



## Exercise ECG Testing Recommendations [video transcript]

Generally it is not necessary to recommend exercise electrocardiogram (ECG) testing prior to generalized physical activity programming, particularly when those programs involve low to moderate levels of physical activity.

It is important here to know the definitions of low, moderate and vigorous activity levels. 'Low level' exercise is anything below 40% of VO<sub>2</sub> maximum (or aerobic capacity maximum). 'Moderate level' exercise is defined as anything between 40 and 60% of VO<sub>2</sub> maximum (or aerobic capacity maximum), or 3-6 metabolic units (METs). 'Vigorous' exercise is defined as anything greater than 60% of VO<sub>2</sub> maximum (or aerobic capacity maximum) or anything greater than 6 METs (or 6 metabolic units).

When recommending more systematic approaches to physical activity—for example, prescribing specific exercise programs that involve higher-risk patients for example, [patients who have...] diabetes or heart disease, or when advising more intensive exercise, then it is very much recommended that you consider a pre-program exercise ECG test to rule out ECG abnormalities and potential exercise-associated cardiovascular symptoms.

To provide guidance on the need for a medical examination and exercise test before participation in a moderate- to vigorous-intensity exercise program, the American College of Sports Medicine suggests the recommendations presented in the Decision Tree Figure for determining when a medical examination and diagnostic exercise test are appropriate.

Although it is recommended that exercise testing for those individuals classified as low risk is not a necessity, the information gathered from an exercise test may be useful in establishing a safe and effective exercise prescription for these individuals.

The exercise testing recommendations found in the Decision Tree Figure reflect the notion that the risk of cardiovascular events, for example, heart attack, increases as a direct function of exercise intensity and the presence of cardiovascular disease (CVD) risk factors.

The criteria for performing an exercise ECG are dependent upon the patient's health status, the number of cardiovascular risk factors and the level of activity.

With regard to the Decision Tree Figure, note that the risk factors in this decision tree are not inconsistent with traditional Framingham CVD risk factors but specifically include those risk factors that best predict cardiovascular complications, for example heart attack, as a result of physical activity.

In the Decision Tree Figure, you will note that there are three branching levels of risk stratification: low, moderate and high risk. On the branch to the left, the low risk branch, for example, an asymptomatic individual with one or fewer risk factors, a medical exam and exercise ECG would not be necessary, whether they are doing moderate-level exercise or vigorous-level exercise. Whereas in the middle branch, the moderate risk—an individual that is asymptomatic and that has two or more total risk factors, a medical exam and exercise test

would not be recommended if they were doing moderate-level exercise, but would be recommended if they were doing vigorous levels of activity. And on the right branch, under high risk—defined by a symptomatic individual with known cardiovascular, pulmonary [disease] or diabetes, then a medical exam and exercise ECG would be required whether they are doing moderate level of exercise or vigorous level of exercise.