

Preparation for Aerobic Fitness Testing

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Cardiovascular disease (CVD) is the leading cause of death in many developed nations such as the United States, Canada and Australia. Cardiovascular disease is very complex with a multitude of factors. However, lifestyle (e.g., diet, smoking and physical inactivity) seems to be the major contributor to this disease. The good news is that lifestyle is the most modifiable risk factor. For the personal trainer, this means getting their clients active. Aerobic exercise is one of the best ways to reduce CVD risk. However, before starting an exercise program, it is important to assess your clients' cardiovascular fitness. And before we begin, we should cover some very important pre-screening forms and appraisals.

A good place to start prior to testing is the gathering of health information. This will help to determine what type of test to use with your clients. A good example would be the [Health and Lifestyle Questionnaire](#). After that, it is important that some level of screening be completed. In this case, I suggest the [Physical Activity Readiness Questionnaire](#). Depending on the answers to the questionnaires, you may also need to have a [Physicians Approval](#) form completed prior to testing.

Once you have completed all of the necessary paper work, you should give these pre-test instructions to your clients two or more days in advance:

- Get six to eight hours of sleep the night before the test.
- Drink plenty of fluids during the 24-hour period before the test.
- Do not engage in strenuous physical activity the day of the test.
- Refrain from eating, smoking and drinking alcohol or caffeine for three hours prior to the test.
- Wear comfortable clothing, socks and athletic shoes.

Prior to Exercise

Once your clients show up, you should then go through a preappraisal screening, which includes an observation, resting heart rate and resting blood pressure reading. The testing should be cancelled or postponed if the clients:

- Are pregnant (ask all females) and do not have the consent of their physician.
- Demonstrate difficulty breathing while at rest.
- Cough persistently.
- Are ill or have a fever.
- Have lower extremity swelling.
- Are currently on certain medications for cardiovascular or metabolic function.
- Have clearly ignored the preliminary instructions (e.g., have just eaten a heavy meal, alcohol on breath, etc.)
- For any other reason not mentioned here that you believe will predispose them to unnecessary discomfort or risk.

Resting Heart Rate

- Have the client sit in a comfortable chair with arm supports and rest with the feet flat on the floor for at least five minutes before measuring the resting heart rate.
- Palpation of the radial artery or the carotid pulse.
- Use a 15-second count – start a watch at the same time as the first heart beat (count “0”).
- Convert the 15-second count into beats per minute by multiplying by four.
- If the resting heart rate is 100 beats per minute or greater, wait an additional five minutes and take the reading again.
- If the resting heart rate is 100 beats per minute or greater after the second reading, then the client should be referred to a physician.

Resting Blood Pressure

- This assessment will require specialized equipment such as a stethoscope and sphygmomanometer or an Automatic Blood Pressure Monitor (ABPM).
- It is recommended that the personal trainer receive specialized training to perform this procedure, unless an ABPM is being utilized.
- Record the resting systolic and diastolic pressure to the nearest two mmHg.
- In the event that the resting systolic blood pressure is greater than 144 mmHg and or the resting diastolic blood pressure is greater than 94 mmHg, wait an additional five minutes, have the client sit quietly and take the reading again.

- If after the second reading the systolic and diastolic pressures are above the cut offs, refer them to a physician.

During Exercise

Once you are underway and performing the test, you should still monitor your clients. During each minute of the test, you should check for the following:

- Observational
 - Client asks to stop.
 - Physical or verbal manifestations of severe fatigue.
 - Onset of angina like symptoms.
 - Signs of poor perfusion (light-headed, confusion, skin discoloration, nausea, cold/clammy skin).
- Heart Rate
 - Failure of HR to rise with exercise.
- Blood Pressure
 - Significant drop (20 mmHg) in systolic BP or a failure of the systolic BP to rise with an increase in exercise intensity.
 - Excessive rise in BP.
 - Stop test if BP is >260 (systolic) or >115 (diastolic).
- Other
 - Equipment failure.
 - Client meets the termination criteria of the test or 85 percent of heart rate max.

If any of these signs occur, you should immediately terminate the test and begin an active recovery.

Post Exercise

After the clients have finished the exercise test, you should use active recovery as described in the test protocol for at least two to three minutes. After the active recovery, have clients sit and continue to monitor them every one to two minutes for at least four minutes. Signs to look for include:

- Observational
 - Signs of discomfort
 - Light-headedness
 - Confusion
 - Skin discoloration
 - Nausea
 - Cold/clammy skin
- Heart Rate
 - Heart rate not reducing and becoming stable.
- Blood Pressure
 - Blood pressure not stabilizing.

Before clients can leave the testing area, their heart rate must be less than 100 beats per minute, systolic blood pressure less than 145 mmHg and diastolic blood pressure less than 95 mmHg.

In summary, assessing the aerobic capacity of your clients is an important step in helping them to maintain an active lifestyle. However, it is vital for you to ensure your clients are well informed and properly screened prior to assessing their cardiovascular fitness. In addition, you should closely monitor them during and after exercise to ensure safety.

References:

1. Canadian Society for Exercise Physiology (2003). The Canadian physical Activity, Fitness and Lifestyle Approach (3rd edition). Canadian Society for Exercise Physiology. Ottawa, ON.
2. [Exercise Goals and Intent](#). Personal Training on the Net. December 2004.
3. [Health and Lifestyle Questionnaire](#). Personal Training on the Net. September 2004.
4. Heyward, V.H. (2002). Advanced Fitness Assessment and Exercise Prescription (2nd edition). Human Kinetics: Champaign, IL.
5. [Physical Activity Readiness Questionnaire](#). Personal Training on the Net. September 2004.
6. [Physicians Approval](#). Personal Training on the Net. September 2004.

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