



Aerobic Exercise Screening Stratification Tool

Disclaimer:

The Aerobics Exercise Screening Stratification Tool is a working document currently used within the Stroke Rehabilitation Service of St. Joseph's Care Group- Thunder Bay, adapted from and in partnership with Toronto Rehabilitation Institute – University Health Network (UHN). The information within the checklist has been developed by clinical experience and consensus of local experts, best practices and research available at the time of their development (June 2017). Choices reflected in these guidelines do not preclude the possibility of other approaches or practices also being valid and relevant.

Application of aerobic exercise testing and use of this stratification tool to guide decision-making related to safety of aerobic exercise testing at the level of the individual patient, and within specific contexts, remains the professional responsibility of the practitioner; the assessment described should not be considered absolute or a universal recommendation. Clinicians must also consider their own clinical judgment, patient preferences, and contextual factors such as resource availability in their decision-making processes about implementation of these recommendations. Moreover, healthcare professionals must at all times respect the legal and normative regulations of the regulatory bodies, in particular with regards to scopes of practice and restricted/protected activities, as these may differ provincially.

St. Joseph's Care Group and Toronto Rehabilitation Institute-UHN or any of the developers of this checklist, contributors, and supporting partners shall not be liable for any damages, claims, liabilities, costs, or obligations arising from the use or misuse of this material, including loss or damage arising from any claims made by a third party.

Aerobic Exercise Screening Stratification Tool

Term	Definition
Do Not Exercise	Do not proceed with formal aerobic exercise assessment. ACSM absolute contraindication to exercise testing.
Stress Test	Stress test or Cardiopulmonary Exercise Test recommended. Physician supervised graded exercise to maximum tolerance including 12-Lead ECG, heart rate, and blood pressure monitoring by cardiac technologist.
Submax Without ECG	Submaximal aerobic assessment recommended. No physician on call necessary. Graded exercise to submaximal tolerance and continuous heart rate monitoring. Blood pressure and perceived exertion monitored at rest and each workload.
*	Physician Supervision recommended during assessment.
<i>Relative</i>	ACSM relative contraindication to exercise. Relative contraindications can be superseded if benefits outweigh risks of exercise. In some instances, these individuals can be exercised with caution and/or using low-level end points, especially if they are asymptomatic at rest.

All exercise testing scenarios will require clinical judgment and some may require additional physician oversight or consult with the cardiac rehabilitation specialists before proceeding with aerobic testing and training. Signs and symptoms listed below likely do not operate in isolation and as such, the complete past and present medical history must be considered prior to selecting the best testing option. For example, a physician-supervised ECG may be recommended if the individual has numerous signs and symptoms that would in isolation not require a physician's oversight.

Cardiac Signs & Symptoms	Do Not Exercise	Stress Test	Submax (no ECG)	Comments
Myocardial Infarction				
<2 days or symptomatic	✓			
2 days – 1 week; asymptomatic	✓			Mobilization/Physiotherapy.
1 week - 4 weeks; asymptomatic	✓			Mobilization/Physiotherapy.
4 weeks – 12 weeks; asymptomatic		✓		
>12 weeks; asymptomatic		✓	✓	Consult with physician, may be dependent on client and future activity level or risks
Arrhythmias or Conduction Disorders				
Atrial Fibrillation		✓	✓	Consult with physician. May be safe with submax as soon as stable INR.
Atrial Fibrillation with recent cardioversion		✓	✓	Wait 4 weeks to do submax; 4-6 weeks for full CPET
Atrial flutter			✓	As soon as stable INR.
Uncontrolled cardiac arrhythmias; symptomatic or hemodynamic compromise	✓			
Premature ventricular contractions occurring in pairs, runs or multiform	✓			
Premature atrial contractions		✓		
Premature ventricular contractions				Consult cardiac team; depend on Hx of MI or heart failure.
Resting ST segment >1mm displacement in more than one lead	✓			
Heart block (2 nd or 3 rd degree)	<i>Relative</i>	✓		Consult cardiac team.
Heart block (1 st degree)		✓		
Atrial or Supraventricular Tachycardia (>100 bmp)		✓		Consult with physician Determine etiology of tachycardia.
Sinus Tachycardia		✓		Consult with physician Determine etiology of tachycardia.

Cardiac Signs & Symptoms	Do Not Exercise	CPET	Submax (no ECG)	Comments
Ventricular Tachycardia	✓			
Inherited Rhythm Disorder (IRDs) including ARVC, HCM, LQTS, Wolff-Parkinson-White, BrS, CPVT, SQT		✓		
Bundle branch block		✓	✓	Consult with physician If new onset, consult with physician – cardiac workup necessary – could be due to ischemic event. If Chronic: Left BBB: physician supervised submax or peak effort CPET Right BBB: submax with ECG physician likely not required
Bradycardia (<60 bpm) not taking β-Blockers		✓		
Bradycardia (<60 bpm) taking β-Blockers			✓	Consult with physician
Normal resting ECG			✓	
Cardiac Arrest				
Guidelines will be case to case basis. Physician input required. Cause of cardiac arrest must be determined and treated prior to consideration for testing. Consider following MI guidelines above.				
Cardiac surgery (e.g. atherectomy, minimally invasive heart surgery, non-surgical catheter ablation, surgical ablation, etc.)				
<2 days or symptomatic	✓			
2 days – 1 week; asymptomatic	✓			Mobilization/Physiotherapy.
1 week – 4 weeks; asymptomatic	✓			Mobilization/Physiotherapy.
4 weeks – 8 weeks; asymptomatic		✓		Physician Supervised.
>8 weeks; asymptomatic		✓	✓	Consult with physician
Cardiac surgery (e.g. angioplasty and stents)				
<2 days or symptomatic	✓			
2 days – 1 week; asymptomatic	✓			
1 week – 3 weeks; asymptomatic	✓			
3 weeks – 8 weeks; asymptomatic		✓		Angioplasty or stent wait 3 weeks if no MI in the previous 6-8 weeks.
>8 weeks; asymptomatic		✓	✓	Consult with physician, may be dependent on client and future activity level or risks
Cardiac surgery (e.g. artificial heart valve surgery, coronary artery bypass grafting (CABG), cardiomyoplasty, heart transplant, femoral popliteal bypass surgery, abdominal aortic surgery, thoracic aorta surgery, etc.)				
<2 days or symptomatic	✓			
2 days – 1 week; asymptomatic	✓			Mobilization/Physiotherapy.
1 week – 6 weeks; asymptomatic	✓			Mobilization/Physiotherapy.
6 weeks – 8 weeks; asymptomatic		✓		CABG 6-8 weeks; 6 weeks if no complications. Tissue or mechanical valve surgery; 8 weeks. Femoral popliteal bypass; 6-8 weeks. Heart transplant; 6-8 weeks if no infections or if current severe rejection episode

Cardiac Signs & Symptoms	Do Not Exercise	CPET	Submax (no ECG)	Comments
>8 weeks; asymptomatic		✓	✓	Consult with physician, may be dependent on client and future activity level or risks
Pacemaker or ICD				
<4 weeks	✓			
>4 weeks + follow-up		✓	✓	Consult cardiac team; depends on type of pacemaker. Wait at least 4 weeks after implanted and after patient has had follow up pacemaker or ICD check and final settings established – need to know settings.
Heart Failure				
<2 days or symptomatic	✓			Stable New York Heart Association Grade I-III; pre assessment may be required
2 days – 1 week; asymptomatic	✓			
1 week – 4 weeks; asymptomatic		✓		
4 weeks – 8 weeks; asymptomatic		✓	✓	Consult with physician
>8 weeks; asymptomatic			✓	Consult with physician
Coronary heart disease (CHD) or Coronary artery disease (CAD)				
Symptomatic or uncontrolled	✓			
Asymptomatic or controlled		✓	✓	Consult with physician
Aortic Arterial Dissections (± stent)				
<2 days or symptomatic	✓			
2 days – 1 week	✓			
1 week – 4 weeks	✓			
>4 weeks			✓	BP restriction set to 140/90 mm Hg for 12 weeks post treatment
Aortic Aneurysms			✓	Ok to test patients if aneurysm is not active issue, size is less than 5cm. Max HR on test = 140 bpm Max systolic BP 160 mmHg.
Arterial Stenosis (aortic, coronary ± stent)				
Symptomatic severe aortic stenosis	✓	Only if exception made by medical director		Absolute contraindication to testing unless an exemption is made by Medical Director. In this case, low level CPA protocol with careful monitoring. Patient likely awaiting surgery.
Left main coronary artery stenosis	<i>Relative</i>	✓		Consult cardiac team. If waiting for stenting surgery, do not exercise. If on max medical treatment but no stent, CPET with submax guidelines. BP restriction set to 140/90 mm Hg.
Asymptomatic			✓	BP restriction set to 140/90 mm Hg
Cardioembolic Infarct (no infarct found by echo in heart)			✓	Consult with physician. Ensure INR level is therapeutic. Ensure no cardiac thrombus present.
Aneurysm (cardiac)				Liaise with physician. Likely full CPET required.
Thrombus (cardiac)		✓		After 12 weeks of anticoagulation. Left ventricular thrombus after telemeter at 6 weeks; CPET when cleared by echo or 3 months of Coumadin therapy.

Cardiac Signs & Symptoms	Do Not Exercise	CPET	Submax (no ECG)	Comments
Myocarditis or pericarditis (suspected or known)				
<1 month or symptomatic	✓			
>1 month; asymptomatic			✓	Consult with physician.
Endocarditis	<i>Relative</i>	✓		Can test if 4 weeks post-IV antibiotics and without valvular involvement. Consult with physician & cardiac team
Cardiomyopathy				
Symptomatic	✓			
Ischemic; asymptomatic		✓	✓	Consult with physician.
Congestive; asymptomatic		✓	✓	Consult with physician.
Hypertrophic; asymptomatic	<i>Relative</i>	✓*		Consult cardiac team
Restrictive; asymptomatic		✓	✓	Consult with physician.
Acute coronary syndrome (ACS)	✓			
Heart palpitations				
Symptomatic		✓		
Asymptomatic or History		✓	✓	Consult with physician
Congenital heart or septal defects		✓	✓	Consult with physician
Valvular heart disease				
Symptomatic or moderate	<i>Relative</i>	✓*		Excluding severe aortic stenosis
Asymptomatic		✓	✓	Consult with physician
Ejection fraction (EF)				
55 – 70%			✓	Range 55-70 normal
>70%		✓	✓	Consult with physician
<55%		✓	✓	Consult with physician. Ensure not in active heart failure

Non-Cardiac Signs & Symptoms	Do Not Exercise	Stress Test	Submax (no ECG)	Comments
Hemorrhagic Stroke			✓	BP restrictions during exercise <160/90 mmHg for 12 weeks post event
Arterial Dissections (carotid, vertebral, cervical, ± stent, excluding aortic etc.)				
Note: If multiple dissections have occurred there is a greater risk of another dissection. Consult with physician				
<2 days or symptomatic	✓			
2 days – 1 week	✓			
1 week – 4 weeks	✓			
4 weeks – 8 weeks			✓	BP restriction set to 140/90 mm Hg for 12 weeks. INR therapeutic
>8 weeks			✓	BP restriction set to 140/90 mm Hg for 12 weeks. INR therapeutic
Carotid Stenosis				
Awaiting surgery	✓			
< 75% stenosis or fully occluded			✓	
Carotid Endarterectomy				
<4 weeks	✓			
>4 weeks			✓	BP restrictions during exercise <160/90 for 12 weeks post event
Large vessel intracranial stenosis	✓			
Peripheral Vascular Disease (PVD) or Peripheral Arterial Disease (PAD)				
Severe; symptomatic or resulting in claudication, surgery or amputation		✓		
Asymptomatic			✓	
Hypertension				
Resting SBP >200 mmHg or resting DBP >110 mmHg	✓			
Resting SBP 160-180 mmHg or resting DBP 100-110 mmHg		✓		Consult with physician
Resting SBP <160 mmHg or resting DBP <100 mmHg			✓	
Diabetes				
Uncontrolled diabetes, thyrotoxicosis, or myxedema	✓			
Controlled diabetes			✓	
Pulmonary Vascular Disease				
Symptomatic	✓	✓		Consult with cardiac team
Asymptomatic		✓	✓	Consult with physician
Pulmonary embolus or pulmonary infarction				
<2 days or symptomatic	✓			
2 days – 1 week; asymptomatic	✓			
1 week – 4 weeks; asymptomatic	✓			
4 weeks – 8 weeks; asymptomatic			✓	Consult with physician; Can test if 4 weeks post-initiation of anti-coagulation
>8 weeks; asymptomatic			✓	Consult with physician

Non-Cardiac Signs & Symptoms	Do Not Exercise	Stress Test	Submax (no ECG)	Comments
Deep vein thrombosis (DVT)				
<2 days or symptomatic	✓			
2 days – 1 week; asymptomatic	✓			
1 week – 4 weeks; asymptomatic	✓			
4 weeks – 8 weeks; asymptomatic			✓	INR therapeutic and must be after 4 weeks anticoagulation
>8 weeks; asymptomatic			✓	
Non-Cardiac Aneurysm (excluding hemorrhagic stroke)			✓	BP restrictions depending on size- case by case basis. Consult with physician.
Prothrombotic hypercoagulable state (e.g. Factor V)			✓	Consult with physician
Systemic Infection				
Acute systemic infection accompanied by fever, body aches, or swollen lymph glands	✓			
Asymptomatic			✓	
Anaemia			✓	
Subtherapeutic INR				Consult with physician
Arthritis			✓	
Joint fusion or replacement			✓	
Osteoporosis			✓	
Pain			✓	
Respiratory disease (e.g. COPD, sleep apnea, asthma, cystic fibrosis)			✓	
Cancer			✓	
Non-cardiac surgeries			✓	
Uncontrolled seizure disorder	✓			
Controlled seizure disorder			✓	
Electrolyte abnormality	<i>Relative</i>	✓*		Consult with physician if hypokalemia/hypomagnesaemia; electrolyte dependent
VRE			✓	
Aphasia/Dysphasia (e.g. if inability to understand risks or express pain)	✓			
Cognition (e.g. inability to understand risks or express pain)	✓			
Significant emotional distress	✓			
Severe motion-induced dizziness or vertigo	✓			
Severe pain on weight bearing or exercise	✓			