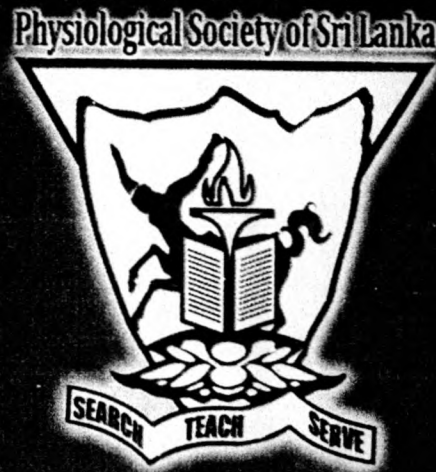


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### Cardiopulmonary Exercise Testing in Health and Disease

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Cardiopulmonary exercise testing (CPET) has recently become a popular non invasive clinical investigation. CPET is used to provide a global assessment of the integrative exercise response involving the pulmonary, cardiovascular, hematopoietic, neuropsychologic, and skeletal muscle systems. Since measurements are conducted concurrently it provides information that is not adequately reflected through the measurement of an individual organ system function. Hence it is useful in a wide spectrum of clinical applications to assess exercise tolerance, evaluation of undiagnosed exercise intolerance, exercise-related symptoms, pre operative assessment and in clinical decision making in cardiovascular and respiratory diseases.

CPET provides an assessment of both submaximal and peak exercise responses. All recordings are taken during a symptom-limited maximally progressive exercise tolerance test. It measures respiratory function by spirometry, respiratory gas exchange by oxygen uptake ( $\dot{V}O_2$ ), carbon dioxide output ( $\dot{V}CO_2$ ), and minute ventilation ( $\dot{V}E$ ). It assesses cardiac function by concomitant electrocardiographic recording, blood pressure monitoring, and pulse oximetry.

The analysis of  $\dot{V}O_2$  max and simultaneous assessment of heart rate, with the ventilatory parameters, anaerobic threshold and  $SaO_2$  are important. Determination of physiologic limitation is accomplished by analysis of ventilatory reserve ( $\dot{V}E/MVV$ ) and heart rate reserve (HRR). Additional CPET measurements and its patterns of response are being established for specific clinical diseases.

Overall CPET is a useful diagnostic investigation for clinical purposes. Its use can be optimised if the tests are conducted appropriately and proper norms are derived for the Sri Lankan population.

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