

## Coffee and Cancer

### Overview

A great deal is written on diet and all forms of cancer, and research indicates that we may be able to prevent about 35% of cancer cases by making changes to our diet and lifestyle. Each year 10.9 million people worldwide are diagnosed with cancer. There are 6.7 million deaths from the disease and of these; nearly one million are in the EU. (Ferlay et al. 2002) A significant amount of research has been conducted in the field of diet and cancer over many years and some of these findings relate to coffee consumption.

In 1991 the International Agency Research on Cancer (IARC), which is part of the World Health Organisation, classified coffee as being “possibly carcinogenic to bladder cancer.” This classification was given because there was insufficient data available at the time to be more specific. (IARC Monographs. 1991) However, the report also stated that drinking coffee may even help to protect against some forms of cancer. This resulted in many further studies being undertaken.

Coffee is a widely consumed beverage worldwide and a growing body of scientific research indicates that coffee consumption does not have a harmful effect in relation to risk of cancer and there is substantial research pointing to its favourable influence on risk of some cancers. (Nkondjock 2009)

### Bladder cancer

Since the publication of the IARC Report in 1991, several studies have been conducted on coffee and bladder cancer. One aspect of these studies was to try to establish whether the reported small association with coffee was the cause. In an analysis of 10 European studies restricted to 564 non smokers, there was no excess risk in coffee drinkers. (Sala et al. 2000) In a Norwegian study no significant association was seen between a high coffee consumption (greater than or equal to 7 cups per day) and the risk of developing bladder cancer, and these results applied to both men and women participating in the study. (Stensvold et al. 1994) More recently a study in the Netherlands identified 569 bladder cancer cases in a study population of 3,123 men and women. (Zeegers et al. 2001) After making allowances for other possible causes, no significant association between coffee consumption and the risk of developing bladder cancer was seen in men. In summary, the data from a number of scientific studies on coffee and bladder cancer risk does not point towards a strong association between coffee consumption and the risk of developing bladder cancer in both men and women.

### Bowel Cancer

It is estimated that about 2 out of 3 bowel cancers may be preventable by changes in diet and lifestyle, but no one dietary component can eliminate the risk of developing bowel cancer. (Ferlay et al. 2002)

Well conducted studies have suggested that coffee drinking is related to a lower risk of bowel cancer. According to one study in Canada the risk reduced as coffee drinking rose to 5 cups a day and this was especially evident in men. (Woolcott et al. 2002) Another group of studies showed a 28% reduction in risk of developing colorectal cancer for those drinking four or more cups of coffee daily compared to those drinking less than one cup. This lower risk of colorectal cancer, among moderate and regular coffee drinkers, was observed consistently in over a dozen studies undertaken in a variety of settings in Asia, Northern and Southern Europe, and North America. (Giovannucci 1998)

### **Liver Cancer**

In the last decade studies have consistently suggested that coffee drinking may be protective against the development of hepatocellular (liver) cancer, though currently the exact mechanism of action has yet to be identified. (Taylor-Robinson 2008) Data suggests that components in coffee including diterpenes, cafestol and kahweol, caffeine and chlorogenic acid may be responsible for the beneficial effects. (Tao et al. 2008) In 2005 Japanese researchers published their findings after conducting a large-scale population based study that confirmed a statistically significant inverse (protective) association between habitual coffee drinking and liver cancer. (Inoue et al. 2005) A more recent Japanese study also found coffee drinking to be associated with a decrease in liver cancer risk. (Ohishi et al. 2008) These findings were supported by a hospital based study in Italy (Anese et al. 2003) and further endorsed by the publication of a pooled analysis of data consisting of over 60,000 people, which also found a significant inverse association between coffee consumption and the risk of liver cancer. (Shimazu et al. 2005) Research continues in this area. Conclusions from two meta-analyses strengthen the associated protective effect of coffee drinking on liver cancer. (Bravi et al. 2007., Larsson et al. 2007) The results of a large population-based study found a significant inverse association between coffee drinking and liver cancer. (Hu et al. 2008)

### **Pancreatic cancer**

Most experts do not believe there is a link between moderate coffee consumption and pancreatic cancer. Since publication of the IARC Report in 1991, results of seven major studies have been published. No association emerged in a study of 17,633 American men (Zheng et al. 1993), or in a Norwegian study. (Stensvold et al. 1994) Three other studies in the US involving 14,000 retired residents (Shibata et al. 1994), the Health Professionals Follow-up Study (Michaud et al. 2001) and the Nurses Health Study (Michaud et al. 2001); all confirmed no association between drinking coffee and increased risk of cancer of the pancreas.

### **Ovarian Cancer**

Ovarian cancer is both the seven most common cancer and cause of cancer death in women worldwide. (Nkondjock,2009) Until recently relatively few studies have been carried out on the efficacy of coffee to influence the risk of ovarian cancer. A study in Japan examined the

association between coffee consumption and risk of endometrial cancer and found an inverse, dose-response relationship and risk of endometrial cancer in post-menopausal, but not pre-menopausal women. (Koizumi et al. 2008) Another Japanese study found that coffee consumption was significantly associated with a decreased risk of endometrial cancer. (Shimazu et al. 2008) Bravi et al. (2008) conducted a meta-analysis of published studies and found an inverse relationship between coffee and endometrial cancer, but did not confirm the causality.

## Conclusion

Coffee is one of the most widely researched products in the world today. The World Cancer Research Fund (2007) published a report in which a panel of 21 world renowned experts evaluated data from 7000 studies, looking at a wide range of food and drinks in relation to incidence of human cancers. In respect of coffee they reported that “It is unlikely that coffee has any substantial effect on the risk of cancer of either the pancreas or of the kidney.” (WCRF/AICR Expert Report, 2007)

In conclusion the available data shows that coffee drinking is not a causal factor in the development of cancer at any body site, and may be protective in relation to liver, lower bowel and ovarian cancer.

## Frequently Asked Questions

### **Q. Does either coffee or caffeine cause cancer?**

A. No. In 2007 the World Cancer Research Fund published a comprehensive evaluation of over 7000 published studies and found no strong association between drinking coffee and cancer.

### **Q. I have seen some reports that suggest coffee drinking is associated with an increased risk of cancer – why is this?**

A. In 1991 the International Agency for Research on Cancer classified coffee as being associated with cancer of the bladder. However, since that date, numerous studies have been published which show insufficient evidence to link coffee consumption with the development of cancer.

### **Q. Is it true to say that coffee drinking is protective against some forms of cancer?**

A. Studies have shown that coffee drinking appears to be protective against the development of cancer at some body sites, particularly the liver and the lower bowel.

### **Q. Can I continue to enjoy my coffee without being concerned about the development of cancer?**

A. Yes. Coffee does not cause cancer and when consumed in moderation, it may be enjoyed as part of a healthy diet and lifestyle.

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