

High Sodium, Low Potassium Diet Linked to Increased Risk of Death

It is no secret that the typical American diet contains too many processed foods, while at the same time not nearly enough fruits and vegetables. This consumption imbalance has led to a diet high in salt and often insufficient in potassium. Recently reported by the CDC, this dietary practice is extremely detrimental to physical health. The study data conducted by researchers at the Centers for Disease Control and Prevention, Emory University and Harvard University was published in the *Archives of Internal Medicine* (2011). According to the CDC, Americans who consume a diet high in sodium and low in potassium have a 50% increased risk of death from any cause, and about twice the risk of death from heart attacks.

The study used a nationally representative sample, analyzing data from the National Health and Nutrition Examination Survey (NHANES). The first of its kind, this study provided a much more precise look at mineral content consumption across the population than previous studies. According to Elena Kuklina, M.D., Ph.D., an investigator on the study and a nutritional epidemiologist with CDC's Division for Heart Disease and Stroke Prevention, "the study's findings are particularly troubling because U.S. adults consume an average of 3,300 milligrams of sodium per day, more than twice the current recommended limit for most Americans. This study provides further evidence to support current public health recommendations to reduce sodium levels in processed foods, given that nearly 80% of people's sodium intake comes from packaged and restaurant foods. Increasing potassium intake may have additional health benefits."

Although the *2010 Dietary Guidelines for Americans* recommends healthy individuals consume less than 2,300 mg of sodium, 50% of

Americans are recommended to limit intake of sodium to 1,500 milligrams per day. The dietary guidelines suggest people 51 and older, African Americans, and those with high blood pressure, diabetes, or chronic kidney disease all consume 1,500 mg or less of sodium per day. In addition, the guidelines recommend that people choose more potassium-rich foods, advising 4,700 milligrams of potassium per day.

The main form of sodium consumed in the diet expectedly is in the form of salt (sodium chloride), but many people are surprised to find out more than 75% of their intake is in the form of processed and restaurant foods. To the contrary, potassium exists naturally in many fresh foods including fruits, vegetables, and legumes as well as fish and nuts. Considering the American diet, it should be of little surprise that the common staples such as cheese, processed meats, breads, soups, frozen foods, fast foods, and pastries tend to have much more sodium than potassium. Whereas naturally occurring foods such as spinach, grapes, blackberries, carrots, white potatoes and citrus fruits have less sodium and more potassium.

Findings indicate the top 20 individual food sources of sodium in the American diet, based on the frequency of consumption and sodium content:

1. Meat pizza
2. White bread
3. Processed cheese
4. Hot dogs
5. Spaghetti w/sauce
6. Ham
7. Catsup (ketchup)
8. Cooked rice (the way it's seasoned, as plain ice contains no sodium at all)
9. White roll

10. Flour (wheat) tortilla
11. Salty snacks/corn chips
12. Whole milk
13. Cheese pizza
14. Noodle soups
15. Eggs (whole/fried/scrambled)
16. Macaroni w/cheese
17. Milk, 2%
18. French fries
19. Creamy salad dressings
20. Potato chips

Individuals who consume lower amounts of sodium and higher amounts of potassium benefit from improved blood pressure and reduced risk for developing CAD and kidney disease. But this may not be as easy as it sounds. In the same way weight loss is difficult for many people, reducing salt may be equally challenging and at the root of both problems, according to a recent study published in the *Proceedings of the National Academy of Science* (2011), sits the hypothalamus. A team of researchers from the Duke Medical Center and Australian scientists from the University of Melbourne and Florey Neuroscience Institute have found that the same gene linked to drug addiction is associated with the natural instinct to seek salt in rats.

The research team found that when rats exuded an elevated sodium appetite, a region of the hypothalamus became susceptible to dopamine, the same neurotransmitter associated with drug

use and addiction. According to the researchers, since dopamine serves as the brain's reward currency, when salt is depleted the hypothalamus pursues the "instinctive need" for reward, which drives the animal to gratify the need and, in this case, consume salt. The researchers were able to detect the genes that were turned on prior to salt consumption and turned off upon ingestion, even before absorption of the nutrient occurred. This suggests the completion of the quest was enough to trigger response in the hypothalamus. Although this information does not directly correlate to a specific salt intake, it does suggest that one's salt appetite is instinctively driven which may explain tendencies in food selection.

Much like monitoring calories is relevant for weight loss, monitoring daily sodium intake is relevant for appropriate intakes. The CDC suggests choosing foods like fresh or frozen fruits and vegetables, and unprocessed or minimally processed fish, meat or poultry, low-fat milk or plain yogurt. Additionally, when eating out it is helpful for at-risk populations to review the nutritional information on restaurant websites and when shopping to read the nutrition labels of foods before purchasing to ensure lower intakes are consumed. Many people just do not know what is in the food they consume. Taking the steps to control salt and increase potassium in the diet can go a long way to improve health over a life span.

List of Potassium Content of Foods

Foods with Potassium	Serving Size	Potassium (mg)
Almond	2 oz (57 g)	412
Apricots, dried	10 halves	407
Artichoke	1 cup	595 *
Avocados, raw	1 ounce	180
Bananas, raw	1 cup	594 *
Beans, baked	1 cup	752 *
Beans, Kidney	1 cup	713 *
Beans, Lima	1 cup	955 *
Beans, Pinto	1 cup	800 *
Beets, cooked	1 cup	519 *
Black-eyed peas(lobia)	1 cup	690 *
Brazil nuts	2 oz (57 g)	340
Brussel sprouts, cooked	1 cup	504 *
Cantaloupe	1 cup	494
Carrot Juice	1 cup	689 *
Chickpeas	1 cup	477
Dates, dry	5 dates	271
Figs, dry	2 figs	271
Kiwi fruit, raw	1 medium	252
Lentils	1 cup	731 *
Melons, honeydew	1 cup	461
Milk, fat free or skim	1 cup	407
Nectarine	1 nectarine	288
Orange juice	1 cup	496
Orange	1 orange	237
Pears(fresh)	1 pear	208
Peanuts dry roasted, unsalted	2 oz (57 g)	374
Potatoe, baked,	1 potato	1081 *
Prune juice	1 cup	707

Prune, dried	1 cup	828 *
Raisin	1 cup	1089 *
Spinach, cooked	1 cup	839 *
Tomato canned sauce	1 cup	909 *
Tomato Juice	1 cup	535 *
Winter squash	1 cup	896 *
Yogurt plain, skim milk	8 ounces	579 *