



Hormetins: “The Dose Alone Makes the Poison” Thus “The Thing What Does Not Kill Us, Makes Us Stronger”



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Editorial

Hormesis is “chemical and environmental factors having a beneficial effect to cells in an organism at low doses, whereas they are damaging at high doses”. The factors that trigger stress response pathways hormetically called as hormetin. Hormetins can be classified as physical hormetins (exercise, thermal shock and irrigation), psychological hormetins (mental interrogation and focusing), biological and nutritional hormetins (infections, nutrients, energy restriction) [1-4]. At molecular level stress response in mammalian cells can be classified as heat shock response, unfolded protein response, autophagic response, deoxyribonucleic acid (DNA) repair response, antioxidant response, sirtuin response and nuclear factor-kappa B (NF-κB) inflammatory response. Hormetins trigger these pathways thus strength the cell. According to this, body can improve its defensive system and retarding age-related chronic diseases such as neurodegenerative diseases, cardiovascular diseases, cancer, etc. It has been known that physical activity decreased the age-related chronic diseases risks and increased lifespan. This can be exemplified by hormetic perspective as mild level of physical activity trigger stress response pathways in cells and strenght the body toward chronic diseases [4-8]. In other words, we expose our body to stress by physical activity as a mild stress factor. Some nutrients, phytochemicals and energy restriction also can work as hormetins. They trigger stress response pathways in mild doses and strength the body while high

doses are toxic. To conclude, principle of hormesis and hormetins can be defined as “the dose alone makes the poison” thus “the thing what does not kill us, makes us stronger” according to Paracelcius and Fredrich Nietzsche words, respectively.

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