

Physical Activity and Cancer Prevention

Key Messages

- ※ Regular physical activity can lower the risk of developing several types of cancer, in particular obesity-related cancers of the colon, breast and endometrium (inner lining of the uterus). With sufficient physical activity, it is appraised that about 17%–18% of colon cancers, 12% of female breast cancers and 23% of endometrial cancers could be prevented worldwide.
- ※ The World Health Organization (WHO) recommends adults to do at least 150–300 minutes of moderate-intensity aerobic physical activity; or at least 75–150 minutes of vigorous-intensity aerobic physical activity, or at least an equivalent combination of moderate- and vigorous-intensity activity throughout the week, for substantial health benefit. However, 16.8% of adults aged 18 and above (15.2% of males; 18.3% of females) in Hong Kong did not meet such physical activity recommendation.
- ※ To increase population's level of physical activity in Hong Kong, the Department of Health (DH) will continue working closely with various stakeholders and organise health communication campaigns to promote population health and encourage members of the public to build an active lifestyle.
- ※ Despite reduced opportunities for outdoor and social activities in the wake of the coronavirus disease 2019 (COVID-19) pandemic, members of the public can do home-based exercises, carry out household chores or join online exercise classes in order to maintain physically active while staying at home.
- ※ Together, let's stay healthy and continue to fight the virus!

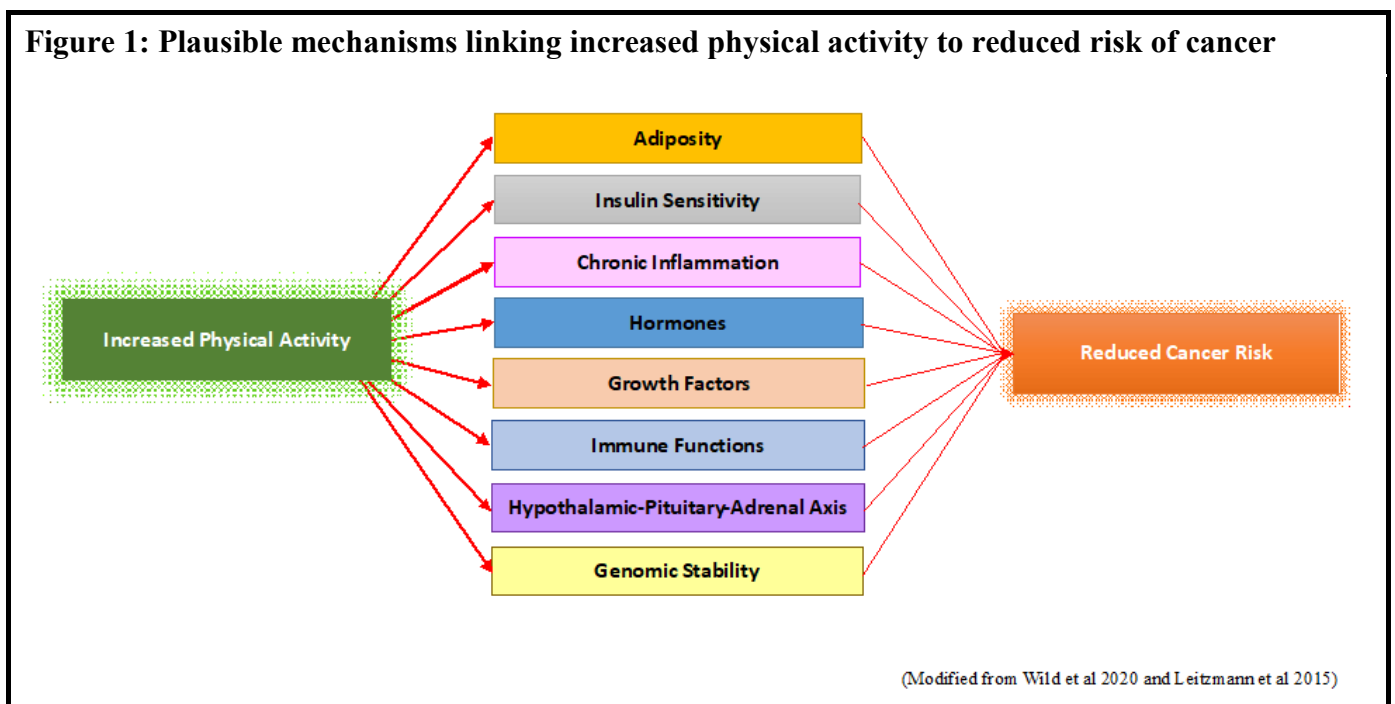
Physical Activity and Cancer Prevention

The burden of cancer is rising worldwide. In 2019, the Global Burden of Study estimated that there were 23.6 million new cancer cases, 10.0 million deaths and 250 million of disability-adjusted life-years (i.e. the number of years lost due to ill-health, disability or early death) across the world.¹ Actually, many cancer cases could be prevented by modifying or avoiding key risk factors, including lack of physical activity. There is strong evidence that regular physical activity are linked to lower risk of developing several types of cancer,^{2,3} in particular obesity-related cancers of the colon, breast and endometrium (inner lining of the uterus).⁴ Besides, reductions in cancer risk are observed for a broad range of physical activity domains, including recreation, transportation (such as walking and cycling), occupation (i.e. work) and household (such as carrying out household chores).²

Plausible Mechanisms of Physical Activity on Cancer Risk Reduction

As illustrated in Figure 1, physical activity could decrease the risk of cancer initiation and development via various hypothesised biological mechanisms, such as reducing the harmful effects of adiposity, elevating insulin sensitivity, lessening chronic inflammation, modulating the levels of hormones (e.g. oestrogens and androgens) and certain growth factors (e.g. insulin-like growth factor), enhancing immune functions (e.g. increasing the number and activity of natural killer cells), regulating hypothalamic-pituitary-adrenal axis in response to stress, and improving genomic stability (e.g. activation of cellular responses to DNA damage and upregulating DNA repair mechanisms).^{3, 5} In addition, physical activity increases gut motility and decreases bowel transit time, thus reducing colon cancer risk by lowering the exposure of faecal carcinogens at the colonic mucosal surface.³⁻⁵

Figure 1: Plausible mechanisms linking increased physical activity to reduced risk of cancer



Epidemiological Evidence of Physical Activity and Cancer Risk Reduction

Physical activity protects against colon cancer. Compared with the least physically active people, the most physically active people would have an overall 20% reduced risk of colon cancer.⁴ Evidence is also strong enough to support a protective relationship between physical activity and cancers of the breast and endometrium. Compared with the least physically active women, the most physically active women would have an overall 13% reduced risk for breast cancer (17% for premenopausal status; 9% for postmenopausal status).⁶ For endometrial cancer, women with high physical activity levels would have an overall 20% reduction in risk compared with women with low physical activity levels.⁷ Furthermore, risk reductions in colon cancer, breast cancer and endometrial cancer were also observed for various physical activity domains (Table 1). With sufficient physical activity, a global review appraised that about 17%–18% of colon cancers, 12% of female breast cancers and 23% of endometrial cancers could be prevented worldwide.⁸

Table 1: Epidemiological evidence of high/highest versus low/lowest levels of physical activity and cancer risk reduction

Cancer Site	Type of Physical Activity	Risk Reduction Estimate
Colon ⁹	Transportation	34%
	Occupation	26%
	Recreation	20%
Breast ⁶	Non-occupation	13%
	Recreation	12%
	Occupation	9%
Endometrium ⁷	Transportation	30%
	Occupation	19%
	Recreation	16%

Guidelines on Physical Activity and Sedentary Behaviour

In November 2020, the World Health Organization (WHO) updated and released guidelines on physical activity and sedentary behaviour for children, adolescents, adults, older adults, pregnant and postpartum women, and those living with chronic conditions or disabilities.¹⁰ For all adults aged 18 and above, including those living with chronic conditions or disability, WHO recommends that:

- ✓ They should undertake regular physical activity;
- ✓ They should do at least 150–300 minutes of moderate-intensity aerobic physical activity (such as brisk walking, biking on level ground, scrubbing bathroom or bathtub, etc.); or at least 75–150 minutes of vigorous-intensity aerobic physical activity (such as jogging, fast swimming, playing with children at a fast pace, etc.); or an equivalent combination of moderate- and vigorous-intensity activity throughout the week, for substantial health benefits;
- ✓ They should also do muscle-strengthening activities at moderate or greater intensity that involve all major muscle groups (such as lifting weights, squats, abdominal crunch sit up, etc.) on 2 or more days a week, as these provide additional health benefits;
- ✓ For older adults aged 65 and above (including those living with chronic conditions or disability), as part of their weekly physical activity, they should also do varied multi-component physical activity that emphasises functional balance and strength training (such as walking, dancing, Tai Chi Chuan, etc.) at moderate or greater intensity, on 3 or more days a week, to enhance functional capacity and to prevent falls;
- ✓ They may increase moderate-intensity aerobic physical to more than 300 minutes; or do more than 150 minutes of vigorous-intensity aerobic physical activity; or an equivalent combination of moderate- and vigorous-intensity activity throughout the week for additional health benefits.¹⁰

Doing some physical activity is better than doing none. If adults are not meeting the recommendations, doing some physical activity will benefit their health. They should start by doing small amounts of physical activity, and gradually increase the frequency, intensity and duration over time. For older adults aged 65 and above, they should be as physically active as their functional ability allows, and adjust their level of effort for physical activity relative to their level of fitness.¹⁰

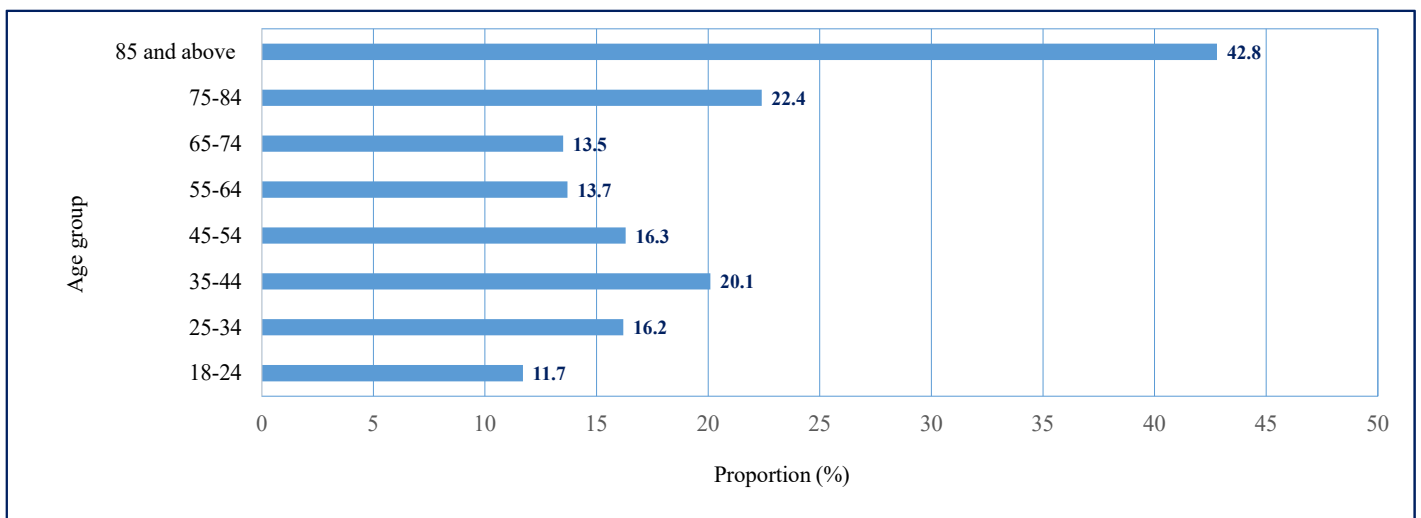
Too much sedentary behaviour can be unhealthy. For all adults aged 18 and above, including those living with chronic conditions or disability, WHO recommends that:

- ✓ They should limit the amount of time spent being sedentary. Replacing sedentary time with physical activity of any intensity (including light intensity) provides health benefits;
- ✓ To help reduce the detrimental effects of high levels of sedentary behavior on health, they should aim to do more than the recommended levels of moderate- to vigorous-intensity physical activity.¹⁰

Level of Physical Activity

Globally, about 1 in 4 adults (27.5%) is not active enough.¹¹ In Hong Kong, the Health Behaviour Survey 2018/19 of the Department of Health (DH) adopted the Global Physical Activity Questionnaire to collect information on the population’s physical activity participation. Among adults aged 18 and above, the survey found that 16.8% of them (15.2% of males; 18.3% of females) had insufficient physical activity (i.e. not meeting the WHO recommendation of at least 150 minutes of moderate aerobic activity per week or the equivalent amount of physical activity).¹² The proportion was higher than 13.0% found in the Population Health Survey 2014/15.¹³ Excluding seniors aged 65 and above, a relatively higher proportion of persons aged 35–44 (20.1%) did not meet such physical activity recommendation (Figure 2).¹²

Figure 2: Proportion of adults aged 18 and above not meeting WHO recommendation of physical activity level by age group



Source: Health Behaviour Survey 2018/19.

Results also showed that 91.5% of persons aged 15 and above (91.4% for males; 91.5% for females) performed physical activities for at least 10 minutes continuously in one of the three selected settings (including activities at work, travel to and from places and recreational activities) in a typical week, including 84.5% had transport-related physical activity (including walking or cycling), 42.1% participated in recreation-related physical activity and 15.5% performed work-related physical activity (Table 2). Moreover, 20.7% of persons aged 15 and above (21.6% for males; 19.9% for females) reported spending 10 hours or longer on average on sitting or reclining each day.¹²

Leading an Active Lifestyle

For increasing population’s participation in physical activity, implementing community wide public education and awareness campaigns for physical activity is one of the WHO recommended interventions.¹⁴ DH will continue working closely with various stakeholders and organise health communication campaigns to promote population health and encourage members of the public to build an active lifestyle.

In the wake of the coronavirus disease 2019 (COVID-19) pandemic, members of the public are urged to, inter alia, go out less and stay at home as far as possible. Despite reduced opportunities for outdoor and social activities, members of the public can do home-based exercises (such as squats, knee to elbow, running on the spot, dance with music, etc.), carry out household chores (such as mopping floor, scrubbing bathroom or kitchen, making beds and changing linens, etc.) or join online exercise classes in order to maintain physically active while staying at home. Furthermore, higher total or prolonged sitting time are associated with increased risk of certain cancers and other non-communicable diseases (including heart disease, stroke and type 2 diabetes), regardless of physical activity level.¹⁰ Therefore, members of the public should limit chair-time, incorporate stand-ups and small walks into daily routines, such as standing or stepping on the spot while watching television; doing toe lifts or pacing around while talking on the phone; standing up while folding laundry, ironing or performing other sit-down tasks. Remember, every move counts; any amount of physical activity is better than none while more is better.

Table 2: Proportion of persons aged 15 and above who performed setting-specific physical activities for at least 10 minutes continuously in a typical week by sex and age group

Setting-specific physical activities		Transport-related physical activity	Recreation-related physical activity	Work-related physical activity
Overall		84.5%	42.1%	15.5%
Sex	Male	83.4%	47.5%	21.3%
	Female	85.5%	37.3%	10.3%
Age group	15-24	85.8%	64.9%	11.3%
	25-34	85.6%	48.4%	16.5%
	35-44	81.1%	41.6%	17.7%
	45-54	85.7%	40.3%	21.8%
	55-64	87.9%	35.7%	19.3%
	65-74	88.3%	39.1%	8.9%
	75-84	75.8%	28.3%	2.3%
85 and above	63.7%	15.3%	0.0%	

Note: Multiple answers were allowed.
Source: Health Behaviour Survey 2018/19.

To empower members of the public to do more physical activity, DH produced a number of home-based exercise demonstration videos that can be viewed at www.change4health.gov.hk/en/resources/av_gallery/index.html. To know more about physical activity, please visit the DH's Change for Health website: www.change4health.gov.hk. Together, let's stay healthy and continue to fight the virus!

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“Stay Active at Home”

“Stay Active at Home” is produced by the Elderly Health Service of the Department of Health to help elderly safely and effectively stay physically active while at home.

This series of seven videos, designed and demonstrated by physiotherapists, trains different parts of the body, improves health and caters to elderly persons with different mobility levels. Elderly can select different videos based on their capabilities and exercise together by following the demonstrations. Let's get moving at home!

“Stay Active At Home” is a series of seven home-based exercise videos targeting different body parts to improve health.



Elderly Health Service, Department of Health
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World Cancer Day is an initiative of the Union for International Cancer Control (UICC) which takes place every year on 4 February. It aims to unite the world in the fight against cancer. The theme for World Cancer Day 2019–2021 is: ‘**I Am and I Will**’, urging everybody to make a personal commitment to reduce the impact of cancer for themselves, the people they love and the world. To know more about World Cancer Day, please visit www.worldcancerday.org.

Regular physical activity can lower the risk of developing several types of cancers. Let’s take immediate action and move more to reduce the risk of cancer while staying at home in the wake of COVID-19 pandemic!



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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