

BACK SCRATCH TEST (also known as SCRATCH TEST, ZIPPER TEST, APLEY'S SCRATCH TEST)**Purpose**

- This test is used to test shoulder and upper body flexibility which is important in functional tasks such as combing one's hair, putting on overhead garments and reaching for a seat belt.

Content

- The client is asked to scratch his or her back while reaching over the head with one hand and behind the back with the other hand. The test requires abduction and lateral rotation of one shoulder and adduction and medial rotation of the other shoulder.

Equipment

- Ruler or tape measure

Protocol

- This test is done in the standing position. The client is asked to place one hand behind the head and back over the shoulder, and reach as far as possible down the middle of his/her back, with his/her palm touching their body and their fingers directed downwards.
- The client is then asked to place his/her other arm behind their back, palm facing outward and fingers upward and to reach up as far as possible attempting to touch or overlap the middle fingers of both hands.
- The tester directs the client so that their fingers are aligned, and then measure the distance between the tips of the middle fingers.
- If the fingertips touch then the score is zero. If they do not touch, measure the distance between the finger tips (a positive score); if they overlap, measure by how much (a negative score).
- Practice two times, and then test two times. Stop the test if the client experiences pain.
- Record the best score to the nearest centimeter or 1/2 inch.



Performance Standards

Women

Age	Below Average	Average (inches)	Above Average
60-64	> 3.0	3.0 to 1.5	< 1.5
65-69	> 3.5	3.5 to 1.5	< 1.5
70-74	> 4.0	4.0 to 1.0	< 1.0
75-79	> 5.0	5.0 to 0.5	< 0.5
80-84	> 5.5	5.5 to 0	< 0
85-89	> 7.0	7.0 to -1.0	< -1.0
90-94	> 8.0	8.0 to -1.0	< -1.0

Men

Age	Below Average	Average (inches)	Above Average
60-64	> 6.5	6.5 to 0	< 0
65-69	> 7.5	7.5 to -1.0	< -1.0
70-74	> 8.0	8.0 to -1.0	< -1.0
75-79	> 9.0	9.0 to -2.0	< -2.0
80-84	> 9.5	9.5 to -2.0	< -2.0
85-89	> 10.0	10.0 to -3.0	< -3.0
90-94	> 10.5	10.5 to -4.0	< -4.0

References

1. Edwards TB, Bostick RD, Greene CC, Baratta RV, Drez D. (2002). Inter-observer and intra-observer reliability of the measurement of shoulder internal rotation by vertebral level. *J Shoulder Elbow Surg*; 11:40-42.
2. Hoving JL, Buchbinder R, Green S, Forbes A, Bellamy N, Brand C, Buchanan R, Hall S, Patrick M, Ryan P, Stockman A. (2002). How reliably do rheumatologists measure shoulder movement? *Ann Rheum Dis*; 61: 612-616.
3. Jones CJ, Rikli RE. (2002). Measuring functional fitness of older adults. *The Journal on Active Aging*, March April: 24-30
4. Konin JG, Wiksten DL, Isear JA, Brader H. *Special tests for orthopedic examination*. 3rd ed. Thorofare, NJ: SLACK incorporated; 2006.
5. Rikli RE, Jones CJ. (1999). Development and validation of a functional fitness test for community-residing older adults. *Journal of Aging and Physical Activity*; 7: 129-161.
6. Róžańska-Kirschke A, Kocur P, Wilk M, Piotr Dylewicz P. (2006). The Fullerton Fitness Test as an index of fitness in the elderly. *Medical Rehabilitation*; 10(2): 9-16.

Functional Reach & *Multidirectional Reach*

Functional Reach is item #8 in the Berg Balance Scale

Directions:

Using a yardstick mounted on the wall at shoulder height, ask the subject to position themselves close to, but not touching the wall with their arm outstretched and hand fisted. Take note of the starting position by determining what number the MCP joints line up with on the yardstick. Have the subject reach as far forward as possible in a plane parallel with the measuring device.

Instructions: "Reach as far forward as you can without taking a step, keeping your feet flat on the floor, and keeping your hand at the level of the ruler."

They are free to use various reaching strategies. Take note of the end position of the MCP joints against the ruler, and record the difference between the starting and ending position numbers. If they move their feet, that trial must be discarded and the trial repeated. Guard the subject as the task is performed to prevent a fall. Subjects are given two practice trials, and then their performance on an additional three trials is recorded and averaged. *HINT: to prevent a starting position with the scapula protracted, have the person hold both arms out horizontally. If the fingers match, they are not protracting. Then lower the non-testing arm and begin the test.*

Scores less than 6 or 7 inches indicate limited functional balance.

Most health individuals with adequate functional balance can reach **10 inches** or more.

Instructions to the patient:

Please reach as far forward as you can without losing your balance. Keep your feet on the floor. You are not allowed to touch the wall or the ruler as you reach. You will have two practice trials and then I will record the distance that you reach forward.

Criteria to stop the test:

The patient's feet lifted up from the floor or they fell forward. Most patients fall forward with this test. The therapist should guard from the front as that is the direction that you reach forward.

Duncan P, Weiner D, Chandler J, et al. Functional reach: a new clinical measure of balance. *J of Gerontol* 1990; 45: M192-197.

Multidirectional Reach

1. Forward (same as Functional Reach)
2. **Backward:** the starting position is the same as the Functional Reach. Keep the elbow extended and the arm reaching forward (along the yardstick), however the person leans backward as far as possible.
3. **Sideway to the right:** stand with back to wall, and right elbow extended with arm reaching along the level of the yardstick (without touching yardstick or the wall). Lean to the right as far as possible.
4. **Sideways to the left.**

Reference Values: (mean age in study was 74)

- Forward 8.9 ± 3.4
- Backward 4.6 ± 3.1
- Right 6.2 ± 3.0 Left 6.6 ± 2.8

Newton R. (2001). Validity of the multidirectional reach test: A practical measure for limits of stability in older adults. *J Gerontol Med Sci* 56A: M248

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