Non-Communicable Diseases Watch

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衞生防護中心 Centre for Health Protection

衞生署 Department of Health

Move More and Sit Less to Prevent Colorectal Cancer

Key Messages

※ Being physically active including reduction of sedentary behaviour is one the most important step people can take to guard against colorectal cancer, in particular colon cancer. Compared with low levels of physical activity, high levels of physical activity were associated with 21–27% reduction in colon cancer risk. Risk reductions in colon cancer were also observed for various physical activity domains, including transport-, work- and recreation-related physical activities.

※ The World Health Organization (WHO) recommends adults to do at least 150–300 minutes of moderate-intensity aerobic physical activity, or an equivalent amount and intensity of physical activity throughout the week. They should also limit the time spent being sedentary.

※ The Population Health Survey 2020-22 observed that 24.8% of local adults aged 18 or above had insufficient physical activity (i.e. not meeting the WHO recommended levels of aerobic physical activity). Among persons aged 15 or above, 14.9% of them spent 10 hours or longer on average per day sitting or reclining (apart from sleeping).

※ Members of the public are urged to make physical activity a "must do" habit and limit chair-time. To meet the daily or weekly goal, individuals can go for a variety of physical activities and do aerobic exercises in shorter bouts (such as 10, 15 or 20 minutes) a few times a day.

※ The Department of Health will continue organising health promotional campaigns to raise public awareness about the benefits of physical activity, and working closely with relevant stakeholders as well as community partners to integrate physical activity into daily living.

※ To reduce the burden arising from colorectal cancer, the Hong Kong SAR Government launched the Colorectal Cancer Screening Programme ("Programme") to subsidise asymptomatic average-risk Hong Kong residents aged between 50 and 75 to undergo screening tests in the private sector for prevention of colorectal cancer. Eligible persons are urged to join the Programme and have well-organised screenings.

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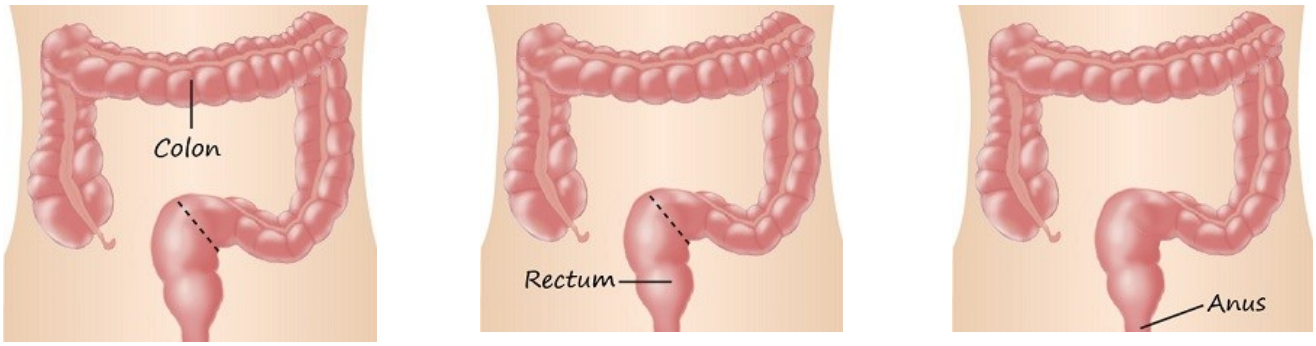
18/F Wu Chung House, 213 Queen's Road East, Wan Chai, Hong Kong http://www.chp.gov.hk

Move More and Sit Less to Prevent Colorectal Cancer

Colorectum (or large intestine) is the last portion of the digestive system. It consists of the colon, the rectum and the anus (Figure 1). For colorectal cancer (including colon cancer and rectal cancer), it is one of the most common cancers with almost 1.93 million newly diagnosed cases across the globe in 2020[1]. Lifestyles are implicated in colorectal cancer risk. For instance, physical inactivity is a risk factor of colorectal cancer[2]. A global review has appraised that 17–18% of colon cancers worldwide are attributed to insufficient physical activity[3]. In China, physical inactivity is responsible for about 9% of colorectal cancer incidence and mortality[4]. Independent of physical activity level, prolonged sitting can increase the risk of colorectal cancer[5].

Conversely, being physically active decreases the risk of colon cancer[6]. Minimising the amount of time spent in sedentary behaviours (such as watching television, computer use and reading in a sitting, reclining or lying posture) may also lower colon cancer risk[7]. While being physically active, including reduction of sedentary behaviour, is one the most important step people can take to guard against some cancers (including colorectal cancer)[6], this article discusses the mechanisms and epidemiological evidence of physical activity on reducing colorectal cancer risk.

Figure 1: Anatomy of the large intestine



Potential Mechanisms of Physical Activity on Reducing Colorectal Cancer Risk

Physical activity refers to any bodily movement that uses skeletal muscles and requires energy expenditure[8]. It includes walking and cycling for transportation, playing sports, performing household chores and work-related activities. Physical activity has many physiological effects on the body, some of which are involved in reducing colorectal cancer risk. These include[6, 7, 9]:

- Reducing body fat, which is an established risk factor for colorectal cancer;
- Lessening chronic inflammation, which can cause deoxyribonucleic acid (DNA) damage and lead to cancer;
- Enhancing immune function, which has a crucial role in the control of tumour progression in colorectal cancer;
- Modulating the levels of certain hormones (such as estrogen) and growth factors (such as insulin-like growth factor), which are associated with colon cancer initiation and development;
- Elevating insulin sensitivity and reducing the risk of colon cancer initiation and development;
- Increasing gut motility and reducing bowel transit time, which decreases the exposure of cancer-causing substances in stool at the colonic mucosal surface and reduces the risk of colon cancer development.

Epidemiological Evidence of Physical Activity and Colorectal Cancer Risk

There is strong evidence that physical activity protects against colon cancer. Compared with low levels of physical activity, high levels of physical activity were associated with 21–27% reduction in colon cancer risk[10]. Risk reductions in colon cancer were also observed for various physical activity domains (Table 1)[11]. On the contrary, high levels of sedentary behaviour would increase the risk of colorectal cancer, regardless of how active people are during the day. Compared to low sedentary behaviour levels, high sedentary behaviour levels were associated with 25% and 7% increased risk of colon cancer and rectal cancer respectively[12].

Table 1: Colon cancer risk reduction estimates by domain of physical activity

Domain of physical activity	Approximate range of relative risk reduction for highest versus lowest levels of physical activity
Transport-related physical activity	↓34%
Work-related physical activity	↓26%
Recreation-related physical activity	↓20%

Source: Mahmood et al, 2017.

Global Recommendations on Physical Activity and Sedentary Behaviours for Adults

For adults aged 18 and above, including those living with chronic conditions or disability, the World Health Organization (WHO) recommends that[13]:

- They should undertake regular physical activity;
- They should 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 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 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 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 activity 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.

Regarding sedentary behaviours, WHO recommends that[13]:

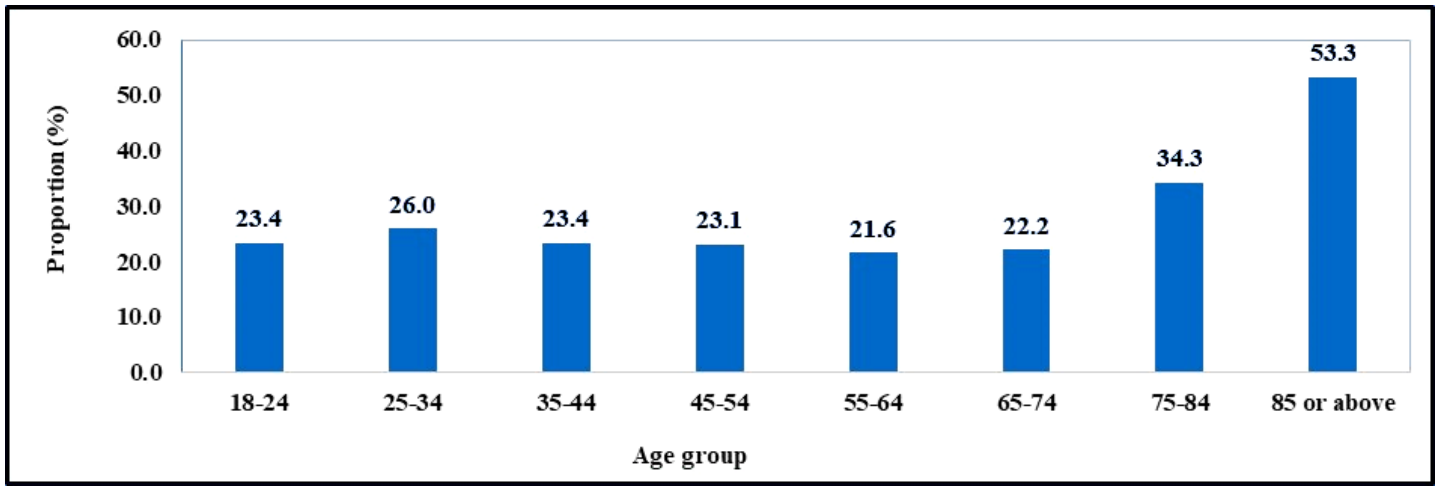
- They should limit the time spent being sedentary. Replacing sedentary time with physical activity of any intensity (including light intensity) provides health benefits;
- To help reduce the detrimental effects of high levels of sedentary behavior on health, they should aim to do more than the recommended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

However, 1 in 4 adults globally do not meet the recommended levels of aerobic physical activity[8]. A systematic review of 39 large and population-representative studies with objectively measured data indicates that adults spend a median of 8.2 hours per day being sedentary[14].

Level of Physical Activity among Hong Kong Population

According to the Population Health Survey 2020–22[15] conducted by the Department of Health (DH), 24.8% (22.8% for males; 26.5% for females) of local adults aged 18 or above had insufficient physical activity (i.e. not meeting the WHO recommended levels of aerobic physical activity). Compared to younger age groups, elderlies aged 75 or above were more likely to report having insufficient physical activity (Figure 2)[15].

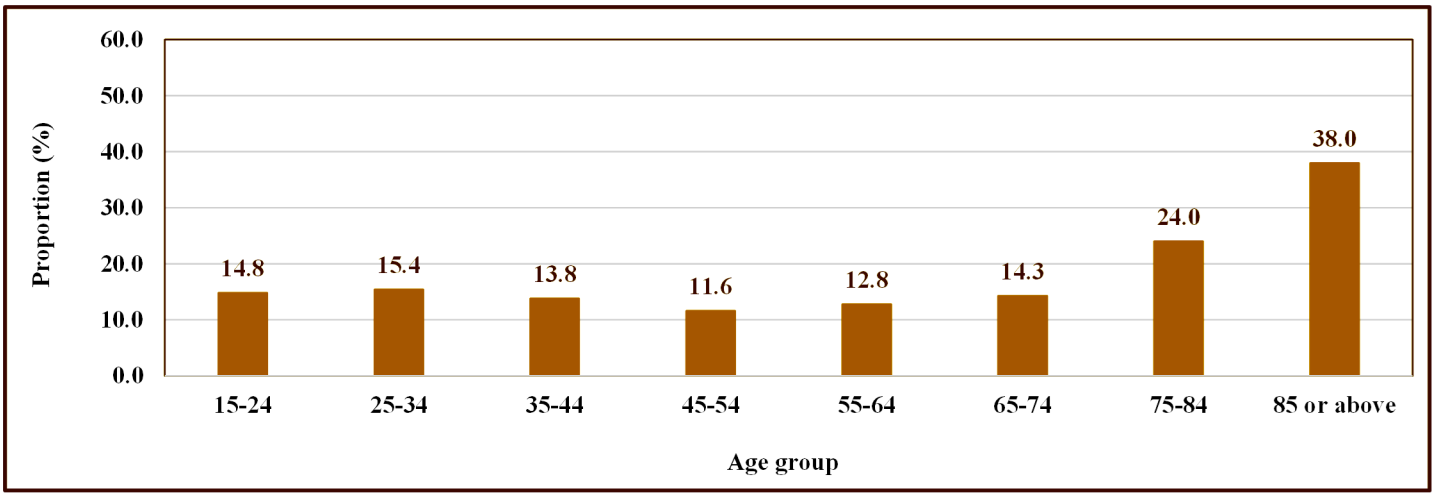
Figure 2: Proportion of persons aged 18 or above with insufficient physical activity level by age group



Note: The figures were estimated purely based on the level of physical activity reported by the respondents.
Source: Population Health Survey 2020–22.

Among persons aged 15 or above, the mean duration of sedentary behaviour on a typical day was 6.8 hours (6.7 hours for males; 6.9 hours for females). Overall, 14.9% (14.5% for males; 15.3% for females) of them spent 10 hours or longer on average per day sitting or reclining (apart from sleeping). Similarly, elderlies aged 75 or above were more likely than their younger counterparts to report spending 10 hours or more on average per day sitting or reclining (Figure 3) [15].

Figure 3: Proportion of persons aged 15 or above reported spending 10 hours or more sitting or reclining* on a typical day by age group



Note: *Time spent on sitting and reclining does not include time spent on sleeping.
Source: Population Health Survey 2020–22.

Leading an Active Lifestyle for Prevention of Colorectal Cancer

Regular physical activity contributes to the prevention of non-communicable diseases, including colorectal cancer. Members of the public are urged to make physical activity a "must do" habit. To meet the daily or weekly goal, individuals can go for a variety of physical activities and do aerobic exercises in shorter bouts (such as 10, 15 or 20 minutes) a few times a day. For elderlies, adults with disability or chronic conditions who cannot perform the recommended amounts of physical activity due to health conditions, WHO recommends that they should be as physically active as their abilities and health conditions allow[8]. Members of the public should also limit chair-time. Studies showed that taking one- to two-minute breaks from prolonged bouts of sitting could reduce levels of harmful metabolic effects linked with increased cancer risk[16]. Thus, individuals are encouraged to incorporate stand-ups and small walks into daily routines, such as standing on public transport; doing toe lifts or pacing around while talking on the phone; hand-delivering messages to colleagues rather than using the phone or emails, if feasible in the workplace; standing or stepping on the spot while watching television; standing up while folding laundry, ironing or performing other chores. Remember, every move counts; any amount of physical activity is better than none while more is better. For more information about physical activity, please visit DH's Change for Health website: https://www.change4health.gov.hk.

Of note, colorectal cancer is a highly preventable disease. Adhering to a healthy lifestyle can substantially reduce the risk of developing colorectal cancer. Apart from taking part in regular physical activity, members of the public are urged to maintain a healthy body weight and waist circumference, eat a balanced diet (including at least 5 servings of fruit and vegetables a day and limiting consumption of red and processed meats), avoid smoking and refrain from alcohol consumption. DH will continue organising health promotional campaigns using a variety of strategies to raise public awareness about the benefits of physical activity, and working closely with relevant stakeholders as well as community partners to integrate physical activity into daily living. There is plenty of evidence to show that detecting the colorectal cancer early with timely treatment can increase the chance of cure and survival. If it is found before it can spread, the 5-year survival rate is 95.7% for Stage 1 and 87.3% for Stage 2[17]. To reduce the burden arising from colorectal cancer, the Hong Kong SAR Government launched the Colorectal Cancer Screening Programme ("Programme") to subsidise asymptomatic average-risk Hong Kong residents aged between 50 and 75 to undergo screening tests in the private sector for prevention of colorectal cancer. Eligible persons are urged to join the Programme and have well-organised screenings.

For more health advice for prevention of colorectal cancer or information about the Programme, please visit https:// www.colonscreen.gov.hk or call 3565 6288 during office hours.

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Colorectal Cancer Awareness Month

Colorectal Cancer Awareness Month is observed in March to highlight the importance of screening for colorectal cancer, as well as to promote healthy lifestyle habits that can decrease a person's risk of developing colorectal cancer (https://www.iarc.who.int/).

In Hong Kong, colorectal cancer is the second commonest cancer with 5 087 new cases in 2020. Despite effective screening techniques exist for detecting pre-cancerous polyps (which may progress into cancer) and colorectal cancer early, there were 2 298 registered deaths attributed to colorectal cancer in 2021.

The purpose of colorectal cancer screening is to identify people who have colorectal cancer before they have any symptoms, so that treatment could be commenced earlier. As the Hong Kong SAR's Cancer Expert Working Group on Cancer Prevention and Screening (CEWG) recommends, average-risk people aged 50–75 (such as those without hereditary bowel diseases) should consider screening for colorectal cancer by annual or biennial faecal occult blood test, or sigmoidoscopy every 5 years, or colonoscopy every 10 years. The Government's Colorectal Cancer Screening Programme (Programme) subsidises asymptomatic Hong Kong residents aged between 50 and 75 to undergo screening tests in private sector for prevention of colorectal cancer. Under the Programme, eligible participants should attend a medical consultation provided by an enrolled primary care doctor (PCD) and receive a Faecal Immunochemical Test (FIT) screening arranged by the PCD. If the FIT result is positive, the participant will be referred to an enrolled colonoscopy specialist to receive a colonoscopy examination subsidised by the Government. If the FIT result is negative, the participant is advised to repeat the screening two years later. Eligible persons are urged to join the Programme as soon as possible and have well-organised screenings. For more information about the Programme, please visit the thematic website at https://www.colonscreen.gov.hk or call 3565 6288 during office hours.

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.