WHY DO PEOPLE'S EXERCISE NEEDS VARY SO MUCH?

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Exercise needs vary among people due to a number of factors, including...

GENETIC VARIABILITY

Genes play a big role in determining a person's response to exercise. Genetic variations influence factors such as muscle fibre composition, metabolism and cardiovascular capacity. Some people may be naturally predisposed to endurance activities, while others may have a genetic make-up that favours strength exercises.

METABOLIC RATE

Metabolic rate varies between people due to genetic and physiological factors. Some people have a higher basal metabolic rate, meaning they burn calories faster while at rest. This affects energy expenditure during exercise and influences the type and intensity of exercise needed for weight management and fitness.

BODY COMPOSITION

Variations in body composition affect how a person responds to exercise. Someone with a higher percentage of lean muscle mass may have different strength and endurance capabilities to someone with a higher percentage of body fat.

AGE

Exercise requirements change over the course of a person's life. Children and adolescents may have different needs for growth and development compared to adults or older people focusing on bone density and functional abilities.

PERSONAL GOALS

Not everyone wants to get faster or be stronger. Most people have their own goals when exercising and the plan they follow needs to cater to those goals. Personal preferences also come into play, as some people prefer exercising in a team or class, while others prefer solo workouts.

IN BETWEEN EXERCISE

Activity levels between workouts will also influence a person's exercise needs and how much they eat. If you're in an active job, for example, you might not need as much exercise as

someone who is more sedentary. Recovery is also important, as this is where the majority of your gains are made. Everyone has different recovery times, even after doing the same workout.

PSYCHOLOGICAL FACTORS

Psychological factors, including motivation, stress levels and mental health also affect exercise preferences and adherence.

Recognising and embracing these differences is vital for tailoring effective and sustainable exercise programmes that meet a person's needs. NM

Recently, using data from the Chinese lunar probes Chang'e-1 and Chang'e-2, scientists found excessive heat below the surface of a suspected volcanic feature on the Moon known as Compton-Belkovich. The existence of such a large hotspot on the lunar surface can only be explained if the underlying granite rock contains elements undergoing radioactive decay, such as thorium and uranium.

Researchers estimate that the level of this background radioactivity is about 0.3 millisieverts per year. This is actually small compared to the approximately 6 millisieverts per year that every person on Earth receives annually, due to natural sources of radiation.

There are however other sources of radiation that being on the Moon would expose you to, which you are protected from on Earth due to the planet's magnetic field. These include galactic cosmic rays, energetic particles from the Sun, and neutrons and gamma rays from interactions between radiation and the lunar soil.

An estimate of the average maximum dose of all these sources of radiation is more than 400 millisieverts per year. This could be much higher following extremely energetic solar flares. So, although the Moon has a very low level of natural radioactivity, it's a harsh environment when considering all sources of ionising radiation. AG