

## Coffee and Parkinson's Disease

### Overview

Parkinson's Disease is one of the most well known of all neurological disorders. It is found all over the world and an estimated four million people are affected worldwide. Symptoms usually appear after the age of 50 and the risk of developing Parkinson's increases with age. Three percent of the population over 65 is affected and this increases dramatically between the ages of 70 and 85. (Van Den Eeden et al. 2003)

### What are the symptoms?

The main symptoms are muscle stiffness, slow movements and tremor, although some people also suffer from imbalance and problems with communication; such as writing, speech and facial expression. The symptoms begin to appear when the brain cannot produce enough dopamine, a chemical messenger responsible for transmitting signals within the brain. This occurs when dopamine-producing nerve cells, or neurons, in a part of the brain called the substantia nigra, die off, and there is not enough dopamine produced to control the nerves and muscles involved in balance, walking and other movements. Unfortunately the symptoms only become evident when 60 – 80% of these specialised neurons have been lost.

Scientists have speculated for more than a century about what causes Parkinson's disease, and the mystery of why these particular nerve cells die. However, most now agree that it is a combination of genes, lifestyle and environment factors that trigger the disease.

Coffee, tea and other caffeinated beverages appear to lower the risk of Parkinson's. The mechanism responsible for this reduced risk is thought to be reduction of loss of neurons, which in turn lowers the risk of Parkinson's. (Schwartzschild et al. 2002)

### Research Findings

Researchers have, for some time, suggested that coffee and caffeine consumption are inversely related to the relative risk of developing Parkinson's. As early as 1968, an epidemiological study reported a higher percentage of coffee consumers in the control group without the condition, than in the group with the disease. (Nefzger et al. 1968) Since that time there have been several studies that endorse these findings. A study of over 8,000 Japanese American men living in Hawaii, followed over a period of 27 years, reported an inverse relationship between the incidence of Parkinson's and coffee. Those who drank more than four cups of coffee a day were five times less likely to develop the disease than those who drank no coffee. (Webster-Ross et al. 2000) A Meta-analysis which evaluated the findings from 13

previously published studies, demonstrated that coffee drinkers had 31% less chance of developing Parkinson's than non coffee drinkers. (Hernan et al. 2002)

In the Nurses' Health Study and the Health Professionals Follow-Up Study, it was reported that regular caffeine consumption was found to be protective against the incidence of Parkinson's. A dose dependent response was seen in male participants, whilst women with the lowest risk consumed moderate amounts of caffeine (one to three cups of coffee per day or, about 100-300 mg/day). (Ross and Petrovitch 2001)

Further analysis of the Nurses' Health Study revealed that coffee consumption reduced Parkinson's risk in women who had never used post-menopausal hormone replacement therapy, but a significant *increase* in Parkinson's was observed in women who used post menopausal hormone replacement therapy and who drank 6 or more cups of coffee per day. (Ross and Petrovitch 2001)

More recent studies looking at both men and women have supported the hypothesis that coffee drinking reduces the risk of developing Parkinson's. (Saaksjarvi et al. 2007., Tan et al. 2007)

## Conclusion

Research shows an inverse relationship between coffee drinking and the development of Parkinson's, with the exception of women undergoing hormone therapy. The mechanism of action for this effect has yet to be fully identified.

## Frequently Asked Questions

### **Q. Does drinking coffee prevent the risk of developing Parkinson's Disease?**

A. Research shows an inverse relationship between coffee drinking and the development of Parkinson's disease, with the exception of women undergoing hormone therapy. The mechanism of action for this effect has yet to be fully identified.

### **Q. How much coffee do I need to drink to help protect me from developing Parkinson's Disease?**

A. Studies have shown that regular caffeine consumption may be protective against the incidence of Parkinson's. Higher amounts of coffee consumption (four or more cups per day) were found to reduce the risk of developing Parkinson's in male participants, whilst women with the lowest risk consumed moderate amounts of caffeine (one to three cups of coffee per day or, about 100-300 mg/day) and had never used post-menopausal hormone replacement therapy.

**Q. Have scientists recently discovered the protective effects of drinking coffee and Parkinson's Disease?**

A. No. The first study to indicate the possible effects of drinking coffee and reducing the risk of Parkinson's was published in 1968. Since then many studies have shown similar results, which all suggest that coffee in moderation may reduce the risk of developing Parkinson's in men and women not taking post-menopausal hormone replacement therapy.

**References**

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