

By Dr TEE E SIONG

IN Malaysia, we have not won the war over Covid-19.

With over 6,000 confirmed cases and over 100 deaths, and tens of new cases everyday, the disease is still very much in the community.

Since the SARS-CoV-2 virus that causes Covid-19 attacks the immune system, our body's defences must be able to fight these spiky surface invaders that manage to enter our body.

Those who have a strong immune status are likely to only develop mild symptoms and will recover.

Others, especially the elderly and those with underlying health problems like obesity, high blood pressure (hypertension), heart problems, lung problems, diabetes or cancer, are likely to develop severe symptoms when infected.

To fight Covid-19, we need to have a strong immune system.

This system is a complicated network involving many types of cells, organs and tissues, spread throughout the body.

It protects the body from bacteria, viruses, parasites and other foreign agents.

Healthy nutrition plays a key role in building up and maintaining a strong immune status.

Several nutritional factors are of particular significance and are highlighted here.

However, it should be emphasised that there is no magic bullet that can prevent us from contracting the virus.

There is no one food, vitamin or herb that will single-handedly boost our immune system.

Instead, adopting healthy eating guidelines that emphasise on balance, moderation and variety is the most effective way to beef up our immunity.

### Obesity, a risk factor

Data from different countries have indicated that overweight and obese individuals may have a higher risk of catching Covid-19, suffer more serious symptoms and complications, and have a greater risk of dying, than those who are not obese.

There are various reasons for this, including that the immune status of obese people is weaker.

Overweight and obesity have become a major public health problem in the country.

Half the adult population and a third of school-age children are overweight or obese.

It is well established that these individuals are more likely to suffer from chronic diseases like diabetes, hypertension and heart disease.

Nutritionists have long raised the alarm and urged the public to reduce caloric intake, while increasing physical activity to burn off the fat accumulated in the body.

The current Covid-19 pandemic has given us yet another reason to practise healthy eating to achieve and maintain an ideal body weight.

### Vital micronutrients

Micronutrients generally refer to vitamins and minerals.

They are vital for energy production, growth, brain development and many other essential body functions.

Several vitamins, including vitamins A, B6, B12, C, D and E, and folate; and trace elements, including zinc, iron, selenium, magnesium and copper, play important roles in supporting the immune system.

Deficiencies or low levels of micronutrients can negatively affect immune function and may

# Nutrients to boost immunity

That are a variety of nutrients available in a healthy and balanced diet that can help our immune system to fight off infections like Covid-19 more effectively.



Eating a variety of vegetables will provide your body with essential micronutrients, helpful phytonutrients and fibre to help keep your immune system in an optimal state. — TNS



therefore decrease resistance to infections.

Fruits and vegetables are rich sources of vitamins and minerals.

As the amount and type of micronutrients in each food is different, it is therefore important to consume a variety of foods.

One should ideally achieve optimal intakes of these micronutrients through a well-balanced diet that includes more fruits and vegetables.

Fortified foods can also be considered to provide some of the needed micronutrients.

These are foods that have certain micronutrients added to them and usually have labels saying "rich in ..." or "enriched with ..."

When the needed amounts are still not met, it may become necessary to rely on supplements.

In such cases, it is important to seek the advice of a nutritionist to determine the type and amount of the supplement needed.

### Essential fatty acids

Fats are important key macronutrients of the daily diet, performing several basic physiological and functional roles.

They serve as a concentrated source of energy (9 kcal/g), contributing to our energy needs.

They aid in the digestion, absorption and transport of the fat-soluble vitamins A, D, E and K.

Fats also provide the body with fatty acids that are essential for various metabolic processes, such as functioning of nerve cells and the brain, keeping skin and tissues healthy, and functioning of hormones to regulate body processes.

Fatty acids also play a role in regulating immune functions.

The main fatty acids involved are the long-chain polyunsaturated fatty acids, especially eicosapentaenoic acid (EPA) and docosahexano-

ic acid (DHA), which are both omega-3 fatty acids.

An adequate intake may support inflammatory processes, which may be protective against symptoms of infection.

Food sources of omega-3 fatty acids include deep sea fishes, e.g. salmon and sardines, and several nuts and seeds, such as walnuts and flaxseeds.

There are also omega-3 fortified foods such as eggs and milk.

If taking a supplement of fish oil, do check with a nutritionist for the appropriate type and amount.

### Non-classical nutrients

Phytonutrients, or phytochemicals are not classical nutrients like carbohydrates, protein, fats, vitamins or minerals.

Over the last several decades, these plant components, which are bioactive, have been shown to serve physiological roles beyond meeting basic nutritional requirements.

Common examples of phytonutrients and their plant food sources include carotenoids in fruits and vegetables; phytoosterols and isoflavones in soy bean products; isothiocyanates and indoles in broccoli and other cruciferous vegetables; flavanols and flavonols in tea; and curcumin in turmeric.

There are many more bioactive compounds that have yet to be identified.

It is interesting that many phytonutrients give plants their colourful pigments, such as the orange-red colour of carotenoids in tomatoes, mangos and carrots.

This is why nutritionists recommend consuming a "rainbow of colours", i.e. a variety of different-coloured fruits and vegetables!

However, do note that white colour plants such as garlic also contain important phytonutrients.

The main benefits of phytonutrients are their antioxidant and anti-inflammatory properties.

Phytonutrients may also enhance our immunity.

As oxidative stress is believed to be the primary cause of many degenerative diseases, such as cardiovascular disease, diabetes and

cancer, as well as the ageing process, some phytonutrients may be helpful in reducing the risk of these diseases.

### Gut immunity

Good gastrointestinal health or gut health is central to good overall health and well-being.

The main function of the gut is to aid in the digestion of food.

Importantly, the gut also plays a major role in our immune system as 80% of the immune system resides in the gut.

The gut is home to a diverse community of microorganisms (known as gut microbiota) that play an important role in helping our digestive system function efficiently.

There is an estimated 100 trillion microorganisms, which includes about 1,000 different species of bacteria, both "good" and "bad".

A healthy bacteria balance means that the "good" bacteria outnumber the "bad" bacteria.

When this balance is disrupted, the "bad" bacteria can cause digestive disorders and other health problems.

One direct way to increase the population of "good" gut bacteria is to include products containing probiotics in the daily diet.

Probiotics are live microorganisms that are able to provide health benefits to the human body, including interacting with gut microbiota to strengthen the immune system.

Probiotics have been formulated into many different types of foods, e.g. cultured milk and fermented milk products, as well as dietary supplements.

Dietary fibres are non-digestible carbohydrates that pass relatively unchanged through our stomach and intestines.

Hence, dietary fibres add bulk to the diet.

They regulate bowel movement, and thus play vital roles in keeping the gut healthy.

To promote good gut health so as to beef up our immune system, consume daily foods rich in fibre, including legumes, whole grains and wholegrain products, as well

as vegetables and fruits.

In addition, some specific dietary fibres can serve as prebiotics, i.e. food for the "good" bacteria, thereby encouraging the growth of these bacteria and promoting gut health.

Foods that are rich in prebiotics include garlic, onion, asparagus and bananas.

Food ingredients that can serve as prebiotics, which are approved by Malaysian food regulations to be added to various foods and beverages include fructo-oligosaccharides (FOS), inulin (a type of FOS), galacto-oligosaccharides (GOS), polydextrose and resistant starch.

You can look out for these ingredients on food labels.

### Stay healthy

Healthy eating boosts immunity to help fight Covid-19.

This is particularly important for vulnerable groups, including the elderly and people with underlying medical problems.

This pandemic has brought untold suffering to many in the world. However, this disaster may also have a silver lining in many aspects of human life.

It has given us opportunities to learn new skills and adopt new ways of living.

It has shown to us clearly that good nutrition and a healthy life are the keys to strengthening immunity.

We should take this opportunity to adopt healthy nutrition to fight Covid-19, as well as the many diet-related diseases that plague our community.

Dr Tee E Siong is the president of the Nutrition Society of Malaysia. For more information, email [starhealth@thestar.com.my](mailto:starhealth@thestar.com.my). The information provided is for educational purposes only and should not be considered as medical advice. The Star does not give any warranty on accuracy, completeness, functionality, usefulness or other assurances as to the content appearing in this column. The Star disclaims all responsibility for any losses, damage to property or personal injury suffered directly or indirectly from reliance on such information.