jointly provided by Asia Diabetes Foundation and GemVCare

Prevention of hypoglycaemia

- Adhere strictly to your medication according to doctors' instructions.
- Eat regular portions of food at regular intervals.
- If you have ever had a hypoglycaemia episode after taking exercise, you should consume food that contains carbohydrates (i.e. biscuits, snacks, etc.) before exercise.
- Prepare and bring food containing sugar with you.
- Let your partner, parents, relatives or friends know how to handle hypoglycaemia.
- If you have repeated hypoglycaemic attacks, consult your doctor.
- Remember to have your diabetes identification card/bracelet with you, so that others can provide support as soon as possible when you have a hypoglycaemic attack.

Handling hypoglycaemia

If your glucose level is $\leq 3.9\text{mmol/L}$ or you are having symptoms of hypoglycaemia, you need to increase your blood glucose level by consuming food containing sugar. For example:



If you still feel unwell after 10 - 15 minutes, test your blood glucose level again. If the glucose level is still $\leq 3.9\text{mmol/L}$ and has not improved, you should go to an A&E department immediately. If the blood glucose has increased to $\geq 4\text{mmol/L}$, it is better to consume food containing carbohydrates as soon as possible.

Source: Prevent the Preventable, Asia Diabetes Foundation (www.dibetesrisk.hk)

Can People with Diabetes Eat Fruits?

This article provided by Qualigenics Medical.

Yes, of course! Fruits, like vegetables, are loaded with vitamins, minerals, fiber and phytochemicals. Eating the recommended daily intake of fruits and vegetables helps protect against heart disease, stroke and some cancers.

Pay attention to carbohydrate intake

People with diabetes are encouraged to have fruits daily though fruits contain carbohydrates which include fructose (natural fruit sugar). Carbohydrates whether from rice, bread, noodles, milk, root plants, table sugar or fruits gets digested and increases blood sugar. Thus, you need to keep count of the carbohydrate intake from fruits as part of your carbohydrate allowance in your meal plan. For carbohydrate counting, one serving of fruit contains 10 grams of carbohydrate.

Examples of serving size of fruits containing 10 grams of carbohydrates:



Which type of fruit is suitable for people with diabetes?

“Diabetics should not eat sweet fruits” This is a common misconception among the people with diabetes. Although some fruits do contain more sugars than others, but that doesn’t mean you shouldn’t eat them. What is more important is that you keep count of the total carbohydrate content as both starch or sugars intake from foods will still increase blood sugar. The total amount of carbohydrate in food affects blood glucose levels more than the type of carbohydrate. So, keep to your carbohydrate limit by controlling the fruit portion. Most fruits, especially fruits grown in tropical climate have low to moderate glycaemic index, which means they tend not to rise or spike the blood sugar.

Examples of serving size of fruits containing 10 grams of carbohydrates:

The general recommendation for fruits for diabetes is two to four servings daily. Your individualized fruit serving recommendation depends on your daily calorie needs and preference of eating pattern. Check with your dietitian for your meal plan.

Fruits make good healthy snack choices. It can also be eaten as part of a meal. They can be eaten fresh, frozen or canned without added sugar. Whole fruits are more filling and have more fibre than fruit juice. Dried fruits can also be a nutritious choice but the serving size is small and might easily lead to taking excess carbohydrate if not cautious. Therefore, focus on getting your daily fruit from mostly whole fruits. If you choose to have pure fruit juice or dried fruits, do so sparingly.

In summary, fruits are encouraged as part of a healthy diet for everyone including people with diabetes. Try to have a good variety and keep to the right portion by keeping count of the carbohydrate intake.



Members of the Diabetes and 3-Highs Alliance

As a member, you will receive our regular newsletters and updated information by email including activities such as outreach program and education talk. Also you will have priority in signing up or joining these alliance activities at membership rate. Please fill in below information and submit to Asia Diabetes Foundation for becoming our members: (1) Fax: (852) 2647 6624; or (2) Post to Unit K, 4/F, Haribest Industrial Building, 45-47 Au Pui Wan Street, Shatin, N.T., Hong Kong; or (3) Email: enquiry@adf.org.hk; or (4) Scan the QR Code (Diabetes and 3-Highs Alliance www.diabetesrisk.hk/register) for online submission.

Online registration form



diabetesrisk.hk/register

Member information

*Required

Chinese name*: _____

English name*: _____

Age*: 18-25 26-35 36-45
 46-55 56-65 66-75
 76 or above

Gender*: Male Female

Email*: _____

Tel no.: _____

Address: _____

Personal Information Collection Statement

Your hereby provided personal information will be used for the purpose of communication, survey, application, dispatch of Diabetes and 3-High Alliance's newsletters or promotion of events (which may or may not include messages or participation of other organizations or companies). Apart from personnel duly authorized by the organization, no one will be given access to your personal information. In accordance with the personal data (privacy) ordinance, you have a right to request access to and correction of your personal data provided. Request for personal data access and correction should be addressed to Asia Diabetes Foundation in writing.

Declaration

- I declare that all information given in this application is correct and complete to the best of my knowledge and belief. ADF reserves the right to reject any application without providing explanation to the applicant.
- I fully understand and agree with the "Personal Information Collection Statement" listed above.
- I do not want to receive the Diabetes and 3-High Alliance's Newsletter or activities promotion information.

Signature: _____

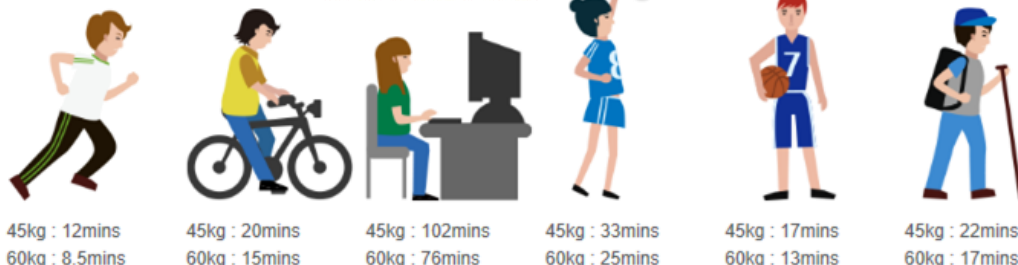
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Calorie consumption

3500kcal = 1 pound

You will lose 1 pound in a month by using an additional 100kcal per day and a total of 3,500kcal per month.

How can we consume 100kcal?



Members of the Diabetes and 3-Highs Alliance

Member Benefits



Let's register as a member, receive a free sachet and enjoy 'buy one get one free' on your first purchase!



GemVCare

<SUGAR CRUSH FUN> Personalized Diabetes Management Kit and Points Redemption Scheme



GemVCare
Your Genes • Your Gem • Your Health

Measuring blood sugar has become an important part of self-management for people with diabetes. Finger pricking and taking regular readings day after day can become mundane and boring over time. To encourage and reward everyone to develop the habit of self-monitoring while making the process more manageable and enjoyable, members of "Diabetes and 3-Highs Alliance" can purchase the <SUGAR CRUSH FUN> Personalized Diabetes Management Kit at an exclusive price of HK\$ 300, inclusive of: GocheK2 blood glucose meter, lancing device, lancets (100 pcs), test strips (100 pcs). Members can also enjoy a complimentary access to the MyGem App digital health management platform as well as to win a free redemption of test strips. Limited Time Offer - Act Now While Supplies Last!



Promo code: **GVC202007**



For details of the points redemption scheme and terms and conditions, please scan the following QR code or contact GemVCare Customer Service at 2809 2893.



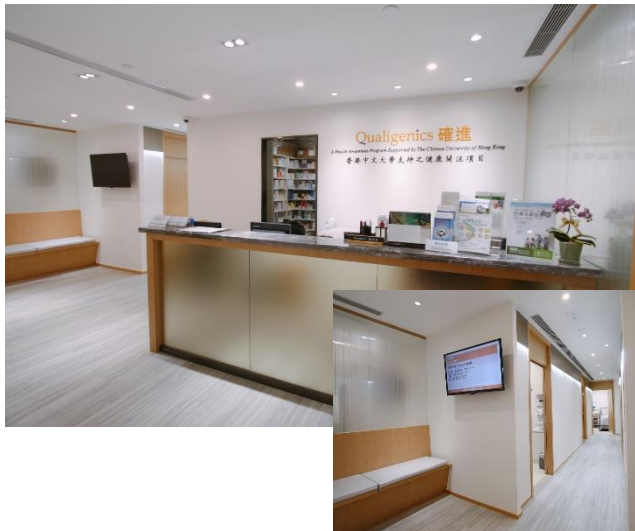
AXA Hong Kong and Macau presents you the first-in-Hong Kong AXA Diabetes & Three-Highs Management Programme (the “Programme”), to assist you to manage your health anytime, anywhere through a user-friendly web application. The Programme consists of an integrated disease management system, which is designed and developed by Asia Diabetes Foundation Limited. Upon completion of the Programme, diabetes & three-highs individuals may enjoy a one-off 15% Premium Rebate on the eligible policy.

[Know More](#)

Remarks: For details of the Programme, please refer to this page (<https://www.axa.com.hk/zh/diabetes-and-3-highs-alliance-newsletter>).

Qualigenics 確進

A Health Awareness Program Supported by The Chinese University of Hong Kong
香港中文大學支持之健康關注項目



Patient who has a new appointment with Diabetes Specialist at Qualigenics can enjoy a HbA1c test for free (Price: \$290) upon his/her first consultation.

HbA1c is the average blood glucose (sugar) levels for the last three months. The results can give us a good indication of how well the diabetes is being controlled.

Qualigenics Medical

Website: <http://www.qualigenics.com>
Tel: (Central) (852) 3607 7800
(Mongkok) (852) 2868 6020



Understand your future risk, take action now!

Access your risk of having diabetes and chronic disease, please visit **Risk Understanding By Yourself, RUBY Test** which developed by Asia Diabetes Foundation.





About

The Asia Diabetes Foundation (ADF) is a charitable organisation developed to initiate and implement medical, scientific and academic research activities to collect and translate current evidence into prevention and control strategies for diabetes and other chronic diseases. ADF is dedicated to promote informed decision making in order to enhance the sustainability, affordability and accessibility of chronic care.

Tel: (852) 2637 6624
Website: www.adf.org.hk

Fax: (852) 2647 6624
Email: enquiry@adf.org.hk

About Diabetes and 3-Highs Alliance

Diabetes, hypertension or hyperlipidaemia are the top three chronic diseases in Hong Kong. Together with obesity (high body weight), underlie the 4 critical illnesses in Hong Kong people including heart disease, stroke, kidney disease and cancer. With the increase in the population of diabetes and "3-Highs", which has increased the burden on society, the "Diabetes and 3-Highs Health Alliance" is committed to raising public awareness of diabetes and "3-Highs" in order to maintain health and prevent diseases.



Members and Sponsors



Abbott founded in 1888 by operating in the form of a small pharmaceutical factory under the name of "People's Drug Store" in the United States, implemented "At one's healthiest and life to the fullest". The full range of products from nutrition and diagnostic products to medical devices and medical treatment solutions run through all ages to fulfill health needs from infants to older adults. Through more than 130 years of research experience and countless clinical evidences, Abbott has continuously launched and improved high-quality formulae to cater for the health needs of different ages around the world.



AXA Hong Kong and Macau, a member of the AXA Group, prides itself on serving over 1.3 million customers in the region. In addition to being the #1 global Property & Casualty commercial lines insurer, we are also one of the largest health protection providers in Hong Kong and Macau.



GemVCare, founded in 2014, is a Hong Kong based bio-genetic testing company specialized in diabetes. Our patented technology is based on 20+ years of big data and the world's first discovery of diabetes genes specific for Asian population. We dedicate ourselves to diabetes prevention and providing health management solutions to our community.



A Health Awareness Program Supported by The Chinese University of Hong Kong
香港中文大學支持之健康關注項目

Qualigenics aims to integrate all aspects of specialist disease management, providing all-rounded medical treatments for patients suffering from chronic diseases such as diabetes, cardiovascular disease and related complications. As the saying goes, prevention is better than cure. This is why we put our emphasis on education and health management to raise awareness on disease prevention and control.



For more than a century, **MSD**, a leading global biopharmaceutical company, has been inventing for life, bringing forward medicines and vaccines for many of the world's most challenging diseases.