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Opinion

Is Breathlessness Hampering Your Exercise? Watch Out, there can be a Genetic Link!

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Exercise is equal to good health and we all are aware of that. Habituating ourselves to exercise is a magical way of warding off diseases. Having known this, should every movement of ours be counted as exercise? Not exactly! Exercise refers to bodily activities that are carried out in a structured or time-defined manner to enhance or maintain physical fitness. Exercising for a minimum of five times in a week with a daily duration of 30 minutes is ideal. But in case of time constraint, go for two to three segments of 10 to 15 minutes exercise per day [1,2]. You can choose any activity that suits you, say walking, jogging, swimming, aerobics, yoga, and the list, we know, is exhaustive.

Ease of breathing is pivotal for exercise, why?

Ease of breathing during an exercise or physical activity is vital in determining how well we get adapted to and perform that activity. Compared to a resting state, whenever we exercise there is an increased demand for oxygen inside our body, and that's why we get adapted to an enhanced breathing during exercise. This increased demand is purposed to support the exercising muscle with sufficient energy. Our stamina tells us our ability to sustain an exercise for a desirable duration. Stamina is decided by our capability to take up and use oxygen during an exercise. The oxygen that is taken up is used for producing and supplying energy to the exercising muscle. If this process happens smoothly, then our ease of breathing allows us to fulfil our exercise duration [3].

Extent of breathlessness during exercise varies between individuals!

You and your friend who give company to each other, every day, on a morning walk might halt at different rates. That's probably because each of us is unique, and hence our response and adaptation to exercise shows inter-individual differences based on certain genetic changes. Innate ability to breathe with ease during an exercise relies on how suitably genes relating to oxygen uptake and utilization are expressed. Insight on genes related to stamina brings out our innate ability to perform an exercise without the discomfort of breathlessness. And this information can help us in deciding the type of exercise, its duration, rest periods needed in between, and most importantly, nutrients that would support our innate ability on stamina [4,5]. Gene-specific nutrients can help in averting breathlessness!

Nutrients = Genes = Breathe easy! Let's explore this secret

The concept of viewing food as a remedy has been existent since ancient times. Each genetic change needs a specific nutrient as a coping strategy. Certain genetic changes can lower the capacity to breathe with ease during an exercise. Identifying the causative genetic change is vital as effective management is possible only with a precise nutrient. For instance, certain changes in a gene called NOS3 (Nitric Oxide Synthase) can cause breathlessness during exercise by straining the blood vessels [6]. This can be managed by a combo of three dietary nutrients namely; omega-3 fatty acids, magnesium, and co-enzyme Q10 which synergistically relax blood vessels. Snacking on pumpkin seeds or roasted soybean before exercise is an easy way to cope breathless caused by this genetic change [7-13]. Similarly, a change in another gene called ACE (Angiotensin Converting Enzyme), can also cause breathlessness during exercise as it modulates blood pressure. This has to be coped with foods like yoghurt which have ACE-inhibitory peptides to normalise blood pressure and ease breathing during exercise [14-18].

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