



What is Hormesis?

Looking at the word hormesis, it is derived from the ancient Greek term 'hormaein', meaning to 'excite, stimulate or set into motion'. **Hormetic stimuli include**; intermittent fasting, calorie deficit less than the daily Basal Metabolic Rate (BMR) recommended for a person to simply function without doing anything else, polyphenols (specific plant phytonutrients), regular aerobic exercise, breathing techniques, low to average sun exposure, Nordic bathing traditions such as saunas and ice bathing. All stimuli are recognised for their health benefits, namely enhancing resistance (immune boosting), increasing vitality, antiaging plus may also contribute to overall longevity.

'Nordiq's Hormetic Blend' is a synergistic combination of expertly selected, research informed blended botanical phytonutrients and actives, that provide natural, hermetic stimulus to the 'master switch', NrF2. Combining a hormetic nutritional stimulus regularly with other low potency stressors like exercise, intermittent fasting, temperature exposure and variation maybe key to achieving improved or optimal health and well-being. Thinking of the Goldilocks and her 'just right' porridge in the famous children's fairy tale, hitting the ideal 'hormetic zone' is also the aim i.e. too much or too little will not give the best cellular responses but taking Nordiq's Hormetic Blend (contained in all their supplements), is the absolute 'just right' amount for optimal cellular efficiency and benefit to the body.

The benefits of mild, hermetic stress is that it can naturally trigger adaptive cellular responses, resulting in enhanced health and wellbeing. Positive impacts include; developing stress resistant genes within our cellular DNA, stimulating growth factors, improving energy metabolism, improving antioxidant enzyme action and production of heat shock proteins, all helping to strengthen the body from inside out. Think of the body as a house made up of small bricks or cells, that make the tissues, that make the organs, that form bodily systems that combined make up the whole body – it makes perfect sense to look after the bricks (or cells) in the best possible, so everything else remains in tip-top working order and we 'nurture our own nature' to become our biological best.

Research reveals that hormetic pathways activated by phytonutrients involve kinases and transcription factors which are responsible for stimulating the expression of genes in our DNA that encode important antioxidant enzymes, protein chaperones, phase-2 enzymes, neurotrophic factors and other cytoprotective proteins. Of significant importance the Nrf2-ARE pathway, which is commonly known as the 'master switch' for cellular detoxification and general antioxidant processes within the body.

Ridley, author of the infamous Genome, that insightfully mapped all 23 pairs of human chromosomes and identified specific genes also wrote the book, Nature via Nurture, which further delves into genes, experiences and what makes us human.

Ridley highlights that "nurture is reversible; nature is not" and advocates that "nature can only act via nurture." Nature can "only act by nudging people to seek out the environmental influences that will fulfil their appetites" whatever that maybe (i.e. sport, food, music or books etc..).

Ridley when talking about Piaget and genes, refers to a cooking analogy, highlighting that for behavioural and psychological development both raw ingredients and how they are combined are important in addition to timing. Ridley states that "...the raw ingredients represent the many genetic and environmental influences, while cooking represents the biological and psychological processes of development." (Ridley, 2004).

Spending many years in the education profession teaching pure sciences, it was routinely evident that well-nourished students had the nurtured, nutritional edge over their peers to develop natural physical and

academic potentials, which was vital for constructive learning, cognition, memory retention, brain development and rational behaviours. All too often, malnourishment (mal-nurture) presented itself in multiple classes and cohorts, that contributed to varied learning and behavioural barriers, *some* of which could have been avoided (setting aside other multifactorial triggers and contributory variables), if all pupils had received equitable nourishment throughout their education.

Never has there been a time to embrace the principles of hormesis (physically and nutritionally), to help reveal and nurture our nature, inside and out, for better health in the best ways possible.

Hormesis in Context

For centuries people have proposed (and practiced) being exposed to and or consuming low dose stressors that can be beneficial to health. We only have to look at cold-hot water showering, outdoor swimming in all seasons, taking saunas and ice bathing or homeopathy (taking a highly diluted, minute amounts of otherwise toxic substances to humans if consumed in large doses, can stimulate and support cellular integrity and resistance) as prime examples shown to be beneficial in boosting natural immunity and overall health in general.

We have already found in nature, that animals who live in the most hostile of environments have impressively adapted to survive despite the harsh external and internal stressors. Plants do the very same and as a consequence, their botanical actives (phytonutrients) can become even more concentrated and potent as a result.

Charles Darwin was famous for saying that animals had to “Adapt or die” (Ltd, 2021) to overcome their challenging environmental conditions and or changes. “It is not the strongest of the species, nor the most intelligent that survives. It is the one that is most adaptable to change” (Anon., 2014).

The same applies to us all, so being stressed little and often ‘inside and out’ (hormesis) therefore, appears good for human health, maybe not as much as living in the Antarctica or the Sahara Desert but most of us have the innate ability to adapt to little and often low potency stressors, known to ‘excite, stimulate or set into motion’ bodily cells, leading to us becoming more bio-resilient to the inevitable environmental changes and stressors that do and continue to evolve, within each of us and our wider world.

By Sally Ann Marsh 15-02-2021

References

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