Moderate coffee consumption may reduce risk of diabetes by up to 25 percent

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Drinking three to four cups of coffee per day may help to prevent type 2 diabetes according to research highlighted in a session report published by the Institute for Scientific Information on Coffee (ISIC), a not-for-profit organisation devoted to the study and disclosure of science related to coffee and health.

Recent scientific evidence has consistently linked regular, moderate coffee consumption with a possible reduced risk of developing type 2 diabetes. An update of this research and key findings presented during a session at the 2012 World Congress on Prevention of Diabetes and Its Complications (WCPD) is summarised in the report.

The report outlines the epidemiological evidence linking coffee consumption to diabetes prevention, highlighting research that shows three to four cups of coffee per day is associated with an approximate 25 per cent lower risk of developing type 2 diabetes, compared to consuming none or less than two cups per day1. Another study also found an inverse dose dependent response effect with each additional cup of coffee reducing the relative risk by 7-8 per cent2.

Whilst these epidemiological studies suggest an association between moderate coffee consumption and reduced risk of developing diabetes, they are unable to infer a causal effect. As such, clinical intervention trails are required to study the effect in a controlled setting. One prospective randomized controlled trial3, tested glucose and insulin after an oral glucose tolerance test with 12g decaffeinated coffee, 1g

chlorogenic acid, 500 mg trigonelline, or placebo. This study demonstrated that chlorogenic acid, and trigonelline reduced early glucose and insulin responses, and contribute to the putative beneficial effect of coffee.

The report notes that the association between coffee consumption a reduced risk of type 2 diabetes could be seen as counter intuitive, as drinking coffee is often linked to unhealthier habits, such as smoking and low levels of physical activity. Furthermore, studies have illustrated that moderate coffee consumption is not associated with an increased risk of hypertension, stroke or coronary heart disease4 ,5, 6. Research with patients with CVD has also shown that moderate coffee consumption is inversely associated with risk of heart failure, with a J-shaped relationship7.

Finally, the report puts forward some of the key mechanistic theories that underlie the possible relationship between coffee consumption and the reduced risk of diabetes. These included the 'Energy Expenditure Hypothesis', which suggests that the caffeine in coffee stimulates metabolism and increases energy expenditure and the 'Carbohydrate Metabolic Hypothesis', whereby it is thought that coffee components play a key role by influencing the glucose balance within the body. There is also a subset of theories that suggest coffee contains components that may improve insulin sensitivity though mechanisms such as modulating inflammatory pathways, mediating the oxidative stress of cells, hormonal effects or by reducing iron stores.

Dr. Pilar Riobó Serván, Associate Chief of Endocrinology and Nutrition, Jiménez Díaz-Capio Hospital of Madrid and a speaker at the WCPD session concludes the report, commenting: "A dose-dependent inverse association between coffee drinking and total mortality has been demonstrated in general population and it persists among diabetics. Although more research on the effect of coffee in health is yet needed,

current information suggests that coffee is not as bad as previously considered!"

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