

## Heart Health and COVID-19

### Key Messages

- ※ Heart disease is a major cause of morbidity and premature mortality among adult men and women worldwide. Among people aged 50 or above, coronary heart disease even was the top-ranked cause of ill health, disability and death.
- ※ Studies also show that pre-existing heart disease is a prominent risk factor for severe coronavirus disease 2019 (COVID-19) and death. In patients with COVID-19, those with coronary heart disease were 3.2 times, 2.3 times, and 3.8 times as likely to become seriously ill, be admitted to intensive care unit, and die compared with those without coronary heart disease respectively.
- ※ In Hong Kong, heart disease remains a significant public health issue that more and more people are living with heart disease. While surveys showed that major modifiable risk factors associated with heart disease were prevalent among the Hong Kong general population, there were 6 561 registered deaths due to heart disease in 2020.
- ※ Amid the COVID-19 pandemic, the best way of protecting the heart is by leading a healthy lifestyle for maintaining an optimal body weight and waistline, as well as optimising the levels of blood pressure, blood lipid and blood glucose. As the benefit of COVID-19 vaccination generally exceeds the risk, unless there is contra-indication, individuals with stable chronic conditions should get vaccinated for protection as soon as possible.
- ※ The Department of Health will continue working in close partnership with other government bureaux and departments as well as community partners to build a health-enhancing environment and promote the health of all Hong Kong people.

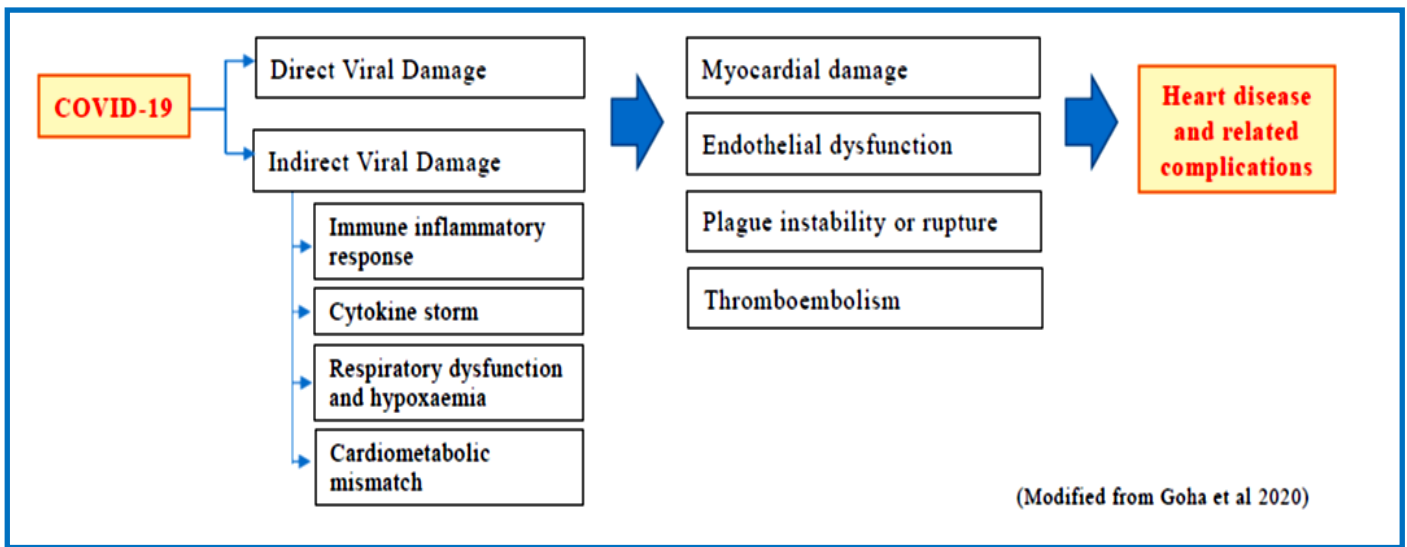
## Heart Health and COVID-19

A healthy heart is central to overall good health. Despite great improvements in heart health promotion, disease prevention and treatment, heart disease remains the top cause of morbidity and premature mortality among adult men and women worldwide.<sup>1, 2</sup> Heart disease refers to different types of illnesses that affect the structure or function of the heart, including coronary heart disease (also known as ischaemic heart disease), hypertensive heart disease, arrhythmias (heart rhythm disorders), heart valve disease, cardiomyopathy (diseases of the heart muscle), heart infection, heart failure, and congenital heart disease. Among them, the most common and preventable type of heart disease is coronary heart disease.<sup>3</sup> It happens when the coronary arteries that supply the heart muscle become hardened and narrowed, usually due to atherosclerosis (i.e. gradual build-up of fatty material), limiting the blood flow to the heart. As a result, the heart muscle cannot get sufficient oxygen it needs. This can trigger angina pectoris (chest pain) and lead to ischaemic heart failure or myocardial infarction (heart attack). In 2019, the Global Burden of Disease Study estimated that there were 197 million prevalent cases of coronary heart disease, 21.2 million of incident cases and 9.14 million deaths globally.<sup>3</sup> Among people aged 50 or above, coronary heart disease was the top-ranked cause of ill health, disability and death.<sup>2</sup>

## Nexus of Heart Disease and COVID-19

Heart disease and coronavirus disease 2019 (COVID-19) are closely connected and act synergistically on morbidity and mortality.<sup>4</sup> Studies show that pre-existing heart disease is a prominent risk factor for severe COVID-19 and death.<sup>5, 6</sup> In patients with COVID-19, those with coronary heart disease were 3.2 times, 2.3 times, and 3.8 times as likely to become seriously ill, be admitted to intensive care unit, and die compared with those without coronary heart disease respectively.<sup>7</sup> Likewise, one study involving over 86 700 patients with COVID-19 and about 348 400 matched control individuals identified COVID-19 as an independent risk factor for acute myocardial infarction.<sup>8</sup> As shown in Figure 1, the coronavirus can directly invade and inflame the heart muscle or indirectly affect the heart through several mechanisms (such as provoking immune inflammatory response then triggering blockage of coronary blood vessels), thereby leading to heart disease and related complications (including myocarditis, arrhythmias, acute coronary syndrome and heart failure).<sup>9, 10</sup> Furthermore, heart disease and COVID-19 share a common set of risk factors that adversely affect health, including smoking, physical inactivity, obesity, hypertension and diabetes. Along with a less robust immune system in general, individuals with heart disease (especially older patients) would be more susceptible to experience complications from COVID-19 infection and die.<sup>11, 12</sup>

Figure 1: Effect of COVID-19 on the heart



## Burden of Heart Disease in Hong Kong

In Hong Kong, the age-standardised death rate (per 100 000 standard population) of heart disease has decreased from 52.3 in 2001 to 34.1 in 2020.<sup>13</sup> However, heart disease remains a significant public health issue that more and more people are living with heart disease. Thematic Household Surveys conducted by the Census and Statistics Department found that the prevalence of heart disease as told by practitioners of Western medicine among non-institutionalised persons increased from 2.0% in 2009/10 to 2.3% in 2018/19.<sup>14, 15</sup>

In 2020, there were 6 561 registered deaths due to heart disease, in which acute myocardial infarction and other ischaemic heart diseases constituted a major portion (58.8%) of the mortality.<sup>13</sup> While some risk factors of heart disease are non-modifiable (such as advancing age and family history of heart disease), territory-wide household surveys conducted by the Department of Health (DH) observed that major modifiable risk factors associated with heart disease were prevalent among the Hong Kong general population (Table 1).

**Table 1: Prevalence of major modifiable risk factors associated with heart disease among Hong Kong Population**

Risk factor	Prevalence
Smoking	13.2% of persons aged 15 or above reported current smoking at the time of survey, whether smoking on a daily basis or less often, regardless of what types of smoking products. <sup>16</sup>
Alcohol consumption	8.8% of persons aged 15 or above drank regularly (i.e. drank at least once a week); 2.9% had binge drinking at least monthly in the 12 months preceding the survey. <sup>16</sup>
Physical Inactivity	16.8% of persons aged 18 or above had insufficient physical activity according to the World Health Organization (WHO)'s recommendations on performing at least two and a half hours of moderate-intensity physical activity or one hour and 15 minutes of vigorous-intensity physical activity every week. <sup>16</sup>
Unhealthy eating	By measuring sodium excretion from 24-hour urine collection, 86.3% of persons aged 15–84 had dietary salt intake above the WHO's recommended daily limit of less than 5 grams per day. <sup>17</sup>
Overweight and obesity	Based on the physical measurements including body weight and height provided under the survey, 50.0% of persons aged 15–84 were overweight and obese (with a body mass index of 23.0 kg/m <sup>2</sup> or above). <sup>17</sup>
Elevated blood pressure or hypertension	Combining self-reported cases of doctor-diagnosed hypertension and cases detected by blood pressure measurements provided under the survey, 27.7% of persons aged 15–84 had hypertension. <sup>17</sup>
Suboptimal blood lipid levels or hypercholesterolaemia	Combining self-reported cases of doctor-diagnosed hypercholesterolaemia and cases detected by biochemical testing of fasting lipid profile provided under the survey, 49.5% of persons aged 15–84 had hypercholesterolaemia. <sup>17</sup>
Increased blood glucose levels or diabetes	Combining self-reported cases of doctor-diagnosed diabetes and cases detected by biochemical testing of fasting plasma glucose provided under the survey, 8.4% of persons aged 15–84 had diabetes. <sup>17</sup>

## Keep the Heart Healthy

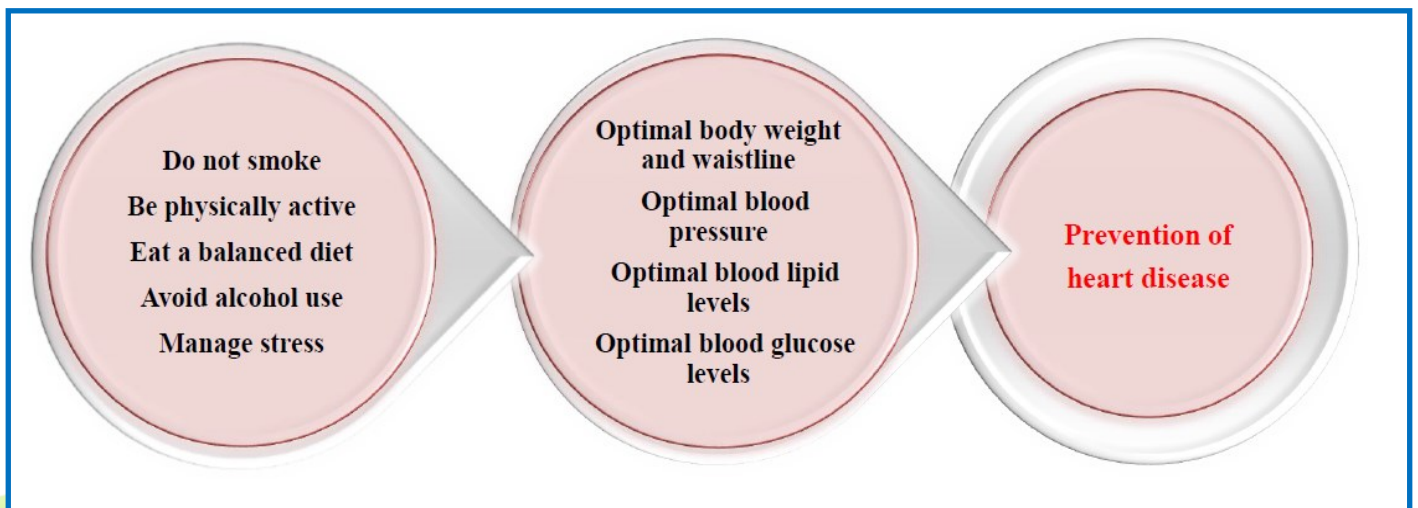
Amid the COVID-19 pandemic, the best way of protecting the heart is by leading a healthy lifestyle. As Figure 2 shows, no smoking, being physically active, eating a well-balanced diet (following recommendations of the Healthy Eating Food Pyramid and maintaining a diet that is low in fat, salt, sugar and high in dietary fibre), avoiding alcohol use, as well as managing stress with healthy coping strategies (such as exercising, deep breathing and meditation) can lead to an optimal cardio-metabolic profile, thereby reducing the risk of developing heart disease. Healthy living, among others, can also boost the immune system and reduce the risk of severe COVID-19. A study involving over 387 000 community-dwelling adults in the United Kingdom showed that persons with the most unfavorable lifestyle had about 4 times the risk of developing serious illness from COVID-19 compared to persons with the most optimal lifestyle.<sup>18</sup>

In the fight against COVID-19, DH appeals to members of the public to lead a healthy lifestyle. Equally important, the general public should continue to take

appropriate precautions to guard against COVID-19, such as maintaining good personal hygiene, reducing social contact and wearing masks in public places. As the benefit of COVID-19 vaccination generally exceeds the risk, unless there is contraindication, individuals with stable chronic conditions should get vaccinated for protection as soon as possible.<sup>19</sup> If members of the public have any concerns about COVID-19 vaccine, they are encouraged to consult doctors about the vaccines and the best timing for vaccination. For more information about COVID-19 Vaccination Programme, please visit [www.covidvaccine.gov.hk/en/](http://www.covidvaccine.gov.hk/en/).

DH will continue working in close partnership with other government bureaux and departments as well as community partners to build a health-enhancing environment and promote the health of all Hong Kong people. Together, we keep healthy, get vaccinated and fight the virus!

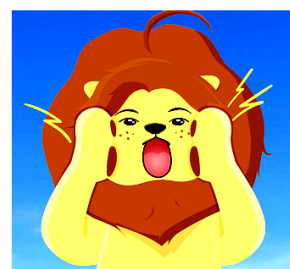
**Figure 2: Heart disease prevention pathway by leading a healthy lifestyle**





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LET'S KEEP OUR ♥ HEALTHY

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 18.6 million lives each year), and highlights the actions that individuals can take to prevent and control CVD.

In the time of COVID-19, taking care of the heart is more important than ever before. So the theme for World Heart Day 2021 is **USE ♥ TO CONNECT WITH YOUR ♥**.

The Department of Health appeals members of the public to protect their heart by no smoking, eating a healthy diet, being physically active, and refrain from alcohol use. Members of the public can also use digital tools, like Quit Smoking Mobile App and "EatSmart Restaurant Star+" Mobile App developed by the Department of Health and wearables (e.g. step counter), to get motivated and stay on track.

For more information about World Heart Day 2021, please visit <https://world-heart-federation.org/world-heart-day/about-whd/world-heart-day-2021/>.

## Harmful Substances in Food (Amendment) Regulation in 2021

### *Eliminating Harmful Trans Fats in Food by 2023*

To meet the World Health Organization (WHO)'s goal of eliminating industrially-produced trans fatty acids from the global food supply by 2023, and in line with one of the key measures under the "Towards 2025: Strategy and Action Plan to Prevent and Control Non-communicable Disease in Hong Kong", announced by the government in 2018, the Harmful Substances in Food (Amendment) Regulation 2021 (the Amendment Regulation) was passed by the Legislative Council (LegCo) on 14 July 2021 to enhance the regulation of industrially-produced trans fatty acids, as well as other harmful substances in food.

Trans fatty acids are a type of unsaturated fats. They are mainly formed during the process of hydrogenation of vegetable oils. During hydrogenation, the structure of the fatty acid molecules in the oil changes, which allows the oil to have longer shelf-life and provide desirable texture to the food. However, there is increasing evidence that trans fatty acids clog arteries and increase the risk of coronary heart disease. To protect public health, the Amendment Regulation specifies partially hydrogenated oils (PHO), i.e. the main source of industrially-produced trans fatty acid, as a prohibited substance in food, so as to eliminate the associated food safety risk at source.

To facilitate the food trade to ascertain whether the food products or ingredients contain any hydrogenated oil, the Food and Drugs (Composition and Labelling) (Amendment) Regulation 2021 was also passed by the LegCo to stipulate that any prepackaged food containing hydrogenated oils, e.g. fully hydrogenated oil, must be indicated accordingly in the list of ingredients. The relevant provisions on PHOs will come into operation on 1 December 2023.

The Amendment Regulation also updates and strengthens the regulatory control of three types of mycotoxins, i.e. aflatoxins, deoxynivalenol (also known as vomitoxin) and patulin, in food, as well as sets or updates the maximum levels for five other harmful substances (i.e. benzo[a]pyrene, glycidyl fatty acid esters, melamine, 3-monochloropropane-1, 2-diol and erucic acid) in edible fats and oils, condiments or formula products intended for infants. The maximum levels of these substances in food will come into force on 1 June 2023.

For more details about the Amendment Regulation or information about food safety issues, please visit the website of the Centre for Food Safety at [www.cfs.gov.hk](http://www.cfs.gov.hk).

*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](mailto:so_dp3@dh.gov.hk).*

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