

Concordance of shoulder symptoms and imaging findings – a protocol for the Finnish Imaging of Shoulder (FIMAGE) study

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TITLE

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ABSTRACT

Aim:

The origin of pain in Musculoskeletal disorders is commonly attributed to structural abnormalities identified by imaging. However, imaging studies show a high prevalence of structural abnormalities in asymptomatic individuals especially in the elderly. Thus, the extent to which symptoms and imaging abnormalities are interrelated remains unclear.

The Finnish Imaging of Shoulder Study (FIMAGE) aims to

- establish age-specific norms on the prevalence of imaging abnormalities,
- assess their connection with symptoms,
- explore possible determinants for both imaging abnormalities and symptoms, and
- investigate the natural course of shoulder symptoms and imaging findings in a longitudinal setting.

Methods:

Up to 800 individuals aged 38 to 75 years will be randomly selected out of a nationally representative general population sample. The original sample was recruited for the Health 2000 survey performed in Finland and consisted of 9,922 individuals aged 18 years and older. Upon giving informed consent, our sub-sample is invited to a clinical visit that includes assessment of general health and shoulder-specific functions, a bilateral physical shoulder examination, and imaging with plain radiography and MRI.

Results:

With regards to data collection and case definitions, we plan to replicate methods that have been developed and refined in previous Finnish health studies (Health 2000 and Health 2011 study). Detailed background data (including general health parameters, and work-related exposures) from 3 different time-points (2000, 2011 and 2021-2022) will allow us to investigate possible determinants for shoulder pain and structural abnormalities over a 20-year period. In addition, the third timepoint (FIMAGE study) will serve as the “baseline” for the FIMAGE-L (longitudinal) study with an additional follow up after 5 years (including bilateral shoulder MRI).

Discussion:

The FIMAGE study will offer novel data on the epidemiology of shoulder disorders in the population, symptom severity, and their impact on quality of life and work productivity. Implementing bilateral shoulder imaging will be essential to resolve longstanding questions regarding the association between findings on MRI scans and symptoms in people with shoulder problems, in order to clarify the role of imaging in patients with shoulder pain, aiming to prevent over-diagnosis and overtreatment. The 5-year follow-up will enhance our knowledge on the natural course of shoulder symptoms and imaging findings. We anticipate that the prevalence of abnormal imaging findings will increase over the course of 5 years and are interested to see how this affects shoulder symptoms.