



Department of Social Security

**Social Security Administration Act 1992**

# **Disorders of the Knee**

Report by the Industrial Injuries Advisory Council in accordance with Section 171 of the Social Security Administration Act 1992 on the question whether disorders of the knee should be prescribed.

*Presented to Parliament by the Secretary of State for Social Security*

*by Command of Her Majesty*

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APRIL 1995

## INDUSTRIAL INJURIES ADVISORY COUNCIL

*The Rt Hon Peter Lilley*  
*Secretary of State for Social Security,*

Dear Secretary of State

### **Disorders of the Knee**

In 1992 the Council announced an enquiry into meniscus (knee cartilage) lesions and other disorders of the knee and asked for evidence from interested parties. The Council has now completed the investigation and our report is attached.

Whilst some of the available evidence suggests there is a link between occupation and some knee disorders (particularly osteoarthritis) the increased risk identified is insufficient to satisfy the statutory prescription requirements for adding diseases to the occupational list. The Council is therefore unable to propose this condition as an addition to the list of diseases.

The Council's Research Working Group will continue to monitor all future scientific evidence in this area as it is made available.

Yours sincerely,

Professor J M Harrington, CBE  
*Chairman*

17 November 1994



# Report On Disorders Of The Knee

## Background

1. The EC Recommendation on the Adoption of a European Schedule of Occupational Diseases (90/326/EEC) included the condition 506.30 *Meniscus lesions following extended periods of working in a kneeling or squatting position*. This condition is not at present covered by the United Kingdom list of Prescribed Diseases.

## Method of enquiry

2. The Council announced an enquiry into meniscus (knee cartilage) lesions and other disorders of the knee on the 6 May 1992 and asked for evidence from interested parties. A list of those giving evidence is at Appendix 1. We have also reviewed the published literature.

## Requirements for Prescription

3. The statutory conditions that must be satisfied before a disease can be prescribed under the Industrial Injuries Scheme are set out in section 108(2) of the Contributions and Benefits Act 1992:

“A disease or injury may be prescribed in relation to any employed earners if the Secretary of State is satisfied that—

- (a) it ought to be treated, having regard to its causes and incidence and any other relevant consideration, as a risk of their occupation and not as a risk common to all persons; and
- (b) it is such that, in the absence of special circumstances, the attribution of particular cases to the nature of the employment can be established or presumed with reasonable certainty.”

In other words, a disease can only be prescribed if there is a recognised risk to workers exposed to a particular substance or occupational activity and when the link between the disease and the occupation can be reasonably presumed or established in individual cases.

## Disorders of the knee already covered by the Industrial Injuries Scheme

4. Inflammation of the pre-patella bursa (beat knee) is already a prescribed industrial disease in relation to occupations that entail external friction or pressure on the knee. The prescription of beat knee is given in Appendix 2. In addition, any injury to the knee resulting from an accident at work may be eligible for compensation under the accident provisions of the Scheme. This would include immediate damage to cartilage or ligaments, and also the long-term effects of an accident such as the early development of osteoarthritis. The evidence that the Council has received regarding possible extensions of coverage concerns occupational causes of knee osteoarthritis and the long-term effects of occupational activities on risk of injury to knee cartilage and ligaments.

## Anatomy of the knee

5. The knee joint has a complex structure which allows articulation between the femur (thigh bone) and tibia (the larger of the long bones in the lower leg), and also between the patella (knee cap) and the femur. Within the joint are the menisci (knee cartilages) which cushion forces between the femur and the tibia, and ligaments which help to maintain the stability of the joint. Lying in front of the patella is the pre-patella bursa (a small fluid-filled sac).

## Osteoarthritis of the knee

6. Knee osteoarthritis is a degenerative disorder that leads to pain and stiffness of the joint. It affects some 15% of elderly people in Britain. The diagnosis is normally confirmed by x-ray examination, although radiological abnormalities may not always be obvious in the early stages of the disease. It is possible to distinguish osteoarthritis of the patello-femoral and the tibio-femoral compartments, but most studies looking for occupational causes have not done this.

7. Non-occupational factors associated with an increased prevalence of knee osteoarthritis include age and sex (it is more common in older people and women), obesity, a constitutional susceptibility to osteoarthritis in multiple joints, and previous injury or surgery to the knee.

8. The earliest evidence relating knee osteoarthritis to work came from surveys comparing prevalence in selected occupational groups. The occupations studied have included coal miners, porters, clerks, dockers, carpet and floor layers, manual workers in engineering, bricklayers, house painters, PE teachers, footballers and shipyard workers. Diagnoses have usually been based on radiological findings, but sometimes only on physical examination and symptoms. These studies have tended to show higher rates of knee osteoarthritis in jobs that entail heavy manual work or repeated physical stress on the knees, but interpretation is complicated by differences in diagnostic criteria between studies, statistical uncertainties in surveys with only small numbers of cases, and lack of information about concomitant non-occupational determinants of the disease.

9. More recent surveys have examined the prevalence of knee osteoarthritis in people selected from the general population, and have related this to their current or previous occupations while taking into account the effects of non-occupational factors such as obesity. Again, associations have been found with higher levels of physical activity, and particularly with jobs that entail regular bending of the knees. However, the findings have not been entirely consistent, and not all studies have demonstrated the relationship.

10. Studies have also compared patients treated in hospitals or receiving disability pensions for knee osteoarthritis with other people who did not have the disease. These investigations again have tended to show associations between knee osteoarthritis and heavy physical work, especially if it involves mechanical stress to the knees. However, associations may have been exaggerated if heavy work increases the handicap from knee osteoarthritis and therefore causes people to seek treatment or claim disability pensions more readily than they would otherwise.

11. One survey overcame this problem by identifying cases and controls from an initial radiographic survey in the general population. When non-occupational causes had been taken into account, there was an increase in the risk of knee osteoarthritis in people whose main job entailed kneeling or squatting for 30 or more minutes per day. However, the estimate of risk was based only on a small number of cases and so was subject to considerable statistical uncertainty.

12. Other studies have followed up people from different occupations and examined their later incidence of knee osteoarthritis, an approach which has the advantage of not relying on people's recall of past occupations. Again, associations have been found with physically demanding jobs such as farming and construction work, and particularly with those that involve a combination of knee bending and physical loading. Risks have generally been elevated less than twofold.

13. Overall, current evidence on knee osteoarthritis points strongly to an occupational hazard in jobs that entail frequent or prolonged kneeling or squatting. However, it does not identify any occupations or occupational activities that clearly carry a doubling of risk. It is, therefore, not possible to recommend prescription of knee osteoarthritis at this stage. Further research might well provide the evidence required and should be encouraged.

## Disorders of cartilage and ligaments

14. Several studies have suggested that certain occupations (eg mining, and carpet and floor laying) have an increased risk of injury to knee cartilage and ligaments over and above that attributable to accidents at work. However, these studies are small or poorly designed, and do not allow firm conclusions. Further research could help to resolve the uncertainty.

## Prevention

15. In view of the strong evidence of an occupational risk of knee osteoarthritis in jobs entailing frequent or prolonged kneeling or squatting, consideration should be given to eliminating or, as far as is reasonably practicable, reducing these factors in the design of jobs.

## Recommendation

16. On the basis of current evidence it is not possible to recommend extension to the prescription of disorders of the knee. However, there is limited evidence that risk of osteoarthritis of the knee is elevated in association with certain occupational activities. A number of studies in progress at the moment may well lead the Council to reconsider this issue, and the Council would welcome further research.

**Oral evidence received from:**

Professor Paul Dieppe, Bristol University

**Written evidence received from:**

Trades Union Congress

Professional Footballers Association

The Council also received a number of letters from members of the public



**Prescription of beat knee: Prescribed Disease A6****Prescribed disease or injury**

Bursitis or subcutaneous cellulitis arising at or about the knee due to severe or prolonged external friction or pressure at or about the knee (beat knee)

**Prescribed occupation**

Manual labour causing severe or prolonged external friction or pressure at or about the knee







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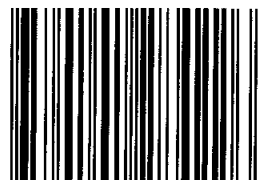
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