Kayla Holt

Dr. Silliman

NFSC 440

October 20, 2012

AND Evidence Analysis Worksheet

Citation	Coffee Consumption and Risk for Type 2 Diabetes Mellitus
Study Design	Prospective cohort study
Class	B
Research Purpose	To examine the long-term relationship between consumption of coffee and other caffeinated beverages and incidence of type 2 diabetes mellitus.
Inclusion Criteria	• Male health professionals who were 40-75 years of age and returned a series of three mailed questionnaires. • Female nurses 30-55 years of age living in 11 large states that completed a series of four mailed questionnaires.
Exclusion Criteria	• Exclusion of men and women with a previous diagnosis of type 2 diabetes, coronary heart disease, or cancer at baseline. • Men were excluded if they did not complete more than 70 of 131 food items in the dietary questionnaire or had extreme scores for total daily intake of energy (<800kcal or >4200kcal). After considering exclusion criteria, the Health Professionals Follow-Up Study was left with 41,934 eligible men who were followed from 1986-1998. • Women who did not complete more than 10 items on the dietary questionnaire or had extreme scores for total daily intake of energy (<500kcal or >3500kcal) were also excluded. After exclusion, the Nurses' Health Study was left with 84,276 eligible women who were followed from 1980-1998.
Description of Study Protocol	• The The Health Professionals Follow-up Study (HPFS) was established in 1986 and took place for 12 years and followed 41,934 men. This study consisted of male healthcare professionals such as doctors, dentists, podiatrists and pharmacists who were 40-75 years of age. Over the 12 year study, three separate questionnaires were mailed to those in the HPFS. The questionnaires asked about their medical history, lifestyle and other risk factors. • The Nurses' Health Study (NHS) lasted for 18 years and followed 84,276 women. The NHS was established in 1976 and was originally made up of 121,700 female nurses who were 30-55 years old. These nurses completed four separate questionnaires over an 18 year period and were asked to provide information on their medical history, lifestyle and risk factors. In 1980 a semi-quantitative food frequency

	questionnaire was added. • The study examined where the associations were modified by smoking and body mass index. Validated dietary questionnaires went out 3 times during the 12 years of the HPFS and 4 times during the 18 years of the NHS.
Data Collection Summary	• In these questionnaires, the assessment of the total caffeine intake was measured and multiplied by a weight proportional to the frequency of its use. For these analyses, coffee consumption was categorized into 5 groups; never, less than 1 cup per day, 1-3 cups per day, 4-5 cups per day and 6 cups or more per day. • Participants who reported having diabetes were went a supplementary mailed questionnaire that asked about symptoms, diagnostic tests; such as pre and post prandial blood glucose tests and HbA1c, participants were also asked about their insulin therapy treatments. • Incidence rates for diabetes were calculated by dividing incident cases by person-years of follow-up in each category of coffee intake. Relative risks were calculated as the rate of occurrence of type 2 diabetes in each quintile of caffeine intake divided by the corresponding rate in the lowest quintile.
Summary of Results	• There were a documented 1333 new cases of type 2 diabetes in men over the 12 years of the study, and 4085 new cases over the 18 years for women in the Nurses' Health Study (NHS). The authors found an contrary association between coffee intake and type 2 diabetes after adjusting for age, body mass index, and other risk factors. • A statistically significant inverse association was found between total caffeine intake and risk for type 2 diabetes in both men and women in age, and body mass index. The risks for diabetes according to regular coffee intake in men were 1.00, 0.98, 0.93, 0.71 and 0.46 with P= 0.007. The same risks for women were 1.16, 0.99, 0.70, and 0.71 with P= <0.001. • Overall, total caffeine intake from coffee and other sources of caffeine was found to correlate with a lower risk for diabetes in both men and women. • Table 2 shows the relative risk for type 2 Diabetes according to coffee, tea and decaffeinated coffee consumption. We see that when men consume 6 or more cups of coffee we see a significant risk. Tea shows no significance and decaffeinated coffee shows a 20% risk when drinking 4 or more cups per day. • Table 2 shows the same risks for women. With women consuming 6 cups or more of coffee we find significance and with tea we see no significant. However, with decaffeinated coffee being consumed at 4 cups or more we see a 15% increase in risk. • Table 3 depicts the risks of type 2 diabetes according to quintiles of caffeine intake. With men we see a 20% risk when consuming more than 417mg per day of caffeine. In women we notice a 30% increase in risk with consumption being greater than 534mg per day.

Author Conclusion	In conclusion, these prospective data suggest a statistically significant inverse association between intakes of caffeine and regular coffee and incidence of diabetes in both men and women. This association is independent of body mass index, cigarette smoking, and other dietary and lifestyle factors.
Reviewer Comments	Strengths: • This study being a prospective cohort study, and given a B grade is strength. • The length of time taken to find correlation and cause for both HPFS and NHS is strength, as well as the exclusion data of preexisting conditions or conditions that discourage the consumption of caffeine. Weaknesses: • Limitations for this study would be the self-reported questionnaires, this leaves great room for margin of error as well as the measurement of caffeine intake or consumption according to participant's knowledge.