

A pre-employment medical examination in the Dutch construction industry

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Background



- Pre-employment medical examination (PE-ME): instrument for occupational physicians to assess whether potential employees can perform their new job in a safe and healthy way (Palmer 2004;Cox 2009).
- In the Netherlands, PE-ME should assess specific job requirements related to specific job demands (Sluiter 2006).
- Definition specific job demands:
 - job demands that may exceed the bodily capacities and cause safety- or health-related issues to the worker(s),
 - and job demands being not preventable with common measures.



Research question



Which instruments can be selected or developed in order to assess the specific job requirements of all jobs in the Dutch construction industry?



Method



- Combination of self-report, (clinical) tests and work simulation testing methods.
- Self-report: signal questions focusing on limited activities; health questions focusing on potential health problems; valid screening questionnaires.
- Selection of relevant instruments from existing scientific literature (self-report and [clinical] tests).
- Measurement of the specific job requirements related to the physical specific job demands as functional as possible = work simulation testing methods.
- Judgement ('fit to work', 'conditionally fit to work' or 'unfit to work') linked to the outcomes of the selected instruments.



Which specific job demands?



- 22 specific job demands defined for the Dutch construction industry (12 physical, 2 mental, 8 work conditions):

| | |
|------------------------------------|---|
| - Standing | - Walking on stairs/upstairs |
| - Walking | - Sitting in awkward posture |
| - Kneeling or squatting | - Working with a twisted or bended back |
| - Clamber or climbing | - Lifting or carrying |
| - Pushing or pulling | - Working with elevated arms |
| - Repeated movements | - Working with treadles |
| - Alertness and judgment capacity | - Working under time pressure |
| - Working in small enclosed spaces | - Working on elevated surfaces |
| - Weather conditions | - Compressed air (tunnel workers, divers) |
| - Hand/arm vibration | - Exposure to hazardous substances |
| - Whole body vibration | - Exposure to biological agents |



Results (1a): Lifting or carrying



- Specific job requirements:**
The job candidate has no limitation of the musculoskeletal and cardiovascular system to lift or carry different loads (10, 15, 25 kilo) during up to 5 hours of a workday.
- Signal questions
 - Do you have any trouble to lift or carry objects up to 20 kilo regularly during a work day?
 - Do you have any trouble to lift or carry objects from 20 to 25 kilo now and then during a work day? (yes; no; unknown)
 - Health questions
 - Do you have at this moment any ache or pain in the following body regions? (yes; no) [neck; upper back; shoulder; elbow; upper arm...]
 - Questionnaire
 - Physical activity readiness questionnaire (PAR-Q) to determine whether the job candidate can perform physical activities safely.



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




Results (1b): Lifting and carrying

Specific job requirements:
The job candidate has no limitation of the musculoskeletal and cardiovascular system to lift or carry different loads (10, 15, 25 kilo) during up to 5 hours of a workday.

- Work simulation testing methods.
Use of a Functional Capacity Evaluation (FCE) method to program the duration, frequency and intensity of the specific job requirements.

Three protocols in accordance with the specific job requirements:

- 10 kilo; 2 times per minute for lifting and 2 times per minute for carrying; up to 10 minutes;
- 15 kilo; 1 time within 5 minutes for lifting and 1 time within 5 minutes for carrying; up to 10 minutes;
- 25 kilo; 1 time for lifting and 1 time for carrying.
















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Results (2): Working under pressure

Specific job requirements:
The job candidate has no limitation with regard to psychological condition to work under pressure during a workday.

- Signal questions
- Do you have any trouble to work under time pressure? (yes; no; unknown)
- Questionnaire
- Use of the Distress screener to identify potential high stress complaints. Based on three questions scored on a 3-points scale (no; sometimes; regularly or often). Sum of the scores ≥ 4 = failure.














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Results (3a): Exposure to hazardous substances

Specific job requirements:
The job candidate has normal skin and lung condition and no limitation of the primary detoxification organs (kidney and liver) to work where exposure to hazardous substances may occur during a workday.

- Health questions
- Do you have at this moment any complaints of your lungs / airways?
- Do you have at this moment any complaints of the colour, form or thickness of your skin?
- Do you have at this moment any complaints of an itchy skin?
- Do you have at this moment any complaints of mole(s) or old scar(s)?
- Do you use any medications? (yes; no; unknown)
- Questionnaire
- Use of the Work-related contact eczema questionnaire (7 questions) to identify potential eczema problems. Based on 7 questions (yes; no).














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Results (3b): Exposure to hazardous substances

Specific job requirements:
The job candidate has normal skin and lung sensibility and no limitation of the primary detoxification organs (kidney and liver) to work where exposure to hazardous substances may occur during a workday.

- Clinical test
- Use of a spirometry test as a pulmonary function test to measure lung function, specifically the Force expiratory volume in 1 second (FEV1).














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Recommendation

A pilot-implementation should be conducted to:

- (1) evaluate whether this PE-ME is applicable in the occupational medicine of the construction industry,
- (2) and identify the necessary medical, technical, organizational and financial conditions for its nationwide implementation.

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Questions or suggestions?



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