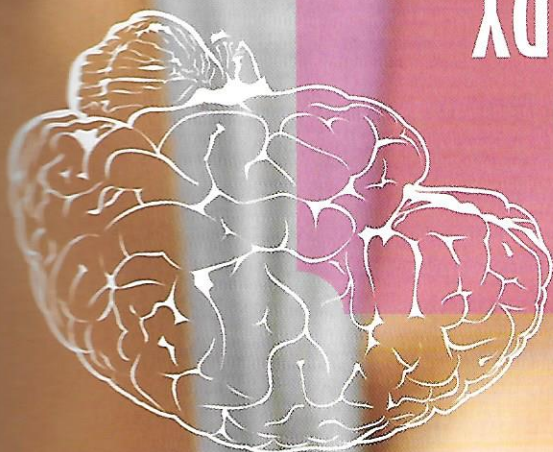


by MARSHA THERESA DANZIG, M.D.

CHANGES YOUR BODY

What Happens
in Vagus [AND IN THE BRAIN]



WHAT YOU *haven't heard* ABOUT HOW **YOGA REDUCES PAIN**

NEW RESEARCH AND A RISE IN THE PRACTICE OF YOGA AS A HEALING THERAPY HAVE LED TO NEW YOGA SPECIALTIES SUCH AS **YOGA FOR VETERANS, YOGA FOR TRAUMA** AND **YOGA FOR AMPUTEES**.^{*} YOGA, AN ANCIENT MIND/BODY PRACTICE ORIGINATING IN INDIA, ENABLES A PERSON IN PAIN TO SHIFT FOCUS, RESTRUCTURE INGRAINED RESPONSES, RESTORE FLEXIBILITY AND INCREASE BREATH CAPACITY — ALL OF WHICH CAN IMPROVE ONE'S LIFE EXPERIENCE.

Hatha yoga, from which all modern yoga is derived, is a combination of yoga postures and breathing exercises, designed to promote stillness and awareness, helping a person connect to life's larger experience and remove limiting thoughts and sensations.

Included in the traditional practice of Hatha yoga are moral precepts for ethical living and self-care. Three of these precepts (compassion, non-grasping and non-stealing of time) are often overlooked in modern yoga practices but are critical to managing chronic pain.

Compassion is the foundation for all yoga practice. When someone in pain practices compassion for themselves, their body unwinds so they have more capacity to be present with their situation.

Non-grasping is a practice of non-attachment to outcome. When a person clings to a belief about pain, a symptom of pain or an outcome of pain, they create more pain. By focusing on present-moment needs, the body relaxes.

Non-stealing refers to the ability to exist in the present. Chronic pain can lead to negative emotions that can interfere with or steal contentment in the present moment. Through yoga and stillness (*non-stealing of time*), a person can begin to redirect thoughts and negative emotions toward helpful action, such as self-care, commitment to well-being, contentment, self-reflection and surrender to a larger purpose. Energy increases.

Yoga poses, or asanas, promote awareness of positive feelings in the body and allow one to observe, with a neutral mind, the places where pain resides. This can greatly diminish pain's hold on the body.

Poses open up the psoas muscle, a long muscle that extends from the back to the pelvis, and connects the sympathetic/parasympathetic nervous system. The psoas muscle allows us to stand up, and is related to our very survival. The stress of pain retriggers the psoas to tighten, which means less freedom to breathe, more stress and more fight-or-flight response. Releasing and lengthening the psoas frees up the diaphragm, therefore increasing the parasympathetic response: tend and befriend, rather than fight or flight. When a person in pain can rest the psoas in various yoga poses, stored tension (and emotions) can relax and let go.

Breathing techniques, or pranayama, accompany yoga poses. Pranayama is breath control. The greater the breath control, the more healing energy is available to reduce pain.

Both yoga poses and breathing reduce stress, increase breathing capacity, realign the skeleton, reduce muscle tension, remove toxic buildup in the fascia, relax the brain, move lymphatic fluid, increase proprioception and relax the sympathetic nervous system, strengthening the parasympathetic nervous system.

When in chronic pain, the body is often in a contracted state, physically and mentally, which decreases blood flow. Yoga's contraction and expansion through poses and breathing increases oxygen flow and creates homeostasis throughout the body so the person in pain is able to focus beyond the pain.

3 KEYS TO PAIN RELIEF: POSING, BREATHING & MEDITATING

In addition to these three presents, three hours of practice

understanding of one's pain triggers and the body's natural pain loops (pain pathways).

SECRETS OF VAGUS: HOW WHAT HAPPENS THERE CHANGES THE BODY

Deep, diaphragmatic breath physically strengthens the vagus nerve, the body's great regulator and source of "gut feelings." Stimulating the vagus nerve, a feeder of the parasympathetic nervous system, can improve depression, digestive issues, heart rate, sweating, spinal issues, skeletal alignment and colon health. Supporting the sensory/motor parasympathetic nerves, the vagus nerve provides the mind-body connection.

Opening the throat and breathing deeply, which happens during yoga, triggers the medulla (the lower portion of the brain stem) and stimulates the respiratory system. The enlarged airway (open throat) and increased lung space

MEDITATION: THE BRAIN ON YOGA

force in the body. Nostril breathing, another form of yoga breathing, is unique in that it slightly constricts the airwaves, which stimulates the vagus nerve. The chain reaction is immediate; cellular exchange and absorption of oxygen is more complete and the brain receives chemical signals that relax the body.

Within a tenth of a second, the brain labels a new sensation as positive, negative or neutral. That means that aversion and craving are sealed into the chemistry of the brain and body. When the brain labels something "good" it says — *Ooh, I want more of that.* The reverse is also true.

When the brain is hyper-aroused, norepinephrine in the brain can exaggerate an experience, especially fear, whether real or imagined. The chronic expectation of a particular result, such as pain, can create a loop, a time-space forward and backward continuum, as if the event which has not

ABOUT THE author & yoga FOR AMPUTEES *

There are over 2.5 million amputees in the United States. Yoga for Amputees (Y4A), a program for active and less-active amputees to experience the health and wellness benefits of yoga, was founded by Marsha Therese Danzig, M.Ed Harvard, a below-knee amputee who lost her leg in 1976 to Ewing's sarcoma. She is also the author of *Fierce Joy*, a memoir about choosing joy.

Featured in *O Magazine* and *Yoga Journal* Y4A addresses the special needs of amputees such as pain relief, phantom pain, stress reduction, PTSD, grief over limb loss, body alignment, balance and life with or without a prosthesis.

Danzig's education includes certification from La Sorbonne in Paris, Goethe Institute in Germany and the Kripalu Center in the United States. She has taught yoga and trained others for almost two decades, offers workshops, online private yoga classes, motivational seminars and life-coaching consultations. For more information, visit www.YogaforAmputees.com.

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happened has already happened. Stress inhibits information to the prefrontal cortex, and the reptilian brain takes over. The system becomes rigid, and chaos ensues.

Through yoga, a person in pain can strengthen the prefrontal cortex, the bridge between emotion and action. In addition, yoga and meditation tap into the insula, the brain's innermost area, where the "happy place" lies. The prefrontal lobe and the insula are tightly joined to monitor the activities of the brain and the entire body system.

Research shows that meditation increases the size of the insula, therefore increasing resilience to pain and reducing reactivity to pain. When faced with triggers that formerly caused stress reactions, research indicates people in pain can better handle those triggers because brain cells associated with emotion and cognitive awareness are thickened.

Long-term yoga and meditation practices can have lasting positive impact on a person's life. [PP]



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