

The Cancer Cure That We Had All Along

11.10.20

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We all know that exercise, sleep, and positive emotions are good for us, but what if they are so good for us that they could also be the answer to curing chronic diseases like cancer? This is the question that the new field of Psychoneuroimmunology (PNI) aims to address.

Psychoneuroimmunology integrates health and wellness psychology with medical science - in a legitimate, scientifically sound, and very exciting new union.

PNI is the study of the mind-body connection, particularly as it pertains to the study of the body's ability to fight off illness. It investigates the role of psychology - both positive and negative - in creating a chain reaction that begins in the brain, enters the body, and ultimately results in a tangible health outcome. Specifically, it investigates the way that sleep, exercise, and even loving relationships impact this chain reaction, thus influencing our immunity from chronic disease.

While traditional medical research focuses strictly on the biological mechanisms of disease, PNI expands its research scope to include the significant roles of social, environmental, and psychological factors in influencing biology. Conducting research from this wider vantage point has the potential to revolutionize cancer research and treatment. Not only is your gym habit good for you, now we can tell you - down to the molecule - exactly how good it is and why.

Thanks to a recent interest and investment from the NIH, Psychoneuroimmunology has expanded greatly in the United States in the past decade. The University of California, Los Angeles is one of four universities in the country with a Psychoneuroimmunology (PNI) research department. UCLA's PNI department was founded by and named for Norman Cousins, an American journalist, science writer, and assistant medical professor who believed in the power of holistic medicine. Cousins coined the phrase "laughter is the best medicine", and believed it. The UCLA Cousins Center for PNI upholds Mr. Cousins' legacy in its investigation of holistic health in chronic illness.

One promising study [recently emerged](#) from the UCLA Cousins Center, investigating the role of exercise alone in inhibiting tumor growth. A cohort of 24 mice were given breast cancer. Half received a running wheel in their cages, and half did not. At the end of the two week trial, the mice who exercised regularly had significantly smaller tumors than the mice who did not. Physical activity was the only factor that determined the significantly different disease outcomes.

What exactly was going on in the mouse's body when it exercised to have this profound effect on its cancer? The PNI approach to this question requires an investigation of the interaction between the psychology, neurology, and immunology influencing breast cancer in exercising vs. sedentary mice. Here is what they discovered:

On a psychological level, the mice in the laboratory experienced significant stress during the experiment. The small cages and frequent contact with scientists caused them to experience a fight or flight response (and thus "negative psychology"). The mice who had access to a running

wheel were able to alleviate this stress through exercise, because exercise triggers positive psychology.

On a neurological level, the positive psychology of exercise occurs because exercise triggers a reaction that releases dopamine, the happy hormone. This reaction occurs through a neurological pathway that blocks the stress pathway. The mice cannot feel stressed when this dopamine - the happy hormone - is released in their brains. Therefore, mice with a running wheel were able to alleviate their stress through exercise and dopamine.

On an immunological level, there are major biological implications of mice who are happier (and less stressed) due to exercise. Physical exercise triggers an immune reaction in the mouse's body that creates a specific type of white blood cell, called macrophages. Macrophages are generated by the immune system to attack cancer cells. Given that the exercising mice produced more macrophages, these cells in turn attacked more cancer cells. Meanwhile, the sedentary mice were unable to activate this natural defense against cancer, and ended the study with significantly larger and many more tumors than the exercising mice.

Essentially, the negative psychology of the sedentary mice caused a neurological reaction that inhibited a key immune function in their bodies. This led to greater tumor metastasis in the sedentary mice. Conversely, the positive psychology of the exercising mice caused a neurological reaction that blocked stress, strengthened the immune system, and ultimately led to tumor inhibition.

This study is just one of many PNI-type research projects that investigate the complex interactions between mind, body, and health. In addition to exercise, popular PNI projects include the role of sleep, mood, and emotions in influencing chronic illness. Asya Rolls, a leading PNI researcher at the Technion University in Haifa, Israel [recently published](#) a study that evaluated the role that emotions of hope and inspiration play in fighting cancer. Mice who experienced these positive emotions daily ended the study with tumors half the size of the control mice.

PNI is still in its preliminary research stage, and may take many years to significantly enter the medical world. However, it does provide a strong proof-of-concept for the correlation between lifestyle, behavior, and disease in a quantifiable way. This sets the stage for further investment in PNI research for medical purposes.

Although early in its development, PNI leaves each of us with a very empowering message that we can act on today. Our own bodies play a significant role in our healing trajectory. Because we have the power to change our actions and behavior, we have the power to prevent and heal from illness. This is not to say that the 1 in 3 Americans who will be diagnosed with cancer in their lifetime can simply exercise the tumors away. Instead, it means that our own natural defense mechanisms - especially those that bring us the most joy - may be the strongest tools we have in leading long and healthy lives.

