

Preparticipation Health Screening & Risk Stratification

(Ron Jones, MS, ACSM Health/Fitness Instructor, Corporate Wellcoach)



According to the American College of Sports Medicine (ACSM), "it is important to provide an initial screening of participants relative to risk factors and/or symptoms for various chronic cardiovascular, pulmonary, and metabolic diseases to optimize safety during exercise testing and participation and to develop a sound and effective exercise prescription. The purposes of the preparticipation health screening include the following:

- Identification and **exclusion of individuals** with medical contraindications to exercise.
- Identification of **individuals at increased risk for disease** because of age, symptoms, and/or risk factors who should undergo a **medical evaluation and exercise testing before starting an exercise program.**
- Identification of persons with clinically significant disease who **should participate in a medically supervised exercise program.**
- Identification of individuals with **other special needs.**

Health screening procedures must be valid, cost-effective, and time-efficient. Procedures range from self-administered questionnaires to sophisticated diagnostic tests. Exercise program professionals should establish pre-participation screening procedures that are appropriate for their clients or a facility's target population. The Physical Activity Readiness Questionnaire (PAR-Q) has been recommended as a minimal standard entry into moderate-intensity exercise programs. The PAR-Q was designed to identify the small number of adults for whom physical activity might be inappropriate or those who should receive medical advice concerning the most suitable type of activity.

In addition, the ACSM and American Heart Association (AHA) have co-published a preparticipation screening questionnaire specifically designed for health/fitness facilities. Many sedentary individuals can safely begin a moderate-intensity physical activity program without the need for extensive medical screening. However, it is recommended that persons interested in participating in organized exercise programs be evaluated for selected risk factors associated with the development of coronary artery disease (CAD) and for signs or symptoms suggestive of cardiovascular, pulmonary, or metabolic disease."

Box 1. Major Signs or Symptoms Suggestive of Cardiovascular & Pulmonary Disease*

- Pain, discomfort (or other anginal equivalent) in the chest, neck, jaw, arms, or other areas that may be due to ischemia
- Shortness of breath at rest or with mild exertion
- Dizziness or syncope
- Orthopnea or paroxysmal nocturnal dyspnea
- Ankle edema
- Palpitations or tachycardia
- Intermittent claudication
- Known heart murmur
- Unusual fatigue or shortness of breath with usual activities

**These symptoms must be interpreted in the clinical context in which they appear because they are not all specific for cardiovascular, pulmonary, or metabolic disease.*

- ✓ **CAUTION:** For additional questions and concerns regarding the preparticipation health screening and risk stratification guidelines, or to review AHA guidelines, please see your physician or professional health-care provider. DO NOT exercise if the guidelines suggest that you need clinical evaluation or a physician's release. DO NOT exercise if you do not feel comfortable starting an exercise program without the prior counsel or your physician or professional health-care provider.

Source: ACSM's Guidelines for Exercise Testing & Prescription. 6th Ed. (2000).

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Table 1. Coronary Artery Disease Risk Factors Thresholds*

Risk Factors: (Positive)	Defining Criteria
Family History	Myocardial infarction, coronary revascularization, or sudden death before 55 years of age in father or other male first-degree relative (i.e., brother or son), or before 65 years of age in mother or other female first-degree relative (i.e., sister or daughter)
Cigarette Smoking	Current cigarette smoker or those who quit within the previous 6 months.
Hypertension	Systolic blood pressure of ≥ 140 mm Hg or diastolic ≥ 90 mm Hg, confirmed by measurements on at least 2 separate occasions, or on antihypertensive medication.
Hypercholesterolemia	Total serum cholesterol of >200 mg/dl (5.2 mmol/L) or high-density lipoprotein cholesterol of <35 mg/dL (0.9 mmol/L), or on lipid-lowering medication. If low-density lipoprotein cholesterol is available, use >130 mg/dL (3.4 mmol/L) rather than total cholesterol of >200 mg/dL.
Impaired Fasting Glucose	Fasting blood glucose of ≥ 110 mg/dL (6.1 mmol/L) confirmed by measurements on at least 2 separate occasions
Obesity	Body Mass Index of ≥ 30 mg/m ² , or waist girth of >100 cm (≈ 39.4 inches).
Sedentary Lifestyle	Persons not participating in a regular exercise program or meeting the minimal physical activity recommendations from the U.S. Surgeon Generals' Report.
Risk Factors: (Negative)	
High Serum HDL Cholesterol	>60 mg/dL (1.6 mmol/L)

*Use with Initial ACSM Risk Stratification Table 2.

Table 2. Initial ACSM Risk Stratification

Low Risk *(≤ 1 risk factor)	Younger individuals (<45 men; <55 women) who are asymptomatic and meet *no more than one risk factor threshold from Table 1 .
Moderate Risk *(≥ 2 risk factors)	Older individuals (men ≥ 45 ; women ≥ 55) or those who meet the threshold for *two or more risk factors from Table 1 .
High Risk *(≥ 1 "Major" signs/symptoms)	Individuals with one or more signs/symptoms listed in Box 1 or known cardiovascular, pulmonary, or metabolic disease.

Table 3. ACSM Recommendations for (A) Current Medical Examination* & Exercise Testing Prior to Participation and (B) Physician Supervision of Exercise Tests

	Low Risk	Moderate Risk	High Risk
A.			
Moderate exercise	Not necessary	Not necessary	Recommended
Vigorous exercise	Not necessary	Recommend	Recommended
B.			
Submaximal test	Not necessary	Not necessary	Recommended
Maximal test	Not necessary	Recommended	Recommended

*Within the past one year.

* Ron Jones (9.4.07)