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Media Summaries

The following articles are being published in the April 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.

No evidence that aspartame negatively affects blood sugar, appetite, or body weight

Adding lentils to a starchy meal may help lower blood sugar

New study finds no evidence to support usefulness of "blood-type diet"

No evidence that aspartame negatively affects blood sugar, appetite, or body weight

There is unanimous agreement that today's obesity rates are at all-time highs, and that both short- and long-term consequences of this trend are dire. As such, there is a strong international preoccupation among researchers, clinicians, and the public to find ways to curb unhealthy weight gain and lose unwanted pounds. The food industry is also committed to providing low-calorie options for the millions of individuals watching their waistlines. Some of the most popular ingredients in this regard are the myriad low-calorie sweeteners on the market. Indeed, many studies show that these sweeteners can help people lose weight and keep it off. However, there remains concern, by some, as to whether low-calorie sweeteners might have unintended consequences, such that they paradoxically stimulate hunger and exacerbate swings in blood sugar. To help address these issues, Dr. Richard Mattes (Purdue University) and colleagues conducted the gold standard of nutrition studies: a randomized, placebo-controlled, dietary intervention trial. Their results, which do not support the view that aspartame (a commonly consumed low-calorie sweetener) has negative effects, can be found in the April 2018 issue of *The Journal of Nutrition*.

To test their hypotheses, Mattes randomly assigned 100 lean adults to one of 3 treatment groups: 0, 250, or 1050 milligrams aspartame daily. The aspartame (or placebo material) was provided in a combination of beverages and capsules in such a way that the subjects did not know to which group they were assigned. Before and during the 3-month study, the researchers collected data on a variety of outcomes such as body weight, release of appetite-controlling proteins in the gastrointestinal tract, and feelings of hunger. Blood samples were also analyzed for markers of glucose regulation, cholesterol, and triglycerides.

The research team found no evidence that aspartame consumption (at either dose) influenced any of the outcomes measured. They concluded that at least this low-calorie sweetener is not problematic for weight maintenance or blood sugar control and remains a potential management tool.

Reference Higgins KA, Considine RV, Mattes RD. Aspartame consumption for 12 weeks does not affect glycemia, appetite, or body weight of healthy, lead adults in a randomized controlled trial. *Journal of Nutrition* 148:650-57.

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Adding lentils to a starchy meal may help lower blood sugar

The US Centers for Disease Control and Prevention estimates that nearly 10% of the US population (30 million people) has diabetes, a serious disease and the 7th leading cause of death. Rates of diabetes are even higher in American Indians/Alaska Natives, non-Hispanic blacks (12.7%), and people of South Asian and Hispanic ethnicity. The vast majority of these individuals have type 2 diabetes, which means their bodies no longer respond appropriately to insulin, the hormone that regulates blood sugar. Chronically elevated blood sugar can lead to serious complications, including cardiovascular disease, blindness, and amputations. In a recently published study, Dr. Dan Ramdath (Guelph Research and Development Center) and colleagues investigated whether replacing a portion of common starchy foods (potatoes and rice) with lentils might help people with type 2 diabetes keep their blood sugar in the normal range. Their findings, supporting a positive effect in this regard, are published in the April 2018 issue of *The Journal of Nutrition*.

The primary aim of this study was to test the effect of various food combinations, with and without three types of commercially available lentils (large green, small green, and red), on how much blood sugar increases after a meal. In a nutshell, 24 healthy men and women ate 8 different meals containing rice, mashed potatoes, or a combination of rice or potatoes with equal amounts of lentils. Blood was taken before and after each meal and analyzed for glucose (blood sugar) and insulin.

The researchers found that, compared to rice alone, consuming rice along with any of the types of lentils lowered the expected blood sugar rise after the meal was eaten. They found the same when comparing mashed potatoes to potatoes with lentils. Blood insulin was lowered by adding lentils to potatoes, but not to rice. The researchers concluded that replacing half the carbohydrates from starchy foods (like rice and potatoes) with lentils should be considered as a potential dietary recommendation, particularly for individuals with type 2 diabetes.

Reference Moravek D, Duncan AM, VanderSluis LB, Turkstra SJ, Rogers EJ, Wilson JM, Hawke A, Ramdath DD. Carbohydrate replacement of rice of potato with lentils reduces the postprandial glycemic response in healthy adults in an acute, randomized, crossover trial. *Journal of Nutrition* 148:535-41.

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New study finds no evidence to support usefulness of "blood-type diet"

Diet fads come and go, often following cyclical patterns over the years. Some examples of these diets include low-carbohydrate, high fat meal plans (e.g., the Atkins Diet); low fat and very low-fat diets (e.g., the Pritikin Principle); "magic foods" diets (e.g., the Cabbage Soup Diet); and liquid diets requiring a person to limit food intake to one or two meal replacements each day. Although books written about these diets are purchased by the millions by a well-meaning public, experts agree that most fad diets lead to weight loss simply because they are low in calories – not because of any nutrient or food component that is or isn't found in the diet. However, rarely do nutrition researchers take the time (and funding organizations spend the money) to empirically test the effectiveness of fad diets. In the April 2018 issue of *The Journal of Nutrition*, however, a research team led by Dr. Ahmed El-Sohemy (University of Toronto) investigated whether a person's blood type is associated with the level of benefit of consuming each of 4 "blood-type" diets first recommended in *Eat Right 4 Your Type*, a popular book written by Dr. Peter D'Adamo and first published in 1996.

For their study, El-Sohemy and colleagues utilized data already collected from 973 overweight men and women in the Toronto Healthy Diet Study. Based on food frequency questionnaires, the study participants were grouped into 1 of the 4 dietary patterns recommended by D'Adamo for the various blood groups: "the hunter" diet (blood group O) high in animal protein, "the agrarian" (blood group A) high in plant foods, "the nomad" (blood group B) rich in dairy products, and "the enigma" (blood group AB) representing a balance between animal and plant foods. Blood types were determined by selectively sequencing participants' genetic material (DNA), and circulating markers of cardiovascular disease (e.g., blood glucose, cholesterol) were measured. The researchers then investigated whether they could find evidence that eating the "right" diet for 6 months, as suggested by D'Adamo and the blood-type diet theory, was associated with more weight loss or better health.

The researchers found apparent benefits of following diets resembling the agrarian, nomad, or hunter pattern (blood group A, B, or O, respectively). In fact, all these diet types were associated with a decrease in body mass index (BMI) and waist circumference. However, matching the diet type with corresponding blood type did not influence any indicators of health studied. For instance, eating a plant-based dietary pattern did not help people with type A blood lose more weight or have better blood lipid values than those with type B blood. The researchers concluded, "*ABO* genotype does not modify any association between blood-type diets and biomarkers of cardiometabolic disease in overweight adults, suggesting that the theory behind this diet is not valid."

Reference Wang J, Jamnik J, García-Bailo B, Nielsen DE, Jenkins DJA, El-Sohemy A. *ABO* genotype does not modify the association between the "blood-type" diet and biomarkers of cardiometabolic disease in overweight adults. *Journal of Nutrition* 148:518-25.

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