

A global consortium initiative on the association between Western diet and risk of bladder cancer

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The impact

Bladder cancer (BC), one of the ten most prevalent cancer types worldwide and will continue to have a significant economic effect on both individual lives and public health in general. It is suggested that nearly half (49%) of bladder cancer cases could be prevented by lifestyle change [1, 2].

Since the bladder is an excretion organ, it is constantly exposed to both toxic and healthy elements of a person's diet. It is, therefore, suggested that diet plays a significant role in the development of bladder cancer and should be considered in bladder cancer prevention programs. Indeed, according to the USA National Cancer Institute, changes in diet might prevent one-third of all bladder cancer mortality [3]. This could lead to a reduction in the annual medical treatment cost of 1.2 billion US dollars. It is, therefore, crucial to identify which specific dietary factors contribute to the development of this disease.

This thesis focused on the effects of the Western diet, and its components, on the risk of bladder cancer as it was suspected that adherence to the Western diet might negatively influence several health outcomes, including cancers. This thesis confirms this hypothesis for bladder cancer.

The association between adherence to the Western diet and increased bladder cancer risk, might be due to the high content of organ meat and / or low fish intake in a Western diet. In addition, this thesis highlights the importance of fats and oils in relation to the risk of bladder cancer risk, in that MUFAs, sunflower oil and other plant-based fats and oils showed to be beneficial, while higher cholesterol consumption and animal fat intake detrimental.

It remains a major challenge to translate the findings from this thesis into daily practice. Although in recent years, dietary guidance became increasingly science-based, there seems to be an ever-widening gap between the scientific evidence and an individual's behavior. Our society is exposed to a vast variety of dietary and nutritional non-evidence-based suggestions and recommendations, deriving from book authors and television personalities, the popular press, or by browsing the internet. This can overwhelm people, making it hard for individuals to make accurate nutritional decisions. I believe that it is the task for scientific experts and governments to fill this gap and provide accurate evidence-based nutritional recommendations. For this, not only close collaboration and knowledge exchange between scientists, health professionals like dietitians and nutritionists and health care organization are needed, but it is also important to increase the society and policymakers' nutrition knowledge based on the latest scientific evidence.

To this end, results of this thesis have been published in internationally prestigious journals and will be shared with the Union for International Cancer Control (UICC) and

IARC. These organizations could advice to reduce the amount organ meat, dietary cholesterol, and animal fat and to consume more fish and poultry meat and MUFAs and plant-based oils.

The results of this thesis might provide recommendations for the government to take positive action to improve the nutritional plan of society. Given the high burden of bladder cancer and the contributory role of dietary fat and meat, inducing even small dietary adjustments might result in significant reductions in bladder cancer incidence at the population level. For example, governments could carefully targeted fat tax on animal fat and cholesterol enriched foods to reduce the sale of these products, thereby decreasing the consumption of un-healthy fats (i.e., animal fats) containing products [4].

Recently, the World Health Organization's (WHO) ambitious started a project to eliminate industrially produced harmful substances, including non-healthy fats and oils, from the global food supply and replace them with healthy fats and oils [5, 6]. The WHO reports that 58 countries have so far introduced laws that will protect 3.2 billion people from the harmful substance by the end of 2021. From 4 May-1 June 2018, WHO is also running an online public consultation to review updated draft guidelines on the intake of fats for individuals. The findings from this thesis could be useful as input for these consultations.

Lastly, to increase the public awareness directly, a lay version of our results will be published on Wikipedia (https://en.wikipedia.org/wiki/Bladder_cancer), e-how/health, and the project's own website.

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