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Sue Ann says: Our brains and our bodies work together to keep us healthy

Do you remember that old song: *The leg bone's connected to the knee bone ... and that's what it's all about!* (Clap your hands here.) I used that little ditty in the classroom to introduce rudimentary anatomy. Stop and think about it though: the amazing interconnection between every part of our body. We are walking, talking puzzles with each piece fit precisely in its place.

But stress can tear the puzzle apart. And women experience psychological stress, anxiety and other cognitive disorders at higher rates than men. We also experience stress differently, with higher blood pressure and heart rate and more rapid muscle fatigue. Is it surprising that cardiovascular disease and task-related injuries top the list of female health issues?

Sandra Hunter, Ph.D., has long been curious about the link between women's reaction to stress and our physical health. She is an assistant professor at Marquette University's College of Health Science/ Exercise Sciences and the recipient of the Wisconsin Women's Health Foundation 2008 Dr. Judith Stitt Faculty Scholar Award. Once a physical education teacher in her homeland of Australia, Dr. Hunter has spent more than 15 years researching women's neuromuscular function. She is especially interested in how men and women react differently to stress, and how that impacts their motor performance and mental attentiveness.

Brain and body are intertwined

Holding postures and sustaining muscle contractions are the foundation of almost every physical task performed at home or at work. And almost all physical tasks, Dr. Hunter explained, have a cognitive (mental) component as well as a physical component. For example, when you get up from the chair, you first mentally perceive the task. The message travels from your brain through your nervous system, telling your leg muscles to contract and lift you up.

Dr. Hunter told me that stress, mental attentiveness and muscle fatigue go hand-in-hand. Picture sitting at your desk, reading over a last-minute project. Even while you are sitting, the core muscles in the back and stomach are contracting to keep the body upright and stabilized. When the core muscles become tired, posture goes awry, putting strain on other muscle groups. If you add psychological stress to the mix (that project is due tomorrow! And it's now 11 pm!) what happens? The heart begins to race, the muscles tighten, the blood pressure elevates. The more stressed you feel, the more get flustered and distracted you get.

"If this heightened response to everyday psychological stresses continues over time, it can result in chronic muscle pain and injury caused by repetitive motion and stress. Stress can suppress our immune systems and therefore leads to other disorders such as cardiovascular disease, fibromyalgia and other conditions," Dr. Hunter said.

Previous research, including Dr. Hunter's own work, reveals that women experience muscle fatigue (motor impairment) more rapidly than men. Older women are particularly vulnerable to impairment. The differences in motor impairment are especially dramatic when men and women experience psychological stress.

Now Dr. Hunter is embarking on a groundbreaking study to learn more about the mind/body link for gender differences in stress reactions. Dr. Hunter will use magnetic resonance imaging (MRI) to examine differences in brain activation between men and women while they are mentally stressed as they perform a motor task.

We at the Wisconsin Women's Health Foundation are excited about Dr. Hunter's research. Women in our state rank among the highest in the country for number of days per month with poor mental health such as anxiety disorders. And with an aging population, we need to take action to help women remain strong and active in later life. "This research is the first step to identify targeted strategies to improve women's stress response and thus minimize impaired motor performance," Dr. Hunter told me. "The brain is very plastic and trainable. Maybe through practice and intervention we can help women change their response to stress."

Dr. Hunter has spent her entire career helping girls and women be active, gain muscle strength and improve self-confidence. "Our bodies and minds are interconnected," she emphasizes. "Being active is key to developing full physical and intellectual potential, no matter what your age." In prior research, Dr. Hunter put women in their 60s and 70s on an intense 12-week strength training program. There was a dramatic increase in their ability to perform daily activities and their muscle strength improved to that of someone six years younger. If that isn't a boost for the self-confidence, I don't know what is!

So as the fall season slowly slips away, invite girlfriends out for a brisk walk. Accompany the kiddies around for trick-or-treating. Plan now for ways in which you'll stay active through the winter months. When you keep yourself strong and healthy, you can bring family and friends along for the ride. Because it all begins with a healthy woman.

Yours in good health,

Sue Ann Thompson
Founder & President
Wisconsin Women's Health Foundation

The Wisconsin Women's Health Foundation (WWHF) is a statewide non-profit organization whose mission is to help Wisconsin women and their families reach their healthiest potential. WWHF presents women's health education and outreach programs, funds women's health research, provides scholarships for women in academic medicine, and publishes resource materials. Your donations help the Foundation reach women all over Wisconsin with the information, resources and tools they need to be healthy. To make a donation or to learn more about WWHF visit www.wwhf.org or call 1-800-448-5148.