

CUMULATIVE WEIGHT-BEARING FROM WORKPLACE CAUSED DOSE-DEPENDENT OSTEOARTHRITIS OF THE KNEE IN SALT WORKERS

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Objectives To determine whether cumulative weight-bearing from workplace was dose-dependently related to risk of knee osteoarthritis (OA).

Methods The registered workers of two Salt Production Societies, Chigu and Beimen, in southern Taiwan between the years 1961 and 2002 were recruited. A structured questionnaire was used to collect occupational history and knee OA symptoms. Those with knee symptoms were seen by a physician, and knee OA was diagnosed according to the American College of Rheumatology Criteria for the Classification and Reporting of OA of the Knee. Symptomatic severity of OA was scored using Lequesne's index. Knee radiographic examination was made available to participants, and evaluated according to the Kellgren/Lawrence (K/L) scale. Cumulative weight-bearing from workplace was calculated as total walking time with weight-bearing (TWW).

Results Of the 316 registered salt workers, 218 completed the study (81 males, 137 females). The prevalence of symptomatic knee OA was 55.6% in men and 67.9% in women. After adjusting for age, smoking, and averaged body mass index, elevated risk of OA and increased Lequesne's index were found among men with TWW $\geq 15 \times 105$ kg-h and among women with TWW $\geq 5 \times 105$ kg-h, in a dose-dependent manner. Radiographic severity measured by K/L scale was found related to symptomatic severity measured by Lequesne's index.

Conclusion Cumulative weight-bearing from workplace was related to knee OA and OA symptomatic severity in a dose-related manner. When considering the risk associated with weight-bearing, women had higher susceptibility to developing knee OA than men in the same cumulative occupational weight-bearing.