

# Which job constraints are linked to “trouble in work” among employees suffering from back pain?



LEROYER Ariane <sup>1</sup>, MOLINIE Anne-Françoise <sup>2</sup>, POMMIER Jean-Louis <sup>3</sup>, AL KADIRI Karima <sup>4</sup>, VOLKOFF Serge <sup>2</sup>, and Evrest National Project Team members.

<sup>1</sup> Université Lille 2, Occupational Health Department, Lille, France / <sup>2</sup> CEE-CREAPT, Noisy-le-Grand, France / <sup>3</sup> DIRECCTE Poitou-Charentes, Poitiers, France / <sup>4</sup> Institut de Santé au Travail du Nord de la France, Lille, France.

## Aims

Risk factors of back pain among employees are well known. However, little is known about working with back pain (whatever their origin).

The aim of this study was to determine which working conditions are linked to “trouble in work” when having back pain.

## Methods

- Data were extracted from the **French national database “Evrest”**, constituted by questioning employees born in October of even years by their occupational health doctor, during the periodic visit.
- “Evrest” is a monitoring system, based on a two pages questionnaire, the aim of which is the dynamic study of various aspects of employees’ work and health.
- Responses collected by the medical doctor were provided by the self-assessments of the employees about their working conditions and health.
- In 2008-2009, 710 voluntary occupational health doctors were involved in the data collection, and cumulated **22 928 questionnaires** (cross-sectional data).
- Back pain**: defined as employees’ complaints localized at the dorsal or lumbar level, during the periodic visit; if employees experienced back pain, the medical doctor requested if this problem generates “trouble in work”.
- Working conditions**: chosen in the field of working time, time constraints, psychosocial features of the work situation, and physical constraints.
- Statistical analysis**: comparisons on the effects of age and occupational constraints between employees with pain only, and employees with back pain and “trouble in work” were conducted through a *multinomial logistic regression* (SAS v.9.1). Men and women were studied separately.

## Results

97.3% of complete back pain information (22306 questionnaires).

### ■ Frequency of back pain (BP) by gender and age group

|                            | Men (n=12845) |              | Women (n=9461) |              |
|----------------------------|---------------|--------------|----------------|--------------|
|                            | < 45 years    | ≥ 45 years   | < 45 years     | ≥ 45 years   |
| No back pain               | 7158 (81.2%)  | 3012 (74.7%) | 5219 (82.3%)   | 2348 (75.3%) |
| BP without trouble in work | 762 (8.6%)    | 384 (9.5%)   | 512 (8.1%)     | 274 (8.8%)   |
| BP with trouble in work    | 891 (10.1%)   | 638 (15.8%)  | 610 (9.6%)     | 498 (16.0%)  |

### ■ Working conditions and back pain, multinomial regression

|                              | Men                        |                         | Women                      |                         |
|------------------------------|----------------------------|-------------------------|----------------------------|-------------------------|
|                              | BP without trouble in work | BP with trouble in work | BP without trouble in work | BP with trouble in work |
| Age                          | <10 <sup>-3</sup>          |                         | <10 <sup>-3</sup>          |                         |
| <30 years                    | 1.00 [ref]                 | 1.00 [ref]              | 1.00 [ref]                 | 1.00 [ref]              |
| 30-39 years                  | 1.20 [1.00-1.44]           | 1.47 [1.23-1.76]        | 0.90 [0.73-1.12]           | 1.23 [0.99-1.51]        |
| 40-49 years                  | 1.28 [1.06-1.53]           | 2.46 [2.07-2.92]        | 1.12 [0.90-1.38]           | 1.60 [1.31-1.96]        |
| ≥50 years                    | 1.58 [1.30-1.93]           | 3.00 [2.49-3.61]        | 1.36 [1.08-1.70]           | 2.19 [1.78-2.70]        |
| Time pressure (scale 0-10)   | <10 <sup>-3</sup>          |                         | <0.01                      |                         |
| 0-4                          | 1.00 [ref]                 | 1.00 [ref]              | 1.00 [ref]                 | 1.00 [ref]              |
| 5-6                          | 0.98 [0.84-1.14]           | 1.20 [1.04-1.38]        | 0.98 [0.82-1.17]           | 1.26 [1.06-1.49]        |
| 7-10                         | 1.27 [1.08-1.50]           | 1.61 [1.38-1.88]        | 1.04 [0.84-1.27]           | 1.45 [1.21-1.74]        |
| Choice of the way to operate | ns                         |                         | ns                         |                         |
| yes                          | 1.00 [ref]                 | 1.00 [ref]              | 1.00 [ref]                 | 1.00 [ref]              |
| no                           | 1.00 [0.85-1.16]           | 0.94 [0.82-1.08]        | 1.03 [0.86-1.23]           | 1.04 [0.90-1.21]        |
| Lack of mutual aid at work   | 0.02                       |                         | <0.01                      |                         |
| no                           | 1.00 [ref]                 | 1.00 [ref]              | 1.00 [ref]                 | 1.00 [ref]              |
| yes                          | 1.00 [0.92-1.32]           | 1.24 [1.06-1.45]        | 0.98 [0.79-1.21]           | 1.33 [1.13-1.57]        |
| Recognition at work          | <10 <sup>-3</sup>          |                         | <10 <sup>-2</sup>          |                         |
| yes                          | 1.00 [ref]                 | 1.00 [ref]              | 1.00 [ref]                 | 1.00 [ref]              |
| no                           | 0.92 [0.78-1.09]           | 1.46 [1.28-1.67]        | 0.94 [0.77-1.14]           | 1.35 [1.15-1.57]        |
| Postural constraints         | <10 <sup>-3</sup>          |                         | <10 <sup>-3</sup>          |                         |
| never                        | 1.00 [ref]                 | 1.00 [ref]              | 1.00 [ref]                 | 1.00 [ref]              |
| sometimes                    | 1.51 [1.27-1.79]           | 1.81 [1.52-2.16]        | 1.15 [0.94-1.39]           | 2.40 [1.98-2.91]        |
| often                        | 1.69 [1.36-2.09]           | 3.25 [2.67-3.95]        | 1.19 [0.92-1.53]           | 3.28 [2.64-4.08]        |
| Repetitive tasks             | ns                         |                         | <0.01                      |                         |
| never                        | 1.00 [ref]                 | 1.00 [ref]              | 1.00 [ref]                 | 1.00 [ref]              |
| sometimes                    | 0.87 [0.73-1.04]           | 1.03 [0.87-1.22]        | 0.85 [0.67-1.06]           | 1.12 [0.90-1.39]        |
| often                        | 1.03 [0.86-1.22]           | 1.10 [0.94-1.30]        | 1.00 [0.81-1.23]           | 1.33 [1.09-1.63]        |
| Efforts, heavy loads         | 10 <sup>-3</sup>           |                         | <10 <sup>-3</sup>          |                         |
| never                        | 1.00 [ref]                 | 1.00 [ref]              | 1.00 [ref]                 | 1.00 [ref]              |
| sometimes                    | 1.06 [0.89-1.25]           | 1.40 [1.18-1.65]        | 1.19 [0.98-1.44]           | 1.34 [1.12-1.59]        |
| often                        | 1.08 [0.87-1.34]           | 1.80 [1.50-2.18]        | 1.11 [0.85-1.44]           | 1.80 [1.47-2.19]        |
| Vibrations                   | <10 <sup>-3</sup>          |                         | ns                         |                         |
| no                           | 1.00 [ref]                 | 1.00 [ref]              | 1.00 [ref]                 | 1.00 [ref]              |
| yes                          | 0.95 [0.82-1.11]           | 1.28 [1.13-1.46]        | 0.87 [0.58-1.31]           | 0.88 [0.65-1.20]        |

All models were adjusted on height and socioprofessional categories

## Conclusion

Links between age, postural constraints and back pain are clear, but they are stronger with ‘trouble in work’. Many aspects of work (time pressure, lack of mutual aid at work, recognition at work) were linked only with trouble in work. Hence, it seems that some modifications in work organization could allow more employees with back pain to keep on working without experiencing trouble in work, and thus to avoid the occupational low back disability.

