

## Procedure Descriptions

**Exercise Stress:** Standard exercise test on cycle ergometer. Measurements include resting 12-lead EKG, resting supine BP, seated 12-lead EKG, seated BP, seated SaO<sub>2</sub>. James protocol used based on BSA and/or technician impression. Test is designed to last 8-16 minutes. 12-lead EKG, BP and SaO<sub>2</sub> are all monitored during testing. Maximal exercise test based on age predicted HR max or volitional fatigue: recovery period of 5 minutes, when same measurements are taken. Using time to compare repeated Exercise stress tests can only be done if the protocol hasn't been modified.

**Metabolic Exercise Stress:** Same as Exercise Stress including mask to measure oxygen uptake/VO<sub>2</sub>. Metabolics are standard for patients with congenital heart disease, cardiomyopathy, and functional abnormalities. This should be done in most patients with exercise related symptoms of chest pain, dyspnea, early fatigue, light headedness, syncope, and palpitations. VO<sub>2</sub> will be used to compare repeated tests regardless of test modification. If test is not modified, time can also be used as a comparison. Metabolic information includes anaerobic threshold, respiratory rate, and data such as breathing reserve.

**Spirometry:** This testing is used to evaluate for dyspnea with exertion and frequent chest pain with exertion. This should be done on patients with multiple thoracotomies. Post testing is optional depending on symptoms and staff recommendation.

**Rest and Stress Echo with Continuous Monitoring:** This is a Metabolic Exercise stress test with pre and post echocardiography. Depending on diagnosis echo imaging may occur at each stage of exercise. This testing is done to identify wall motion abnormalities, ejection fraction changes, R/LOVTO, HOCM, and changes in pressure gradients.

### Special requests:

Autonomic dysfunction testing: Standard exercise test may also include metabolics. The addition is that the patient is to immediately stand post testing and not do 5 minute recovery pedaling, to recreate syncopal episode. While standing heart rate blood pressure and SaO<sub>2</sub> will be continuously monitored.

**Coarctation Protocol:** Metabolic Exercise Stress test with the addition of lower leg BP's pre and post testing.

**Long QT Protocol:** Standard exercise test may also include metabolics. The addition is the measuring of the QT on the EKG during rest, exercise and recovery. Patient is instructed to remain still and upright during rest and recovery.