



**Karolinska  
Institutet**

**The Institute of Environmental Medicine, Unit of Cardiovascular  
Epidemiology**

## **Lifestyle Matters**

Epidemiological studies of oily fish, BMI, life events, physical  
workload and risk of Rheumatoid Arthritis

**AKADEMISK AVHANDLING**

som för avläggande av medicine doktorsexamen vid Karolinska  
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Av

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## **Abstract**

Rheumatoid arthritis (RA), divided in two major subsets defined by presence or absence of anti-citrullinated protein antibodies (ACPA), is chronic inflammatory disease which lead to joint damage and bone destruction. It is a complex disease where both genetic and environmental factors contribute to its development. The overall aim of my research was to mount greater knowledge of how some environmental and potentially modifiable lifestyle factors are related to the risk of developing rheumatoid arthritis. More specifically the aim was to study the association between body mass index (BMI) at symptom onset, as well as intake of oily fish and fish oil supplements, life events and physical workload five year prior symptom onset and the risk of developing RA.

The thesis is based on information from the EIRA (Epidemiological Investigation of Rheumatoid Arthritis) study. EIRA is a population based case-control study comprised of information from incident cases of RA, diagnosed in accordance with the 1987 American College of Rheumatology criteria, and randomly selected controls aged 18-70 years matched by age, sex and residential area. Cases and controls answered an extensive questionnaire with regard to environmental, lifestyle and occupational exposures and provided a blood sample for genetic and serological analyses. The response proportion was 94% for cases and 78% for controls.

Several lifestyle factors have been raised for the contribution in the pathogenesis of RA e.g. smoking, vitamin D, and alcohol i.a). Consuming oily fish 1-7 times per week five year prior to symptom onset was associated with a decreased risk of developing RA, without major differences according to ACPA status. A BMI>30 was associated with an increased risk of developing ACPA-negative RA in women, while for ACPA-positive RA in men the association was reverse. Experience of life events (impaired economic situation, unemployment, marriage) five year prior symptom onset was associated with and increased risk of developing RA in women, independent of ACPA status. For men an association was observed with an increased risk of developing ACPA-positive RA. Substantial physical workload five year prior to symptom onset was associated with an increased risk of developing ACPA positive and ACPA negative RA in foremost in men.

**Key words:** Rheumatoid Arthritis, epidemiology, oily fish, BMI, life events, physical work load

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