

# *Clinical Commentary*

## Addressing Cardiovascular Risk as Part of Physical Therapist Practice- What about Practice Recommendations for Physical Therapists?

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### INTRODUCTION

Physical therapists routinely make decisions as to the intensity and type of exercise or physical activity they prescribe as part of a plan of care. Exercise is an important component of an evidence based treatment for many conditions treated in physical therapy settings, and is an essential component of improving health.<sup>1</sup> While the benefits of exercise are evident, exercise may present health risks to patients with certain cardiovascular, pulmonary, and metabolic diseases. Therefore, it is important that physical therapists make sound decisions to identify which exercise interventions are appropriate and safe for individual patients. Physical therapists in acute care or cardiac and pulmonary settings are guided by American Heart Association (AHA) guidelines<sup>2</sup> for activity restrictions, client monitoring, and medical clearance. Recommendations for exercise decision making or medical clearance in outpatient or community based physical therapy settings are limited. The American College of Sports Medicine (ACSM) guidelines for pre-exercise screening and risk stratification are intended for community settings, but it is unclear whether this system is applicable in outpatient physical therapy practice settings.<sup>3</sup> This commentary will review some implications and limitations of using the ACSM risk stratification system and medical clearance guidelines in outpatient physical therapy practice.

### PREVENTING EXERCISE-RELATED CARDIOVASCULAR EVENTS

Physical activity guidelines indicate that all individuals should participate in 30 minutes of moderate activity 5 days a week in order to gain health benefits and prevent cardiac events.<sup>4</sup> There is a small but clinically significant risk of cardiac events during exercise. Within fitness centers, estimates are of 1 death per 82,000 members and 1 death per 2.5 million workouts. The risk of exercise related acute myocardial infarction (AMI) is 6.75 times higher than

sudden cardiac death.<sup>5</sup> Vigorous exercise increases the rate of exercise related MI events. Since there is a risk of cardiac events during exercise, pre-exercise screening of individuals prior to the initiation of exercise programs in community settings is recommended. Screening questionnaires such as the Physical Activity Readiness Questionnaire (PAR-Q) are recommended for use in fitness centers, so that the screening can be conducted by individuals with minimal exercise or medical training.<sup>3,6</sup> Individuals with any risk factors are required to receive medical clearance before participating in exercise. All exercise facilities should have a pre-exercise screening procedure; however, screening procedures are variable in settings such as fitness facilities or worksite wellness programs.<sup>7</sup> The use of the PAR-Q is likely to be inappropriate in physical therapy settings, where the physical therapist can obtain a specific medical history from the patient and perform a more detailed medical screen.

A more appropriate tool for pre-exercise screening of exercise readiness in community settings might be the American College of Sports Medicine (ACSM) risk stratification for exercise professionals.<sup>8</sup> Cardiovascular risk is classified as low, moderate, or high based on the presence of well-defined risk factors. The ACSM risk stratification includes determining the need for medical clearance prior to exercise and the selection of the appropriate baseline aerobic capacity test (Table 1). This system relies on well educated exercise professionals to make these decisions. Similar systems exist in other countries.<sup>9</sup> While this stratification system may be useful, little data exist on the frequency by which physical therapists use existing pre-exercise screening of cardiovascular risk in clinical practice. In a survey of orthopaedic physical therapists, 75% of respondents performed some type of cardiovascular screening, but only 64% correctly used ACSM guidelines for risk stratification.<sup>10</sup> The type of screening cannot be determined from these data. Screening and decision making in cardiac rehabilitation settings are guided by the American Heart Association guidelines,<sup>11</sup> but these guidelines are designed for patients with current cardiovascular disease and are not as helpful for the apparently healthy population. Therefore, a clinically relevant question is whether the use of ACSM guidelines for cardiovascular risk stratification is appropriate for physical therapists.

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**Table 1. ACSM Cardiovascular Risk Stratification, Medical Clearance, and Baseline Testing Recommendations**

Category	Medical clearance	Exercise testing
Low risk	Not necessary	<ol style="list-style-type: none"> <li>1. Submaximal or maximal test</li> <li>2. No MD present</li> <li>3. Emergency procedures in place</li> </ol>
Vigorous exercise		
Moderate risk	Not necessary	<ol style="list-style-type: none"> <li>1. Submaximal or maximal test</li> <li>2. No MD present</li> <li>3. Emergency procedures in place</li> </ol>
Moderate exercise		
Moderate risk	Recommended	MD supervision recommended for maximal exercise testing
Vigorous exercise		
High risk	Recommended	MD supervision recommended for submaximal or maximal exercise testing
Moderate & vigorous exercise		
Adapted from the American College of Sports Medicine, Whaley MH, Brubaker PH, et al. <i>ACSM's Guidelines for Exercise Testing and Prescription</i> . 7th, 30th Anniversary ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2006.		

### RISK STRATIFICATION AND CLINICAL DECISIONS

The purpose of the ACSM risk stratification system is to identify individuals with medical conditions that should be excluded from exercise or who require medical clearance and/or medically supervised exercise programs.<sup>8</sup> Risk stratification categorizes patients into low, moderate, or high risk. Low risk are younger individuals with 1 cardiovascular risk factor, moderate risk are those individuals with 2 or more cardiovascular risk factors. These risk factors include age, obesity, lack of physical activity, smoking, abnormal lipid profile, hypertension, and abnormal blood glucose. Individuals are classified as high risk if they have a current cardiac, pulmonary or metabolic condition or signs and symptoms of a cardiopulmonary condition. In physical therapy practice, cardiovascular risk stratification can be captured from a medical screening assessment form, patient interview, and measurement of resting heart rate and blood pressure.

Medical clearance for exercise is recommended for all patients who are high cardiovascular risk and most patients who are moderate risk. The ACSM recommends that patients who are at moderate risk receive medical clearance if they are to begin a vigorous exercise program. In the apparently healthy but moderate risk group, vigorous exercise is defined as greater than 60% of aerobic capacity reserve (VO<sub>2</sub> reserve). Patients in physical therapy settings may have low levels of aerobic capacity compared to apparently healthy individuals; increasing the likelihood that they may inadvertently be performing vigorous exercise in the physical therapy setting. Medical clearance consists of a written release by the physician indicating that the patient is safe to begin exercise. The type and extent of medical release forms varies considerably, and is not well defined in the literature. If the ACSM guidelines

are to be followed then medical clearance procedures should be defined in physical therapy practices.

### IMPLICATIONS FOR PHYSICAL THERAPISTS

What would be the impact of using the ACSM risk stratification and medical clearance guidelines in outpatient physical therapy practice? The ACSM guidelines would be applicable for both outpatient physical therapy and fitness settings. How many patients would potentially require medical clearance? In applying the pre-exercise screening procedures identified in the Australian Sports Medicine system, 44% to 73% of individuals would require medical clearance before participating in exercise.<sup>12</sup> These numbers would have significant implications regarding medical costs and loss of time in physical therapy care if this group of individuals all sought physician visits prior to exercise participation in physical therapy settings. Could physical therapists be considered appropriate health care providers able to make exercise readiness decisions (medical clearance) in a safe and effective manner? Little data exist on the frequency of patients with moderate or high cardiovascular risk in outpatient physical therapy settings. Some information can be gathered by examining individual risk factors such as hypertension, obesity, and lack of physical activity in physical therapy practice. A review of patients with diabetes referred for outpatient care found that 65% had high blood pressure as measured clinically.<sup>13</sup> A survey of comorbidities in outpatient physical therapy practice demonstrated that 7% of patients had heart disease as a comorbidity, which would indicate high cardiovascular risk.<sup>14</sup>

Cardiovascular risk stratification status based on ACSM guidelines has been collected on patients in outpatient settings by Regis University entry-level DPT students as part of their clinical rotation requirements. Of the 244 cases analyzed from the mean age of the subjects was 43.27 years (SD ± 18 years) and 43.8% were classified as low cardiovascular risk, 37.50% as moderate risk, and 18.8 % as high-risk. Regis University transition DPT students also collected risk stratification data as part of a class assignment. In 158 patients from outpatient PT practices, 41% were classified as low risk, 39% as moderate risk, and 20% as high risk. If the ACSM guidelines were followed, then as many as 60% of patients would require medical clearance before adding aerobic exercise to their physical therapist plan of care. Additional data is needed to adequately characterize PT practice, but these data suggests that identification of cardiovascular risk status may impact physical therapist plan of care.

New guidelines are emerging regarding the need for medical clearance before exercise. For example, the Australian Sports Medicine Association indicates that for patients with well controlled cardiovascular disease or diabetes, no medical clearance is needed before starting low or moderate level exercise.<sup>9</sup> The recently published *Physical Activity Guidelines for Americans* indicates that apparently healthy adults who increase physical activity slowly do not need to consult a health care provider before starting exercise.<sup>15</sup>

A movement is underway to allow university-trained exercise specialists who hold bachelor's degrees to make some medical clearance decisions regarding exercise participation.<sup>16</sup> A graduate of an accredited physical therapist educational program has knowledge which often exceeds these bachelor's trained exercise specialists. Every accredited physical therapist curriculum addresses the study of exercise; including foundational knowledge, pathology, interventions, prescription, and precautions/ contraindications based on the Commission on Accreditation in Physical Therapy Education (CAPTE).<sup>17</sup> Accreditation items address this knowledge in the following criteria: CC 5.30a refers to aerobic capacity assessment, CC5.30m refers to muscle strength, power and endurance assessment, CC5.39a is therapeutic exercise intervention, and criteria CC5.50-5.52 address the physical therapists' role in prevention, health promotion, fitness, and wellness. In contrast, medical school curricula typically do not include the study of exercise, which often poorly prepares physicians for understanding the potential risks of exercise participation. Physical therapists' scope of practice also includes developing safe and effective exercise prescription for improving fitness in patients with chronic conditions.<sup>18</sup>

Thus, in both education and scope of practice, physical therapists have the knowledge to make well-educated decisions about exercise appropriateness particularly if the exercise is supervised in the physical therapy clinical setting. What types of patients under physical therapy care truly require additional medical clearance that is beyond the expertise of the physical therapist? Could physical therapists clear patients for exercise in lieu of what the ACSM calls medical clearance? Since the answers to these questions are unknown, it is time to develop new practice recommendations for exercise clearance that specifically target physical therapists and their clientele.

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