Criteria for determining the work-relatedness of non-specific Low Back Pain (LBP)

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Aim

To develop an evidence-based **PRACTICAL TOOL** to evaluate the magnitude of work-relatedness of non-specific low back pain
Methods

Systematic literature review

Decision model

Practical tool:
1) Diagnosis
2) Risk factors
3) Work relatedness

National Expert Meetings
International Invitational Conference
Evaluation of applicability
Practical tool

Step 1. Case definition of ‘non-specific low back pain’
Step 2. Inventory of work related risk factors
Step 3. Probability of work-relatedness (occupational disease)

References
Step 1: diagnosis

Case definition:
‘Pain in the lower back region lasting at least 24 hours without any demonstrable physical cause’
## Step 2: work related risk factors

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Risk estimate (pooled Odds Ratio)</th>
<th>high exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical risk factors</strong></td>
<td></td>
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</tr>
<tr>
<td>Manual Materials Handling (MMT)</td>
<td>- 1.51</td>
<td>- 1.92</td>
</tr>
<tr>
<td>Frequent Bending/Twisting Trunk (FBT)</td>
<td>- 1.68</td>
<td>- 1.93</td>
</tr>
<tr>
<td>Whole Body Vibrations (WBV)</td>
<td>- 1.39</td>
<td>- 1.68</td>
</tr>
<tr>
<td>High Physical Workload</td>
<td>- 1.13 ns</td>
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<tr>
<td><strong>Psychosocial risk factors</strong></td>
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<td></td>
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<tr>
<td>Monotonous Work</td>
<td>- 1.00 ns</td>
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<tr>
<td>Job Dissatisfaction</td>
<td>- 1.30</td>
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</tbody>
</table>

*from systematic reviews*
Step 2: work related risk factors

Manual materials handling
- Does worker handle objects > 5kg > 2x per minute for total of > 2 hours per working day, or objects > 25kg > 1x per day?
- Does worker handle objects > 15 kg during > 10% of working day?

Bending or twisting of the trunk
- Does worker work with trunk bent and/or twisted > 20° for > 2 hours per working day?
- Does worker work with trunk bent and/or twisted > 40° for > ½ hour per working day?

Whole body vibration
- Is worker exposed to average vibration levels > 0.5 m/s² per working day?
- Has worker been exposed to average vibration levels > 1 m/s² per working day for ≥ 5 years?
**Manual materials handling**

= lifting, holding or moving object by hand without help of mechanical tools

A1 Does worker handle objects > 15kg during > 10% of working day?
   - Yes, score 7 & go to B
   - No, go to A2

A2 Does worker handle objects > 5kg during > 2x per min for total of > 2 hours per working day, or objects >25 kg >1x per working day?
   - Yes, score 4
   - No, score 0

**Bending / twisting of trunk**

=bending trunk forwards or sideways and/or twisting trunk

B1 Does worker work with trunk bend and/or twisted > 40° for >1/2 hour per working day?
   - Yes, score 7 & go to C
   - No, go to B2

B2 Does worker work with trunk bend and/or twisted > 20° for > 2 hours per working day?
   - Yes, score 5
   - No, score 0

**Whole body vibration**

C1 Has worker been exposed to average vibration levels > 1m/s² per working day for >5 yr?
   - Yes, score 5
   - No, go to C2

C2 Is worker exposed to average vibration levels > 0,5m/s² per working day?
   - Yes, score 3
   - No, score 0

**Total score (0-19)**

Total score: 12

pooled Odds Ratio
### Step 3: Work-relatedness

<table>
<thead>
<tr>
<th>Exposure score</th>
<th>Age (years)</th>
<th>Probability of work-relatedness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 35</td>
<td>35 – 45</td>
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<tr>
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<td>14</td>
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</table>

The probability is 49% that the individual’s non-specific LBP is due to work-related risk factors (attributable fraction)
Step 3: Work-relatedness

Non-specific LPB registered as an Occupational Disease:
- Probability > 50%, or
- NIOSH Lifting Index > 2, or
- Daily exposure to vibration during an eight-hour reference period > 1,15m/s², or
- Expert opinion of Occupational Physician

Netherlands Center for Occupational Diseases, 22 November 2005
www.beroepsziekten.nl, registration guideline D004
Take home messages

- Evidence based risk factors for non-specific LBP are manual material handling, bending and twisting of the trunk, whole body vibration and job dissatisfaction.
- The practical tool assists professionals in making an evidence based judgment on the work-relatedness of non-specific LBP in an individual worker.

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Stap 4: Preventie!

- Tiltechniek (door de knieën vs bukken) resulteert niet in een lagere belasting van de rug Van Dieën e.a. 1999
- Tiltraining voorkómt geen rugklachten Martimo e.a. 2007
- Aanpassen van de werkhoogte en de inzet van mechanische hulpmiddelen zijn waarschijnlijk effectiever dan alleen het verlagen van het blokgewicht van der Molen e.a. 2005, Kuijer e.a. 2007
- Lichamelijk actief zijn is de best bewezen effectieve maatregel om rugklachten te voorkómen Burton e.a. 2005, www.backpaineurope.org
Werkt de registratierichtlijn?

Geilenkirchen e.a, 2007 TBV:
‘De onderrapportage voor het melden van de beroepsziekte aspecifieke lage rugklachten bij een vestiging van een arbodienst met 17 bedrijfsartsen, 815 bedrijven met 42.125 werknemers bedroeg 100% in 2005. Het aantal gevallen van beroepsziekte was minimaal 12’.

NCvB meldingen D004:
• 2005 (365) -> 2008 (810)