

## Research/Study - Back

### Body Movements and Events Contributing to Accidental and Non-Accidental Back Injuries

D.P. Manning, MD., MFOM, DIH, R.G. Mitchell, SRN OHNC, and L.P. Blanchfield, SRN

**Introduction:** In this study (publication date November 1984) 465 factory workers absent or on restricted duty as a result of back pain were interviewed about its onset. By use of an accident model researchers were able to divide the injuries between accidental and non-accidental. A higher percent of the NAI arose at home, while a larger percentage of the accidents occurred at work. Significantly more of the NAI than the accidents involved load handling. Fifty-two percent of the patients able to attribute a cause to their back pain were not moving loads. The authors suggest that future attention be directed to contributory factors such as unsafe floor surfaces, bending and twisting movements as well as to handling of loads.

**Methods:** An accident model, developed by the authors, which plotted and recorded both accidents and details of NAI on a diagram, was used in interviews with workers at three auto manufacturing units of a Ford Motor Plant were absent from work or on restricted duty due to back pain. Back pain was defined as pain located between the first thoracic vertebra and the tip of coccyx. An accident in the model, is visualized as an unforeseen event or course of unforeseen events causing injury while a non-accident event is not associated with a preceding accidental event such as a slip or unexpected load in the back.

**Results:** During the year studied, 1980, 9,707 full days were lost due to back pain. Back pain was also responsible for 5,893 restricted duty days. One-hundred, twenty-three accidents were reported and 114 non-accidental injuries were reported for the year. The most important part of the model used for the purpose of accident investigation is a description of the first unforeseen event. By definition no accidental first events are evident in the NAI category. Accidental first events in the study appeared to be distributed naturally into four main groups:

- 1) Underfoot accidents 66%
- 2) Sudden or unexpected load 12%
- 3) Loss of balance 10%
- 4) Blow to the back 6%

Eighty-two of the 122 identified "first events 67%" were apparently not handling loads manually. Of the 236 patients sustaining either an accident or NAI 122 apparently were not undergoing muscular exertion such as lifting, carrying, pushing, pulling or straining.

Discussion: Considerable effort was directed toward obtaining accurate case histories. The authors are confident that the data collected are reliable. Findings were consistent with a previous survey and with 20 years experience in the industry by the researchers. Surprise is expressed that extensive world literature on back pain gives the impression that manual handling is the only cause of back injuries. In this survey 78% of first events were shown to be the result of slips, falls and sudden loading.

Quote: "While manual handling of materials is important attention should also be directed to other contributory factors such as floor surfaces, shoe materials, and to body movements such as bending and twisting of the spine without load" - "not only at work but around the home".

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