

Muscles Are the Cause of Cranial Motion

by Patrick Moore, LMT BA

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A fellow lies on the soft massage table. The craniosacral practitioner walks around to the foot-end of the table and gently cups her hands under his heels. She closes her eyes in order to amplify the sensations in her hands. She takes a deep breath and relaxes, so she can discern her own fidgeting from his gentle motions. Soon enough she can feel both of his feet twisting ever so gently outward, or duck-footed, in unison. Then she feels the feet turning pigeon-toed for a time.

Her hands are far more sensitive than her eyes. She has been practicing a few years and can feel motion as slow as six thousandths of an inch per second. You'd need a strong magnifying glass and a stationary background to see that. (You could try this at home and I bet you would feel it). She feels this normal inward-outward pattern for a minute, and her hands assist the body to go in the directions it seems to want to go. So far, the legs only want to move pigeon, duck, pigeon, duck, in a 20- to 40- second pattern. Since she has attended courses in craniosacral therapy, she thinks to herself, *normal cranial motion*.

A minute later she realizes the two legs are not quite synchronized. She realizes his left leg's rhythm turns further outwardly, and less far inwardly. The left leg is going more duck-footed. She feels his left leg turn outwardly then stop. *Pathological cranial motion*, she thinks. She opens her eyes, looks down at his feet. His left foot is definitely turned further duck-ward than his right foot.

This difference in position is caused by certain muscles contracting more. These muscles contract more because his brain signals the muscles to do so.

The old way of thinking is, *cranial motion*. The new way is, *branal motion*.

Now she knows what to do next. She walks up the left side of the table and reaches a few inches under, curling her fingers up into his hip. She palpates and relaxes seven muscles in turn: the quadratus femoris, two gemellis, two obturators, the gluteus maximus and medius. As she feels each muscle soften a bit, she looks down at his feet, and just maybe her eyes are able to detect that his left foot is moving ever so slightly. When she is done with all seven, his left leg is not as outwardly rotated as it was, now that the outward-rotating-muscles have relaxed.

This makes sense, doesn't it? If the body is moving, the first and most likely culprit is something designed to move the body: muscle.

But why? Why would the brain move and hold his left leg in outward rotation? The answer to this question is so simple you may laugh.

Guarding. The brain guards any area that it feels unsafe about. When the brain feels safe again, the muscles stop guarding.

She now goes back to her first position, holding his heels. His legs are moving in a normal motion again, pigeon, duck, pigeon, duck. Why? Why would the brain make the muscles contract to flex and extend in an ongoing pattern?

I can think of two good reasons. The most obvious is to circulate fluids. Another reason might be to keep an up-to-date map of all the angles of all the joints in the body, even during sleep, so that if it needed to fight or flee, it would be able to quickly and accurately leap up, kick, punch and run. This function would increase survival of animals, which means we should be able to trace normal cranial muscle motion in other primates, other mammals, and perhaps in birds and reptiles—anyone with a brain, muscles, and joints could be tested.

Proof: *The Brain Did it, In the Hip, Using The Muscles*

It wouldn't be difficult to measure. Experimenters would need a few things; an EEG machine capable of discerning small differences in motor signal traveling from the brain to the muscle, and ways to measure joint angle and muscle contraction force—little protractors and spring scales. It would be easiest to detect with a very big strong muscle pair like the knee flexors and extensors of a hurdler. If she were floating in water and sleeping, or in antigravity at the International Space Station, you might even see the motion with the naked eye. I predict that the angle detectors will prove each knee slightly bend and slightly extend in rhythms that make nice sine-wave graphs. And that corresponding variance will be found in the muscle contraction forces on the little springs, and in signals sent to the muscles down the motor nerves. This will prove cranial motion is purposely sent by the brain and enacted by the muscles.

Testing might also clear up pathological cranial motion. Experiments could measure differences on the left and right sides, and differences in antagonist muscle pairs (flexors and extensors). Perhaps the right leg moves further in flexion. Why? Either the brain actually sends more signal to the right hamstrings (my bet) or the signal is the same but the muscles act differently. The next two paragraphs explore both options.

If it is muscle that causes pathological motion, why would it do so? Perhaps its annulospiral receptors are functioning poorly. These *proprioceptors* compare signal coming from the brain with actual contraction in the muscle, and report the difference back to the brain. The brain needs this information to keep the body safe, for example, by calculating how much signal will be needed to safely walk up and down stairs. Perhaps the increased contraction in the flexors is because of over-exaggerating annulospiral receptors in the flexors, or because of underreporting annulospiral receptors in the extensors. To prove this model, we'll need the EMGs not only on the motor nerves but also on the sensory nerves from annulospiral receptors headed up toward the brain. We'll

need to see how accurately the annulospiral receptors are correlating the downward signals with the joint angle and the muscle tension. Treatment might include pressing on these muscle receptors.

If it is the brain that causes pathological motion, why would it do so? Perhaps it is simply displaying its *guarding* map. Guarding is when the brain increases its signal to a muscle, and the muscle contracts day and night, in order to protect something. Any region that reports pain or endangered joints to the brain, the brain will *necessarily* react by guarding the nearby muscles. Muscle guarding increases survival of species, for example, by allowing someone with a sprained ankle to amble back to safety. Muscle guarding is seen in all animals. My bet is that pathological cranial motion is simply the increased contraction of muscles the brain judges to require guarding. In this case it is not the muscle that needs help, but the brain needs help to change its guarding map. This is accomplished with a safe practitioner, holding the joint safely in a position that is not triggering any danger proprioception, for long enough for the brain to recalculate what is now the safest setting for the muscle. When the brain does change its calculation, the practitioner feels this as motion, return toward neutral balance.

I could be wrong. The old model says that hydraulic fluid pressure powers cranial motion. But where is the hydraulic pump where pressure originally builds? Another model says piezoelectric voltage is created in the connective tissues and then the fascia does what muscles are designed to do—contract and relax in controlled, intelligent motions. Another model tells that the motion is caused by unseen energy, as in Reiki or chi. It is possible there is no motion and that therapists are fooling themselves because they have been hypnotized by the classes they attend. But I'll stand by the brain-muscle model. Because even if I'm wrong, I still think it's a good idea to help the brain feel safe.

Also I like the results. Recipients feel more satisfied when they can feel a therapist's hand touching their muscles. They like noticing an increased range of motion immediately at the finish of their sessions. Therapists feel more satisfied when they can feel muscles softening, and when they can feel increased range of motion. Therapists feel more confident having an all-physical model for explaining what they are doing. Recipients feel more comfortable and safe when the technique is explained to them as a simple, understandable, all-physical model involving only their brains and muscles.

Definitions:

Brainial motion is the slight, but measurable variance in motor signals the brain sends to the muscles. This variance causes the muscles to slightly contract more and less, which makes all the joints of the body slightly open and close.

Normal brainial motion is a rhythmic variance in flexors and extensors.

Pathological brainial motion is when the brain has been triggered to guard a particular region of the body. Pathological brainial motion provides a diagnostic

tool. The direction of motion implicates a particular muscle that is contracting more than its neighbors.

Brainial therapy is simple; helping the joint move in the same direction of the guarding, shortens the contracting muscle. In the shortened position, the annulospiral receptors report the safest signals back to the brain. The brain is then most likely to change the signal to contract less.

Melting Muscles is a form of therapy where we start by placing each muscle in a shorter position, believing that the brain feels safer this way. Then we touch the muscle in a way the brain recognizes as a mostly muscular touch—with as little skin sensation as possible. Then we wait a moment, and soon we feel, yes, the muscle is softening, relaxing, melting. Melting Muscles is slower than Swedish and Sports massage, but the practitioner is not moving the body slowly enough, or holding still long enough, to feel brainial motion.

Unwinding Muscles works slowly enough, and holds still long enough, to feel brainial motion. Unwinding Muscles follows pathological brainial motion to its stopping point. This following time involves the patient practitioner's right brain. Then the practitioner uses her left brain to analyze, *which muscle is now in its shortened position?* Once she can name or at least touch the shortened muscle, she applies Melting Muscles technique to that muscle. As in Melting Muscles, the muscle soon melts. And more interesting, as the muscle melts, she feels the limb or head begin to move back toward neutral. This is no magic. The only reason the limb feels like it *wants to* move back toward neutral is because the contraction holding the muscle short has reduced.

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