

World Cancer Report 2014. Geneva, Switzerland: World Health Organization, International Agency for Research on Cancer, WHO Press, 2015



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Genesis of the Report

Compiled by the WHO's International Agency for Research on Cancer (IARC), edited by Bernard W Stewart (University of New South Wales, Australia) and Christopher P Wild (IARC director), and released in 2015, the *World Cancer Report 2014* represents the most recent volume in a series that began in 2003, when 5.3 million men and 4.7 million women were estimated to develop a malignant tumor annually and 6.2 million would die from the disease. In 2014, when this most recent (third) volume was written, ~14.1 million people were expected to develop cancer annually, and the global burden had clearly shifted from mainly being a disease of affluence to one that cut across all socioeconomic levels. Indeed, like the dual burden of simultaneous under- and over-nutrition so common in societies experiencing the nutrition transition, many developing countries now find themselves in the tight grip of cancers from 2 seemingly disparate worlds: poverty and plenty.

In response, the goal of the *World Cancer Report 2014* was to present a timely update on the state of knowledge related to cancer statistics, causes, and mechanisms and how this knowledge might be used for cancer prevention and early detection. To do this, >250 world experts were tapped to contribute to 1 or more of the 6 chapters, 7 personal perspectives, and 9 pieces in the *Report* describing "control experiences" related to cancer in one way or another. The chapters and pages scattered throughout the *Report* that specifically refer to dietary factors that may (or may not) be linked to increased or decreased cancer risk are summarized herein. Note that this is not meant to provide a detailed account of these sections but instead to draw the reader's attention to their existence and overall conclusions.

Dietary Patterns and Cancer

Three chapters of the *Report* are devoted entirely to the relation between dietary patterns or metabolism and cancer. In Chapter 2.6, Walter Willett, Tim Key, and Isabelle Romieu

focus on how diet, obesity, and physical activity are involved independently and interactively in the etiology of cancer development and progression. In addition to briefly reviewing the available literature related to how variations in macronutrient and micronutrient intakes are associated with cancer risk, this chapter also includes a commentary on the many challenges involved in dietary assessment methods, a discussion related to single-nucleotide polymorphisms (SNP) relevant to meat consumption and cancer, and a piece outlining the importance of considering the relevance of gastrointestinal microbes when considering the diet-cancer connection. Several key take-home messages are provided:

- Overweight and obesity increase the risk of cancers of the esophagus, colon, pancreas, endometrium, and kidney as well as breast cancer after menopause.
- Regular physical activity lowers the risk of multiple cancers.
- Reduced intake of sugar-sweetened beverages should be a priority when developing interventions to lower cancer risk.
- High consumption of red meat and processed meat is associated with an increased risk of colorectal cancer.
- Contrary to what was previously thought, increased consumption of fruits, vegetables, and whole-grain foods is not by itself particularly helpful in lowering cancer risk.

In another diet-specific chapter (Chapter 4.2), Rena Wing and Kathryn Middleton tackle the scientific evidence that changing behaviors aimed at weight loss and healthy weight maintenance might serve to, at least in part, prevent cancer. This chapter also contains brief commentaries related to energy restriction and cancer risk and the European Prospective Investigation into Cancer and Nutrition. In general, the authors discuss the fact that although concrete data showing that weight loss and/or increased physical activity can lower cancer risk and/or increase survival are currently scarce, there is reason to believe that these lifestyle changes might, in fact, be effective in this regard. Wing and Middleton propose several key components of successful weight management programs, including goal setting, self-monitoring, development of problem-solving skills, and changing both behavioral antecedents and consequences related to eating.

The third chapter devoted, at least in part, to nutrition-related factors and cancer (Chapter 3.5 by Augustin Scalbert and Isabelle Romieu) drills down on the finding that many cancer types are currently being considered to be metabolic diseases. However, the contribution of metabolic dysfunction to the onset of cancer development remains poorly understood. Scalbert and Romieu recommend the increased

use of metabolomic approaches applied to cohort studies in the context of metabolome-wide association studies to explore novel risk factors for cancer.

Population-Wide Nutrition Campaigns

The difficulties and opportunities related to designing and evaluating population-wide cancer reduction campaigns are also discussed by David Hill and Melanie Wakefield in Chapter 4.3. Of particular interest to the nutrition research community are brief reviews of the 1% or Less Campaign (an intensive 6-wk mass media campaign to increase the consumption of low-fat milk in Wheeling, West Virginia) and the CDC's VERB campaign to increase physical activity in children. Because both increased calcium intake and physical activity have been linked to lower cancer risk, these types of population-wide dietary campaigns might be used as relevant models in this regard.

Other Diet-Related Sections

In addition to the previously mentioned chapters, there are additional references to the link between nutrition and cancer sprinkled throughout the *Report*. For instance, the WHO's

recommendations concerning optimal diets for populations and individuals is presented (pp. 300–1), and regulatory measures related to diet and cancer (particularly aflatoxin and sugar-sweetened beverages) is discussed at some length (pp. 309–11). This latter topic is also broached in a perspective by Walter Willett entitled “Diet, Nutrition, and Cancer: Where Next for Public Health?” that outlines 6 levels of action (or approaches) that some experts claim should be considered when encouraging healthier eating from a public health and policy perspective. For instance, Willett supports food and menu labeling to help control the growing obesity epidemic and taxation of and perhaps banning of soda in some circumstances. Other sections of the *Report* also provide high-level overviews of the potential impact of individual nutrients on specific cancer types, such as those of the esophagus (p. 375), stomach (pp. 386–8), prostate (pp. 458 and 460), and nervous system (p. 513).

For More Information

Information about this report and how it can be procured can be found at <http://publications.iarc.fr/Non-Series-Publications/World-Cancer-Reports/World-Cancer-Report-2014>.