



**Karolinska
Institutet**

Institutionen för Medicinsk Epidemiologi och Biostatistik

Epidemiological studies of diet quality, body size and prostate cancer risk

AKADEMISK AVHANDLING

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av

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ABSTRACT

Prostate cancer is the most common male cancer in high-income countries. The etiology of the disease is still poorly understood, but increasing evidence suggests that lifestyle factors such as diet and body size play an important role. As modifiable risk factors, they may serve as potential strategies to prevent prostate cancer. Therefore, this thesis aims to clarify the relationship between overall diet quality as well as body size in a lifetime perspective, and prostate cancer risk.

Study I-III are based on a large population-based sample of Swedish men. We used questionnaire data on diet and anthropometric factors collected in 2001-2003 among 1,499 prostate cancer cases and 1,118 controls. **Study IV** is based on a large cohort study of 47,491 American male health professionals, with questionnaire data on anthropometric factors prospectively collected since baseline in 1986.

In **Study I** we evaluated if adherence to the Nordic Nutrition Recommendations (NNR 2004) was associated with prostate cancer risk. We created a score to measure adherence versus non-adherence to the NNR, and found no differences between adherence groups. Additionally, we hypothesized that the potential association was modified by a genetic risk score, but found no statistically significant interaction.

In **Study II** we examined adherence to the Mediterranean diet, as assessed by the Mediterranean Diet Score (MDS), in relation to prostate cancer risk. Secondly, we evaluated the usefulness of the MDS in our Nordic population by comparing five score variants. Overall we found no associations between any of the MDS variants and prostate cancer. The MDS with study-specific intake cut-offs was considered useful to assess a Mediterranean-like diet in a non-Mediterranean population.

Study III and **IV** investigated whether childhood and adult body size was associated with prostate cancer risk. The influence of body size varied largely between disease subtypes. Tall men had an increased risk of prostate cancer, especially advanced-stage and fatal disease. Men with a healthy weight in young adulthood had a lower risk of disease overall, while men with a high BMI in young adulthood had a lower risk of late-stage and fatal prostate cancer. Men who were overweight or obese in middle-to-late adulthood had a lower risk of total, early-stage and less aggressive cancer, especially among men ≤ 65 years. In addition, **Study III** included analyses on weight change in adulthood; moderate weight gain was associated with an increased risk of disease in short men and in men who were thin at start. We further investigated childhood body size, and the results were inconsistent.

In conclusion, overall diet quality did not appear to influence prostate cancer risk. Tall men had higher risk of the disease compared to short men. Our results further suggest that body size in early adulthood may have larger influence on prostate cancer risk than body size later in life, although maintaining a healthy weight throughout adulthood appears beneficial for disease prevention.