Newsletter

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http://capalabachiropractor.net.au

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Educated - Safe - Effective Spine Care

Many patients consider this newsletter as a reminder to come in for their monthly good spinal health check up. Now is a good time to book your "tune up" appointment.

Clinic Hours

Mon	**10am -**	**7pm**
Tues	**9 am -**	**12pm**
Wed	**10am -**	**6pm**
Thurs	**3pm -**	**7pm**
Fri	**9am -**	**4pm**
Sat	**9:30 am -**	**12:30pm**

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The advice in this newsletter is to be used in conjunction with chiropractic care and not as a substitute to professional care.

Your brain and pain

Chronic low back pain (LBP) is associated with reduced brain grey matter and impaired cognitive function as compared to normal pain-free subjects. **In simple terms, the longer you suffer low back pain the more likely you will develop a reduction in the size of your brain and its capacity to process attention demanding tasks.**

The brain controls motion. The presence of pain changes patterns of muscle activation. The brain develops abnormal muscle recruitment and sequencing patterns in response to pain. In other words **people in pain recruit the "wrong muscles in the wrong order" as compared with people who have no pain.** It appears the brain alters the way it sends messages to the muscle to reduce movement of the painful injured body part. All of the muscles around the joint contract causing a splinting / stiffening / guarding effect. **When the brain stops moving a body part it also stops receiving information, proprioception, from the same body part.** The brain loses accurate awareness of where the body part is positioned and how to accurately and efficiently control its motion. It is as if a proprioception "blind spot" develops. Subsequently **that part of the brain does not get used as much, use it or lose it, and atrophies (shrinks).**

A study by Seminowicz DA, Wideman TH, Naso L, et al. published in the Journal of Neuroscience in 2011 evaluated whether or not neuroanatomical and functional abnormalities of the brain were reversible in sufferers of chronic LBP. In their study they acquired cognitive (psychological) testing and MRI (magnetic resonance imaging) scans of the brains of chronic LBP sufferers before and 6 months after the resolution of their LBP.

Six months after successful treatment of LBP the patients had increased thickness in the parts of their brains that had atrophied. Increased thickness in the primary motor cortex was associated with a reduction in physical disability. Increased thickness in the right anterior insula was associated with reduced pain. Increased thickness of the left dorsolateral prefrontal cortex restored the individual's capacity to complete attention demanding cognitive tasks.

This study suggests structural and functional abnormalities of the brain due to chronic low back pain are reversible with the effective treatment of the pain.

Chiropractic spinal manipulation effects the brain

Dysfunctional / stiff abnormal motion patterns are associated with proprioception "blind spots" in the brain. Spinal dysfunction reflects an inability of the brain to accurately sense what is going on in a particular part of the spine. The brain has become less able to accurately and efficiently control motion. Spinal dysfunction can effect the rest of the body as well. For example, dysfunction in the low back can distract the brain and make it harder for the brain to accurately "see" what is going on in the knees. The outcome, a high percentage of knee pain is experienced in people with dysfunction in their low back. Guarding after an injury is normal. Guarding after the tissue heals is dysfunctional.

Adjusting the spine appears to be a bit like rebooting the computer. When the spine is adjusted sensory nerve impulses are sent back to the brain. These impulses help the brain to regain proprioception, the awareness of exactly where the body part is and how to move it better.

The manipulation lights up a part of the brain that has not been working effectively. It lights up part of the brain that has been atrophying. Activating the brain makes it work again. **Making the brain work restores its capacity in both size and efficiency.** As the capacity is restored the glitches in muscle recruitment and sequencing patterns disappear and normal function / motion returns along with a loss of pain. When the pelvis moves freely the knees move in better alignment with a reduced incidence of pain or injury.

A study on the cost-effectiveness of manual therapy (chiropractic care) for the management of musculoskeletal conditions was published in JMPT in June 2014. **The study showed chiropractic care was more cost-effective for pain relief as compared to GP care with or without exercises.**

We are living longer - lets live better. If you change your life you will change your brain. The converse is also true. If you change your brain you can change your life. More information on this topic is available in a book called: **YOUR BRAIN, YOUR LIFE Make it what you want.** We are currently selling this book for $15.00, our cost. Chapter 5, for example discusses the requirements for a healthy nervous system. For survival your brain needs oxygen, fuel (glucose, fats, proteins, water) and activation (use it). There is an optimum level of stimulation, an optimum level of anxiety / stress. Stimulation above or below the optimum level of anxiety results in suboptimal levels of performance. Over stimulation of nerves causes exhaustion of the internal resources of the nerves and can cause cell death. Substances that can cause over stimulation of nerves cells include artificial sweeteners, smoking, chocolate and energy drinks.

Newsletters

Due to the cost of printing and postage we prefer to email the newsletters whenever possible. If you have received this newsletter in the mail and have an email address we would appreciate it if you would send us an email to: **chiropractor@bytesite.com.au** and ask us to email future newsletters to you. The newsletters are in pdf format and can easily be saved to your computer. Thank you for your consideration.

Why Things Hurt

Lorimer Moseley, PhD has done an excellent TED talk on why things hurt. Copy or copy and paste the link into your browser and watch the 15 minute lecture. **http://www.youtube.com/watch?v=gwd-wLdlHjs**

The Best Action Plan: Resetting a sensitized alarm system is not so easy. You must shift from being a pain avoider to a pain manager. **Deal with the pain within three months, before you develop central sensitisation / a chronic pain syndrome.**

What is the opposite of a stress response? A hearty laugh in a safe place with friends!

The perception of pain

All pain is produced in the brain but this does not mean that the pain is all in your head. The experience of pain simply means the alarm system in the brain has been triggered. All pain experiences are best understood as a normal response to what your brain thinks is a threat or a danger. If the brain thinks you are in danger it gives you a pain experience to protect you from danger. Pain motivates you to do something about the situation. The memory of pain will hopefully protect you from making the same mistake twice.

All pain is real and pain nearly always involves something going on in the tissues like compression, traction / tears or inflammation. The amount of pain you experience, however, does not necessarily relate to the amount of tissue damage sustained. It is possible to have pain in the absence of tissue damage. The pain of the loss of a loved one can be as debilitating as any low back pain injury.

Healing

No matter what tissue you have injured a similar three phase healing process occurs. With injury, tissues become inflamed (phase 1). Inflammation is a good thing because it brings the bodies immune and rebuilding cells to the affected area. This phase usually peaks on the 3rd day after the injury. In phase 2, fibroblasts are attracted to the area by the inflammatory process and they lay down scar tissue. If the inflammatory process persists for too long the scar will become too fibrocitic, thick and hard. In phase 3 scar tissue is remodeled along the lines of stress. Ideally, unnecessary scar tissue is reabsorbed and removed. The tissue is remodeled to make it as good of a match to the original as possible.

Different tissues, depending on their blood and nerve supply, require different amounts of time to heal. Most bones and muscles heal in four weeks. Ligaments and tendons have a much poorer blood supply and can take 12 – 18 months to heal. Disc injuries can take 3 – 24 months to heal. The pain experience should diminish as the tissue heals. Persistent pain beyond the standard healing times is generally associated with increased nervous system sensitivity rather than bone, joint or muscle tissue damage alone.

Chronic Pain Syndrome

When pain persists! Pain is a construct of the brain. No brain - no pain! Pain is the end result of the brain trying to protect you. In some cases the tissues have adequately healed yet the pain persist because the brain thinks you are still in danger. The alarm system, located in the brain may have become too sensitive. Your pain threshold may have lowered or the alarm is not turning off when it should. **Sensitisation of the brain and spinal cord is called central sensitisation**.

The more we stimulate the neurons that produce pain they get better at producing pain. The nerves become more and more sensitive and need less and less of a trigger to produce a bigger and bigger pain response. The nerve pathways also lose their ability to produce a specific pain response and the pain spreads. **Eventually, the amount and diffuseness of the pain is not helpful and uninformative.** The outcome is a chronic pain syndrome. The brain perpetuates the experience of pain in the absence of tissue damage. To add insult to injury, people stress and worry about the cause of their pain which makes the pain worse.

The good news is that central sensitisation and the chronic stress/pain response are reversible. Understanding the meaning of the danger (pain) signal and knowing the appropriate action reduces the levels of stress which reduces the pain experience. Your chiropractor can help you determine the nature of your pain and provide you with an appropriate plan of action. This alone will help reduce your stress levels and thereby reduce the intensity and diffuseness of your pain. **It may take a bit of time but the pain will reverse if you understand your pain and follow through with an appropriate rehabilitation program to manage the pain.**

If adequate action is not taken increased central nervous system sensitivity becomes persistent / chronic. You develop more persistent memories of the pain, the pain gets more severe, the pain spreads to nearby body parts, lots of movements (even small ones) hurt and the pain can become unpredictable. You get sudden stabs of pain, which are seemingly unrelated to any demands on the muscles or joints.