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Body fat and waist size linked to increased risk of developing rheumatoid arthritis in women

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The results of a population study presented today at the Annual European Congress of Rheumatology (EULAR) 2017 obesity in women, as defined by body mass index (BMI), abdominal obesity and a higher body fat percentage is associated with a higher risk of developing rheumatoid arthritis (RA).

However, there was no clear association between the risk of RA and the criteria that define being overweight or obese in men.1

Previous studies investigating the association between being overweight and the development of RA have produced conflicting results about the link between BMI and the risk of RA.

"One possible explanation for these inconsistencies is that while BMI is the preferred surrogate measure for being overweight in these studies, BMI only correlates modestly with total amount of body fat and does not accurately reflect fat distribution," said lead author Dr. Asta Linauskas from University Hospital, Aarhus, Denmark.

"Our results support an association between the risk of developing RA and three different criteria for being overweight or obese in women. We believe RA should be included in the list of all the other medical conditions linked to obesity. It would certainly make sense for women with a family history of RA to try to avoid becoming overweight," she

added.

In women, the hazard ratio for a BMI of 25-29.99 kg/m2 (considered overweight) was 1.48 (95 percent CI 1.14-1.91), and for a BMI >30 kg/m2 (considered obese) was 1.54 (1.09-2.17). For abdominal obesity, defined in women as a waist circumference >88 cm, the hazard ratio was 1.24 (0.96-1.61). For each 1 percent higher body fat percentage, in women the hazard ratio was 1.03 (1.01-1.05).

In men, the hazard ratio for a BMI of 25-29.99 kg/m2 was 0.83 (0.55-1.24), and for a BMI >30 kg/m2 was 0.69 (0.37-1.30). For abdominal obesity, defined in men as a waist circumference >102 cm, the hazard ratio was 1.16 (0.75-1.80). For each 1 percent higher body fat percentage, in men the hazard ratio was 0.99 (0.96-1.03).

To further define the relationship between body fat percentage and the risk of developing RA, a "restricted cubic spline" statistical analysis was performed. A positive slope in women confirmed a direct relationship; however, there was no such linear association in men.

From a population of 54,284 subjects (52 percent female), aged between 50 and 64 years at the time of recruitment between 1993 and 1997, 283 women and 110 men developed RA during a median follow-up period of 21 years. The median time to onset of RA was 7 (interquartile range of 4-11) years.

Body fat composition measurements and data on lifestyle factors were collected at enrolment. The participants were followed until development of RA, death, loss to follow-up or October 2016, whichever came first. The participants who developed RA were identified through linkage to The Danish National Patient Registry.

Hazard ratios were adjusted for potential confounding from age,

smoking status, total tobacco consumption (g/day), smoking duration, alcohol consumption (g/day), socio-economic status, physical activity (based on a formula that calculates the energy expenditure of different physical activities), and total intake of n-3 fatty acids.

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