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# THE GLOBE AND MAIL

LOOSENING THE KNOTS / vancouver doctor uses needles, sometimes with electrical jolts, to make pain go away

## The point is to make the muscles relax

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Medical Reporter

Typing on a computer may seem like light, easy work. It does not pose the sort of risks that go with many industrial jobs, such as heavy lifting or exposure to noxious chemicals.

But the way Dr. Chan Gunn sees it, computer work puts more strain on certain muscles than they were meant to endure. "It takes a great deal of effort just holding the body in one position," he says, adding that those who work on computers often sit for hours in awkward ways.

Dr. Gunn, a Vancouver physician, is an expert in occupational injuries. For 15 years, he worked for the British Columbia Workers' Compensation Board, trying to catch workers faking illnesses in order to claim sick benefits.

He found very few cheaters, he says. "The true malingerers are extremely rare".

However, the experience taught him a great deal about pain, and led him to devise his own method of treating repetitive strain injury (RSI) and other chronic-pain conditions.

At the Gunn Pain Clinic, where he is now in private practice, he treats fatigued muscles by sticking needles into them. In certain cases, he will add a small jolt of electricity to the treatment. He calls his treatment intramuscular stimulation.

Dr. Gunn's approach seems like a blend of the ancient art of acupuncture and modern neurological science. But he points out that he does not insert the needles into traditional acupuncture points. Neither do his theories fit neatly into conventional Western medicine.

Whatever their description, his treatments are winning converts among doctors in Canada and the United States. Dr. Gunn has accepted a post as a clinical professor in the multidisciplinary pain centre at the University of Washington.

DR. Brian Goldman, a Toronto pain

specialist, began using Dr. Gunn's methods three years ago after finding that many patients did not improve with conventional treatments.

Take the case of Wanda Gruszewski, a court stenographer in St. Catharines, Ont., who spent long hours transcribing trial transcripts. She suffered for five years — numbness in the hands, constant pain in the elbows — and had been to a slew of specialists before ending up at Dr. Goldman's office.

"The pain didn't seem to go away," Ms. Gruszewski recalls. "The only way I could sleep was on my back with my arms crossed, just like you'd be in a coffin".

She tried anti-inflammatory drugs, had massage therapy, saw chiropractors, used arm braces and sought the advice of a urologist — all without lasting benefit.

After just two months of weekly needle treatments from Dr. Goldman, her condition improved dramatically. "I feel 100 per cent better," she says, adding that she now goes regularly to a physiotherapist as part of her final reconditioning.

Dr. Gunn's approach is based partly on the work of Walter Cannon, who did pain research at Harvard University in Cambridge Mass., in the 1930s and 1940s.

Dr. Cannon studied what happens to muscles when the nerves that supply them with messages from the brain are severed. In time, he found, the muscles will waste away, but for a brief period the muscle becomes hyperactive.

In the same way, Dr. Gunn suggests, a partial nerve restriction can also lead to constant hyperactivity within muscles.

His treatment focuses on where the nerves branch out from the spine. "Spinal nerves are the most vulnerable points in the body," he says. The wear and tear associated with aging can fray those nerves. We are allowed to wear out at a constant rate. If we increase this rate too much, the pool of injury overwhelms us."

In particular, the wear is increased by excessive use such as typing for hours at a computer. Muscles in the back and neck,

fatigued from straining to hold the arms in place, will eventually constrict and tug on the nerves as they leave the spine. "And if you're under emotional stress, the tension of your muscles will pull even more on the nerves," Dr. Gunn says.

Once a nerve is affected, it can create problems for the muscles along its path — all the way to the tips of the fingers. Just a partial nerve impingement can be enough to cause supersensitivity.

Dr. Gunn says messages are carried along nerves as electrical impulses. At the end of the nerve, the impulses stimulate the release of a chemical messenger called acetylcholine. It is picked up by receptors in the muscles, which, in turn, contract.

When the normal electrical impulses are restricted, Dr. Gunn says, the muscles become overreactive to small traces of acetylcholine — as though they are so starved for it that the receptors try extra hard to pick up what little is trickling their way.

This oversensitivity may help explain why muscles affected in keyboard-related repetitive strain injury are so painful. To make matters worse, they constrict at the slightest stimulation. Parts of them can become tight as knots.

Normal movement becomes difficult. "It's like driving the car with the brakes on," Dr. Gunn says.

The tightened muscles leads to neuropathy, in which poor blood circulation makes the affected muscles feel cold and changes the skin's appearance, he adds. For instance, when prodded with a match, the skin retains dents.

Other complications can arise. In the hands and arms, the shortened muscles can pull on tendons, causing tendinitis tenosynovitis or epicondylitis (tennis or golfer's elbow) — medical terms for overtaxed or inflamed tendons.

If a muscle remains constricted for a long time, the normal elastic tissue, which gives a muscle its spring, is gradually replaced by tough fibrous scar tissue. At this stage, permanent damage can be done. The shortened muscles may never be able to

return to their normal length.

To treat the condition, Dr. Gunn will insert a needle directly into the constricted part of the muscle, known as a trigger point.

At first, the needle causes the muscle to go into a spasm and then relax, temporarily returning it to its normal length. Between treatments, the patient does stretching exercises in an attempt to get the muscles to remain at that length. Patients also do conditioning exercises to regain lost strength.

The therapy itself can be painful, especially when the needle is twirled. Some muscles actually grip the inserted needle and will not release it for several minutes. At times, Dr. Gunn will touch the needle with a small electric prod, sending a current directly into the constricted tissue that makes the muscle let go.

There are other types of treatment designed to relieve trigger points. Massage therapists, for instance, will apply pressure to them. But Dr. Gunn says it is more effective to direct the needle into a certain part of the muscle.

He believes the needle prick may also marshal the body's own regenerative abilities. It causes localized bleeding, attracting blood-clotting platelets and growth factors that stimulate DNA synthesis and the formation of collagen and protein. The stimulation can persist for days until the miniature wound has healed.

Dr. Goldman says it does not matter how the treatment works — as long as it works. "I happen to believe that what the stimulation is helping to do is to restore transmission along dormant nerve pathways — helping, in effect, to reawaken the brain.

"The brain learns to stop using a limb, or to keep it in a certain posture. And the treatment is firing messages saying, 'We're here, we exist, remember us?'"

Regardless of what might be going on at the molecular level, Dr. Gunn's theory helps explain why some computer users develop RSI, says Dr. Jennifer Chu, an associate professor in the department of rehabilitative medicine at the Hospital of the University of Pennsylvania in Philadelphia.

Computer furniture that puts the operator in an awkward position can cause problems, Dr. Chu says. "When you sit and work in a forward-bent position, the muscles in the back start to tighten up, putting tension on the spine. It starts with a few nerves, then many muscles go into a spasm, and that puts more pull on the spine....

"When the pull is asymmetrical then the other side also starts to have the problem, and before you know it the whole body is in pain."

Dr. Gunn's treatment does not work for everyone, and even patients who have success may also require other forms of therapy. He believes that the chance of recovery is closely tied to the amount of fibrous scar tissue that has developed. "If you have a muscle that is 100 per cent fibrous, then the cure rate is zero per cent."



**Dr. Chan Gunn treats chronic pain by sticking a needle into fatigued muscles.**

*(TIM PELLING/The Globe and Mail)*