

Marathons damage the hearts of less fit runners for up to 3 months

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Is running a marathon good for you or can it damage the heart? A team of researchers and runners from the Heart and Stroke Foundation have come up with a practical way of answering the question. They used data from magnetic resonance imaging (MRI) to find out what is really going on in the marathoner's heart as the kilometers pile up.

"Marathon runners can be a lot less fit than they think," Dr. Eric Larose today told the Canadian Cardiovascular Congress 2010, co-hosted by the [Heart](#) and Stroke Foundation and the Canadian Cardiovascular Society.

Lack of real [aerobic fitness](#) may directly impact the ways the heart organizes itself to survive the stress of marathon running, says Dr. Larose.

His research found that the magnitude of abnormal heart segments was more widespread and significant in a group of less fit runners. During the marathon, they had signs the heart might be at greater risk of damage than that of runners who had better training or at least had better exercise capacity.

"Without proper training, marathon running can damage your heart. Fortunately the exercise-induced injury is reversible over time," said Dr. Larose. "But it could take up to three months to completely recover."

They studied the effects using MRI measurements, which propel research beyond the traditional stethoscope as a means of estimating and

measuring [heart function](#).

The [left ventricle](#) of the heart is divided into 17 segments that make up the heart as a whole. When a segment is injured – or stressed out – during the marathon, its neighbours on either side can take over to perform the function of the damaged area. This makes the heart as a whole appear stronger and fitter than is really the case when considering each individual segment.

It also makes it practically impossible for physicians to arrive at an accurate assessment of the heart health of the marathoner when only considering the whole heart.

"The heart isn't simply playing tricks - this may be an important adaptive survival mechanism, like the way the brain can switch function after a stroke," says Dr. Larose. "Unfortunately, as a result, the data produced by traditional means may be inconsistent and misleading.

"This means that, short of performing MRI in everyone, we are left with only one practical test that can accurately tell runners their level of cardiac fitness under stress, " says Dr. Larose, who is professor of medicine at Laval University and a cardiologist and clinical researcher at Institut universitaire de cardiologie et de pneumologie de Québec (IUCPQ) in Québec City.

That test is V02 max – the ultimate measure of aerobic endurance.

V02 max directly measures body oxygen consumption and it is the best test to provide an accurate measure of a safe maximum heart rate (number of beats per minute) for runners. In V02 testing, treadmills or stationary bicycles may be used to establish cardiac fitness.

Dr. Larose took healthy amateur runners and performed a full evaluation

on them six to eight weeks before, and then immediately after, they ran a marathon. They underwent exercise tests, blood analysis, and [magnetic resonance imaging](#).

"What we did notice in this study is a runner with less preparation before the marathon had lower V02 max, so they had lower exercise capacity. Compared to those runners with better training, they became more dehydrated and their hearts showed greater signs of injury. The less well trained runners also experienced greater loss of function associated with lower blood flow and greater irritation of heart segments."

Heart and Stroke Foundation spokesperson Dr. Beth Abramson says that with the increasing popularity of marathon running, especially among boomers who are putting a marathon on their 'to do' lists, runners need to train properly, stay hydrated, and most importantly, speak to their physicians about what is right for them.

"You can do it – physical activity is very important for your heart health. Just be smart about it: train and get medical advice," says Dr. Abramson. "Not everyone will need extensive testing before training to run a marathon but speaking to your doctor about your cardiac risk is important."

Dr. Larose says there is no substitute for a visit to a healthcare professional and, when appropriate, to get the V02 test to measure risks to your heart.

Provided by Heart and Stroke Foundation of Canada

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