



It has been suggested that coffee consumption may increase the incidence of cardiac arrhythmia. Here we review the scientific evidence on this topic, from which it may be concluded that the body of evidence does not support the view that drinking coffee in moderation (3-5 cups per day), is associated with an increase in cardiac arrhythmia.

### What is arrhythmia?

Arrhythmia is an alteration in the rate or rhythm of the heartbeat. The most common types of arrhythmia are as follows:

- **Atrial Fibrillation:** The heart contracts at a very high rate and in an irregular way
- **Bradycardia:** The heart beats more slowly than normal
- **Ventricular Fibrillation:** A rapid and disorganised rhythm of heartbeats
- **Supraventricular Tachycardia:** A heart rhythm disorder with periods of abnormally fast heart rate

Most incidences of arrhythmia are harmless. However, arrhythmia can occasionally be more serious as the heart may not be able to pump enough blood to the body, limiting oxygen and nutrient supply to the tissues around the body.

### Incidence of Arrhythmia across Europe

**Atrial Fibrillation (AF) is the most common sustained cardiac arrhythmia**, occurring in

 **1-2%** of the general population.<sup>1</sup>

 Overall, more than **6 million Europeans** suffer from AF and its prevalence is expected to increase more than 2 fold over the next 50 years.<sup>1</sup>

At least **1%**  of the **healthcare budget of Western European countries** is spent on the **management of AF**.<sup>1</sup>

The most **important complication** of AF is **ischemic stroke**, which is **5 times**

 more likely in patients with AF and can cause **significant health problems**.<sup>1</sup>

### Research on coffee and arrhythmia

An early review of caffeine intakes and cardiac arrhythmias concluded that moderate ingestion of caffeine does not increase the frequency or severity of cardiac arrhythmias in normal persons, patients with ischemic heart disease, or those with pre-existing serious ventricular ectopy.<sup>2</sup>

Three large studies showed no association between caffeine intakes and an increased risk of atrial fibrillation.<sup>3,4,5</sup> Furthermore, a 2011 study failed to detect any increased risk of arrhythmia in relation to caffeine intake. In fact, a small yet significant risk reduction was found in this study for arrhythmias among coffee drinkers.<sup>6</sup>

Four reviews have also concluded that there is no association between caffeine intakes and arrhythmia in most patients, with the following conclusions:

Review author	Summary of review
Pelchovitz & Goldberger (2011)	The studies presented in this review suggested that in most patients with known or suspected arrhythmia, caffeine in moderate doses is well tolerated and there is therefore no reason to restrict caffeine consumption. <sup>7</sup>
Caldeira (2013)	Suggested that there are no data to support a hypothesis that long-term caffeine exposure is associated with an increased risk of atrial fibrillation (AF). Conversely, the exposure to low doses of caffeine may offer a small protective effect against AF. <sup>8</sup>
Cheng (2014)	Concluded that it is unlikely that caffeine consumption causes or contributes to atrial fibrillation (AF) and that habitual caffeine consumption may reduce the risk of AF. <sup>9</sup>
Mattioli (2014)	Concluded that the risk of cardiac arrhythmias with daily consumption of caffeine does not seem to be increased at ventricular level. The author suggested further information was required at a subventricular level. <sup>10</sup>

### Conclusion

The body of evidence to date suggests that moderate caffeine consumption does not increase the incidence of arrhythmia. A moderate consumption of coffee (3-5 cups a day) can be enjoyed as part of a healthy balanced diet and active lifestyle. Further research on other aspects of coffee consumption and heart health and can be found on our website, [www.coffeeandhealth.org](http://www.coffeeandhealth.org).

**References:** 1. European Network for Translational Research in Atrial Fibrillation. [2010] 'European Commission Launches New Atrial Fibrillation Research Network' 2. Myers M.G. [1991] Caffeine and cardiac arrhythmias. *Ann Intern Med.* 1991 Jan 15;114(2):147-50. 3. Frost L., Vestergaard P. [2005] Caffeine and risk of atrial fibrillation or flutter: the Danish Diet, Cancer, and Health Study. *Am J Clin Nutr.* 81:578-82. 4. Shen J. et al. [2011] Dietary factors and incident atrial fibrillation: the Framingham Heart Study. *Am J Clin Nutr.* 93:261-6. 5. Conen D. et al. [2010] Caffeine consumption and incident atrial fibrillation in women. *Am J Clin Nutr.* 92:509-14. 6. Klatsky A.L. et al. [2011] Coffee, Caffeine, and Risk of Hospitalization for Arrhythmias *Perm J.* 15(3): 19-25. 7. Pelchovitz D.J., Goldberger J.L. [2011] Caffeine and Cardiac Arrhythmias: A Review of the Evidence *A J Med Vol* 124(4):284-289. 8. Caldeira D. et al. [2013] Caffeine Does Not Increase the Risk of Atrial Fibrillation A Systematic Review and Meta-analysis of Observational Studies *Heart.* 99(19):1383-1389. 9. Cheng M. et al. [2014] Caffeine intake and atrial fibrillation incidence: dose response meta-analysis of prospective cohort studies. *Can J Cardiol* 30(4):448-54 10. Mattioli A.M. [2014] Beverages Of Daily Life: Impact Of Caffeine On Atrial Fibrillation *Journal of Atrial Fibrillation* 7(2): 109-112