Chapter 21
Nutrition and Cancer

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ABSTRACT

Cancer is the second biggest killer worldwide. It has been estimated that specific lifestyle and dietary measures can prevent 30–40% of all cancers. Consumption of nutrient sparse foods, such as refined flour products and concentrated sugars, consumption of red meat, low fibre intake, and disproportion of omega 3 and omega 6 fatty acids, contributes to cancer risks. Microbiological and chemical food contaminants as well as conventional and industrial food processing methods may further increase the carcinogenicity of diets while protective agents in a cancer prevention diet include folic acid, selenium, vitamin D, vitamin B-12, chlorophyll, and antioxidants such as the carotenoids, kryptoxanthin, lycopene, and lutein. Diet can also influence the gut microbes that may have positive or adverse effects on cancer risk. The authors summarize cancer prevention by functional foods and discuss the role of different dietary factors such as promoter or inhibitor in pathogenesis of different subtypes of cancer worldwide.

INTRODUCTION

The relationship between nutrition and cancer was initially recognized in 1940 by an experimental study, where progressive confinement of nutritional factors evidently reduced the prevalence of cancer in mice (Tannenbaum, 1940). Other advancements came after two decades depicting the relation between geographical impact and cancer incidence. This was suggestive of the difference in dietary habits and lifestyle (Doll, 1966; Doll, 1970). This was followed by protuberant number of case-control studies that led to the identification of cancer risk factors in diet. Macro and micronutrient components in food along with food patterns play etiological roles in incidence of cancer (Fig. 1). The effects of these components can be altered by lifestyle factors like exercise and physical activity. Besides increasing the body weight, physical inactivity is thought to contribute to cancer risk by negatively effecting the endocrine and immune system. Diets with low in vegetables, fruits and whole grains, are linked with a number of cancers. In this chapter, we discuss the significant role of dietary factors in promotion or inhibition of pathogenesis of different subtypes of cancer worldwide.

Figure 1. Effect of diet on different cellular processes
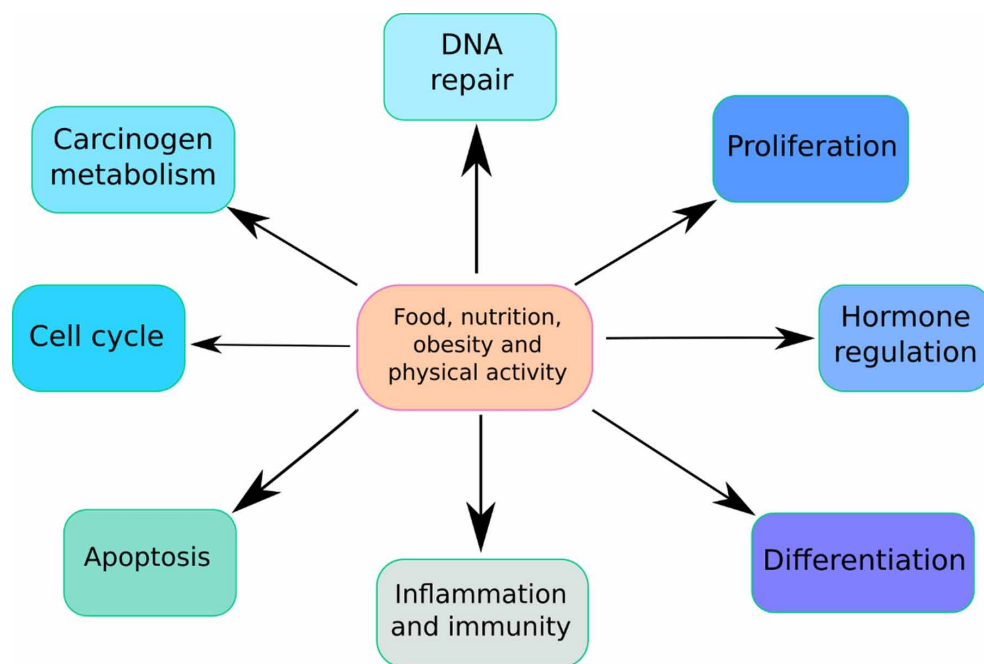
Over Consumption of Energy

Our diet is an essential fuel to sprint our body function smoothly and adequately, not only health but mental health as well. A common saying from Mark Twain states that the only way to keep healthy is to eat what we don't want, drink what we don't like, and do what we'd rather not." This quote consciously warns our mind of balanced diet.

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