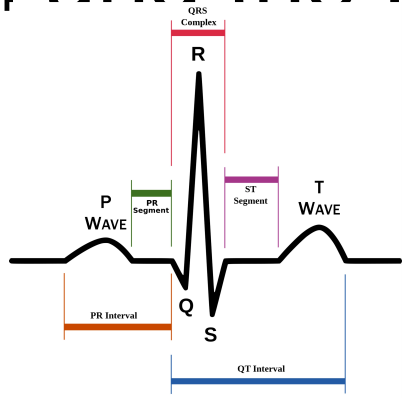
Cardiac health and the Masters Athlete



Cardiac health: things to consider

- Family history (MI, Afib, stroke, sudden cardiac death, other arrhythmias, hyperlipidaemia, etc)
- Particularly relevant if a parent or sibling
- Other non-modifiable risk factors: age, gender.
- Modifiable risk factors: lifestyle choices (smoking, diet, alcohol intake, stress management)

New to rowing or returning after a break?

Get checked out by a physician first!

- Detailed family history and personal history
- Standard tests: Blood Pressure, Cholesterol
- If you can: ECG (electrocardiogram)/24h Holter ECG
- Echocardiogram

Other Tests:

- Cardiac MRI
- Bruce Protocol (Stress ECG)

Training adaptations as we age

- Max HR (heart rate) declines by 6-10 beats per decade after 20: beta receptors in the heart that mediate response to adrenaline are less sensitive over time.
- Relative risk of a cardiac event increases: important to monitor exertion levels with a HR monitor during training to ensure you are working at the correct intensity.
- Know what your correct HR zones are – for you- and update these regularly as your fitness fluctuates and age changes.

Karvonen Formula

- You will need to know your resting heart rate (RHR) and your maximum heart rate (MHR)
- MHR has been traditionally calculated using 220-age, but some consider this to be inaccurate esp. for older adults.
- Try the HUNT formula to calculate MHR: 211- (0.64 x age)
- Karvonen calculates zones based on Heart Rate Reserve (HRR). This is the range between your RHR and MHR

Karvonen Formula

- MHR-RHR = HRR (e.g. 180-43 =137)
- HRR x intensity (60-80% MHR) = HR training range %
- Training range % + RHR = target training range
- e.g. 137 x .6 = 82.2
- 82. 2 + 43= 125.2
- 137 x .8 = 109.6
- 109.6 + 43 = 152.6
- So my training range if using 60-80% MHR is 125 – 153bpm

Karvonen Formula

- HUNT formula for MHR: 211- (0.64 x age)
- MHR – RHR = HRR
- HRR x (60-80%) = Training Range %
- Training Range % + RHR = Target Training Zone

Beta Blockers and Heart Rate Training Zones

- Beta Blockers act to control arrythmias by slowing down heart rate. Beta Blocked athletes will have reduced RHR and MHR
- Using Karvonen Formula to work out zones for Beta Blocked athletes will yield inaccurate target heart rates without reducing MHR by 20-30bpm.
- So for example, a 65 yo on Beta Blockers with a RHR of 60:

  211 – (0.64 x 65) = 169

  169 – 30 (BB) = MHR of 139bpm

Adjustments to training

- Utilise Heart Rate Zones as a guideline, but ALWAYS go on how it feels [Relative Perceived Effort (RPE)]
- RPE especially if deconditioned, returning to rowing after a break or new to the sport
- **UT2:** conversational effort, 55-70% MHR approx. Builds a strong aerobic base/endurance, capillirises the heart & muscles
- **UT1:** ‘comfortably hard’ sustainable pace, 70-80% MHR approx. Improved capillarisation, improved lactate clearance & tolerance.
- **Anaerobic Threshold (AT):** hard effort, still sustainable. 80-85% MHR. Improving anaerobic capacity.
- **Anaerobic (Sprinting) (AN):** very hard, maximal effort. 90-100% MHR. Improving anaerobic capacity.

Training and competing after a cardiac event

- Safe?
- Yes, it is – provided you have been deemed safe by physician and had an uncomplicated recovery, your condition is well managed & stable through medication.
- Get involved with a local cardiac rehabilitation group locally – helps with confidence and social support is invaluable.
- Be on the lookout for changes in how you are feeling. If in doubt, err on the side of caution. Check in with your doctor.

Absolute Contraindications to Training

- Unstable angina, diabetes, heart failure
- New or uncontrolled arrythmias
- Resting tachycardia (>100bpm)
- Resting systolic BP >180 mm Hg OR
- Resting diastolic BP >100 mm Hg
- Symptomatic hypotension
- Febrile illness
- New chest pain

Number 1 rule….

ALWAYS listen to your body.

If something feels off, don’t train/compete and seek advice of a medical practitioner.