

A calculating approach to my gym workouts

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I take my health seriously, so I work out often at my local gym, and even there, math isn't far from my mind. During my workouts I take my pulse, and the calculation is a bit of mental math.

The usual rule is to count the number of heartbeats in 10 seconds and multiply by six to get the beats per minute. Suppose that during a 10-second interval you count 12 beats. You know that in one minute there are six sets of 10 seconds, so if in one set of 10 seconds you count 12 beats, you should have six sets of the 12 beats in 60 seconds. That is, in 60 seconds, there should be 12×6 , or 72 beats, which is fairly healthy resting heart rate.

You might think it would be easier to count the number of beats in six seconds, and multiply by 10 to get the beats per minute, but accuracy would be at risk.

No matter how careful you are, at each of the beginning or the end you might be off by a beat in your count.

This translates into being off by possibly $6 \times 2 = 12$ beats per minute in your calculation if you did your count over 10 seconds, and $1 \times 2 = 20$ beats per minute if you did your count over six seconds instead, and an error like the latter is a much bigger deal.

And math at the gym doesn't end there. If you're like me, you listen to some music as you run on the treadmill. I seem to favour early Beatles' songs.

A quick calculation tells me why these tunes inspire me. I do a fast walk at four m.p.h. First, to convert this to steps per minute, I need to know how many feet are in a mile — 5,280 — and then I need to convert feet to strides.

I ask my wife to hold a measuring tape on the floor (she begins to ask why, but thinks better of it after all these years), and I measure my stride at about 2 feet. A quick calculation tells me that my pace on the treadmill is about 141 strides per minute, which is the tempo of many an early Beatles song. I'm right in step with the music — yeah, yeah, yeah!

After some workouts, I head off to physio.

No pain, no gain, right?

Well the subject of pain is what I want to touch on lastly. We all seek to avoid pain and stay healthy, and you may have heard that listening to music can alleviate the intensity of pain.

A recent study by some Scandinavian researchers has to make me laugh in glee.

They actually investigated whether all music truly makes pain easier to handle, and they compared it to asking subjects (to whom they applied various degrees of discomfort) to try alternate strategies as well, such as mental arithmetic!

I know what you are thinking, that requiring people in pain to do simple mathematics would compound the issue, but NO — those who tried mental arithmetic actually felt less pain. I love the irony! For all those who felt they left the agony of mathematics behind in high school, cheer up — revisiting mathematics will lighten the load!

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