

Rooted in the Past

Childhood Origins of Adult Musculoskeletal Issues

BY MARYBETTS SINCLAIR

Problems affecting your clients today may have more to do with how they were positioned in utero or aspects of their early childhood development than their stress, bad ergonomics, or lack of self-care as adults. Somatic issues triggered early in life—whether caused by injuries or learning to stand too soon—can have lasting effects on the body. Discovering if there are childhood origins for your clients' musculoskeletal issues will help you as a massage therapist understand and unwind their patterns of chronic pain and rigidity.



CHILDHOOD IMPLICATIONS

Children's tissues are not the same as adults. Compared to adults, children have connective tissues that are more mobile, muscles that are weaker and not as tight, joints that are looser, cranial bones that are less fused, and skeletal bones that are softer and more porous. As they grow, however, children's cranial bones gradually fuse, their skin and connective tissues become less mobile, their ligaments grow more rigid, and their muscles become stronger and tighter.¹ While they continue to be shaped by the demands made upon them, the skeletal bones also gradually become harder and denser. During this growing process, children's bodies can easily become misaligned, fibrosed, or tight in ways that will affect them as adults. Scarring and shrinking of connective tissue around injuries or deformities can restrict movement and create faulty movement patterns (such as walking with one knee twisted inward to accommodate a frequently sprained ankle). Patterns of muscle tightness can also develop around a single contracted area. For example, a continuing chain of secondary muscle contractures in such muscles as the adductor longus, tensor fasciae latae, rectus femoris, and quadratus lumborum can stem from a chronically tense or shortened iliopsoas.² The way children sit, move, and hold themselves upright can also shape their bodies. Trigger points can develop from deformities, pain, or injuries, while muscle-guarding around pain or emotional trauma can create deep and lasting tension.³ So, encourage your clients to bring in their children for bodywork when they're young, before these issues become chronic.

Adults often forget events from their childhood, and their musculoskeletal adaptations to an accident or injury can become so habitual that by the time they experience a chronic problem,

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they may remember nothing about how it started.⁴ My client Mark, a healthy 38-year-old accountant, is a good example. Mark has seen numerous massage therapists over the past 10 years for pain in his right intrascapular area. Every few months, he had a sharp pain in that area, often when he first woke up. Mark then visited a massage therapist for two or three visits, requesting release of tension in his upper back. The pain was usually resolved for a few more months, although he always had a sensation of lingering tightness there. He reported that he never had specific injuries to the upper-back area. When I questioned him more specifically about early traumatic injuries, however, Mark remembered falling off a horse when he was 10 years old. He was not hurt by the fall itself, but as he lay on the ground, his horse stepped directly onto his chest. Mark's chest hurt a lot for a few weeks after that, but the pain eventually went away. He finally forgot all about the incident. In working with Mark, I found that his right intrascapular muscles were only moderately tense, but his first and second ribs were anterior on the right side, and there was a buildup of fibrous tissue where the ribs articulated with the sternum. His right scalenus anterior muscle contained two exquisitely tender trigger points, which not only referred pain to his right mid-scapular area, but felt exactly like the pain he had experienced for so long. Trigger-point treatment of the right scalene anterior, along with

showing Mark how to perform self-massage and stretching of the muscle, helped relieve his pain far more than when his treatments had focused on his mid-scapular region. Although Mark at first insisted on massage on his upper back alone, he left my office very satisfied with his treatment.

As a working massage therapist, learning more about childhood origins of client issues will help you understand how these problems develop, and how to unwind a pattern of chronic pain or rigidity.

STRUCTURAL PROBLEMS

Unless severe, many inherited structural issues may not show up as a problem until adulthood. However, vigorous exercise that puts additional stress on an area may cause inherited problems to manifest themselves earlier.⁵ One inherited imbalance is Morton's foot structure, where the foot has a much longer-than-normal second metatarsal bone. To compensate for this problem, sufferers are more likely to toe-out at heel strike and while standing. However, toeing out causes excess weight to fall upon the great toe, placing more pressure on the medial arch and the flexor hallucis tendon, which results in tightness and strain of the flexor hallucis and tibialis anterior muscles, along with frequent ankle sprains. Trigger points in the muscles of the feet, legs, and hips can develop during childhood, and eventually foot, leg, and hip pain can



result. Early treatment with orthotic devices may help prevent future problems. Janet Travell, MD, treated a toddler with this condition who was not able to walk well because he was constantly falling over his feet. He was given first metatarsal toe pads and medial side heel fillers, which allowed him to begin walking immediately.⁶

Another common structural imbalance, hypermobility, is present in about 10 percent of individuals, and can predispose children to adult musculoskeletal pain. It is normal for children to have a greater range of motion in their joints than adults, however greater than normal ligamentous laxity can create chronic pain, even in small children.⁷ Hypermobility often results in muscle tightness—the body’s unconscious attempt to stabilize a loose joint—but this chronic tightness can also cause future pain and dysfunction. For example, in the feet, ligamentous laxity can result in pes planus (fallen arches) with pronation and pain in the medial side of the arch; associated mechanical strains can include ankle, knee, hip, and lower back pain caused by chronic spasm and/or trigger points around the joint.⁸ In the pelvis, sacroiliac dysfunction can result in chronic iliopsoas tension, as the muscle tightens to stabilize the area. Chronic tightness of the iliopsoas can have major effects on posture and ambulation, however, causing the pelvis to become flexed or tilted, and then compensation must be made in the upper body to counter the asymmetry.⁹

Margaret, a 74-year-old retired schoolteacher, is a good example of how a childhood musculoskeletal problem can progress to an adult disability. Suffering with congenital hypermobility (lax ligaments), Margaret’s left patella was first dislocated by a blow to her lateral knee during a volleyball game at age 14. Her patella was immediately reduced (put back into place) and the knee was treated with the standard treatment in 1950—heat and compression. Today, Margaret’s injury would first be treated with bracing, rest, ice, elevation, and later with strengthening exercises to help stabilize the joint. Surgery to repair a torn

joint capsule, retinaculum, or vastus medialis would also be performed.

Unfortunately, Margaret continued to have repeated patellar dislocations. Two years later, her other patella began to dislocate repeatedly as well. Each time her kneecap went out, the joint was reduced, wrapped, and heated. She suffered ankle sprains and dislocations, too. Margaret’s knees began to hurt and feel stiff when she got out of bed each morning. The right knee hurt the most, and she walked with more weight on her left side to favor it. She continued to be active, however, including being on her feet at work. Twenty years after the initial dislocation, her right patella had become so unstable that she had surgery to reposition it, as well as an arthroscopy 10 years after that to remove fragments of cartilage from inside the knee joint. Her knees hurt and felt stiff all the time, and she occasionally suffered severe, debilitating spasms in her right iliopsoas muscle.

In her 60s, Margaret took up yoga and water exercise, which helped her chronic knee discomfort. Regular massage sessions also helped her live with the pain. By 2010, however, her left knee pain became incapacitating. X-rays revealed significant arthritis in the joint, and it was surgically replaced soon after. During the operation, her surgeon found not only severe osteoarthritis of the joint, but advanced contractures of the iliotibial band and lateral collateral ligaments, which had developed in her body’s vain attempt to stabilize a loose joint and to compensate for pain in the other knee.

INTRA-UTERINE CONDITIONS

The later stages of pregnancy can also create future musculoskeletal problems. A large baby in the uterus of a small mother, especially a baby in



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an abnormal position, may be crowded in such a way that permanent changes can occur in the skeleton. For example, inward twisting of the soft fetal tibiae—although normal during late pregnancy—can, in more extreme cases, lead to future problems. At this stage of development, with the tibiae and feet rotated inward and the hips rotated outward, not only tibial twisting, but also soft-tissue contractures of the hip, may result in more extreme cases. (Children with especially long tibiae will experience more of this twisting.) In 90 percent of cases, as the child begins to walk on his or her own, the tibiae will straighten naturally, as they are constantly broken down and rebuilt along the proper lines of stress-bearing, and the soft tissue contractures at the hip are stretched back to normal. For children whose tibia remain rotated, however, they will have excessive medial ligamentous tightness, extra wear and tear on the inside of the knee joint, and a greater likelihood of developing knee osteoarthritis as an adult.¹⁰ As Rolfer and anatomist R. Lewis Schulz points out, fascial thickening across the pelvis is functional when a fetus is knee-up in the womb and during crawling, but when the child begins to stand that shortness is felt as a restriction that inhibits secure upright balance. In many cases, the fascia does not lengthen, because the growing child makes compensations to the fascial shortness in other parts of the body instead.¹¹

Muscular adaptations can take place as well. When there is very high uterine muscle tone and the fetus has especially long femurs, a severely shortened iliopsoas may result. Exercises to stretch and strengthen the muscle are effective if performed in the first few months of life.¹² Active trigger points in the leg muscles can also result from a cramped position in utero. An example is the case of a 3-year-old boy who had such severe calf pains that he napped poorly during the day, and awoke screaming at

least five times each night. Treatment of trigger points in the vastus lateralis and gluteus minimus muscles of both legs resolved the problem.¹³ If the fetus's head is twisted to one side during the late stages of pregnancy, torticollis can develop, with one sternocleidomastoid muscle becoming shortened and fibrotic. Stretching exercises for the shortened sternocleidomastoid are effective in almost all cases, but must be started before one year of age; otherwise, the affected muscle often becomes increasingly fibrotic and much broader than the unaffected muscle. Also, when sleeping facedown, children generally turn their heads to the shortened side, resulting in potential skull and facial deformities.¹⁴ Trigger points in this muscle can cause discomfort and referred pain, and satellite trigger points may develop in other neck muscles, such as the scalenes, trapezius, levator scapulae, and posterior neck muscles.¹⁵ As a result, adults with uncorrected torticollis can have extremely restricted mobility of the cervical spine.

MUSCULOSKELETAL INJURIES

Musculoskeletal injuries are very common in children. Unsafe play, motor vehicle accidents, participation in sports, and physical abuse cause the majority of these injuries. Unless completely healed, each injury has the potential to cause problems later in life due to trigger points, muscle spasm, myofascial restriction, scar tissue, ligamentous laxity, cranial bone malalignment, or armoring (guarding with muscle tension). Inefficient compensation patterns—such as favoring a painful area to minimize pressure on it—are also very common, but can contribute to negative soft tissue and osseous changes over time.

At 8 years of age, Genie Martin fell 20 feet out of a tree, striking branches on the way down, and hitting her head hard enough to be knocked unconscious. She suffered intense chest

wall pain as a result of the impact. “Pain, here-to-fore unknown to me except for little hurts, was now my constant companion—a more nagging, convulsive, ruthless, and demanding companion I had never known about in all my small life. Pain kept me awake at night—made my head ache with every move and burned my chest with fire—so much that I squeezed my arms tightly around to smother the flames,” Martin writes. From that time on, Martin carried a great deal of tension in her chest, and had chest pain when she was anxious. Many negative emotions were carried in her chest, including a fear of falling, a fear of trying new things, and a fear of recurring pain. As an adult, Martin slept with her arms gripped so tightly over her chest that sometimes when she awoke they were numb. While receiving massages, she had to make a tremendous effort to stop her arms from springing over her chest to protect it.¹⁶

SOFT-TISSUE INJURIES

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Severe pain can cause muscle guarding, even when an injury heals properly.¹⁷ Myofascial trigger points can be activated by soft-tissue injuries. For example, neck traction during birth can strain the suboccipital muscles, leading to trigger points in the myofascia of the skull. Psychiatrist and pediatrician David Cheek, using age regression hypnosis, found a connection between a 50-year-old man’s lifelong migraine headaches and his birth. When forceps were applied to the man’s head, one blade had pressed hard just above one of his eyes, and the other blade



compressed his occiput.¹⁸ Trigger points in the temporalis, occipitalis, and posterior cervicals, all of which may be caused by birth trauma, are known to induce migraines, while falling on the head or striking it by diving into shallow water can activate trigger points in the posterior cervical muscles.¹⁹ Scar tissue can have long-term effects as well. In addition to harboring trigger points capable of referring burning, prickling, or lightning-like jabs of pain to adjacent tissues, scar tissue has an astonishing ability to adhere to adjacent structures with a variety of effects. In one case, scar tissue actually pulled the incisors of one child outward, when a thick scar at the corner of his mouth from biting an electrical cord tightened against his gums.²⁰

My client, Ze’eb, illustrates this point. Ze’eb is an 82-year-old retired scientist. During his birth in Germany in 1928, he was in a shoulder-first position, and traction to his right shoulder and arm during delivery caused trauma to the C5 and C6 nerve roots, with subsequent weakness of his rotator cuff, deltoid, biceps, and supinator muscles. This condition is known as Erb palsy. Until he was 11

years old, Ze’eb had weekly physical therapy, consisting of massage and stretching. His arm was completely straight and he could use it normally. Then, however, his family had to flee Germany and he never received therapy again. Contractures gradually developed in the tissues around his elbow joint. By the time he was 40 years old, the elbow was fixed rigidly against his chest in flexion and adduction, and was completely unusable.

SPRAINS

Joint sprains generally occur when a normal joint is wrenched or twisted past its normal range of motion, but they can also occur when a child has congenitally loose joints or when contractures or postural imbalances have created a limited range of motion in an adjacent joint.²¹ Sprains can have long-term consequences: ligamentous laxity from a poorly healed sprain can cause permanent instability (for example, repetitive unprotected ankle sprains in a young gymnast can progress to complete ligamentous rupture); chronic tension

can appear in the muscles around the joint as a stabilizing strategy, (for example, iliosacral ligaments damaged by a fall on the coccyx can lead to chronic iliopsoas muscle tension); and there is an increased risk of developing osteoarthritis.²² Myofascial trigger points can appear immediately after a sprain due to pain and overstretching of muscles.²³

FRACTURES

Most children break at least one bone during childhood. Any force sufficient to break a bone is also capable of traumatizing the surrounding soft tissues, and severe pain may initiate a pattern of muscle guarding. Nasal fractures can result in septal deviation, fibrosis, intranasal scarring, and activation of trigger points.²⁴ Fracture of the proximal humerus can activate trigger points in the subscapularis, while an ankle fracture can activate trigger points in the gastrocnemius muscle. Immobilizing a fractured humerus in a cast can activate trigger points in the pectoralis major.²⁵ When a cast is finally removed from a healed bone, the muscles around it are usually quite weak. As children begin to actively move the body part through its normal range of motion again, muscle strength and blood flow will begin to improve. However, damage to other tissues can remain, and a change in the way the child holds the area can cause postural imbalances as well. For example, if a fractured femur or tibia results in the femur being shorter than normal, the individual will forever have a short leg on that side. A tilted pelvis, compensatory scoliosis, chronic back pain, and activation of trigger points in the hip, torso, and neck muscles can result.²⁶

LIFESTYLE

As with adults, the way in which children live their lives can create different types of musculoskeletal problems. A complete list would be very long, so only a few examples are given here.

STANDING TOO SOON

The tension in an infant's postural muscles can be aggravated by devices such as baby walkers and bouncers, which encourage babies to stand before their bone strength and neuromuscular coordination are sufficiently developed. Their young muscles, especially the iliopsoas, may become rigid to compensate for this skeletal instability. The presence of a tense or shortened iliopsoas can affect a chain of secondary muscle tightness in the adductor longus, tensor fasciae latae, rectus femoris, and quadratus lumborum, and contribute to later foot, knee, and gait problems.²⁷

IMPROPER SITTING POSTURES

How a child sits can affect the body in a variety of ways. For example, the position of the tibiae in relation to the femur can be permanently influenced by different ways of sitting as a child (that is, habitually sitting cross-legged versus sitting with the feet tucked under the buttocks). If excess inward torsion of the tibiae becomes chronic, the child will have excessive medial ligamentous tightness and uneven alignment of the knee joint, a risk factor for knee osteoarthritis.²⁸ Prolonged sitting in poorly designed chairs that put the pelvis into flexion encourages poor posture with a chronically constricted abdomen, increased thoracic kyphosis, and chronically shortened iliopsoas.²⁹ Between car seats, school desks, and working on the computer, children often sit poorly in chairs for many hours each day.

EARLY SPORTS REGIMENS

Repetitive strain injuries, including tendonitis and torn ligaments, are common in sports such as soccer or gymnastics, especially when children play before their muscles and bones are sufficiently matured. For example, stress fractures of the tibia and fibula are common with endurance running in adolescents, and can activate trigger points in the extensor digitorum longus, extensor hallucis longus, and superficial and deep intrinsic foot muscles.³⁰

HABITUAL MUSCLE CONTRACTIONS

Bone growth can be influenced by habitual muscle contractions. For example, girls who train in ballet from an early age develop grossly enlarged second metatarsals as a response to heavy, continuous stress placed on them, and the tibiae of a child with cerebral palsy can become permanently twisted by leg muscles that are constantly in spasm.³¹

PAIN-CAUSED CONTRACTIONS

Episodes of severe pain can lead to sustained contraction of a muscle and activation of trigger points. One 7-year-old girl, with an upper respiratory infection, developed two trigger points in the sternal division of her sternocleidomastoid muscle near an enlarged and very painful tonsillar lymph node. A 10-year-old boy with pneumonia developed a trigger point in one external oblique muscle as he attempted to splint his rib cage to avoid breathing deeply. After both children were well, they each suffered severe referred pain from the trigger points.³² Trigger points in the erector

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spinae muscles can also be activated by pediatric kidney stone pain.³³

CONCLUSION

Being informed about the childhood origins of adult musculoskeletal conditions can help you understand not only how a single event can have a body-wide impact, but give you a deeper understanding of how the body operates as a whole. This can make you more effective at identifying and “unwinding” old patterns. In addition, this can help you explain these patterns to your clients, and convince them (like Mark) to let you explore farther afield rather than at one limited area. To incorporate this understanding into your practice, begin by asking more questions about childhood problems during your intake process. Ask about anything unusual during birth or infancy, any chronic discomfort (such as growing pains), where stress was expressed in his or her body as a child, and any episodes of severe pain. Did the client have any postural issues as a child, such as turned-out feet or a high hip? You may obtain important clues as to deep, long-standing problems, and in addition, may be able to explain to clients why these long-standing problems might need long-term massage. **m&b**

6 Marybetts Sinclair, LMT, has been a massage therapist in Oregon for 35 years, and is the author of *Pediatric Massage Therapy* (Lippincott Williams & Wilkins, 2004) She has

taught massage for both infants and children in many different settings, including special programs for children with disabilities in the United States, Ecuador, and Mexico. For more information, visit www.marybettsinclair.com.

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