

***PEIA Weight Management Program  
Fitness Testing and Monthly Measurement Guidelines***

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Prepared for the PEIA Weight Management Program

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## Physical Exam (“Measurements”)

Program sites are required to conduct a physical exam, or “measurements”, including vital signs and body composition, at baseline and the end of every month through Phases I, II, and III. A

five component physical exam protocol is recommended during these meetings based on American College of Sports Medicine (2006) guidelines to include measurements conducted in the following order:

- 1) Resting heart rate;
- 2) Blood pressure;
- 3) Height, weight, and body mass index;
- 4) Circumference measurements; and
- 5) Body composition

**Table 1. Measurement data collection, method, and equipment needed**

<i>Measurement/data</i>	<i>Method</i>	<i>Equipment necessary</i>
Resting heart rate	a) radial or carotid pulse palpation, b) auscultation with a stethoscope, <b>OR</b> c) heart rate monitor	a) stopwatch b) Stethoscope c) portable heart rate monitor
Systolic blood pressure and diastolic blood pressure	JNC7 method	a) stethoscope, sphygmomanometer, and stopwatch, <b>OR</b> b) automatic blood pressure cuff
Height		Stadiometer
Weight		Scale
Circumferences	ACSM 7 <sup>th</sup> Ed. Procedures (2006; pg 60) <u>Required:</u> 1) waist 2) hips/buttocks <u>Optional:</u> 1) Abdomen 2) Arm 3) Calf 4) Forearm 5) Hips/thigh 6) Mid-thigh	Cloth tape measure with spring-loaded handle (Gulick)
Body fat percentage	a) Skinfold* (3-site or 7-site), b) Bioelectrical impedance, c) Near-infrared intercadence, <b>OR</b> d) Air displacement	a) Calipers b) Omron handheld or Tanita scale c) Futrex body fat measure instrument d) Bod Pod

NOTE: \* = skinfold measurements may use one of the following protocols: a) Three-site (chest, abdomen, thigh), b) Three-site (chest, triceps, subscapular), **or** c) Seven-site (chest, midaxillary, triceps, subscapular, abdomen, suprailiac, thigh)

## Fitness Testing

Providers are required to have an Exercise Physiologist (EP) conduct fitness tests for each participant as a basis for exercise prescription (ExRx) at baseline, and to reevaluate progress at the end of month 3 and the beginning of Phase III (month 13). Providers are further expected to have the EP reevaluate participant progress during months 6 and 9 (full fitness test optional). A four component fitness assessment protocol is recommended during these meetings based on American College of Sports Medicine (2006) guidelines to include measurement of:

- 1) Cardiovascular fitness;
- 2) Flexibility;
- 3) Muscle strength; and
- 4) Muscle endurance

WMP sites will have flexibility in the tests used based on available equipment and personnel. Critical, however, is that the same test be used for an individual at baseline and all follow-up assessments. The table, below, outlines the minimum testing required for each of the four fitness components, and optional tests that can be substituted if personnel and equipment are available. Exercise physiology professionals will need to use professional judgment when determining what tests to use to: a) limit potential harm to participants and b) maintain privacy based on space and time constraints

**Table 2. Fitness Testing Component Requirements**

Component	Minimum Required	Optional
Cardiovascular fitness	a) YMCA 3-minute step test, b) Six-minute walk test, <b>OR</b> c) Rockport one-mile walk test	a) Submaximal stress test <b>OR</b> b) Treadmill-based graded exercise test (GXT)
Flexibility	Sit-and-reach	
Muscle strength	1) Leg press 1, 6, or 8-RM <b>AND</b> 2) Bench press 1, 6, or 8-RM	
Muscle endurance	1) One-minute push-up <b>OR</b> YMCA bench press test <b>AND</b> 2) One-minute sit-up <b>OR</b> One-minute half sit-up	

**Table 3. Testing procedures and equipment required**

<b><u>Cardiovascular Fitness Test</u></b>	<b><u>Equipment</u></b>	<b><u>Data to report</u></b>
YMCA three-minute step	1) 12-inch (30.5 cm) bench 2) metronome or stopwatch 3) heart rate monitor or stethoscope	1) Number of completed steps 2) HR (bpm) 1-min post-test 3) Estimated VO <sub>2</sub> max
Six-minute walk	1) level walking course or treadmill 2) stopwatch 3) heart rate monitor or stethoscope	1) distance walked (meters) 2) estimated peak VO <sub>2</sub> * 3) SBP & DBP
Rockport one-mile walking	1) track or measured mile on level surface 2) stopwatch 3) heart rate monitor or stethoscope	1) HR (bpm) 2) estimated VO <sub>2</sub> max** 3) time on test
Submaximal stress	1) treadmill or cycle ergometer 2) ECG, heart rate monitor, or stethoscope	1) estimated VO <sub>2</sub> max 2) time on test 3) SBP, DBP, and HR (last minute of each stage)
Graded exercise test (GXT)	1) treadmill 2) ECG, heart rate monitor, or stethoscope	1) estimated VO <sub>2</sub> max 2) time on test 3) SBP, DBP, HR, and RPE (last minute of each stage)
<b><u>Flexibility Test</u></b>	<b><u>Equipment</u></b>	<b><u>Data to report</u></b>
a) Canadian Trunk Forward Flexion	1) Sit-and-reach box (flexometer)	Best stretch (in centimeters)
b) YMCA sit-and-reach	1) Yardstick 2) Masking tape	Best stretch (in centimeters)
<b><u>Muscle Strength Test</u></b>	<b><u>Equipment</u></b>	<b><u>Data to report</u></b>
1RM leg press	Leg press/squat machine	1) final weight lifted <b>AND</b> 2) weight lifted/body weight ratio
1RM bench press	Bench press equipment (free weights or resistance machine)	1) final weight lifted <b>AND</b> 2) weight lifted/body weight ratio
<b><u>Muscle Endurance Test</u></b>	<b><u>Equipment</u></b>	<b><u>Data to report</u></b>
One-minute push-up	1) Stopwatch or clock with second hand 2) A mat (optional)	Number of repetitions
One-minute sit-up	1) Stopwatch or clock with second hand 2) A mat (optional)	Number of repetitions
One-minute half sit-up	1) Stopwatch or clock with second hand 2) A mat (optional) 3) Four 6" (15 cm) strips of self-adherent Velcro perpendicular to body 3.5" (9 cm) apart (insures 30 degree spinal flexion) placed rough side up (optional)	Number of repetitions

NOTE: \* = Use ACSM (2006) pg 70 equations; \*\* = Use ACSM (2006) pg 298 equations