



# eular

Madrid  
14-17 June 2017



## Annual European Congress of Rheumatology (EULAR) 2017

Madrid, Spain, 14-17 June 2017

### **BODY FAT AND WAIST SIZE LINKED TO INCREASED RISK OF DEVELOPING RHEUMATOID ARTHRITIS IN WOMEN**

No clear association between RA risk and the different criteria that define  
being overweight or obese in men

**Madrid, Spain, 14 June 2017:** The results of a population study presented today at the Annual European Congress of Rheumatology (EULAR) 2017 showed that, in women, being overweight or obese, as defined by body mass index (BMI\*), abdominal obesity and a higher body fat percentage was associated with a higher risk of developing rheumatoid arthritis (RA).<sup>1</sup>

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

Previous studies investigating the association between being overweight and the development of RA have come out with conflicting results about the link between BMI and the risk of RA.<sup>2,3,4,5</sup>

“One possible explanation for these inconsistencies is that while BMI has been 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.

---

\* an approximate measure of whether someone is over- or underweight, calculated by dividing their weight in kilograms by the square of their height in metres



# eular

Madrid  
14-17 June 2017



In women, the hazard ratio<sup>†</sup> for a BMI of 25-29.99 kg/m<sup>2</sup> (considered overweight) was 1.48 (95 % CI<sup>‡</sup> 1.14-1.91), and for a BMI >30 kg/m<sup>2</sup> (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% 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/m<sup>2</sup> was 0.83 (0.55-1.24), and for a BMI >30 kg/m<sup>2</sup> 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% 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<sup>§</sup>” 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% 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.

**Abstract Number: OP0079**

**-ENDS-**

---

<sup>†</sup> A hazard ratio greater than 1.0 infers a direct association, the higher the figure the stronger the association

<sup>‡</sup> 95% Confidence Interval infers that there is a 95% chance that the actual hazard ratio is between the two figures given

<sup>§</sup> statistical method of estimating the relationship between two or more variables that allows for a non-linear relationship



# eular

Madrid  
14-17 June 2017



## NOTES TO EDITORS:

**For further information on this study, or to request an interview with the study lead, please do not hesitate to contact the EULAR congress Press Office in the Goya Room at the IFEMA, Madrid during EULAR 2017 or on:**

**Email:** [eularpressoffice@cohnwolfe.com](mailto:eularpressoffice@cohnwolfe.com)

**Onsite tel:** +44 (0)7786 171 476 / +34 91722 3115

**Twitter:** @EULAR\_Press

**Youtube:** Eular Press Office

## About Rheumatic and Musculoskeletal Diseases

Rheumatic and musculoskeletal diseases (RMDs) are a diverse group of diseases that commonly affect the joints, but can also affect the muscles, other tissues and internal organs. There are more than 200 different RMDs, affecting both children and adults. They are usually caused by problems of the immune system, inflammation, infections or gradual deterioration of joints, muscle and bones. Many of these diseases are long term and worsen over time. They are typically painful and limit function. In severe cases, RMDs can result in significant disability, having a major impact on both quality of life and life expectancy.

## About 'Don't Delay, Connect Today!'

'Don't Delay, Connect Today!' is a EULAR initiative that unites the voices of its three pillars, patient (PARE) organisations, scientific member societies and health professional associations - as well as its international network - with the goal of highlighting the importance of early diagnosis and access to treatment. In Europe alone, over 120 million people are currently living with a rheumatic disease (RMD), with many cases undetected. The 'Don't Delay, Connect Today' campaign aims to highlight that early diagnosis of RMDs and access to treatment can prevent further damage, and also reduce the burden on individual life and society as a whole.

## About EULAR

The European League Against Rheumatism (EULAR) is an umbrella organisation which represents scientific societies, health professional associations and organisations for people with rheumatic and musculoskeletal diseases throughout Europe. EULAR aims to reduce the burden of rheumatic and musculoskeletal diseases on individuals and society and to improve the treatment, prevention and rehabilitation of rheumatic and musculoskeletal diseases. To this end, EULAR fosters excellence in education and research in the field of rheumatology. It promotes the translation of research advances into daily care and fights for the recognition of the needs of people with musculoskeletal diseases by the governing bodies in Europe through advocacy action.



# eular

Madrid  
14-17 June 2017



To find out more about the activities of EULAR, visit: [www.eular.org](http://www.eular.org)

## References

---

- <sup>1</sup> Linauskas A, de Thurah AL, Overvad K, *et al.* Body fat percentage and waist circumference were associated with the development of rheumatoid arthritis – a Danish follow-up study. EULAR 2017; Madrid: Abstract OP0079
- <sup>2</sup> Qin B, Yang M, Fu H, *et al.* Body mass index and the risk of rheumatoid arthritis: a systematic review and dose-response meta-analysis. *Arthritis Research & Therapy.* 2015;17(1):86
- <sup>3</sup> Cerhan JR, Saag KG, Criswell LA, *et al.* Blood transfusion, alcohol use, and anthropometric risk factors for rheumatoid arthritis in older women. *J Rheumatol.* 2002; 29 (2): 246-54
- <sup>4</sup> Rodríguez LA, Tolosa LB, Ruigómez A, *et al.* Rheumatoid arthritis in UK primary care: incidence and prior morbidity. *Scand J Rheumatol.* 2009; 38 (3): 173-7
- <sup>5</sup> Wesley A, Bengtsson C, Elkan AC, *et al.* Epidemiological Investigation of Rheumatoid Arthritis Study Group. Association between body mass index and anti-citrullinated protein antibody-positive and anti-citrullinated protein antibody-negative rheumatoid arthritis: results from a population-based case-control study. *Arthritis Care Res (Hoboken).* 2013; 65 (1): 107-12