ORIGINAL CONTRIBUTION

Coffee Consumption and Risk of Type 2 Diabetes Mellitus Among Middle-aged Finnish Men and Women

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Context Only a few studies of coffee consumption and diabetes mellitus (DM) have been reported, even though coffee is the most consumed beverage in the world.

Objective To determine the relationship between coffee consumption and the incidence of type 2 DM among Finnish individuals, who have the highest coffee consumption in the world.

Design, Setting, and Participants A prospective study from combined surveys conducted in 1982, 1987, and 1992 of 6974 Finnish men and 7655 women aged 35 to 64 years without history of stroke, coronary heart disease, or DM at baseline, with 175 682 person-years of follow-up. Coffee consumption and other study parameters were determined at baseline using standardized measurements.

Main Outcome Measures Hazard ratios (HRs) for the incidence of type 2 DM were estimated for different levels of daily coffee consumption.

Results During a mean follow-up of 12 years, there were 381 incident cases of type 2 DM. After adjustment for confounding factors (age, study year, body mass index, systolic blood pressure, education, occupational, commuting and leisure-time physical activity, alcohol and tea consumption, and smoking), the HRs of DM associated with the amount of coffee consumed daily (0-2, 3-4, 5-6, 7-9, ≥10 cups) were 1.00, 0.71 (95% confidence interval [CI], 0.48-1.05), 0.39 (95% CI, 0.25-0.60), 0.39 (95% CI, 0.20-0.74), and 0.21 (95% CI, 0.06-0.69) (*P* for trend<.001) in women, and 1.00, 0.73 (95% CI, 0.47-1.13), 0.70 (95% CI, 0.45-1.05), 0.67 (95% CI, 0.40-1.12), and 0.45 (95% CI, 0.25-0.81) (*P* for trend=.12) in men, respectively. In both sexes combined, the multivariate-adjusted inverse association was significant (*P* for trend <.001) and persisted when stratified by younger and older than 50 years; smokers and never smokers; healthy weight, overweight, and obese participants; alcohol drinker and nondrinker; and participants drinking filtered and nonfiltered coffee.

Conclusion Coffee drinking has a graded inverse association with the risk of type 2 DM; however, the reasons for this risk reduction associated with coffee remain unclear.

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Centuries of coffee drinking has made it the most consumed beverage in the world. During the last decade, research has attempted to make clear health benefits or detriments received from coffee drinking. Effects of coffee and caffeine on cardiovascular disease,[1] hypertension,[2] neurological diseases,[3] different types of cancer,[4] hormonal changes,[5-7] gallstones,[8] renal stones,[9] as well as diabetes mellitus (DM)[10-12] have been studied through epidemiological, clinical, or experimental research. Type 2 DM is one of the diseases that is largely determined by lifestyle factors.[13,14]

The role of coffee in relation to DM has not been investigated thoroughly. A large Dutch cohort study[12] recently showed an inverse association between coffee consumption and the risk of DM. It is well known that caffeine stimulates insulin secretion of the pancreatic beta cells in vivo. However, coffee with its complex compounds may influence many other processes that may take part in the development of DM.

According to international statistics, the Finnish population has the highest per capita coffee consumption in the world with 11.3 kg in 2000.[15] Therefore, research into potential health effects of coffee in this population is of particular interest. Our large prospective study aimed at determining whether the suggested inverse relationship between coffee and type 2 DM exists among the Finnish population. In

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