



The SAGE Encyclopedia of Cancer and Society

Japan

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In 2011, Japan's Ministry of Health, Labor, and Welfare announced cancer, heart disease, and pneumonia are the top three causes of death in Japan, accounting for 28.5, 15.5, and 9.9 percent of total deaths, respectively. Cancer has been the leading cause of death in Japan since 1981. Because cancer incidence and mortality rates generally increase with age, peaking at 80 to 94 years, Japan is particularly vulnerable to cancer-related deaths as it is experiencing population aging that is unprecedented in the world. Its proportion of people age 65 and more is the highest in the world: 23 percent in 2009. By 2030, one in three people in the population will be more than 65 years old, and one in five will be more than 75 years old. Between 1930 and 1950, the leading causes of death in Japan were tuberculosis, pneumonia, and cerebral vascular disease. Postwar economic recovery and significant reductions in stroke and other major diseases have contributed to these changes in cancer trends. Many of the common cancers in Japan often are associated with an infection. For example, stomach cancers often are associated with a *Helicobacter pylori* infection, which has the highest prevalence among those born during World War II and the 1950s. During this time, the overall cancer mortality rate rose but began to decline in the early 1960s. In the 1960s, gastric and liver cancers were the top two common cancers among Japanese men, and gastric and uterus cancers the top two among Japanese women. Currently, the overall cancer incidence is increasing.

The availability and affordability of alcohol and cigarettes and the Westernization of dietary practices and lifestyle have contributed to some of the top common cancers in Japan: liver, lung, and the digestive system (e.g., stomach and colorectal). While gastric cancers continue to have the highest incidence rate among men, there is a declining trend, especially in the younger population. For women, the most common cancer is now breast cancer.

Ovarian cancer occurs more often in industrialized countries, except Japan. While some researchers noted the possibilities of genetic factors, others found that second and third generations of Japanese women who moved to the United States share a similar occurrence rate as the U.S. general population, suggesting the importance of environmental factors. Several studies have identified that Japanese individuals' increased cancer risk is associated with increased acculturation to the West. The unique cancer trends in Japan often are shaped by dietary practices, social trends, health behaviors, and beliefs and attitudes.

Risk Factors and Common Cancers: Diet

Traditional Japanese diet and changes in diet have diverging impacts on cancer. Traditional Japanese diet is rich in isoflavone, which is found mainly in soybeans and soy products, such as tofu (bean curds) and natto (fermented soybeans). Frequent intake of isoflavone is associated with a reduced risk of breast cancer and of localized prostate cancer. Despite the prevalence of a Westernized diet, the amount of isoflavone intake in Japan is high compared to other Asian countries. Frequent consumption of cooked or raw fish is believed to reduce lung and prostate cancer risks. Green tea, a common beverage in Japan, has been demonstrated to reduce gastric cancer among Japanese women.

Traditional Japanese cuisine, however, includes foods that are high in salt. In addition to soy sauce and miso soup, there are many salt-preserved foods, such as umeboshi (pickled plums), taku-an (pickled daikon radish), and salt-cured vegetables and fish. Habitual salt intake is a strong risk factor to developing gastric ulcers and gastric cancer among individuals infected with *Helicobacter pylori*.

In Japan, only about 15 percent of the calories in the diet come from fat, whereas in the United States, 35 percent of calories are from fat intake. A high-fat diet can lead to high production of estradiol, a form of estrogen, resulting in increased risks for breast cancers. The Westernization of diet has brought increased consumption of red meat and fat, which are associated with increasing trends in colorectal and prostate cancers in Japan. This change was noticeable around the Meiji period (1868–1912), bringing sukiyaki (Japanese hot pot with beef) and tempura (battered and deep-fried seafood or vegetables) to the public diet. It is noteworthy that the highest quintile of red meat consumption by Japanese individuals would be considered a moderate level of consumption by Western standards. Based on a 1955 to 1993 National Nutritional Survey

in Japan, Westernized dietary habits are associated with increased mortality by cancers of the colon, breast, ovary, and prostate. In contrast, traditional Japanese dietary habits are associated with increased mortality by stomach cancer.

Social Trends

The changes in social trends in reproduction and fertility provide insights into the increased mortality by breast cancer in Japan. In the 1900s, the mean age of menarche was 16 years old, and Japanese society encouraged early marriage and large families. With some short-term fluctuations, a Westernized diet contributed to lowering the age of menarche to 13 years old in the 1960s and 12 years old in 2009. The mean age of menopause has been around 50 years old during that time, due to the complex influences from both an increase in life expectancy and expanded stressors. Along with the tendency to put off marriage and the downward trend in the birthrate, the mean age of birth of the first child increased from 25 to 28 between 1975 and 2005. In short, the decreased age at menarche, late childbearing, fewer pregnancies, and the increased use of postmenopausal hormone therapies are all factors that are prevalent in Western countries and that are associated with an increased risk for breast cancer; the same trends have been affecting the Japanese population.

Health Behaviors

A 2011 national survey found that 34.1 percent of Japanese men and 9.0 percent of Japanese women smoke, among which 10 percent consume more than 21 cigarettes a day. The number of these heavy smokers has decreased, but the overall number of smokers has not changed significantly. In Western countries, smokers have a 10 times higher risk of developing lung cancer compared to nonsmokers. Despite the lack of strict laws and restrictions on tobacco products and consumption, Japanese smokers have a four times higher risk of developing lung cancer compared to Japanese nonsmokers. The phenomenon is also known as the Japanese smoking lung cancer paradox.

Some studies indicate that this is because (1) Japanese smokers' risk for developing cancer is not as high as those in Western countries and (2) nonsmokers are at a higher risk of having cancers in Japan. Cramped offices and rooms within a limited national space bring smokers and nonsmokers in close physical proximity, causing passive exposure to tobacco smoke. Smoking has been determined to be the cause of approximately 40 percent of Japanese individuals diagnosed with lung cancer. The other 60 percent have been determined by other factors, such as eating habits, secondhand smoke, and alcohol consumption.

Drinking has been an important communicative component in Japanese business culture. Comparisons between individuals in Western countries and Japan have revealed that approximately one in two Japanese people has an atypical allele of a group of enzymes (aldehyde dehydrogenase 2 gene [ALDH2]). Because these enzymes catalyze the acetaldehyde metabolism less, resulting in a high blood level of acetaldehyde after drinking, Japanese individuals with ALDH2 heterozygotes are more susceptible to subsequent risk in developing breast and esophageal cancers compared to people in the West. Japanese drinking culture is always harmful because alcohol consumption appears to be a moderator for certain cancer risks. Alcohol consumption among smokers increases the risk of developing distal colon cancer, whereas alcohol intake among nonsmokers decreases the risk of both cancers' incidence and mortality.

Beliefs and Attitudes

In 2012, approximately 27 percent of the Japanese population had been screened for cancer. Although the cancer-screening rate in Japan has increased over time, it is still low compared to other economically developed countries. Misconceptions about cancer seem to contribute to a low cancerscreening rate. Based on the National Cancer Center's report of 2006, the understanding of cancer risk factors in the Japanese general population tends to be governed by cancer-causing bacterial and viral infections, occupational

exposure to hazardous substances, air pollution, and food additives or pesticide chemicals rather than major lifestyle factors, such as diet and alcohol consumption. Although the belief in cancer-causing bacterial and viral infections stems from the long-term prevalence of gastric cancer, such understanding seems largely influenced by the mass media and other sources rather than health professionals. In dealing with life-threatening diseases like cancer, medical professionals and patients' family members in Japan tend to avoid disclosing a diagnosis to the patients, believing such information may overwhelm the patients and diminish their willingness to participate in treatments.

See Also: [Japan Lung Cancer Society](#); [Japanese Cancer Association](#); [Stomach \(Gastric\) Cancer](#).

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- Japan
- cancer
- stomach cancer
- prostate cancer
- breast cancer
- diet
- dieting
- cause of death

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Further Readings

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