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UWTSD Sport and Exercise Science Physiological Testing Protocols

Sit and Reach Flexibility Test

Taken From:

Lab 40

**Housh, T.J., Cramer, J.T., Weir, J.P., Beck, T.W. and
Johnson, G.O. (2016). Laboratory manual for
Exercise Physiology, Exercise Testing and Physical
Activity. London: Routledge.**

BACKGROUND

Flexibility is a measure of the range of motion at a specific joint. Just because an individual has a large range of motion at the shoulder joint does not mean the person is also “flexible” at the hip joint. Therefore, no single test can adequately represent overall body flexibility. However, many people experience low back pain, which is often related to poor flexibility in the low back and hamstring muscles. Therefore, the sit-and-reach test is the most commonly used measure of flexibility. The sit-and-reach test requires the subject to reach forward, stretching the muscles of the low back and hamstrings. In this laboratory experience, you will learn how to use the sit-and-reach test to evaluate an individual’s flexibility, and you will compare the results to norms for individuals of the same age and gender (see tables 40.1 and 40.2).

KNOW THESE TERMS & ABBREVIATIONS

- flexibility = a measure of the range of motion at a specific joint
- percentile rank = in this lab, a score between 1% and 99% that shows how the subject performed relative to others in the age and gender group. A percentile ranking of 70, for example, indicates that the subject’s low back and hamstring muscles are equal to or more flexible than 70% of the others in the age and gender group and less flexible than 30% of the others in the age and gender group.

PROCEDURES

1. Have the subject warm up by walking or riding a stationary cycle ergometer and by doing static stretching exercises.
2. Leg position: Have the subject sit down with shoes off with full extension at the knee and with the feet no more than 8 inches apart. The heels should be at the 23cm mark on the measuring scale (see note below).
3. Arm position: The arms should be extended straight forward with one hand over the top of the other, fingertips even, and palms down (see photo 40.1).
4. For the test, have the subject reach forward along the measuring scale and hold the position for 1 or 2 seconds. Record the point reached on worksheet 40.1, and repeat for a total of three trials.
5. Record on worksheet 40.1 the most distant point reached to the nearest cm. If the fingertips are uneven or if flexion at the knee occurs, the test should be repeated (see photo 40.2).

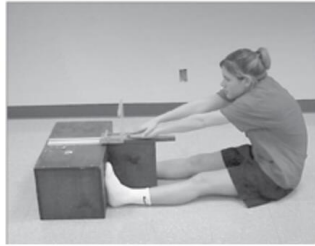


PHOTO 40.1 Position using a sit-and-reach box.



PHOTO 40.2 A partner can make sure that the knees do not flex.



PHOTO 40.3 Position using a ruler taped to the floor.

SIT-AND-REACH TEST FORM **Worksheet 40.1**

<i>Name</i> _____	<i>Date</i> _____	
<i>Gender</i> _____	<i>Age</i> _____	
Trial 1	Trial 2	Trial 3
Score (inches) _____	_____	_____
High score (inches) _____		
Percentile rank _____		
Classification _____		

Please note that this norm table is based on a sit-and-reach box with a 'foot-line' at 23cm – our sit-and-reach box has a 'foot-line' at 15cm, therefore you must add 8 cm to your score prior to reading off your percentile rank e.g. if you scored 17cm on our sit-and-reach box, this equates to 25cm on the table below.

Percentile Ranks and Normative Data for the Traditional Sit-and-Reach Test (cm)

AGE (y)		20-29		30-39		40-49		50-59		60-69	
Sex		M	F	M	F	M	F	M	F	M	F
Percentile rank	90	39	40	37	39	34	37	35	37	32	34
	80	35	37	34	36	31	33	29	34	27	31
	70	33	35	31	34	27	32	26	32	23	28
	60	30	33	29	32	25	30	24	29	21	27
	50	28	31	26	30	22	28	22	27	19	25
	40	26	29	24	28	20	26	19	26	15	23
	30	23	26	21	25	17	23	15	23	13	21
	20	20	23	18	22	13	21	12	20	11	20
	10	15	19	14	18	9	16	9	16	8	15

May be used for the traditional, backsaver, and V-sit tests. If values fall between the percentile ranks, interpolate the data. For example, if a male subject is 21 years old and achieves a result of 37 cm, then his percentile rank is 85.

Source: *Canadian Physical Activity, Fitness & Lifestyle Approach: CSEP-Health & Fitness Program's Appraisal and Counselling Strategy*, 3rd edition, © 2003. Reprinted with permission from the Canadian Society for Exercise