

Obesity and COVID-19

Key Messages

- ※ Obesity is a prominent determinant for severe COVID-19 and death. Among patients with COVID-19, patients with obesity were 74% more likely to be admitted to intensive care unit and 48% more likely to die compared with those who were not obese.
- ※ The fundamental cause of obesity or being overweight is an imbalance between calories intake from foods as well as beverages, and energy consumption in normal body functions along with daily activities. To control and achieve an optimal body weight, members of the public should live a healthy lifestyle, which includes, among others, being physically active and eating a balanced diet.
- ※ In an effort to control disease spread in the current COVID-19 pandemic, members of the public are advised to, inter alia, maintain social distancing, go out less and stay at home as far as possible. At home, the Department of Health encourages individuals to do home-based exercises and household chores, minimise the amount of time spend being sedentary (sitting) and break up long periods of sitting as often as possible. Also, eat according to the “Healthy Eating Food Pyramid” guide and observe the basic principles of healthy eating: limit fats, salt and sugars intake; eat more fruit and vegetables; consume enough dietary fibre; drink enough water and avoid alcohol.
- ※ Together, we keep healthy and fight the virus !



同心抗疫 *Together,*
We Fight the Virus!

Obesity and COVID-19

Obesity is a significant public health problem. In 2016, the World Health Organization (WHO) estimated that globally more than 1.9 billion adults aged 18 and older were overweight. Of these, over 650 million were obese. Among children and adolescents aged 5–19, over 340 million of them were overweight or obese.¹ Studies clearly indicate that obesity increases the risk of various non-communicable diseases (NCDs), reduces quality of life and shortens life expectancy.^{1, 2} Compared to people with normal body weight, obese individuals are also more susceptible to infections, including respiratory tract infections (such as pneumonia) and related complications.^{3, 4}

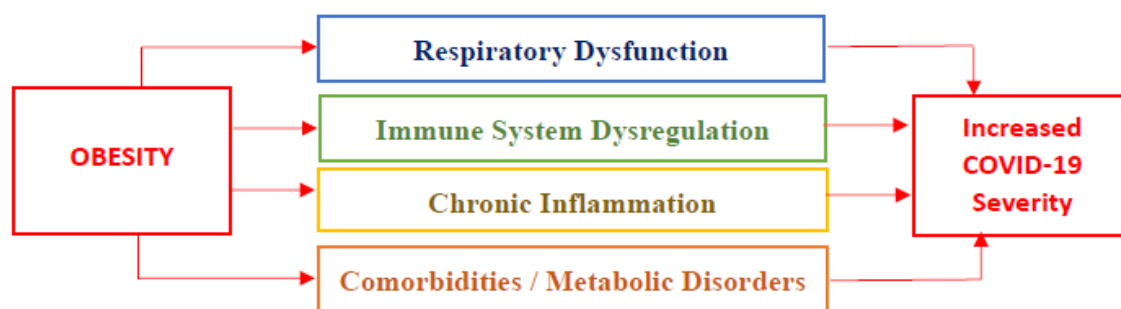
Obesity as a Risk Factor for COVID-19 Severity

Coronavirus disease 2019 (COVID-19) is a communicable disease that primarily affects the lungs. Increasing evidence indicates that obesity increases the risk of COVID-19 and is a prominent determinant for severe COVID-19 and death.^{5, 6} A global analysis looked at data from nearly 400 000 COVID-19 patients reported that individuals with obesity were 74% more likely to be admitted to intensive care unit and 48% more likely to die compared with those who were not obese.⁷

Plausible Mechanisms of Obesity on Increased COVID-19 Severity

Obesity may increase the severity of COVID-19 through several mechanisms (Box 1).^{8, 9} Obesity (in particular abdominal obesity) has many adverse effects on lung function, including increased airway resistance, impaired respiratory muscle function, impeded diaphragm excursion, reduced lung volume and diminished gas exchange. Consequently, obese individuals are more vulnerable to respiratory diseases.^{9, 10} Obesity could also impair the immune system by altering the counts and weakening the functions of natural killer cells, making it more difficult to fight off infections. In addition, adipose tissue could produce and release a variety of pro-inflammatory factors, giving rise to upregulated inflammatory response. With all the dysregulated immune responses, obese individuals would fare worse when hit by COVID-19.^{8, 11} Furthermore, obese individuals are also more likely to have obesity-related comorbidities (including hypertension, heart disease, diabetes and liver disease) which are additional risk factors for COVID-19 complications. Obesity could trigger and potentiate multiple metabolic disorders (such as dyslipidaemia, pre-diabetes or insulin resistance), predisposing individuals to cardiovascular events, thereby increasing the risk of developing a severe course of COVID-19.^{8, 9}

Box 1: Plausible mechanisms of obesity on increased COVID-19 severity



(Modified from Stefan et al 2020)

Healthy Lifestyle during COVID-19 Pandemic

The fundamental cause of obesity or being overweight is an imbalance between calories intake from foods as well as beverages, and energy consumption in normal body functions along with daily activities.¹ According to the WHO recommendations, adults should engage in at least 150 minutes of moderate-intensity physical activity, or at least 75 minutes of vigorous-intensity physical activity, or an equivalent amount per week, as well as muscle strengthening activities involving major muscle groups on two or more days a week. For children and adolescents aged 5–17, they should do at least 60 minutes of moderate- to vigorous-intensity physical activity daily and include activities that strengthen muscle and bone at least 3 times per week.¹² In an effort to control disease spread in the current COVID-19 pandemic, members of the public are advised to, inter alia, maintain social distancing, go out less and stay at home as far as possible. At home, meeting the physical activity guidelines may seem challenging but is achievable (such as accumulating several bouts of about 10- or 15-minute workout throughout the day). In fact, despite reduced opportunities for outdoor activities, doing home-based exercises and household chores could be alternatives for maintaining a physically active lifestyle. To empower members of the public to do more physical activities, the Department of Health (DH) produced a number of demonstration videos for different settings, including the Household Fitness Dance that can be viewed at the Change for Health website

of DH www.change4health.gov.hk/en/resources/av_gallery/index.html. More home-based exercise demonstration videos can be found at websites of the Leisure and Cultural Services Department www.lcsd.gov.hk/en/sfad/2020/freeonline.html and the Education Bureau www.edb.gov.hk/en/curriculum-development/kla/pe/Doing_Physical_Activities_at_Home/index.html. Healthy and energetic individuals may go for more higher-intensity workouts, such as jumping jack, push-up, abdominal crunch sit up or mountain climber, etc. Alternatively, members of the public may also go for moderate-intensity household chores including scrubbing bathroom or bathtub, making beds and changing linens, general kitchen activity, household clean-up and sweeping floor with some efforts.¹³ Moreover, it is advisable to minimise the amount of time spend being sedentary (sitting) and break up long periods of sitting as often as possible.

As people may not dine out in restaurants these days in response to combat the spread of COVID-19, they could more readily take charge of what exactly goes into their meals by preparing the food on their own. In order to control and achieve an optimal body weight, members of the public should eat according to the “Healthy Eating Food Pyramid” guide and observe the basic principles of healthy eating: limit fats, salt and sugars intake; eat more fruit and vegetables; consume enough dietary fibre; drink enough water and avoid alcohol.¹⁴



 <p>家居健體操 Household Fitness Dance</p>	
 <p>日常伸展操 Stretching Dance</p>	
 <p>活力操 Lively Dance</p>	

Halt the Rise of Obesity

The close association between obesity and increased severity of COVID-19 highlights the importance of maintaining an optimal body weight. In Hong Kong, tackling obesity has been accorded high priority for action in the prevention and control of NCDs. In 2018, the Government launched “Towards 2025: Strategy and Action Plan to Prevent and Control Non-communicable Diseases in Hong

Kong” (SAP) announcing a list of committed actions with clear targets, including halting the rise in obesity (and diabetes).¹⁵ Even in the fight against COVID-19, DH appeals to members of the public to continue a healthy lifestyle, which includes eating a balanced diet, having regular physical activity, avoiding smoking and alcohol consumption etc.


TOWARDS 2025 | Strategy and Action Plan to Prevent and Control NCD in Hong Kong

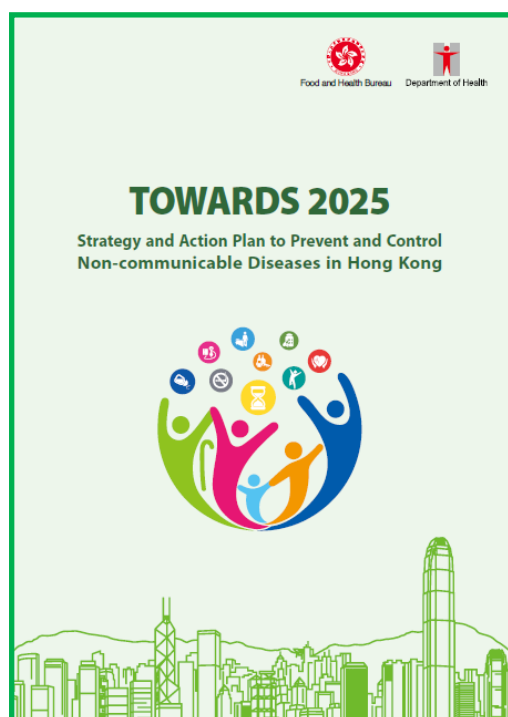
TARGETS BY 2025

Together, we will work to achieve the following 9 targets by 2025¹:-

 <p>Target 1 A 25% relative reduction in risk of premature mortality from cardiovascular diseases, cancers, diabetes, or chronic respiratory diseases</p>	 <p>Target 2 At least 10% relative reduction in the prevalence of binge drinking and harmful use of alcohol (harmful drinking/ alcohol dependence) among adults and in the prevalence of drinking among youth</p>	 <p>Target 3 A 10% relative reduction in the prevalence of insufficient physical activity among adolescents and adults</p>
 <p>Target 4 A 30% relative reduction in mean population daily intake of salt/sodium</p>	 <p>Target 5 A 30% relative reduction in the prevalence of current tobacco use in persons aged 15+ years</p>	 <p>Target 6 Contain the prevalence of raised blood pressure</p>
 <p>Target 7 Halt the rise in diabetes and obesity</p>	 <p>Target 8 Prevent heart attacks and strokes through drug therapy and counselling</p>	 <p>Target 9 Improve availability of affordable basic technologies and essential medicines to treat major NCD</p>

¹ The local NCD targets are adapted from the WHO's global monitoring framework (GMF) of 9 global voluntary targets and 25 indicators. The baseline selected by WHO for all global voluntary targets and indicators is 2010. However, due to local data availability, the baseline adopted by Hong Kong for each target and indicator may vary, with the most recent available data adjacent to 2010 being selected.

For more information about SAP, please visit www.change4health.gov.hk/en/saptowards2025.



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Created by the World Heart Federation, World Heart Day informs people around the globe that cardiovascular diseases (CVD), including heart disease and stroke, is the world's leading cause of death claiming 17.9 million lives each year, and highlights the actions that individuals can take to prevent and control CVD. It aims to drive action to educate people that by controlling risk factors such as tobacco use, unhealthy diet and physical inactivity, at least 80% of premature deaths from heart disease and stroke could be avoided.

In the time of COVID-19, we do not know what course the pandemic will take in the future. But we do know that taking care of our hearts (such as by eating a healthy diet, saying no to tobacco and being physically active) right now is more important than ever. So this year's World Heart Day is asking every individuals, families and communities to **Use Heart to Beat Cardiovascular Diseases**.

USE ♥ TO BEAT ♥
齊心♥護心♥顯關心♥

For more information about World Heart Day 2020, please visit www.world-heart-federation.org/world-heart-day/world-heart-day-2020.

***Non-Communicable Diseases (NCD) WATCH** is dedicated to promote public's awareness of and disseminate health information about non-communicable diseases and related issues, and the importance of their prevention and control. It is also an indication of our commitments in responsive risk communication and to address the growing non-communicable disease threats to the health of our community. The Editorial Board welcomes your views and comments. Please send all comments and/or questions to so_dp3@dh.gov.hk.*

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