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The WHO International Agency for Research on Cancer (IARC) coordinates and conducts research on causes of human cancer, mechanisms of carcinogenesis, and develops scientific strategies for cancer control. A new evaluation carried out by the IARC Handbooks of Cancer Prevention programme has concluded that overweight/obesity is a risk factor for more cancer sites than previously established. A summary of the results has been published in The New England Journal of Medicine (1).

A Working Group of 21 independent international experts, convened by IARC, assessed more than 1000 studies, including intervention trials, cohort and case–control studies, studies in experimental animals, and studies on the mechanisms linking excess body fatness and cancer. The Group confirmed the previous evaluation of the IARC Handbooks (Volume 6, 2002) that absence of excess body fatness reduces the risk of cancers of the colon and rectum, oesophagus (adenocarcinoma), kidney (renal cell carcinoma), breast in postmenopausal women, and endometrium of the uterus. In addition, the review of available literature for middle-aged adults showed that there is sufficient evidence in humans that the absence of excess body fatness reduces the risk of cancers of the gastric cardia, liver, gallbladder, pancreas, ovary, and thyroid, and meningioma, and multiple myeloma. There is also limited evidence that absence of excess body fatness reduces the risk of fatal prostate cancer, breast cancer in men, and diffuse large B-cell lymphoma.

The Working Group also reviewed data pertaining to body fatness in children, adolescents, and young adults (aged up to 25 years) to assess whether obesity at earlier periods of life is linked with cancer in adult life. For several cancer sites, including the colon and the liver, associations between excess body weight and cancers were observed, similar to those reported in adults. It is well established that overweight in experimental animals increases the incidence of several types of cancer. Studies in overweight animals showed that caloric or dietary restriction reduces the risk of cancers of the mammary gland, colon, liver, pancreas, skin, and pituitary gland.

Global burden of overweight and obesity

Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health. Body fatness is assessed primarily by body mass index (BMI), defined as a person’s weight in kilograms divided by the square of their height in metres (kg/m2). WHO defines overweight as a BMI greater than or equal to 25 kg/m2; and obese as a BMI greater than or equal to 30 kg/m2. BMI provides the most useful population-level measure of overweight and

obesity since it can be used with the same cut-off points for adults of both sexes and all ages. However, it should be considered an approximate guide because it may not correspond to the same degree of fatness in different individuals.

Worldwide, an estimated 640 million adults were obese in 2014 (a 6-fold increase since 1975) and 110 million children and adolescents were obese in 2013 (a 2-fold increase since 1980). The estimated age-standardized prevalence of obesity in 2014 was 10.8% in men, 14.9% in women, and 5.0% in children, and globally more people are overweight or obese than are underweight. In 2013, an estimated 4.5 million deaths worldwide were attributed to overweight and obesity (1). The identification of new obesity-related cancer sites will add to the number of deaths worldwide attributed to obesity.

The IARC Handbooks of Cancer Prevention were launched in 1995, and complement the IARC Monographs book series, which identify environmental causes of cancer in humans. The IARC Handbooks of Cancer Prevention evaluate the strength of evidence that an intervention can have a cancer-preventive effect. The principles, procedures, and scientific criteria that guide the evaluations are described in the Working Procedures of the IARC Handbooks of Cancer Prevention.

References

1. Lauby-Secretan B, Scoccianti C, Loomis D, Grosse Y, Bianchini F, Straif K. Body fatness and cancer – viewpoint of the IARC Working Group. N Engl J Med. 2016 Aug;375(7):794–798.

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