Non-Communicable Diseases Watch

衞生防護中心
Centre for Health Protection

衞生署
Department of Health

JANUARY 2026

Obesity-Related Cancer:
A Unique Health Challenge Requiring United Efforts

Key Messages

- Obesity is the third leading risk factor for cancer globally and is linked to an increased risk of at least 13 types of cancer. Among them, colorectal cancer accounted for the highest number of deaths and disability-adjusted life years, followed by liver cancer and breast cancer.
- Hong Kong, like other regions, is increasingly burdened by cancers linked to obesity. Of the 37 953 new cancer cases diagnosed in 2023, obesity-related cancers accounted for 53%. Overall, the top five obesity-related cancers were female breast cancer, colorectal cancer, liver cancer, corpus uteri cancer and stomach cancer, which showed an upward trend.
- Maintaining healthy weight and lifestyle along with implementing evidence-based public health prevention measures could prevent 30–50% of cancers. Individuals should maintain a healthy weight and waist circumference , and take proactive steps early to prevent obesity and reduce the risk of cancer.

Obesity Increases the Risk of Cancer

Increased body fatness and excess accumulation of fat inside the abdominal cavity are closely associated with an increased risk of cancer. For Asian adults, a body mass index (BMI) ≥23.0 is regarded as overweight, while a BMI ≥25.0 is classified as obsity[1]. The BMI cut-off values are lower than Caucasians because Asians tend to have higher body fat percentages and greater cardiometabolic risks at the same BMI compared with Caucasians[1].

Definitions of Overweight and Obesity for Chinese Adults in Hong Kong[2,3]
Overweight: BMI ≥23.0 — <25.0 ; Obesity: BMI ≥25.0
Central obesity: Male: ≥90.0 cm; Female: ≥80.0 cm

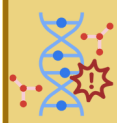
There is strong epidemiological evidence that obesity is associated with an increased risk of at least 13 types of cancer via various mechanisms, with relative risks ranging from 1.1 to 7.1 times compared to normal weight (Figure 1) [4, 5]. Excess abdominal fat has also been shown to elevate the risk of endometrial cancer and cancers of the digestive system, including those of the liver and oesophagus[6, 7].

Induced insulin resistance

Obesity contributes to insulin resistance, leading to hyperinsulinemia[8, 9]. Elevated circulating insulin levels have been associated with increased cancer risk and progression, as demonstrated in epidemiological studies[10].

Increased chronic inflammation

Adipose tissue secretes a range of pro-inflammatory cytokines and growth factors, triggering chronic inflammation and affecting immune system function, which in turn promotes cancer initiation and progression[9, 10].

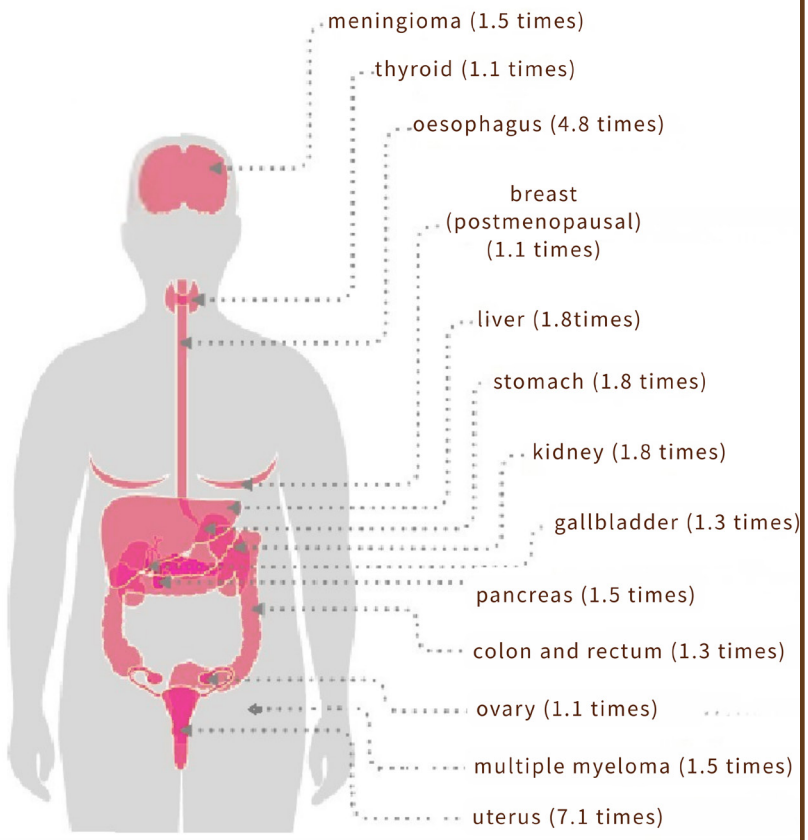


Altered levels of growth factors and hormones

Body fatness affects levels of certain circulating hormones, such as oestrogen. Studies show that elevated oestrogen levels are strongly associated with the development of hormone-sensitive cancers, particularly endometrial cancer and breast cancer among postmenopausal women[8, 10].

Disrupted gut microbiota composition

Obesity is associated with alterations in gut microbiota, which may contribute to abnormal cell growth and proliferation in the large intestine[9, 10].



(The value in bracket represented the summary relative risk of the highest BMI category versus BMI between 18.5 and 24.9 from the International Agency for Research on Cancer)

Figure 1: Epidemiologic evidence on the association between obesity and 13 types of cancer

The Attributable Fractions for Cancers Due to Obesity Vary by Cancer Type

At a global level, obesity is the third leading attributable risk factor for cancer after smoking and infections[11]. Because different cancers have distinct pathophysiological mechanisms, the attributable fraction of obesity varies accordingly. A study in 2021 estimated the population attributable fractions of various cancers linked to high BMI revealed that

- oesophageal and uterine cancers showed the strongest associations, with attributable fractions around 18%;
- thyroid cancer (in males), liver cancer, kidney cancer, and gallbladder cancer had attributable fractions ranging from 10% to 13%;
- the attributable fractions for breast cancer and pancreatic cancer were about 5% and 4%, respectively;
- the attributable fraction for ovarian cancer was approximately 3%, while that for colorectal cancer was about 2%[12].

Therefore, addressing obesity has the potential to substantially reduce the burden of these cancers. Through effective weight management, along with adopting a healthy lifestyle and implementing evidence-based public health prevention measures, an estimated 30% to 50% of cancer cases worldwide could be avoided[13]; hence, obesity control is regarded as one of the most impactful cancer prevention strategies.

Obesity Drives More Cancer Cases Worldwide

Of the 20 million new cancer cases worldwide in 2022, almost half (46%) were associated with obesity[14]. As obesity rates have soared globally, so has the number of cancers tied to body fatness[15] .

In 2021, high BMI was associated with more than 356 000 cancer deaths worldwide, representing a 160% increase in deaths compared to 1990[16]. After adjusting for population growth and ageing, the global age-standardised cancer mortality rate attributable to high BMI rose from 3.7 deaths per 100 000 person-years in 1990 to 4.2 deaths per 100 000 persons-years in 2021[15].

In 2021, about 8.9 million cancer disability-adjusted life years (DALYs, i.e. the number of years lost due to ill-health, disability or premature death) worldwide were attributed to high BMI, representing a 151% increase in DALYs compared to 1990[16]. After adjusting for population growth and ageing, the global age-standardised rate of cancer DALYs associated with high BMI increased from 87.5 to 102.2 per 100 000 person-years over the same period[15].

Notably, the global obesity epidemic may have partly contributed to a rising incidence of early-onset obesity-related cancers that include colorectal cancer, pancreatic cancer, kidney cancer, thyroid cancer, multiple myeloma and uterine cancer across the globe[17, 18]. A study analysed age-standardised incidence rates of 11 obesity-related cancers in females and 9 in males across 44 countries between 2000 and 2012. The findings revealed significant increases in early-onset obesity-related cancers (diagnosed between ages 20 and 49), with global average annual percentage changes (AAPCs) of 4.3% in females and 1.4% in males[18].

Obesity-related Cancers Pose a Significant Burden in Hong Kong

Hong Kong, like other regions, is increasingly burdened by cancers linked to obesity.

Of the 37 953 new cases of cancer diagnosed in 2023, 11 obesity-related cancers accounted for over half (53.0%) with notable gender differences in incidence and type. Overall, the top five obesity-related cancers were female breast cancer (14.7%), colorectal cancer (14.4%), liver cancer (4.5%), corpus uteri cancer (3.4%) and stomach cancer (3.4%)[19, 20]. As shown in Table 1, the leading obesity-related cancers among females were cancers of the breast (28.9%), colorectum (11.9%) and corpus uteri (6.8%). Among males, the leading obesity-related cancers were cancers of the colorectum (17.0%), liver (6.8%) and stomach (3.9%)[19, 20].

After adjusting for age, six out of the 11 obesity-related cancers exhibited a rising incidence trend between 2004 and 2023, including cancers of the female breast, corpus uteri, ovary, thyroid gland, pancreas and kidney (Figure 2)[19].

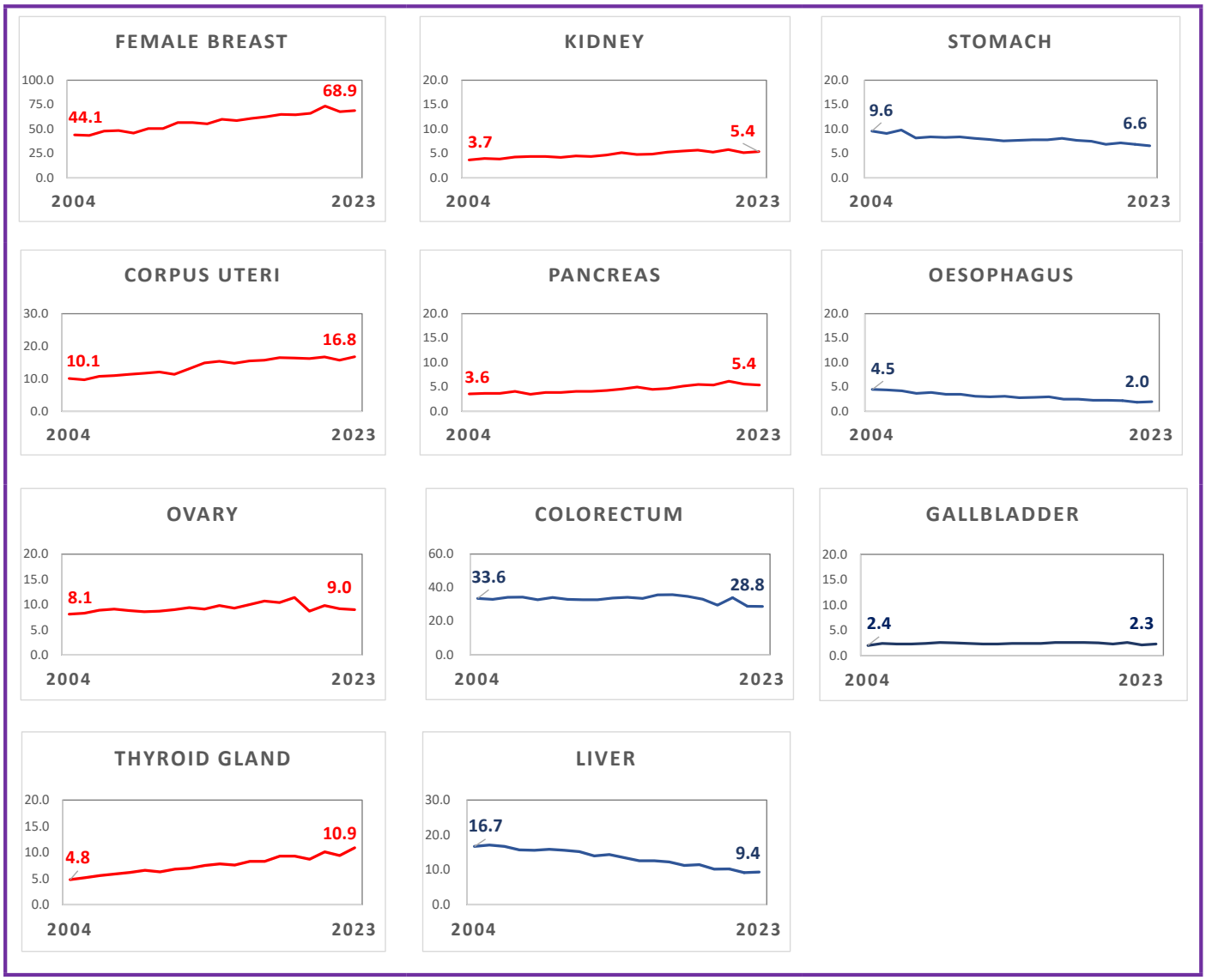
By the number of people living with obesity-related cancer in the past 20 years, female breast cancer was the most prevalent with 54 420 reported cases as of 1 January 2022, followed by colorectal cancer with 41 450 patients and gynaecological cancers that included cervical, corpus uteri and ovarian cancers with 24 800 cases among females[21].

Table 1: Incidence of 11 obesity-related cancers by sex in 2023 in Hong Kong

Cancer type	Both sexes		Female		Male	
	Number of new cases	Relative frequency	Number of new cases	Relative frequency	Number of new cases	Relative frequency
Female breast	5 585	14.7%	5 585	28.9%	-	-
Colorectum	5 467	14.4%	2 298	11.9%	3 169	17.0%
Liver	1 700	4.5%	427	2.2%	1 273	6.8%
Corpus uteri	1 306	3.4%	1 306	6.8%	-	-
Stomach	1 284	3.4%	548	2.8%	736	3.9%
Thyroid	1 267	3.3%	989	5.1%	278	1.5%
Pancreas	1 049	2.8%	492	2.5%	557	3.0%
Kidney (and other urinary organs except bladder)	903	2.4%	305	1.6%	598	3.2%
Ovary (and Peritoneum)	623	1.6%	623	3.2%	-	-
Gallbladder (and extrahepatic bile duct)	516	1.4%	247	1.3%	269	1.4%
Oesophagus	410	1.1%	74	<0.5%	336	1.8%
All cancers	37 953	100.0%	19 297	100.0%	18 656	100.0%

Source: Hong Kong Cancer Registry

Figure 2: Trend of age-standardised incidence rates (per 100 000 standard population) for the 11 obesity-related cancers from 2004 to 2023 in Hong Kong



Source: Hong Kong Cancer Registry

Intervene Early, Maintain a Healthy Weight, and Start with Acheviable Steps

Weight management plays a vital role in lowering obesity-related cancer risk. Everyone should keep a healthy weight and waist circumference throughout life. This is particularly important for children, as overweight and obesity in childhood often follows through into adulthood. For individuals who are overweight or obese, even modest weight reduction can yield significant health benefits. A systematic review and meta-analysis of prospective cohort studies involving approximately 2 million adults found that weight loss exceeding 5 kilograms was associated with a reduced risk of overall cancer[22].

Studies showed that adherence to the major cancer prevention guidelines (such as World Cancer Research Fund and American Institute for Cancer Research guidelines) could reduce the risk of obesity-related cancers by an average of 22%[23], with reductions reaching up to 58% for esophageal cancer among individuals with the healthiest lifestyles[24]. Members of the public are encouraged to regularly monitor their BMI and, where appropriate, set achievable weight reduction targets to safeguard health and lower the risk of obesity related cancers.

The Government Prioritises Cancer and Obesity Prevention

The Government of the Hong Kong Special Administrative Region (Government) attaches great importance to the prevention and control of cancer and obesity. Following the launch of the Hong Kong Cancer Strategy in 2019[26], the Chief Executive further announced in the Policy Address 2025 that the Government would make reference to the national and the World Health Organization policy frameworks to raise public awareness of weight management, including strengthening health education and promotion, cultivating a supportive environment for weight management, strengthening health service delivery, adopting a life-course approach health promotion strategy, and continuously monitoring the weight trends[27].

The Department of Health will continue working closely with relevant stakeholders to raise public awareness of the importance of healthy living in cancer prevention, promote cancer-related vaccinations and the uptake of cancer screening by populations as the Cancer Expert Working Group on Cancer Prevention and Screening recommended. For access to accurate and reliable health information relating to cancer including prevention and recommended screenings, please visit the Cancer Online Resources Hub at cancer.gov.hk/en/index.html.

References

1. World Health Organization Regional Office for the Western Pacific. The Asia-Pacific Perspective: Redefining Obesity and its Treatment. Sydney: Health Communications, 2000. Accessed 28 October 2025: https://apps.who.int/iris/handle/10665/206936.

2. Are You Obese? (Revised 2023). Hong Kong SAR: Department of Health. Accessed 1 December 2025: https://www.chp.gov.hk/en/resources/e_health_topics/pdfwav_11003.html.

3. Waist Circumference and Waist-Hip Ratio: Report of a WHO Expert Consultation, Geneva, 8-11 December 2008. Geneva: World Health Organization. 2011. Accessed 28 October 2025: https://www.who.int/publications/i/item/9789241501491.

4. Lauby-Secretan B, Scoccianti C, Loomis D, et al. Body fatness and cancer-Viewpoint of the IARC Working Group. New England Journal of Medicine 2016;375(8):794-798.

5. Patel AV, Patel KS, Teras LR. Excess body fatness and cancer risk: A summary of the epidemiologic evidence. Surgery for Obesity and Related Diseases 2023;19(7):742-745.

6. Hazelwood E, Goudswaard LJ, Lee MA, et al. Adiposity distribution and risks of 12 obesity-related cancers: A Mendelian randomization analysis. Journal of the National Cancer Institute 2025, Sept24:d-jaf201.

7. Li X, Lian Y, Ping W, et al. Abdominal obesity and digestive system cancer: A systematic review and meta-analysis of prospective studies. BMC Public Health 2023;23(1):2343.

8. World Cancer Research Fund/American Institute for Cancer Research. Continuous Update Project Expert Report 2018. Body Fatness and Weight Gain and the Risk of Cancer. Accessed 28 October 2025: https://www.cancer-environnement.fr/app/uploads/2022/09/WCRF-2018.-Body-fatness-and-weight-gain-and-the-risk-of-cancer.pdf.

9. Ingram Y, Olujide O, Sheikh N, et al. The relationship between obesity and cancer: Epidemiology, pathophysiology, and the effect of obesity treatment on cancer. Current Oncology 2025;32(6):362.

10. Larsson SC, Spyrou N, Mantzoros CS. Body fatness associations with cancer: Evidence from recent epidemiological studies and future directions. Metabolism 2022;137:155326.

11. Xu Y, Tong S, Xia C, et al. Estimation of population attributable fractions based on integrated global cancer incidence data, 1990-2021. Journal of Clinical Oncology 2025;43(16 Suppl):10536.

12. Feng X, Li R, Yi H, et al. Global cancer burden attributable to excess body weight, 1990 to 2021, decomposed by population size, aging, and epidemiological change. Obesity 2025;33(3):567-577.

13. Cancer (3 February 2025). Geneva: World Health Organization. Access 28 October 2025: https://www.who.int/news-room/fact-sheets/detail/cancer.

14. Bray F, Laversanne M, Sung H, et al. Global cancer statistics 2022: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA: A Cancer Journal for Clinicians 2024;74(3):229-263.

15. Figlioli G, Piovani D, Tsantes AG, et al. Burden of cancer attributable to high body mass index: A systematic analysis of the Global Burden of Disease Study 2021. Clinical Nutrition 2025;48:144-152.

16. Zhu X, Mi Y, Wang L, et al. Global burden of cancer attributable to high BMI (1990-2031): A multidimensional analysis based on GBD and Mendelian randomization. Frontiers in Nutrition 2025;12:1618799.

17. Chen J, Dalerba P, Terry MB, et al. Global obesity epidemic and rising incidence of early-onset cancers. Journal of Global Health 2024;14:04205.

18. Terashima M, Nakayama K, Ugai S, et al. Global incidence trend of early-onset obesity-related and non-obesity-related cancers. Current Oncology 2025;32(6):324.

19. Cancer Statistics. Website of Hong Kong Cancer Registry. Hong Kong SAR: Hospital Authority. Accessed 28 October 2025: https://www3.ha.org.hk/cancereg/.

20. Overview of Hong Kong Cancer Statistics of 2023. Hong Kong SAR: Hong Kong Cancer Registry, Hospital Authority. Hospital Authority. Accessed 28 October 2025: https://www3.ha.org.hk/cancereg/.

21. Overview of Hong Kong Cancer Statistics of 2022. Hong Kong SAR: Hong Kong Cancer Registry, Hospital Authority. Hospital Authority. Accessed 28 October 2025: https://www3.ha.org.hk/cancereg/.

22. Shi X, Deng G, Wen H, et al. Role of body mass index and weight change in the risk of cancer: A systematic review and meta-analysis of 66 cohort studies. Journal of Global Health 2024;14:04067.

23. Fu J, Tan LJ, Lou S, et al. Association between adherence to cancer prevention guidelines and cancer risk: A comprehensive systematic re-iew and dose-response meta-analysis of cohort studies. EClinicalMedicine 2025;89:103569.

24. Zhang YB, Pan XF, Chen J, et al. Combined lifestyle factors, incident cancer, and cancer mortality: A systematic review and meta-analysis of prospective cohort studies. British Journal of Cancer 2020;122(7):1085-1093.

25. Cancer Screening and Prevention (September 2019). Hong Kong SAR: Department of Helath. Accessed 28 October 2025: https://www.chp.gov.hk/files/pdf/1__cancer_prevention_and _screening_eng.pdf.

26. Hong Kong Cancer Strategy 2019. Hong Kong SAR: Food and Health Bureau, Department of Health, and Hospital Authority.

27. The Chief Executive's 2025 Policy Address. Hong Kong SAR: The Government of the Hong Kong Special Administrative Region of the People's Republic of China. Accessed 28 October 2025: https://www.policyaddress.gov.hk/2025/en/policy.html.

World Cancer Day 4 February

UNITED BY UNIQUE

World Cancer Day is an initiative of the Union for International Cancer Control which takes place every year on 4 February.

This year's theme, "United by Unique", emphasises the importance of placing people at the centre of cancer care. Every patient is unique, and it takes a united effort to help patients receive comprehensive care and lead better lives. Let's be united, embrace every challenge, and celebrate every triumph!

To know more about World Cancer Day, please visit the thematic website: www.worldcancerday.org/.

Centre for Health Protection Website

www.chp.gov.hk