Combo of overweight, high sodium intake speeds cell aging in teens

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Overweight or obese teenagers who eat lots of salty foods may show signs of faster cell aging, according to research presented at the American Heart Association's Epidemiology & Prevention/Nutrition, Physical Activity & Metabolism Scientific Sessions 2014.

"Lowering sodium intake, especially if you are overweight or obese, may slow down the cellular aging process that plays an important role in the development of heart disease," said Haidong Zhu, M.D., Ph.D., lead author of the study and assistant professor of pediatrics at Medical College of Georgia, Georgia Regents University in Augusta, Ga.

Previous research found that protective ends on chromosomes (telomeres) naturally shorten with age, but the process is accelerated by smoking, lack of physical activity and high body fat. The current study is the first to examine the impact of sodium intake on telomere length.

In the study, 766 people 14-18 years old were divided into the lowest or highest half of reported sodium intake. Low-intake teens consumed an average 2,388 mg/day, compared with 4,142 mg/day in the high-intake group. Both groups consumed far more than the 1,500 mg/day maximum (about 2/3 teaspoon of salt) recommended by the American Heart Association.

After adjusting for several factors that influence telomere length, researchers found:

- In overweight/obese teens, telomeres were significantly shorter with high-sodium intake (T/S ratio of 1.24 vs. 1.32). T/S ratios are the ratio of the length of the telomere to the length of a single gene.
- In normal weight teens, telomeres were not significantly different with high-sodium intake (T/S ratio of 1.29 vs. 1.30).

"Even in these relatively healthy young people, we can already see the effect of high sodium intake, suggesting that high sodium intake and obesity may act synergistically to accelerate cellular aging," Zhu said.

Obesity is associated with high levels of inflammation—which also hastens telomere shortening—and increases sensitivity to salt, which may help explain why higher sodium intake had a greater effect in that group.

"Lowering sodium intake may be an easier first step than losing weight for overweight young people who want to lower their risk of heart disease," Zhu said. "The majority of sodium in the diet comes from processed foods, so parents can help by cooking fresh meals more often and by offering fresh fruit rather than potato chips for a snack."

Provided by American Heart Association