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Speaker's Abstract

Protective vs. Harmful Effects of Stress on Immune Function

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Stress has a bad reputation. Chronic or long-term stress has numerous deleterious effects on brain and body. However, it is important to recognize that Mother Nature did not give us the stress response to kill us, but rather, to help us survive. The short-term, fight-or-flight stress response is Nature's fundamental survival system. Therefore, our laboratory works on elucidating biological mechanisms that mediate the recently discovered protective effects of short-term stress from the long-known deleterious effects of chronic stress. We examine stress effects on leukocyte trafficking, innate/adaptive immunity, and cytokine gene/protein expression using models of skin immunity, vaccination, surgery, and cancer. Our goal is to elucidate mechanisms and develop behavioral and/or pharmacological interventions designed to harness a patient's psycho-physiology to selectively enhance (during vaccination, surgery, infection, or cancer) or suppress (during inflammatory and autoimmune disease) an immune response depending on the clinical needs of the patient.

In addition to investigating the protective aspects of short-term stress physiology, we also investigate mechanisms through which long-term or chronic stress increases chronic inflammation, accelerates immune cell aging, and has harmful effects on brain and body. We have proposed the model of the Stress Spectrum to enable individuals to minimize the effects of "bad" stress and optimize the effects of "good" stress, in order to promote health, healing, and well-being.

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