

Individual and occupational risk factors for knee osteoarthritis - Study protocol of a case control study

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Background: In the literature, a number of occupational risk factors are discussed as being related to the development and progress of knee joint diseases (**Fig. 1**). Because of the fact that results are not always identical, the importance of single factors and the possibilities of prevention are currently under discussion.

Aims: The aim of this research project is to assess different occupational factors (e.g. working in kneeling or squatting posture, lifting and carrying of heavy weights) in relation to individual factors (e.g. constitution, leisure activities, sports), which might influence the development and/or progression of knee osteoarthritis (OA).

Methods: To raise valid data about the physical hazards associated with occupational and leisure time activities, patients with and without knee OA are surveyed by means of a standardized questionnaire / telephone interview which have been developed on findings of former studies and preexisting questionnaires [1-4] (**Fig. 1**). The required sample size was estimated to 800 cases and an equal number of controls [5]. The degree and locality of the knee damages in the cases are documented by the treating physicians on the basis of radiological, arthroscopic and/or operative findings in a patient record (**Fig. 2**). Furthermore, occupational exposures will be analyzed at selected workplaces to evaluate the answers provided in the questionnaire.

Research topics:

1. Significant correlation between occupational hazards and symptoms and signs of knee OA?
2. Significant correlation between certain leisure time activities and symptoms and signs of knee OA?
3. Significant correlation between relevant individual risk factors and symptoms and signs of knee OA?
4. Significant correlation between occupational & individual activities and the current state of knee damage?

Setting: The case group is recruited from the surgical-orthopaedic wards of clinics of maximum care. Patients with documented knee OA answer a standardized questionnaire during their hospital stay. Clinical, radiological, arthroscopic and/or operative findings are assessed and documented by physicians using standardized methods. This case group is compared with a control group to which the same questionnaire is submitted. The controls are recruited from the clinic for accident surgery and matched with the case group according to age (± 5 years), gender and city. Participants with jobs involving kneeling, squatting, crawling and/or lifting and carrying heavy loads are also interviewed by telephone.

age	A	R+	A	ns				ns	A	A	A	R+		R+		
gender	A	G	G				G	ns	A	A	A					
obesity	A	R+	R+					ns	R+	A	R+		R+	R+	R+	
smoking	R-	R-		ns			ns									
alcohol											K					
sports			R+	R+				ns	R+	R+						A
hormone therapy	K	K														
raised uric acid	R+															
heredity																
non-occupational stress																
handling of loads	R+										R+	R+			R+	R+
phys. demanding work tasks		R+	R+	R+											R+	R+
kneeling/squatting	R+	R+	R+		M			R+	R+	R+	R+	R+			R+	R+
jumping					M										R+	R+
climbing steps											R+				R+	R+
vibration exposure								R+								R+
climate																R+

Key: **R+** Risk at least partially rose significantly
R+/+ Risk partially raised, partially declined significantly
R- Risk at least partially declined significantly
ns not significant
A adjusted
G evaluation separately
M high momentum in the knee
K questioned but no results published

Fig. 1: Selected results of predicting factors from literature

Conclusions: In this research project, specific information on the correlation between occupational and individual factors regarding the current state of the knee OA (degree and locality) are expected. In addition, information towards a better classification of occupational hazards with regard to this chronic disease will be available in future, which might lead to more specific prevention strategies.

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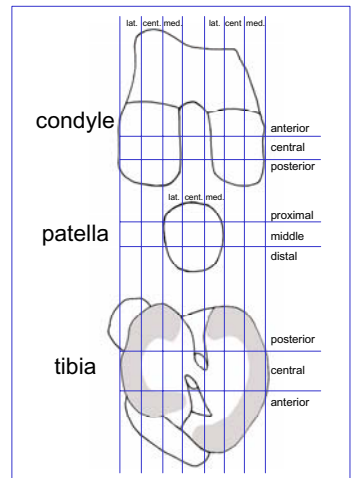


Fig. 2: Documentation of knee damage in the patients record

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