Researchers' new diagnostic test can identify each person's optimal salt intake

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(Medical Xpress)—Researchers at the University of Virginia School of Medicine have cut through conflicting advice about salt consumption by demonstrating that each person has a "personal salt index," an upper limit on daily salt consumption for good health. In addition, they have developed a test to determine that level – and to identify people who should consume more salt.

Numerous studies have demonstrated that high blood pressure can be reduced by a low-salt diet. While nonprofit organizations such as the American Heart Association and the Institute of Medicine have a "one size fits all" recommendation on salt intake, the U.Va. research helps make clear that each individual is genetically programmed with a "personal salt index" and thus sodium chloride dietary guidelines should be personalized.

U.Va.'s Robin Felder, the senior author on a paper on the topic published recently in the journal *Clinica Chimica Acta*, explained: "The blood pressure of about 25 percent of the population is sensitive to salt, increasing risk for strokes, heart attacks and kidney failure. An individual's response to salt cannot be measured in a doctor's office. Therefore, we developed a simple test to help the medical community determine an individual's ability to tolerate salt, which we are calling the 'personal salt index.'"

He added, "Lowering salt intake might not be good for everyone, since about 15 percent of individuals demonstrate an increase in blood

pressure on a low-salt diet – just the opposite of what one would expect." There are other potentially harmful effects of low salt intake, leading to plaques and ultimately blockages in the arteries.

People often face conflicting salt recommendations. The negative effects of salt appear at the highest and lowest levels of consumption. In other words, sodium chloride intakes that are above and below the range of 2.5 to 5.8 grams (1.0 to 2.3 grams of sodium) per day are associated with increased cardiovascular risk.

"If an individual consumes close to their daily personal salt index, they are likely to avoid salt-related illness," said Dr. Pedro A. Jose of the University of Maryland, a co-investigator in Felder's salt-related research program. "However, additional research will be needed to determine how close one has to adhere to a personal salt index in order to maintain the best state of wellness."

Felder's research was based on a study population tested previously at U.Va. by Dr. Cynthia Schoeffel and Dr. Robert M. Carey, who evaluated how the kidney metabolizes salt and blood pressure in a population of 183 adult volunteers who agreed to follow a special diet of high salt for one week and very low salt for another week.

Felder's laboratory developed the diagnostic test based on living kidney cells found in urine. These cells metabolize sodium similarly to how an individual metabolizes sodium, yet they can be isolated and tested in less than a day using methods developed in Felder's lab.

"Ultimately we could see an instrument in a doctor's office that would allow the doctor to generate a personal salt index during a routine exam and provide meaningful counseling on how to adopt a salt-healthy lifestyle," said John Gildea, the lead author on the study and a research assistant professor of pathology at U.Va.

Provided by University of Virginia