Functionele mobiliteitstests voor het valrisico bij verpleeghuispatienten. Een literatuuronderzoek naar de diagnostische waarde [Functional mobility tests of proclivity for falls in nursing home patients]

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Authors' objectives
To evaluate the diagnostic value (sensitivity and specificity) of the available functional mobility tests in the nursing home setting.

Searching
MEDLINE was searched from 1980 until 1 August 2000, using the search terms 'balance', 'fall', 'gait', 'mobility', 'sensitivity' and 'specificity' within the age group of 65 years and over. The reference lists of articles found were screened for relevant articles. Only English language articles were included.

Study selection
Study designs of evaluations included in the review
Prospective studies were included.

Specific interventions included in the review
Functional (or performance-oriented) mobility tests that can be used in nursing homes, so called bedside tests that can be conducted without the use of advanced technical aids. Most studies used (variations of) the performance-oriented mobility assessment (POMA). Other tests included the Berg balance test, the functional and lateral reach test, the step up test, the timed up and go test from Mathias, mobility tasks, timed chair stands, 10-foot walk, stops walking when talking test, one leg balance test, or walking speed. Studies that were not performance-oriented, or that comprised neurological or orthopaedic research, were excluded.

Reference standard test against which the new test was compared
Studies had to use the risk of falling as the reference standard. One study used the risk of hip fracture.

Participants included in the review
Elderly (65 years and older) patients were included; the average age ranged from 73 to 83 years. In nine studies the respondents were living at home, in three studies the respondents were living in sheltered housing or in a nursing home, and in one study the respondents were living in a convalescent home.

Outcomes assessed in the review
The sensitivity and specificity of the tests were assessed.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
The authors do not state that they assessed quality.

Data extraction
The authors do not state how many of the reviewers performed the data extraction. Data were extracted on: the number of participants, mean age, living situation, percentage of respondents with cognitive impairments, duration of the study, incidence of falls, and sensitivity and specificity of the tests. When the sensitivity and specificity of the tests were not
reported, these were calculated from the available data, comparing the incidence of falls in the group with a higher risk of falling with that of the control group. In one study the risk of a hip fracture was used.

**Methods of synthesis**

*How were the studies combined?*

A narrative synthesis was undertaken.

*How were differences between studies investigated?*

Differences between the studies were discussed.

**Results of the review**

Thirteen studies with a total of 8,626 respondents were included.

The tests showed a large variation in sensitivity, ranging from 12% (with 95% specificity) to 93% (with 11% specificity). In eight studies the sensitivity was less than 55%. Specificity was also heterogeneous, ranging from 11% (with 93% sensitivity) to 100% (with 17 to 38% sensitivity). In nine studies specificity was more than 75%. Two studies did not provide estimates of sensitivity and specificity.

**Authors’ conclusions**

While further research on functional mobility tests specifically for nursing homes is necessary, the POMA is a reasonable test that can be used in a nursing-home environment.

**CRD commentary**

The research question was clear in terms of the intervention, participants included and study designs eligible for inclusion. Only one electronic database (MEDLINE) was searched, and unpublished data were not sought. The search was restricted to English language papers only. Thus, important studies may have been missed. The authors did not report how the study selection and data extraction were performed, nor how many of the reviewers were involved. Therefore, errors and selection bias cannot be excluded. Publication bias was not assessed.

Details of the studies were adequately reported in tabular format. However, study quality was not assessed. The authors’ conclusions do not seem to be supported by the evidence provided, which suggests that these tests are poor for the prediction of falls. Only four of the 13 studies included elderly living in a nursing home, one of which did not report sensitivity and specificity. Therefore, it is not clear whether it is possible to generalise the findings to a nursing-home environment.

**Implications of the review for practice and research**

Practice: The authors state that the POMA is a reasonable test that can be used in a nursing-home environment.

Research: Further research on functional mobility tests specifically for nursing homes is necessary.

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