

Coffee, tea, hot beverages and cancer

Origin of the myth

After water, tea and coffee are the most frequently consumed beverages in the world. Given their popularity, it is not surprising that people might wonder about their safety. Consequently, the relationship between tea and coffee and cancer risk has frequently been the subject of research studies.

Current evidence

Coffee

Coffee is produced from ground, roasted coffee beans, which are the dried seeds of coffee plant berries. Instant coffee is made up of the soluble solids derived from dried, double-brewed coffee.

In 2016, the International Agency for Research on Cancer (IARC) reviewed over 1000 human and animal studies and concluded that it is unlikely that coffee has any substantial effect on the risk of developing cancers of the pancreas, bladder, prostate or breast¹. This review also suggested that coffee may be protective against the development of liver and endometrial cancers¹.

There is a lack of conclusive evidence on the relationship between coffee and other cancers, including bowel, oesophageal, lung and stomach cancer¹.

These results are broadly consistent with the most recent evidence reviews conducted by the World Cancer Research Fund in their Continuous Update Project².

Tea

Tea is made from the leaves of the *Camellia sinensis* plant. The difference between green and black tea comes from how they are processed after picking. Tea is a rich source of flavonoid antioxidants from the polyphenol family. Herbal teas are technically not tea as most come from plants other than *Camellia sinensis*.

Broadly, more than 2,000 studies have found little or insufficient consistent evidence to suggest tea consumption increases the risk of any cancer. Previous research indicated that mate, a tea drunk almost exclusively in parts of South America, may be linked to an increased risk of oesophageal cancer. A more recent review of the evidence concluded that there is no association between mate consumed at low temperatures and the development of cancer of the oesophagus.

It is likely that the way mate is traditionally drunk is responsible for previous findings associating mate consumption with cancer risk¹. Mate is usually drunk with a metal straw which is left in the mouth like a tobacco pipe. This, combined with extremely hot water, results in a constant assault to the lining of the throat.

Overall, drinking tea is more likely to be beneficial than harmful with regard to cancer risk, although the risk appears to be reduced only slightly.

Green tea and cancer

There is insufficient and conflicting evidence on the relationship between green tea consumption and cancer risk³. Most of the research in this area has been conducted in Asia, where drinking green tea is common, making it difficult to generalise the results to other population groups.

A Cochrane review of 51 studies with over 1.6 million participants concluded that no firm recommendations could be made regarding green tea consumption for cancer prevention³. While there is no clear evidence of benefit, drinking a moderate amount of green tea (up to 3-5 cups daily), is unlikely to cause harm³.

Hot water-based beverages and cancer

There is some evidence that cancer can be initiated by constant irritation of body surfaces (like skin and the lining of the mouth and throat). Extremely hot water can serve as this constant irritant.

A recent evidence review by IARC concluded that drinking hot beverages above 65°C probably causes oesophageal cancer in humans (the oesophagus connects the mouth with the stomach)¹. The relative contribution of drinking very hot beverages on rates of oesophageal cancer is not currently known, and further research into this area is needed.

Summary

Regular moderate consumption of tea and coffee is unlikely to affect your risk of cancer. It is, however, recommended that you avoid drinking scalding hot water-based beverages above 65°C.

Further information

- Cancer Council Australia's Position statement on tea and cancer: <http://www.cancer.org.au/policy-and-advocacy/position-statements/nutrition-and-physical-activity/>

References

1. International Agency for Research on Cancer. Carcinogenicity of drinking coffee, mate, and very hot beverages. *The Lancet Oncology*. 2016. 16:30239-X. doi: [http://dx.doi.org/10.1016/S1470-2045\(16\)30239-X](http://dx.doi.org/10.1016/S1470-2045(16)30239-X)
2. World Cancer Research Fund. Continuous Update Project: Diet, nutrition, physical activity and cancer. <http://www.wcrf.org/int/research-we-fund/continuous-update-project-findings-reports>
3. Boehm K, Borrelli F, Ernst E, Habacher G, Hung S, Milazzo S, et al. Green tea (*Camellia sinensis*) for the prevention of cancer. *Cochrane Database of Systematic Reviews*. 2009. Issue 3. Art. No.: CD005004. Doi: 10.1002/14651858.CD005004.pub2