Section 4: Assessment

Chapter 11. Health, Wellness, and Fitness Assessments

- The general purposes of conducting physiological assessments are to collect baseline data to help fitness professionals develop personalized exercise programs.
- The PAR-Q+ is considered an appropriate minimal screening tool for conducting a HRA.
- Fitness professionals should also gather additional information, through the use of a HHQ, that may prove useful in selecting fitness assessments, designing exercise programs, and monitoring progress.
- A HHQ includes information about a client's medical history (e.g., injuries, surgeries, medications, and chronic disease) and lifestyle habits (e.g., exercise, diet, sleep, stress, and occupation).
- Resting and exercising heart rate and blood pressure responses provide valuable information pertaining to health risks and training adaptations.
- There are many anatomical locations that can be used to measure a client's RHR. However, for accuracy, safety, and ease of administering, NASM recommends that fitness professionals measure a client's radial pulse.
- Blood pressure (BP) is defined as the outward pressure exerted by blood on the arterial walls. BP scores are important because higher scores indicate greater risks for developing cardiovascular disease, which can become life-threatening. A normal BP reading is less than 120/80 mm Hg.
- Anthropometry is the field of study of the measurement of living humans for purposes of understanding physical variation in size, weight, and proportion.
- Many different anthropometric measures exist, including body fat assessments, BMI, and circumference measurements. Anthropometric measurements provide useful information related to predicting a client's risk for mortality and morbidity.
- There are many methods for measuring a client's body fat percentage, including underwater weighing, skinfold measurements, and bioelectrical impedance analysis. While all methods are valid, for ease of use, bioelectrical impedance is arguably the most popular method used in fitness facilities.
- Cardiorespiratory assessments help the fitness professional identify safe and effective starting exercise intensities as well as appropriate modes of cardiorespiratory exercise for clients. Examples of cardiorespiratory assessments include $\dot{V}O_{2max}$ testing, the YMCA 3-minute step test, the Rockport walk test, and the 1.5 mile run test.
- $\dot{V}O_{2max}$ testing is considered the gold standard for identifying a client's level of cardiorespiratory fitness, but it requires specialized equipment and training to conduct.

In addition, it requires the client to exert maximal effort. Consequently, this test is not commonly used outside of exercise laboratories or medical facilities.

- The talk test is an informal cardiorespiratory assessment used to gauge the intensity of cardiorespiratory activity based on the client's ability to hold a conversation.
- The VT1 test is an incremental test performed on any device (e.g., treadmill, bike) that gradually progresses in intensity level and relies on the interpretation of how a person talks to determine a specific event at which the body's metabolism undergoes a significant change. A key point to this protocol is to remember that it is an aerobic test that aims to estimate the intensity where the body is using a balance of fuels (i.e., 50% fat, 50% carbohydrates).
- The VT2 talk test measures the intensity where the body can work at its highest sustainable steady-state intensity for more than a few minutes.

Chapter 12. Posture, Movement, and Performance Assessments

- Static posture is typically assessed in standing position and is used to identify the three postural distortions: pes planus distortion syndrome, upper crossed syndrome, and lower crossed syndrome.
- Pes planus distortion syndrome is characterized by flat feet, knee valgus, and internally rotated and adducted hips.
- Lower crossed syndrome is characterized by an anterior pelvic tilt and excessive lordosis of the lumbar spine.
- Upper crossed syndrome is characterized by a forward head and protracted shoulders.
- The OHSA is the first movement assessment performed for clients and serves as the basis for all other movement assessments. It evaluates dynamic posture, core stability, and neuromuscular control of the whole body during a squatting motion.
- During the OHSA, notate all movement impairments to identify potential muscle imbalances. From the anterior view, look for feet turning out or knees caving in. From the lateral view, look for low-back arching, excessive forward lean of the torso, or arms falling forward.
- The single-leg squat assessment should be used by clients who have performed well in the OHSA, or if the fitness professional is considering single-leg exercises in their programming. This test is a good assessment of an individual's ability to balance, which is an important functional consideration for activities of daily living and exercise programming.
- Pushing and pulling assessments evaluate function of the upper extremity and concurrent core stability. They can be used as an intake assessment or an integrated part of the actual programming.
- When performing pushing or pulling assessments, look for the following movement impairments: low-back arching, shoulders elevating, or head jutting forward.

- Performance assessments can be used for clients looking to improve athletic performance, and measure maximal strength, power, muscular endurance, and speed and agility.
- The push-up test measures muscular endurance of the upper extremities during a pushing movement.
- The bench press and squat strength assessments measure maximal strength capabilities. These tests are advanced assessments for strength-specific goals and may not be suitable for clients with limited experience with resistance training.
- The vertical jump and long jump assessments measure lower-body power.
- The LEFT test is designed to test lateral speed and agility. LEFT is considered an advanced assessment for speed and performance-specific goals.
- The 40-yard dash assessment evaluates reaction capabilities, acceleration, and maximal sprinting speed.
- The pro shuttle (5-10-5) test assesses acceleration, deceleration, agility, and control. This test is most appropriate for clients with athletic goals seeking to assess agility and sprinting speed.
- All assessments need to be sequenced in a specific order to help guarantee accurate results. Non-fatiguing assessments, such as a preparticipation health screening and physiological and body composition assessments, should be conducted prior to posture, movement, cardio, and performance assessments.
- Fitness professionals should always use caution when implementing movement and performance assessments with their clients. Certain populations, such as overweight or obese, youths, older adults, and prenatal clients, may need to modify or avoid certain movement and performance assessments. Some assessments are not applicable because they do not relate to the client's goals. Other assessments may cause safety concerns.