The Journal of Nutrition – August 2018
Media Summaries

The following articles are being published in the August 2018 issue of *The Journal of Nutrition*, a publication of the American Society for Nutrition. Summaries of the selected articles appear below; the full text of each article is available by clicking on the links listed. Manuscripts published in *The Journal of Nutrition* are embargoed until the article appears online either as in press (Articles in Press) or as a final version. The embargoes for the following articles have expired.

Ketogenic diet reduces body fat and circulating insulin in women with ovarian or uterine cancer

Coffee may reduce risk of serious kidney disease in older men

Study: daily prebiotics may benefit preschoolers

Ketogenic diet reduces body fat and circulating insulin in women with ovarian or uterine cancer

The body has difficulty curbing the growth of cancer cells, in part, because they are exceptionally good at utilizing glucose (blood sugar) as an energy source. As such, there is considerable interest in understanding whether various diets containing different amounts of sugars (carbohydrates) might be beneficial for cancer patients. In addition, many common cancer types – such as those of the ovary and uterus – are associated with being obese. In other words, overweight and obese individuals are more prone than their healthy-weight counterparts to be diagnosed with these types of cancer. Coincidentally, being overweight often also leads to high blood sugar levels which might exacerbate cancer growth. In a paper published in the August 2018 issue of *The Journal of Nutrition*, Caroline Cohen (University of Alabama at Birmingham) and colleagues report the results of a controlled dietary intervention study they conducted to investigate if a ketogenic diet, which is very low in carbohydrates, might be beneficial for these patients in terms of helping regulate blood sugar as well as weight loss.

This study involved 45 overweight or obese women diagnosed with ovarian or endometrial cancer. For 12 weeks, each woman agreed to consume a ketogenic diet (5, 25, and 70% of calories from carbohydrates, protein, and fat, respectively) or a high-fiber, low-fat dietary plan currently recommended by the American Cancer Society. Women assigned to the ketogenic diet were counseled to limit carbohydrate-rich foods to non-starchy vegetables (e.g., salad greens, broccoli) and encouraged to consume moderate amounts of high-quality protein foods (e.g., meat and eggs) as long as they weren't breaded. Recommended fats included olive and coconut oils, avocados, butter, cheese, olives, and small amounts of nuts. Total calories were not restricted in either group. At the beginning and end of the study, participants' body composition was assessed; circulating levels of a variety of metabolic markers and ketones were also measured.

After 12 weeks, compared to those following the American Cancer Society diet, those consuming the ketogenic diet had less body fat (particularly around the upper body) and lower circulating insulin concentrations. Insulin is a hormone released after a meal and signals cells (including cancer cells) to take up glucose. Both groups maintained similar levels of lean tissue. The authors concluded that, at least in women with ovarian or endometrial cancer, there may be benefits of following a ketogenic diet. Additional studies will be needed to determine if these effects on body composition and insulin are accompanied by other benefits, such as altering cancer progression.

Reference Cohen CW, Fontaine KR, Arend RC, Alvarez RD, Leath CA, III, Huh WK, Bevis KS, Kim KH, Straughn JM, Jr, Gower BA. A ketogenic diet reduces central obesity and serum insulin in women with ovarian or endometrial cancer. *Journal of Nutrition* 2018;148(8):1253-60

For More Information To contact the corresponding author, Dr. Caroline Cohen, please send an e-mail to cwyoder@uab.edu.

Coffee may reduce risk of serious kidney disease in older men

Coffee is perhaps the most consumed and adored beverage worldwide. Indeed, the National Coffee Association estimates that most American adults drink coffee and that average daily consumption (typically with breakfast) is about 3 cups. A $40 billion dollar-a-year business in the US, the coffee culture is undeniably strong and growing. But does this cherished beverage pack more of a punch than just helping us wake up in the morning? Emerging research suggests the answer to this is likely *yes*. Supporting this possibility is a paper published in the August 2018 issue of *The Journal of Nutrition* which reports the results of a study conducted by Dr. Woon-Puay Koh (Duke-NUS Medical School in Singapore) and colleagues. Their research, briefly described here, suggests that consumption of coffee (but not other caffeinated beverages) may help lower the risk of developing serious kidney disease.

The study was conducted as part of the Singapore Chinese Health Study which followed more than 63,000 otherwise healthy adults for about 17 years. At the beginning of the study, detailed information regarding caffeinated beverage consumption, health, and lifestyle was obtained from each subject. During the course of the study, health continued to be monitored. In particular, diagnosis of end-stage kidney disease was carefully recorded.

The research team found that study participants who drank least 2 cups of coffee each day were 18% less likely to develop end-stage kidney disease than those who did not consume coffee daily. However, this reduction in risk was only observed in men but was not apparent in women. In fact, when only the men were considered in the analysis, those who consumed at least 2 cups of coffee each day were 29% less likely than non-coffee drinkers to be diagnosed with end-stage kidney disease. None of these associations were found for tea, soda, or caffeine – suggesting that caffeine is not the protective ingredient in coffee. The researchers concluded that consuming at least 2 cups per day of coffee might help reduce the risk of end-stage kidney disease in the general population, especially among men.

Reference Lew Q-LJ, Jafar TH, Jin A, Yuan J-M, Koh W-P. Consumption of coffee but not of other caffeine-containing beverages reduces the risk of end-stage renal disease in the Singapore Chinese Health Study. *Journal of Nutrition* 2018:148(8):1315-22.

For More Information To contact the corresponding author, Dr. Woon-Puay Koh, please send an e-mail to woonpuay.koh@duke-nus.edu.sg.

Study: daily prebiotics may benefit preschoolers

The human gastrointestinal tract contains billions of bacteria that, in general, help us stay healthy by digesting dietary fibers, producing vitamins and other important compounds, and modulating the immune system. Some intestinal bacteria also compete with pathogens thereby lowering the risk of acquiring an infectious disease. The composition of the bacteria in our digestive tracts is mainly established during the first two years of life, and there has been substantial research devoted to understanding how feeding patterns (for instance breastfeeding vs. formula feeding) influence this process. For instance, unique carbohydrates in breastmilk referred to as 'oligosaccharides' act as prebiotics, serving as food for the breastfed infant's intestinal bacteria. However, little is known about dietary impact of prebiotics on the gastrointestinal microbiota during the toddler and preschool years, during which time the immune system continues to develop and mature. In a paper published in the August 2018 issue of *The Journal of Nutrition*, a research team led by Drs. Szimonetta Lohner and Tamás Decsi (University of Pécs, Hungary) report that daily consumption of a prebiotic supplement containing chicory root fiber might be beneficial in this regard.

The study followed the gold standard of experimental designs: it was a randomized, controlled dietary intervention trial with a total of 142 boys and 128 girls between 3 and 6 years of age. Children consumed either a supplement containing 6 grams of a prebiotic fiber or a similar amount of an inert (placebo) substance daily for 6 months. At the beginning and end of the study, stool samples were collected from each child; and during the study parents kept track of their children's illnesses and other health parameters.

The researchers found that, at the end of the study, children consuming the prebiotics had slightly altered microbiota profiles in their stools. Specifically, relative amounts of *Bifidobacterium* and *Lactobacillus* were higher than those of the control group. This was accompanied by softer stools in the prebiotic group, but stool consistency remained in the normal range. In addition, children taking the prebiotics experienced fewer fevers that required medical attention and fewer sinus infections during the course of the study. The researchers urge additional research designed to better understand the mechanisms whereby this prebiotic fiber influenced the children's health.

Reference Lohner S, Jakobik V, Mihályi K, Soldi S, Vasileiadis S, Theis S, Sailer M, Sieland C, Berényi K, Boehm G, Decsi T. Inulin-type fructan supplementation of 3 to 6 year-old children is associated with higher fecal *Bifidobacterium* concentrations and fewer febrile episodes requiring medical attention. *Journal of Nutrition* 2018;148(8):1300-8.

For More Information To contact the corresponding author, Dr. Szimonetta Lohner, please send an e-mail to lohner.szimonetta@pte.hu.