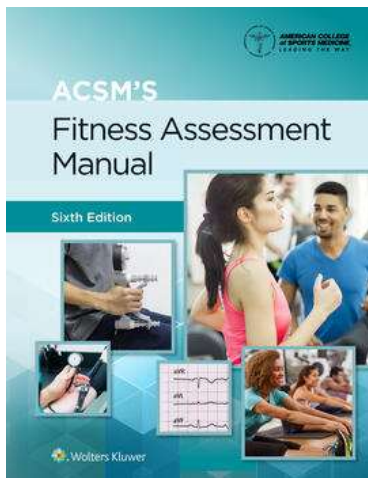




ACSM's Fitness Assessment Manual, **6th edition**

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The American College of Sports Medicine (ACSM) founded in 1954 is the largest sports medicine and exercise science organization in the world. With more than 50,000 members and certified professionals worldwide, ACSM is dedicated to improving health through science, education, and medicine. ACSM members work in a wide range of medical specialties, allied health professions, and scientific disciplines. Members are committed to the diagnosis, treatment, and prevention of sports-related injuries and the advancement of the science of exercise. The ACSM promotes and integrates scientific research, education, and practical applications of sports medicine and exercise science to maintain and enhance physical performance, fitness, health, and quality of life. **For more information, visit www.acsm.org, www.acsm.org/facebook, and www.twitter.com/acsmnews.**

Preparticipation Health Screening and Evaluation

CHAPTER OUTLINE

Rationale for Preassessment Screening

Informed Consent

- The Informed Consent Process
- Explanation of Procedures

Exercise Preparticipation Health Screening

- ACSM Preparticipation Screening Algorithm
- Physical Activity Readiness Questionnaire for Everyone
- Exercise Testing
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Other Health Issues to Consider

- Understanding Medication Usage

Rationale for Risk Assessment

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- Resting Blood Pressure
- Heart Rate

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- Blood Sampling Methods
- Standard Precautions
- Interpretation

Obesity

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- Interpretation

Physical Activity

- Subjective Assessment
- Objective Assessment
- Interpretation

Summary

Laboratory Activities

- Readiness Assessment Using ACSM's Exercise Preparticipation Health Screening Questionnaire for Exercise Professionals
- Evaluation of Medications Before Participation in a Physical Fitness Evaluation
- Administering an Informed Consent
- Resting Blood Pressure and Heart Rate Assessments
- Body Mass Index Assessment
- International Physical Activity Questionnaire Assessment

References

RATIONALE FOR PREASSESSMENT SCREENING

Physical fitness assessment procedures range from those requiring no exercise to those in need of vigorous or even maximal physical exertion. The risk associated with conducting assessments can range from no risk at all to a serious risk to the individual. If the assessments are limited to nonexercise procedures posing no risk (e.g., a skinfold measurement for body composition), there would be no need to perform a preassessment screening. However, because exercise-based assessments pose both cardiovascular (CV) and musculoskeletal injury (MSI) risks, a fitness assessment requiring exercise will also require a preassessment screening. The individual risks are related to both the intensity of the exercise and the activity habits of the client. The *American College of Sports Medicine's (ACSM) Guidelines for Exercise Testing and Prescription, Eleventh Edition (GETP11)* emphasizes this point stating, “the risk for activity-associated sudden cardiac death (SCD) and acute myocardial infarction (AMI) is known to be highest among those with underlying cardiovascular disease (CVD) who perform unaccustomed vigorous physical activity (PA).” More specific information about CVD risks associated with exercise can be found in *Chapter 1 of ACSM's GETP11*, with summarized data about event rates found in tables 1.3 to 1.5. Similarly, the risk of MSIs are greater in those individuals with known musculoskeletal diseases, previous injuries, exercise intensity, the type of activity, as well as in those who are inactive. It is therefore critical to know the health and activity history of all individuals who will be performing fitness assessments involving exercise.

INFORMED CONSENT

The first step in the process of a fitness assessment is completion of the informed consent. Therefore, the first contact most individuals have with a program is with the person who administers the informed consent and conducts the risk screening. A client's impression of a program may thus depend on this first contact with the staff. Thinking about fitness testing may create anxiety in the client, and the test results may create other unpleasant feelings. Every effort should be made to help the client relax and focus on the beneficial information afforded from the results of the fitness assessment. Although the exact approach may vary somewhat depending on the client's personality, performing this initial stage of the assessment with calm professionalism is recommended.

The privacy of the client's health information is paramount and should be protected as described in the Health Insurance Portability and Accountability Act (HIPAA) (1,2). Completion of the informed consent must precede the health risk appraisal because determination of the health risk status will require the exchange of private health information and may require procedures that involve physical risk (e.g., blood testing). In addition, if the fitness assessment requires exercise, there are risks involved.

The essential steps in executing the informed consent are the following:

- Explaining the purpose of the assessments
- Describing the procedures to be used
- Describing the risks and discomforts associated with the assessments
- Describing the benefits obtained from the assessments
- Describing alternatives (if any)
- Describing the responsibilities required of the client
- Encouraging the client to ask questions at any time
- Explaining how data will be handled (confidentiality)
- Explaining that the client can withdraw his or her consent and stop the assessment process at any time

An example of an informed consent form is provided in Box 2.1; however, there are many variations in informed consent available from different sources. All professionals performing fitness assessments should take time to find a standard form that closely matches a given facility's needs and assessments. Modifications to the form can be made to fit specific needs of the fitness assessment program, and it is recommended that legal counsel review the final form to limit the chances of legal liability. Finally, it is essential that different informed consent forms be used for each different component of a program (i.e., assessments, exercise programs, and research projects).

Box 2.1 Sample of Informed Consent Form for a Symptom-Limited Exercise Test

Informed Consent for an Exercise Test

1. Purpose and Explanation of the Test

You will perform an exercise test on a cycle ergometer or a motor-driven treadmill. The exercise intensity will begin at a low level and will be advanced in stages depending on your fitness level. We may stop the test at any time because of signs of fatigue or changes in your heart rate, electrocardiogram, or blood pressure or because of symptoms you may experience. It is important for you to realize that you may stop when you wish because of feelings of fatigue or any other discomfort.

2. Attendant Risks and Discomforts

There exists the possibility of certain changes occurring during the test. These include abnormal blood pressure; fainting; irregular, fast, or slow heart rhythm; and, in rare instances, heart attack, stroke, or death. Every effort will be made to minimize these risks by evaluation of preliminary information relating to your health and fitness and by careful observations during testing. Emergency equipment and trained personnel are available to deal with unusual situations that may arise.

3. Responsibilities of the Participant

Information you possess about your health status or previous experiences of heart-related symptoms (e.g., shortness of breath with low-level activity; pain; pressure; tightness; heaviness in the chest, neck, jaw, back, and/or arms) with physical effort may affect the safety of your exercise test. Your prompt reporting of these and any other unusual feelings with effort during the exercise test itself is very important. You are responsible for fully disclosing your medical history as well as symptoms that may occur during the test. You are also expected to report all medications (including nonprescription) taken recently and, in particular, those taken today to the testing staff.

4. Benefits to Be Expected

The results obtained from the exercise test may assist in the diagnosis of your illness, in evaluating the effect of your medications, or in evaluating what type of PAs you might do with low risk.

5. Inquiries

Any questions about the procedures used in the exercise test or the results of your test are encouraged. If you have any concerns or questions, please ask us for further explanations.

6. Use of Medical Records

The information that is obtained during exercise testing will be treated as privileged and confidential as described in the Health Insurance Portability and Accountability Act (HIPAA) of 1996. It is not to be released or revealed to any individual, except your referring physician, without your written consent. However, the information obtained may be used for statistical analysis or scientific purposes with your right to privacy retained.

7. Freedom of Consent

I hereby consent to voluntarily engage in an exercise test to determine my exercise capacity and state of CV health. My permission to perform this exercise test is given voluntarily. I understand that I am free to stop the test at any point if I so desire.

I have read this form, and I understand the test procedures that I will perform and the attendant risks and discomforts. Knowing these risks and discomforts, and having had an opportunity to ask questions that have been answered to my satisfaction, I consent to participate in this test.

Date

Signature of Patient/Participant

Date

Signature of Witness

Date

Signature of Physician or Authorized Delegate

The Informed Consent Process

The informed consent is not just a form requiring a signature; rather, it is a process of documentation that attests to the fact that a clear communication has taken place between the individual who is desiring to have the fitness assessment and the professional who will be administering the assessments. It is through the process of articulating the purposes, risks, and benefits of the assessment that professionals help their clients have the knowledge and understanding needed to make informed decisions about whether to complete the fitness assessment. Although the evidence suggests that for most people expected benefits of performing the assessment outweigh the associated risks, each client needs to make an informed decision on the basis of personal factors.

To begin the informed consent process, the client should carefully read the entire form or have the form read aloud while following along. Next, the professional should review some of the key elements of the assessment, including purpose, risks and benefits, and overview of procedures (Figure 2.1). One key point of emphasis is that the client will play an important role in the process. Specifically, the client has the responsibility of informing test administrators of any problems experienced (past, present, and during the physical fitness assessment) that may increase the risk of the test or preclude participation. This information is essential to minimize the risks involved with the assessment and can also optimize the benefits. Finally, the client should be allowed and encouraged to ask questions before signing the informed consent.

Explanation of Procedures

The professional should be prepared to provide a brief description of each assessment to be performed and answer client questions in detail. The following are examples of some common fitness assessments and sample explanations of each. Detailed reviews of all the fitness assessments are provided in Chapters 3, 4, 5, 7, and 8.

- Anthropometry or body composition: “This test is being performed to obtain an estimate of your total body fat percentage. We will determine your body fat percentage by taking measurements with a set of calipers at different sites on your body. We do this by pinching and pulling on the skin at these different locations. We will also measure some body girths with a tape measure to provide an indication of fat distribution on your body.”
- Cardiorespiratory fitness: “This test is being performed to obtain an estimate of your cardiorespiratory fitness. The test will require you to exercise on a stationary cycle or a treadmill for 6 to 12 minutes. The intensity of the test will be limited to a level below your maximal exertion point. Your heart rate (HR) and blood pressure (BP) response will be monitored throughout the duration of the test.”
- Flexibility: “Because range of motion (ROM) is joint specific, measuring the ROM of different joints by using a goniometer is necessary. The goniometer is similar to a protractor. We will place the goniometer at a given joint line by aligning the axis (pin) of the goniometer and your given joint’s axis of rotation and measure the angle between the stabilizing and movement arms (measurement is expressed in degrees).”
- Muscular fitness: “Although there is no one test that can measure your total muscular fitness, this test is being performed to obtain a measure of your muscle strength by having you squeeze a hand grip dynamometer as hard as you can. We will also measure muscle endurance by having you perform as many push-ups as you can.”



Figure 2.1 An important aspect of the informed consent process is reviewing key elements with the client and answering any questions the client may have.