

## Degree of obesity raises risk of stroke, regardless of gender, race

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The higher a person's degree of obesity, the higher their risk of stroke -- regardless of race, gender and how obesity is measured, according to a new study published in *Stroke: Journal of the American Heart Association*.

"It has not been clear whether overweight and [obesity](#) are risk factors for [stroke](#), especially among blacks," said Hiroshi Yatsuya, M.D., Ph.D., study lead author and visiting associate professor at the University of Minnesota in Minneapolis. "There are also questions about which measure of [excess weight](#) ([body mass index](#) [BMI], [waist circumference](#) or waist-to-hip ratio) is most closely associated with disease risk."

Analyzing the ARIC Study database in which subjects' BMI, waist circumference and waist-to-hip ratio were measured at the study's start, Yatsuya and colleagues followed 13,549 middle-aged black and white men and women in four U.S. communities from 1987 through 2005. Participants started the study free of cancer and cardiovascular disease.

During the follow-up period of about 19 years, 598 ischemic strokes occurred. The researchers calculated incidence rate -- the number of new cases per 1,000 people per year -- according to groups representing different degrees of obesity, using each obesity measure.

They found that incidence rates differed substantially between whites and blacks. For example, the stroke rate in the lowest BMI category was 1.2 per 1,000 person-years for white women and 4.3 per 1,000 person-

years for black women. The rate in the highest BMI category was 2.2 for white women and 8.0 for black men.

"Black women had about three times higher incidence of stroke than [white women](#) in the lowest as well as in the highest BMI categories," Yatsuya said. "But the correlation between increasing stroke incidence and increasing degree of obesity was apparent in both races and genders."

Individuals in the highest BMI category had 1.43 to 2.12 times higher risk of stroke (varying modestly by race and sex) compared to the lowest BMI category. When waist circumference was used as a measure of obesity instead of BMI, those risk ratios ranged from 1.65 to 3.19; and 1.69 to 2.55 when waist-to-hip ratio was used. Thus, for any obesity measure, individuals in the highest category had approximately two times higher risk of stroke compared to the lowest category in each race-sex group.

"Since individuals with higher degrees of obesity tended to have higher blood pressure levels or higher diabetes prevalence, we further examined the relationship between the degree of obesity and [ischemic stroke](#) incidence by statistically adjusting for difference in blood pressure of diabetes status attributed to the degree of obesity," Yatsuya said. "That significantly weakened the associations, suggesting these major risk factors explain much of the obesity-stroke association."

The study re-emphasizes the need to prevent obesity in general, Yatsuya said. But, he said, clinical trials would be needed to determine whether obesity prevention or control would actually decrease stroke incidence.

Provided by American Heart Association

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