

SET TALK

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REHABILITATION OF WHIPLASH INJURIES

Whiplash, also referred to as a cervical flexion/extension injury, is very common, and is the result of almost every auto accident. Anytime the body is thrown or bumped around during the collision of two or more cars, the soft tissue of the head and neck suffers some degree of injury. However, whiplash injuries are not confined to just the head, neck and shoulders.

Most clients will be in a structural core distortion prior to being involved in accidents. This core distortion pattern includes a rotation of the iliums with strained ligaments between the ilium and sacrum that are unable to provide weight bearing support to the sacrum resulting in a tippage of the sacrum. The tipped sacrum does not provide level support to the spine which results in a degree of scoliosis. The greater the tippage of the sacrum, the worse the scoliosis of the spine due to the unstable sacrum/ilium relationship. Another major factor is that the rotated iliums produce a long leg/short leg discrepancy with distortions and imbalances in the legs to support and compensate for the leg length difference. The scoliosis progresses from the sacrum through the lumbar and thoracic vertebrae into the cervical vertebrae. The scoliosis in the cervical spine is more fragile due to the increased mobility and smaller size of the cervical vertebrae. In addition, there is less soft tissue to support the cervical vertebrae.

There are also significant weakened strain patterns within the muscle, fascia and other connective tissue as a result of the distortions found in the core distortion. These strain patterns often result in a loss of at least 50% of the strength and function of the soft tissue. The strain patterns within the spinal stabilization muscles of the cervical spine are incapable of preventing injury during stress or accidents.

Let's examine what happened when Charles, a 25 year old massage therapist, was rear ended in his car. He already had the core distortion with the scoliosis and strain patterns in his neck and spine along with the tippage of the sacrum, a long leg/short leg discrepancy, and a collapse at the weight bearing juncture of the sacrum/ilium. He was stopped at a red light when he was hit by a compact car going approximately 20 mph. At the time of impact Charles had his seat belt with chest strap on so he was not thrown into the windshield. In addition, the air bag inflated which protected his chest

from smashing against the steering column. With these safety factors it would appear that his injuries would not be severe. However, they did not prevent him from whipping back and forth with the greatest whip taking place at the top of his spine in his cervical spine. This created additional problems throughout his entire spine.

The whipping back and forth of his head and neck jerked up on the connective tissue and musculature that runs the entire length of his spine pulling up on the sacrum. This further destabilized the weight bearing relationship between the sacrum and ilium resulting in more rotation of the iliums and increased tippage of the sacrum. The entire core distortion was impacted from his feet up to the top of his head. The weaknesses within the soft tissue from the strain patterns found in the core distortion resulted in significant injuries to the soft tissue throughout his whole body.

These weaknesses also destabilized the spine resulting in dislocations of the vertebrae throughout the whole spine at the time of the impact of the accident. The lumbar dislocations were complicated by additional tippage of the sacrum and the inability of the damaged musculature to maintain structure. The seat belt strap that was across his chest caused an increased rotation of the vertebrae in the thoracic spine. However, the greatest degree of injury was in the head and neck area where the force of the whipping was the strongest.

The brain and the soft tissue of the cranium were also damaged in the accident. Cranially the soft tissue was affected by the jerking and pulling on the dura during the whipping force of the injury, and the brain itself was battered against the hard prominences and strained fibers of the reciprocal tension membrane including the tentorium (the sling that holds the brain). This resulted in restricted cranial motion, distortion of the movement of the cranial bones, and congestion of the cerebral spinal fluid. In addition, the temporomandibular joint (TMJ) went further into distortion due to the distortion of the cranium described above.

As you can see, fully rehabilitating a common whiplash injury becomes very involved when you consider the magnitude of injuries within the body from a seemingly insignificant impact. To fully support the client in the rehabilitation process, the flexion/extension cervical injury needs to be treated as a full body structural problem. The increase in the core distortion following the accident needs to be rebalanced, and the soft tissue injuries throughout the whole body need to be addressed. The good news is structure begets function, and as the structure improves so too will the function within the client's body, often to the point of being more balanced than before the accident occurred.

Thus, the goal of every protocol used in this rehabilitation needs to include improving the structure to achieve long term results. Otherwise the treatments will just be palliative, and the basic cause for continuing problems will remain.

Those of you who have taken my Cranial/Structural Soft Tissue Releases can apply Cranial/Structural techniques that will in one or two sessions bring the sacrum/ilium back into weight bearing integrity and dramatically reduce the scoliosis of the entire spine. In addition, they will address the cranial complications from the whiplash injury described above.

There are three phases to be considered in the full rehabilitation. The **acute phase** where there is significant inflammation, swelling, splinting and the initial stages of healing of the soft tissue; **sub acute phase** where the inflammation and swelling are reduced, the soft tissue has partially mended, and range of motion is being restored; and the **chronic phase** where the long term structural imbalances, adhesion and scar tissue release and strengthening are priorities.

During the acute phase, after the condition has been evaluated by a medical professional and the okay has been given for massage treatment, the massage therapist needs to address the inflammation and swelling in the damaged soft tissue. This will not only be in the neck, but throughout the body and will usually involve several sessions alternating between treating the head, neck and shoulders area and treating the pelvis and low back. These protocols need to be applied with structural goals to decrease the structural distortion from the injury. The 3-step approach to deep tissue therapy works extremely well here as this protocol balances the structure, and works within the clients pain threshold by first reducing fluid and inflammation, second releasing myofascial holding pattern that holds the structural distortion and splinting, and third addressing individual fibers, adhesions and scar tissue (see article on the website and *Massage Message Nov/Dec 2001*). In the acute stage the emphasis is put on the first two steps while allowing damaged soft tissue to continue healing.

The sub acute stage begins when the inflammation and swelling are already reduced and the soft tissue is partially mended. Because of what has already been accomplished during treatment in the acute stage, there is a lessening of discomfort and pain, and clients are ready for deeper work. At this stage remobilization of soft tissue is extremely important both to reduce the structural distortion and to re-establish the range of motion. Using the 3-step approach the first step of reducing swelling and inflammation is usually

accomplished with several strokes. The second step of releasing the myofascial holding pattern is used to reduce the structural distortion and increase the range of motion. The third step of individual fiber strokes should be used cautiously to work on the tissues that have already healed or are extremely tight and need to be released to further balance the structure. Again at this step the clients will note a significant improvement, greater range of motion and less pain.

Treatment in the chronic phase will address the long term structural imbalances, adhesion, scar tissue, and strengthening the structural improvements. There will have already been significant improvement, and the client will be ready for more specific and deeper work. The structural improvements from the release of the myofascial holding pattern will be evident, and the tightened individual fibers, adhesions and scar tissue will now need to be addressed to release their restrictions on full range of motion.

As the core distortion is released, the tissue that was in the strain patterns will be able to strengthen as the tissue heals. Additional strengthening will take place through daily life activities when clients are able to maintain the structural improvements. Once the structural improvements can be maintained, range of motion is increased, and the strength has returned, the client can often maintain normal life activities pain free.

This is the process that Charles went through. He was referred for treatment within the first week of his injury. If clients are already in the chronic stage when they arrive for treatment, all three phases of the 3-step approach can be applied in each session with each successive session progressing and working deeper until rehabilitation is achieved.

When whiplash referrals come from medical professionals, please ask them to evaluate the entire structure. They often will only address the area of initial client complaint. In whiplash injuries, painful conditions of the low back and thoracic areas often don't manifest for several days. Evaluating these areas approximately a week after the injury will give a more complete assessment for total rehabilitation

If you would like information on effective protocols to for full rehabilitation, you can refer to my Back Pain and Head, Neck and Shoulders books that can be purchased through our website.