GEFÖRDERT VOM
Bundesministerium für Bildung und Forschung

# Outcome measures in older persons with joint contractures: systematic review and content analysis

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## Background and objective

Joint contractures are a common health problem in older persons with significant impact on activities of daily living. We aimed to extract outcome measures applied in studies on older persons with joint contractures to identify and categories the concepts contained in these outcome measures using the ICF (International Classification of Functioning, Disability and Health) as a reference [1].

## Methods

**Literature review:**
A systematic literature search was conducted (1/2002-8/ 2012) via Medline, EMBASE, CINAHL, PEDro and the Cochrane Library.

**Inclusion criteria:**
Studies in geriatric rehabilitation and nursing home settings with participants aged > 65 years and with acquired joint contractures.

**Content analysis:**
Two independent reviewers
- extracted the outcome measures
- transferred them to concepts using predefined conceptual frameworks
- linked the concepts subsequently to the ICF categories [2].

## Results

From the 1057 abstracts retrieved, 60 studies met the inclusion criteria (Figure 1). We identified 52 single outcome measures and 24 standardized assessment instruments (Table 1).
A total of 1353 concepts were identified from the outcome measures; 96.2% could be linked to 50 ICF categories in the 2nd level. Fourteen of the 50 categories (28%) belonged to the component *Body Functions*, 4 (8%) to the component *Body Structures*, 26 (52%) to the component *Activities and Participation*, and 6 (12%) to the component *Environmental Factors* (Table 2).

## Conclusion

The ICF is a valuable framework for identifying and quantifying the concepts of outcome measures on joint contractures in older people.
The majority of outcomes were single outcome parameters which mostly depict the functioning of joints and less social participation.
The revealed ICF categories have to be validated in populations with joint contractures in terms of clinical relevance and personal impact.

**Table 1:** Standardized outcome assessment instruments used in the 60 studies included

| Typ | Standardized outcome assessment | n |
|---|---|---|
| Activitis of daly living | Barthel Index | 3 |
| Quality of life | SF-12 | 2 |
| Mobility | Knee Society Score | 21 |
| | Hospital for Special Surgery Score | 8 |
| | 3D Gait Analysis | 5 |
| | Western Ontario McMaster University Osteoarthritis Index | 4 |
| | Motor Assessment Scale | 4 |
| | Disabilities of the Arm, Shoulder and Hand | 2 |
| | Tardieu Scale | 2 |
| | Mayo Elbow Performance Index | 2 |
| | Modified Ashworth Scale | 2 |
| | The Action Research Arm Test | 2 |

**Figure 1:** Flow chart displaying the search process and the inclusion of studies in the review

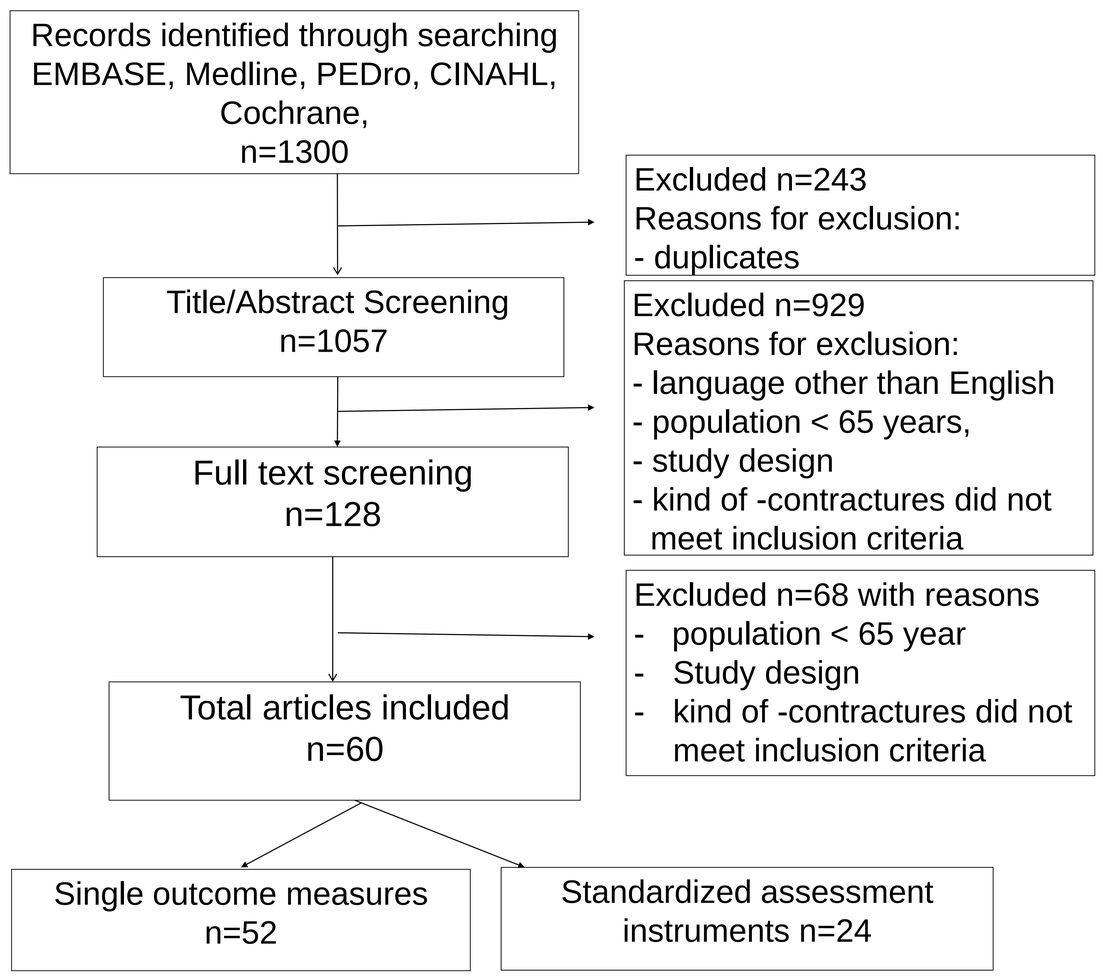


**Table 2:** Relative frequency of 2nd level ICF categories of included studies (n=60)

| ICF Component Body Functions (b) | | % |
|---|---|---|
| **ICF Code** | **ICF Category** | |
| b710 | Mobility of joint functions | 98 |
| b280 | Sensation of pain | 70 |
| b730 | Muscle power functions | 33 |
| **ICF Component Activities and Participation (d)** | | |
| **ICF Code** | **ICF Category** | |
| d450 | Walking | 65 |
| d455 | Moving around | 53 |
| d410 | Changing basic body position | 30 |
| **ICF Component Environmental Factors (e)** | | |
| **ICF Code** | **ICF Category** | |
| e120 | Products and technology for personal indoor and outdoor mobility and transportation | 45 |
| e155 | Design, construction and building products and technology of buildings for private use | 37 |
| e399 | Support and relationships, unspecified | 20 |
| **ICF Component Body Structures (s)** | | |
| **ICF Code** | **ICF Category** | |
| s750 | Structure of lower extremity | 72 |
| s730 | Structure of upper extremity | 22 |
| s720 | Structure of shoulder region | 13 |

**Literatur:**
1) World Health Organisation (WHO). International Classification of Functioning, Disability and Health: ICF. Geneva: WHO 2001
2) Cieza A, et al.: ICF linking rules: an update based on lessons learned. J Rehabil Med 2005, 37: 212-218

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