

by Derek Morrison

*Exercise junky
Multi-marathon man
Endurance cyclist
Part of plan.*

*Training sorted
Muscles tuned
Supplements swallowed
Nutrients spooned.*

*Out all weathers
Wind and rain
Ignore discomfort
Feel no pain.*

*All prizes won
All plaudits received
All now gone
Past is grieved.*

*Endurance build
Played its part
Such big muscles
Included heart.*

*Train for marathons
Long distance rides
Some transient injury
Heart's silence hides.*

*With recovery time
Of just a week
Return to normal*

Heart back to peak.

But ...

*On frequent challenge
I once did thrive
To lead endurance
You need such drive.*

*After years of silence
Now pump complains
Can no longer repair
Such repetitive strains.*

*Heart fibrous tissue
Bad electrical fluxion
Risks irregular rhythms
From faulty conduction.*

*Artery walls stiff
Things looking black
Furring up risks
Stroke or heart attack.*

*We endurance veterans
Who train to extreme
Risk such silent injury
That ruins the dream.*

*So exercise junky
Multi-marathon man
Endurance cyclist
Best review the plan.*

[To listen to this verse select below]

<http://www.cyberstanza.com/wp-content/uploads/2015/02/Extremist.mp3>

Commentary

It is important to me that this verse is not misinterpreted as an exercise polemic. It is not.

I like exercise and particularly love undertaking one (or more) relatively long cycle rides during a week. At the time of writing there was a lot of press coverage about a research finding by a Dutch research team about the apparent detrimental effects on the heart from participating in endurance sports. As with many press articles they highlight the headline catchers but don't provide the context and detail.

Yes, there are some cardiac pathologies associated with endurance activities but in most cases we are really talking about those training and competing at the extreme end of the endurance spectrum – or more accurately “over-training” and “over-competing”.

Nevertheless, the maxim “moderation in all things” appears to apply to exercise as well. In the end the heart is a muscle but a very specialised electro-chemical one. Like any other muscle it can get tired although it's tiredness may only show up biochemically to begin with, i.e. damage shows up in blood tests post endurance activities. Rest it and it can recover. Don't let it recover then over the years damage can become permanent and, given its central physiological role, that can make for a less efficient pump.

If you want to research this a bit more there are some reliable sources available even via the ubiquitous Google, e.g. search for [Effects of extreme exercise](#)

For example:

Emerging data suggest that chronic training for and competing in extreme endurance events such as marathons, ultramarathons, ironman distance triathlons, and very long distance bicycle races, can cause transient acute volume overload of the atria and right ventricle, with transient reductions in right ventricular ejection fraction and elevations of cardiac biomarkers, all of which return to normal within 1 week. Over months to years of repetitive injury, this process, in some individuals, may lead to patchy myocardial fibrosis, particularly in the atria, interventricular septum, and right ventricle, creating a substrate for atrial and ventricular arrhythmias. Additionally, long-term excessive sustained exercise may be

associated with coronary artery calcification, diastolic dysfunction, and large-artery wall stiffening. (Source: James H. O'Keefe et al, 2012, [Potential Adverse Cardiovascular Effects From Excessive Endurance Exercise](#), Mayo Clinic Proceedings, 2012 Jun; 87(6): 587-595.)

A good covering of the issue and the evidence was also offered in the recent BBC Radio 4 broadcast of [Inside Health](#) (BBC 17 February 2015) during which [Sanjay Sharma](#), Professor of Cardiology at St George's Hospital and Medical Director for the London Marathon gave an excellent synopsis. The following is a condensed extract from the transcript of this item.

There are emerging studies, clearly, that too much exercise may well be detrimental. If we look at marathon runners, for example, and we do blood tests on them and we measure the biomarkers of so-called cardiac damage we find that about 50% of those people have high markers of cardiac damage after a marathon race. And the question is what does this all mean, is this just a transient physiological phenomenon or are the long term effects something terrible? Probably the most reliable source that too much exercise may be bad for some people is the fact that many veteran athletes, i.e. those that have been exercising for more than 21 years, do have a high prevalence of a rhythm disturbance called atrial-fibrillation which is a disease of the elderly, it's the sort of thing that an 80 year old gets, it's present in about 10% of octogenarians. But if we look at 40 and 50 year olds it's only present in about half a percent. If we look at athletes it's present in between five and 13%, far, far higher in veteran athletes...I suspect it's a constant stretch of the chambers. If we stretch the chambers very, very hard by putting a massive load on them in some people the chambers may give. For example, if we exercise a lot our joints start to give, if we drink too much alcohol our liver starts to give, what's to say that it's not too much for this organ if you're going to push it very, very hard for 25-30 years. I'm not saying that this happens to everyone but I think there are a small number of vulnerable individuals who may succumb later in life due to too much exercise ... When we exercise we produce adrenaline and noradrenaline and these chemicals are important, they're flight or fight hormones, they're important to allow us to push ourselves. Now these hormones can result in the production of certain chemicals called free radicals, they can accelerate a furring up of the arteries of the heart. In fact there has been one paper amongst marathon runners that suggests that marathon runners are three times more likely to get calcification or furring in the arteries compared to non-runners. But there's only one paper of that type ... The question really is what becomes cardio-toxic? And that is the question. I think that's the same as anything else, if you and I went to the pub

Mark you may drink a pint and feel giddy, I may drink two pints and feel completely fine. So one man's treatment I believe is another man's poison. And what we don't realise, at the moment anyway, and I think more studies are required, is what is the dangerous level beyond which people shouldn't exercise ... the advice I have for all of those people that are running the marathon you're already doing enough exercise, you've surpassed the amount of exercise that's required to make you live longer and to obtain all the cardiovascular benefits and even to reduce your risk of dementia and certain cancers, so you've done all that. There is no evidence at all that any more of this exercise is going to necessarily benefit you ... the studies suggest now that clearly that some people who exercise very hard may run into trouble later on, they develop atrial-fibrillation later on, they develop scarring in the heart and even excessive furring up of the blood vessels ... These are people that had run several marathons in the past but these are middle aged people, some of them reformed smokers, so the data is based on groups of individuals that are very select. If you think about the London Marathon, for example, next year – just after next year – a million people will have completed the London Marathon. And in that time we have had just 13 deaths out of a million runs. And I'm not aware of many of these individuals running into serious problems with their heart. One thing that is for sure that if you're running the odd marathon, one or two, maybe three or four, then you're probably going to be absolutely fine, provided that you're prepared and you've trained adequately. But if you're one of these people that's engaging in six to 12 marathons a year and doing something even more strenuous than that, such as the Iron Man, then I think you need to be aware that there is increasing evidence that too much of this type of exercise can cause tiring of the heart. I think there is plenty of scope now to do research of what is the perfect maximum dose of exercise in terms of cardiac safety as opposed to cardiac toxicity. (Sanjay Sharma, Professor of Cardiology at St George's Hospital and Medical Director for the London Marathon)

Much of the press brouhaha appears to have risen from a recent study [Dose of Jogging and Long-Term Mortality](#) (Peter Schnohr et al, February 2015, Journal of American College of Cardiology, 2015;65(5):411-419. The conclusion of this study was:

The findings suggest a U-shaped association between all-cause mortality and dose of jogging as calibrated by pace, quantity, and frequency of jogging. Light and moderate joggers have lower mortality than sedentary nonjoggers, whereas strenuous joggers have a mortality rate not statistically different from that of the sedentary group.

Translation of above? Extreme exercise is as damaging as no exercise.

The [Medical News Today synopsis](#) of the above study adds further commentary from the lead researcher Peter Schnohr.

More localised commentary on the Schnohr study by a Bristol heart consultant is offered in a [recent Bristol Post article](#).