

*\*This assessment review was compiled by our students and is intended to be used as a guide in assisting clinicians. We encourage you to review the evaluations and assessments for yourself to guarantee the most accurate and updated information.*

## I. General Information

**Title of the test:** Modified Ashworth Scale

**Author:** Richard Bohanan PT, PhD & Melissa Smith PT

**Publisher:** Rehabmeasures.org

**Time required to administer:** Less than 5 minutes. Time will vary based on the number of muscles that are being tested.

**Cost of the Test:** The measure and instructions are free to download via rehabmeasures.org

## II. Description of Test

**Type/Purpose of Test:** The purpose of the Modified Ashworth Scale is to measure spasticity in patients who have lesions of the CNS or neurological disorders. The MAS is a quick and easy measure that can assist a clinician's assessment of spasticity during passive soft-tissue stretching.

**Population:**

- Lesions of the Central Nervous System
- Traumatic Brain Injury
- Stroke
- Spinal Cord Injury
- Multiple Sclerosis

**Focus of measurement:**

**Organic systems**     **Abilities**     **Participation/life habits**     **Environmental Factors**

## III. Practical Administration

**Ease of Administration:** The authors suggest the use of a mat table. The MAS is an easy and quick way to assess increase of muscle tone during flexion and extension.

**Clarity of Directions:** Directions are given in an easy to read step by step format. They are clear and simple.

**Scoring Procedures:** The clinician is directed to place client in supine position on a mat table. The flexor muscles of a joint are placed in a maximally flexed position and moved to a maximally extended position over a 1 second span.

Extensor muscles of a joint are evaluated in a beginning position of maximal extension and taken to a maximally flexed position over a 1 second period.

Scores are assessed based on the scale listed below:

## MAS MUSCLE SCALE

**0 No increase in tone**

**1 Slight increase in muscle tone, manifested by a catch and release or minimal resistance at the end of the ROM when the affected part(s) is moved in flexion or extension**

**1+ Slight increase in muscle tone, manifested by a catch, followed by minimal resistance throughout the remainder (less than half) of the ROM**

**2 More marked increase in muscle tone through most of the ROM, but affected part(s) easily moved**

**3 Considerable increase in muscle tone, passive movement difficult**

**4 Affected part(s) rigid in flexion or extension**

\*\*Muscles may be tested no more than three times per administration.

**Examiner Qualification & Training:** There is no specific training needed to administer this test; however, it is suggested that examiner have knowledge of human anatomy, the musculoskeletal system, awareness of neurological disorders, and spasticity.

### IV. Technical Considerations

**Standardization:** \_\_\_ Norms X Criterion Referenced \_\_\_ Other

\*\*The Reliability and Validity measures will be given in terms of its statistics and research in acute stroke. The psychometrics of this measure has also been applied to individuals who have suffered SCI, central nervous lesions, and traumatic brain injury. If you would like more information as it pertains to those populations, you can access the information at: <http://www.rehabmeasures.org/Lists/RehabMeasures/PrintView.aspx?ID=902>

**Reliability:** Test-Retest Reliability- Excellent to Adequate for elbow assessment (Gregson et al, 1999)

Intrarater Reliability- Adequate with ranges of 57.7% to 85% (Blackburn et al, 2002)

Interrater Reliability-Poor with ranges of 42.5 %-50% (Blackburn et al, 2002)

**Validity:** Not established for Acute Stroke

**Manual:** N/A

**What is (are) the setting/s that you would anticipate using this assessment?**

This assessment can be used in the hospital, and inpatient or outpatient rehabilitation. The MAS can also be used in transitional rehabilitation units or skilled nursing facilities provided the necessary equipment.

**Summary of strengths and weaknesses**

**Weakness:**

Variable inter/intra-rater reliability

Questionable as to whether the scale truly measures spasticity or only one aspect of spasticity

Not reliable in measuring spasticity of the lower extremities

Vague wording of scale

**Strength:**

Easy to administer

Quick

Documented reliability and validity of various populations

**References:**

Bohannon, R. and Smith, M. (1987). "Interrater reliability of a modified Ashworth scale of muscle spasticity." *Physical Therapy* 67(2): 206.

[www.rehabmeasures.org](http://www.rehabmeasures.org)