Clinical Somatics: Modern Pain Relief

Clinical Overview

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Introduction

Clinical Somatics (also known as Clinical Somatic Education or "CSE") is a highly effective method of hands-on neuromuscular retraining that alleviates chronic pain and improves physical functioning and mobility for clients. Clinical Somatics works with a wide variety of musculoskeletal conditions, syndromes, and symptoms, including: back pain, carpal tunnel syndrome, repetitive stress disorders, TMJ, tendonitis, bursitis, thoracic outlet syndrome, scoliosis, chronic headaches, sciatica, knee, hip, and shoulder pain, and myofascial pain syndromes. Using Somatics, course of treatment tends to be shorter and the results longer lasting than programs of physical therapy, chiropractic, or manual soft tissue therapies.

Clinical Somatics is often described as "bodywork", however in truth the term almost entirely misrepresents the actual process and effects of Somatics. More accurately, Somatics is "brain-work". The practitioner does move the client's body, but these manipulations are entirely for the purpose of altering signals in the brain and central nervous system to change how the nervous system interacts with and controls the rest of the body. Unlike conventional physical therapy, chiropractic, and orthopedics, Somatics does not focus primarily on strengthening the muscles or joints, or realigning bones; unlike acupuncture and other bodyworks, it does not intend to redirect or unblock chi or realign chakras. Unlike massage therapy — even though one of the main results of Somatics is looser muscles, reduction or elimination of pain, stiffness, and tension — Somatics does not even concern itself foremost with loosening muscles.

Neurophysiologic Basis

Clinical Somatics' efficacy relies upon certain basic properties of sensory-motor learning of the human nervous system. These learning processes are not medically controversial: Conventional medicine takes these processes for granted as basic neurophysiology (although, unfortunately, it does not yet apply them to its treatment of musculoskeletal or neurological disorders). In fact, these learning processes are so fundamental and prevalent that various alternative bodyworks modalities have even touched on their influence (but have also not thoroughly understood or exploited them).

The fundamental way that human beings learn all movement behaviors — walking, riding a bicycle, sitting in chair, typing, etc. — is through rehearsal, or "practice". Some movement, such as crawling and walking, is inspired and guided by certain "hard-wired" reflexes, impulses, and neurological patterns. However, even those most

basic of human functions and behaviors must be repeated and fine-tuned until they become smooth and graceful; this is also called practice or rehearsal. Movement, or motor learning, progresses in this way, from awkward to successful, novel to familiar. When movement is first being learned, when it is still new and unfamiliar, it takes a great deal of "concentration" and attention. When we first learned to walk, we did not also utter our first words or pick up a spoon for the first time; we did not plan shopping lists while we first learned to ride a bike, play tennis, or type.

New learning happens in the "conscious" part of our brain, specifically the cerebral cortex, which in colloquial terms and common culture is often what is being referenced when people speak of the "mind". This is the same part of the brain used when one pays attention to something; and the newer the something, the more attention it requires and the less one can attend to *other* tasks simultaneously. The more one "practices" the new movement by repeating it, the more sensory feedback is in turn provided back to the brain, and the more that experience allows the brain to fine-tune it, perfect it, and store it in the unconscious, automatic, "lower" parts of our brain (cerebellum, lower parts of the cerebral cortex, et al.). In other words, a "learned" or "familiar" skill is one which can be made automatic, so one can use the "conscious brain" or "mind" to do other things, such as plan the next tennis swing, think of what to type next, or review the shopping list for the grocery store one is "automatically" moving legs, waist, and shoulders to walk towards.

Pathology: Sensory Motor Amnesia

It is this capacity for and process of learning which makes humans such powerful, elegant, and integrated beings. However, the amazing gift of learning comes with the risk of learning "bad" habits. We can learn a "bad" tennis swing (i.e. one that is ineffective or stressful to the joints), or a "bad" sitting posture, or to keep the wrong muscles (for example, our shoulders) tight when we type. Effective and pleasant and pain-free movements have a self-fulfilling effect, called a "feedback loop". The more one does them, the more pleasant or successful experiences one has. Painful movements have a similar fate: The more one does them, the more familiar and "easy" they become (using more and more established pathways and less attention and neural resources), thus the more the brain learns to keep doing them. Repeating painful movements teaches the brain to make them become unconscious, or automatic; in turn, initiation and control of these movements is relinquished to "involuntary", automatic, lower parts of the brain. In effect, it is as if the conscious, voluntary parts of our brain have forgotten about these muscular activities, or how to control them. For this reason, this involuntary state is called "Sensory-Motor Amnesia" ("SMA").

SMA can appear in several ways: A muscle can be held in chronic low grade tension that affects its range of motion and quality of motion (shakiness, poor coordination, etc.); this might make a muscle mildly tight or sore, and it may limit flexibility towards the end of the muscle range. For example, a shoulder or hip muscle may have 30% SMA, meaning the first 30% of the muscle's range is contracted, the fibers chronically held in a shortened state. In this case, the muscle might be tense or shaky but movable, so it will not move freely, but with external pressure or strain the muscle can be stretched into greater length, so its fibers can be pulled to, say, a 20 or 10% shortened state. In some cases like this, the muscle may have a stopping point such as, say, 5 or 10% contraction, beyond which the muscle cannot even be externally stretched very easily at all. This phenomenon be seen anywhere in the body, such as a tight hamstring, plantar flexor muscle, lumbar paravertebral muscles, or muscles around the wrist, forearm, and shoulder. People of all ages and stages experience this every day, from tight neck or shoulders when we sit at a computer, to tight hamstrings that we

believe must be stretched before working out, or generalized inflexibility that we think can be solved by a daily stretching or yoga routine.

Alternately, a muscle can be held in such strong SMA contraction, that its muscle fibers will stay firmly and unyieldingly shortened. For example, a shoulder may be raised by a 45% contraction of the upper trapezius muscle fibers, and no amount of forcing by the individual's will or an external hands or a machine's pressure will lower the shoulder. The same can occur in any area, including a frozen hip that will not let the leg internally rotate, or a muscle that locks down the scapula and results in severe shoulder girdle limitations.

Chronic Misuse

SMA can be learned in a variety of ways. Chronic misuse is a very common cause: Our lives become so hectic or resource limited that we take uncomfortable shortcuts in our movement; and we must repeat these shortcuts so often that we forget to use the healthier movements paths. We slouch down at a computer to see the screen, and eventually that posture becomes more familiar, easier, and then ultimately the automatic one. In turn, the tension holding us in that position then makes it very difficult to sit in the truly healthy and comfortable posture, if we even remember to try. Because a surrender of the motor output to unconscious, involuntary control generally also relegates the sensory input phase of the sensory-motor feedback loop to unconsciousness as well, we may not even notice that our posture is bad — or any of the myriad ways in which we are distorting our skeletal and joint structures. We just notice the soreness and headaches that result.

Maladaptation

"Maladaptation" is another way in which SMA occurs. Maladaptation occurs when an organism's old habit no longer suits its present needs or circumstances. A patient learns how to use his body differently as he recovers for six weeks from a broken foot. This new habit becomes his new "default route" even when he is capable once again to put full weight on the affected limb. The original habit of full length is forgotten, and now, mysteriously, he may walk with a limp. The patient mourns the loss of his former freedom, unaware that it is not permanent damage from the injury, but instead simply an old habit that is out-of-date: It was adaptive for those 6 weeks and was of great service to the patient, but now it is maladaptive — and now he can learn to remember, learn to get the freedom back.

Habituated Reflexes and Stress-Responses

Some of the most prevalent and serious ways in which SMA occurs is through chronic activation of certain reflexes and stress responses. We spoke earlier of hard-wired reflexes that inspire the learning of certain movement patterns like walking. Ironically, there are other reflexes and patterns of muscular response that can inspire the learning of maladaptive postures and contractions, and some of them are frequently triggered in modern life. To illustrate, we will discuss three response patterns that occur most commonly, using the reference terminology of Clinical Somatics.

The Green-light response is a muscular response pattern triggered in humans when they must perform rapidly or we have too much work to do. It contracts the back muscles and the other extensor muscles. To compound the prevalence of the Green-light motor pattern, its posture is also proactively overused: Many people will deliberately arch the back, pull the shoulders back, and thrust the chest forward, to appear to have good posture or seem impressive or tall. The collective result is an epidemic of workers, athletes, military personnel, dancers, models, and teenagers with chronic back pain, tight piriformis and gluteal muscles, tight and sore hips, and locked and injured knees.

The Red-light response is analogous to the primitive Withdrawal reflex that in all animals protects our most critical and vulnerable areas, in

times of danger, distress, or worry. It is the fetal position, contracting some combination of the flexor muscles of the abdomen, chest, neck, jaw, face, forehead, inner thighs, bent knees, and feet. Among other things, it creates conditions of kyphosis, restricts breathing (sometimes to a degree sufficient to impair cardiovascular function), and causes slouched posture, tight abdomen and medial rotators, pronated feet and knocked-knees.

The Trauma response is a kinesiological response to avoid injury, or to heal once an injury has occurred. Interestingly, the same or similar motor patterns are employed for both purposes/tasks: The body rotates and twists and bends at the center to escape a trauma. The same basic action is taken to evade or move the limbs — the hips and knees bend and rotate to locomote or move the feet away; and the waist and shoulders bend and rotate to withdraw the arms or use them in defense. On the other hand, if the body *fails* to escape an injury, its muscles also bend and contort to brace or splint the injured area (for example, a broken arm, thigh, or foot; an injured neck; a wound on the torso) while it heals. Over time, serious injuries or multiple smaller ones result in seemingly permanent limps, postural imbalances and asymmetries, impaired walking and running and athletic performance, unequal leg lengths, or scoliosis.

Over the course of a normal lifetime of stress and strain, misuse, maladaptation, and chronically triggered reflexes teach our brains to automatically and unconsciously hold our muscles contracted in various combinations of patterns, in turn causing a variety of pains, tensions, limitations, and other symptoms. Since muscles are what move bones and other tissue, SMA mimics, leads to, and exacerbates many other symptoms — inflammation, soreness, muscle fatigue, herniated discs or compressed vertebrae, nerve compression (like sciatica), TMJ, carpal tunnel syndrome, bursitis and tendonitis, arthritis, impotence or frequent urination due to pressure on the bladder from tight groin muscles, asthmatic or shallow breathing from tight chest and abdominal muscles, worn cartilage, torn muscles, ligaments or tendons. Various combination reflex patterns of SMA create the postures we associate with the collapse of old age; and many of the other effects of SMA are also mislabeled as the fixed and progressive effects and declines of aging.

Clinically, it does not matter if the patient's problem was caused by physical, mental, psychological, or spiritual disease or assault. It does not matter whether SMA developed from minor injuries, major accidents, trauma or surgery, military service, bodily misuse in the gym or on the dance floor, a bad desk chair, stress at work, overdue mortgage, the fear and/or hurt of an abusive or unsafe relationship, depression, anxiety, or low self esteem. Once these experiences have been learned in the brain as Sensory-Motor Amnesia contraction/movement patterns, the patient has developed a sensory-motor problem that is the root cause of the present day musculoskeletal and other symptoms.

Clinical Treatment Mechanisms & Methods

SMA can be so ingrained, so well-learned, that it seems impossible to free oneself from it. This is because from the "mind" or conscious part of the brain's perspective, certain movements are gone. No amount of conscious thought can solve the problem of SMA. The re-teaching of the brain occurs not in the brain's emotional centers (even if the original event that taught SMA was an emotional one), not in the cognitive centers, and not in the autonomic relaxation centers of the brain. Instead, the elimination of Sensory-Motor Amnesia occurs only by relearning movement in the sensory-motor centers of the brain. This is the reason the full name of Clinical Somatics is actually Clinical Somatic Education, and practitioners are called Clinical Somatic Educators.

These logistics of SMA underline another important phenomenon: The state of SMA can be

so severe that the joint and the muscle's range of motion is completely frozen. The frozen state can feel to the patient, and appear to the physician, as if it were actually a structural limitation. Yet, the very area that seems structurally immobile is in fact caused by a state of active muscular activity by the involuntary motor tracts. Consciously, it feels like it does not move, like there is nothing that can be done functionally. The reality is that the conscious mind that believes this is correct: *It* cannot do anything. However, despite the patient's belief and cognitive powerlessness, the somatic nervous system *can* correct this functional problem that feels structurally permanent, through Somatic Education.

Just as bones, tendons, ligaments, and fascia do not move of their own volition, but instead only go where muscles move them — in turn, muscles have no will of their own either. Muscles only move where the brain tells them to, across neuronal pathways of the somatic nervous system to muscle fibers. Thus, it is important to understand that just altering the muscles — through manipulation, stretching, strengthening, cold, heat, herbs, injections, medications, salves, or herbs — will not change the root problem.

Clinical Somatic Educators move the client and facilitate the client's own movement in very specific patterns to remind the brain what it forgot, to provide the brain with a practice exercise in exploring, discovering, and controlling the muscles. The muscle movements are like a telephone the practitioner uses to place a call to the brain. Some of the kinds of movements are passive, with the client lying still on a table moved by the practitioner. Others are active, with the client voluntarily contracting and moving muscles in specific ways in cooperation with the practitioner. Many of the active movements are carefully coordinated contractions made by the client to highlight for the brain the part of the muscle it forgot how to use. This is such an interesting example of how brain-work is bodywork and vice versa. Moving the muscle is the exercise that lets the brain figure out what it forgot, but the forgetting and relearning/remembering is occurring in the abstract maps and sensations of the muscles inside the brain. So the therapeutic muscular contractions are not conducted to unlock parts of the muscle that are frozen, but instead to shed light on the blind, dark patches in the conscious brain where those parts of the muscle should be controlled. Calling them dark patches is the same as calling them the forgotten parts — of the muscle, or the brain — whichever way you wish to call it. So, Somatics' muscle exercises are designed to play "marco polo" with the conscious brain, until it finds the lost dark parts and exclaims "aha". When it does, the brain has changed, the muscle is back in its control, in SMA no longer, and muscles that have been frozen in contraction for years can relax in an instant.

This process of eliminating SMA is a critical example of how Somatics is brainwork. So many of the pains and limitations patients have in their bodies are entirely functional: Once the brain adjusts how it is functioning, the body shifts. Certainly, there are other symptoms that take time to subside: If a joints' tissue is inflamed from years of tight shoulder muscles from SMA, it will take some time for the swelling to subside after the SMA and the resulting contraction is gone. If a bone spur built up from years of muscles with SMA forcing two bones to rub against one another, it will take time for the body's bone abnormalities to reabsorb.

Somatics Sessions

Somatic movements are slow and gentle. For the movements to be educational to the conscious brain, they have to be slow and attentive. For them to be using the right part of the brain and spinal cord tracts, movements are performed in a range that is comfortable (even if that range is almost imperceptible to the observer, the neurologic challenge is the same for the client, and thus still effective); so Somatics is a gentle and painless. The same kinds of movements done with a 90-year-old woman are done with a professional athlete, and these movements "wake up" the conscious part of their brains, turning on a bright full-spectrum light in

the same way. Depending on how much SMA one has, and how long the "bad lesson" has been rehearsed (that is, how long the maladaptive posture or motor output has been present and thus constantly reinforced), the course of Somatics treatment can vary: The number of sessions conducted is dependent on how many different maladaptive patterns (and synergistic combinations thereof) have to be addressed and re-trained. However, because the therapeutic change happens in the "software" of the brain, and not in the growing, rebuilding, or strengthening of tissue and "hardware" in the body, once the brain learns it, the change happens in the moment — and much of the resulting symptomatic changes do as well. Consequently, typical course of Somatics work with a practitioner is between 2 and 10 sessions.

Clinical sessions last one hour and generally take place on a specialized table. The practitioner and client first meet, so the practitioner can intake the client's health history and assess the patterns of muscular contraction unique to that client, through systematic palpation and visual observation of standing and certain movement activities. From intake and assessment, the practitioner determines what combination of reflexes, patterns of contractions, and postures are habituated in the client — and constructs a loosely predictable plan of several sessions to work with the muscles and areas in the client that are contracted or imbalanced in ways that reflect/indicate where the client has SMA.

Many of the ways a clients' brain is taught to let go of the contraction patterns of SMA are movements the client can perform without the hands-on assistance of the practitioner. To help a client's process through the course of sessions, the practitioner will teach the client a few basic versions of these self-performed movements to do at home. Most of these exercises take only 5 minutes a day to do. This enables the client to maintain and improve on the benefits from the sessions, and repetition of the exercises allows clients to lay down permanent pathways of learning that override long-term injuries and chronic misuse. The exercises provide them with tools they can use for the rest of their lives to get and keep themselves out of SMA, out of pain and limitation, and in the continual process of growing better and smarter as they grow older.

Somatic Exercises

The self-care exercises taught to the client at the end of a session are a summary of the postures and activities of which they need to learn voluntary control. Additionally, there are countless other explorations that clients can do by themselves, which provide many of the same sensory-motor learning benefits as the hands-on sessions. For clients who want to incorporate Somatics benefits more deeply, or who can't afford sessions, or simply want to make Somatics a part of their day like exercise or yoga, the exercises are taught in group classes.

Classes may occur once or twice a week, or may consist of a full-day workshop of Somatic exercises. Students might participate in a general class of overall body flexibility exercises, or a specialized class for frozen shoulders or hip problems or lower back pain; for typists and carpal tunnel syndrome sufferers; or for the tensions associated with pregnancy. A roomful of students lies or sits on mats on the floor, and follows the direction of a trained practitioner, to move and explore movement in specific ways that reawaken the brain and free up the muscles, joints, and mobility.

Just as self-care exercises learned at the end sessions become a 5-minute routine that clients can use to maintain their Somatic health for the rest of their lives, students can use the exercises they learn in classes in a similar fashion. Somatic Exercises are where one can really see the context and application of Somatics in everyday life. For example, the flexibility achieved and maintained by Somatic exercises can be used before athletic exercise, in place of the more conventional forms of stretching, which research has shown may be damaging to joints and tissue, and actually may increase risk of injury.

Conclusion: Growing Smarter

Sensory-Motor Amnesia is a powerful and pervasive syndrome that arises from our basic human mechanisms and behaviors. It is the result of our greatest evolutionary strengths — to learn and adapt. In the absence of awareness of SMA and its cure, it has become one of the most prevalent plagues of modern living for people of all ages. Without Clinical Somatics, SMA seems like an onslaught of unavoidable or irreversible problems — the rough and tumble of sports and accidents, the wear and tear of working life, the tragedy of unrecoverable and unrehabilitatable trauma, the decline and decay of aging. With Clinical Somatics, we are shown that it is in reality just a temporary forgetting of what it is to be young, free, and comfortable; and we can relearn how to do that, like magically rediscovering the bodies that used to be our best friends.

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Appendix A:

Clinical Somatics and Medicine

Clinical Somatics provides pain relief where medical interventions cannot. The brain must learn movement awareness through movement, not medications or surgeries. In fact, medicines can mask a serious problem that can easily be eliminated through sensory motor education, and disable the very sensory pathways the body uses to learn out of SMA. Surgeries for SMA problems may cut or alter the "hardware" of the body, but do not change the software signals being sent by the brain, so many pains, tensions, and limitations persist after surgeries. One example of this is that back surgeries have only a 50% success rate. Another example is problem hips or knees that may suffer from SMA, are operated on, and then experience similar or worse problems years later. An even more worrisome outcome of unnecessary surgery for SMA is that the trauma of the surgery can magnify the SMA, or cause it to occur in other parts of the body.

If a client is suffering from, say, a nutritional problem, no amount of Somatics will cure the root cause (nor likely do adequate good for the symptoms). Even muscle tension that is caused by nutritional deficiencies will not likely be cured by Somatics — even if a client sees some temporary resolution of these symptomatic muscle cramps. Conversely, in a similar fashion, say a client suffers from chronic pain, muscle tension, or problems with breathing, headaches, fatigue, etc. If these conditions are caused by SMA and its tensions, the client's sensory-motor brain must be re-taught to feel and move these muscles voluntarily. No amount of conventional or alternative medicine will achieve this change; Somatic Education is the only remedy.

In cases where the cause of a patient's problem *does* in fact seem to be medical in nature, SMA can turn out to be a surprisingly significant factor, and Clinical Somatics a valuable (or even indispensible) treatment option. Some examples of this are discussed below.

The Structural Impact of Function (SMA)

Many musculoskeletal symptoms are considered to have a structural cause, due to radiographic data showing disease states such as bone spurs, herniated disks, degenerated joint tissue and other structural changes. However, despite these correlations, research does not necessarily support (and in some cases contradicts) all of these structural deformities as causative factors. Clinical experience in Somatics shows many musculoskeletal diseases associated with a structural change improving or resolving entirely with only Somatic intervention. It is the hypothesis and operating assumption of the Clinical Somatics field that many cases of bony, disc, and other changes may be *caused* by the pressures and distortions of SMA; and that the same intrinsic adaptive mechanisms which responded to functional distortions with these structural changes may reabsorb or otherwise rectify these changes when function normalizes through Somatics.

Presumed Structural Damage That May Actually Be Functional (SMA)

There are medical conditions whose symptoms may include some in which SMA is involved. For example, stroke patients who lose movement in, say, an arm, are assumed to be suffering from pure and simple damage to neuronal pathways. There are instances where stroke may

have damaged or limited some movement, but many paralyzed movements turn out to be muscles frozen in the paralyzing contractions of strong SMA from the trauma of the stroke. Another example of medical conditions with Somatic symptoms is the burn patient who had lived his 45 years with the diagnosis that nerve damage was the cause of a limitation of his wrist's ability to move more than 5 degrees. With 5 minutes of Clinical Somatics movements to show his brain how to release what turned out to be SMA from the burn trauma, the patient had full range of motion after 45 years of supposed fixed, permanent damage.

Indirect and General Effects of SMA

Furthermore, there are other medical conditions that seem to indirectly benefit from the elimination of chronic muscle tension and diminished sensory-motor control. For example, there is some indication that high blood pressure may be impacted by tight muscles of the chest, abdomen, and neck from SMA that restrict respiration.[1] Some patients have seen asthma symptoms resolve from eliminating SMA of the Red-light reflex muscles of the chest, neck, and abdomen. Similar effects have been seen with impotence, digestive disturbance, and frequent urination.

As we have discussed, Somatics does not claim to work with anything other than SMA. It is helpful for such a wide variety of disorders because SMA is the underlying cause of so many varied symptoms and disease states. However, Somatics has even further applications, as many diagnoses that might not seem to be caused by SMA — for example, those regarded as having an inflammatory cause, such as some cases of arthritis or headaches — often resolve when muscle tension in those areas is eliminated through the elimination of SMA.

In many alternative and conventional medical approaches, muscles are a remarkably marginal part of the focus and discussion. Despite being the primary mover of the entire body and all that's in it, and being the only direct wire to the voluntary nervous system — the biggest and most powerful learning system in and day-to-day driver of the body — muscles are often only looked at in terms of experiencing side-effects of the other systems. For all the discussion of the ways patients should take control of and responsibility for their health (in both complementary and modern conventional medical trends and practices), little to no attention is paid to the one system over which human beings have the most enormous and direct voluntary control.

A primary focus in many alternative and conventional medical approaches is on autonomic and structural systems, such as immune response, hormones, nutrition, stress, and strength and aerobic fitness. Many conditions are viewed in terms of the body's automatic immune response of inflammation, hormonal imbalances, etc. However, in Somatics, we see many of these inflammatory conditions resolve (as if *they* were the side effect — the symptom, not the cause) when the muscle tension around them is eliminated through Clinical Somatics.

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[1] For a more detailed discussion of this topic, see Hanna, Thomas, *Somatics: Reawakening the Mind's Control of Movement, Flexibility, and Health*, 1988, pp.56-59.

Appendix B:

Clinical Somatics and Other Movement Therapies

Many movement therapies (including physical therapy, orthopedic exercises, rehabilitative therapies, and alternative bodywork modalities) will attempt to remedy the body's misalignments and functional failings by enhancing strength. However (as discussed in the primary article and in the previous Appendix regarding Clinical Somatics and medicine), SMA is often the true cause of misalignments and musculoskeletal disease states as well as weak, sore, or swollen joints and tissue. In cases where SMA is causative or even simply present, not only is Somatic Education the only means of eliminating the SMA, it may be the only means of eliminating the symptoms or disease conditions. Other interventions may only provide temporary palliative effect; in the presence of SMA, some interventions may even do harm or exacerbate the SMA disorder.

Furthermore, as discussed in the following Appendix regarding Clinical Somatics and athletics, SMA is often a significant factor in weakening the strength of a muscle or muscle group. Eliminating the SMA may be critical to truly correct the weakness, regardless of any strength training efforts

Traditional therapies and massage can coordinate well with Clinical Somatics. For example, therapeutic massage is much more effective after the muscular tension and its root cause is relieved. Spa massages are also more pleasant and productive for the client and practitioner alike after the client undergoes Clinical Somatics sessions. Chiropractic adjustment and overall treatment is also much easier and successful when Clinical Somatics treatment is provided.

Clinical Somatics can be invaluable for dance and Pilates practices, as their clients will avoid injury and increase progress with the flexibility provided by Clinical Somatics. Furthermore, when these practices are used as therapies for musculoskeletal disorders, the same Clinical Somatics concerns apply as discussed in terms of physical therapies.

Clinical Somatics is a perfect complement to what many seek in "mind-body" disciplines, be it meditation or relaxation, or movement and bodywork. Mind-body pursuits may be helpful, but for some they also may be frustrating. The symptoms and limitations some feel that sends them to yoga may actually be SMA (which is unlikely to be relieved directly by yoga). Others devoted to the pursuit of yoga, both beginning and advanced students, may struggle for years with certain postures or ranges; many of these struggles are caused by SMA. Yoga is much more difficult and painful if the muscles are tight, and injuries can occur. With Somatics, the muscles and joints are lengthened without stretching, kinesthetic awareness and coordination is improved, the postures are easier to obtain and more satisfying, and students are able to achieve their goals. Rather than facing frustration or injury from attempting positions hindered by SMA that has not been addressed, students are now free to enjoy the fitness and relaxation benefits yoga offers. Similar benefits are realized by martial artists.

Similar situations occur with practices such as meditation. Some begin meditation to face or alleviate pains that might be caused by SMA. Meditation is still a valuable endeavor, but it

certainly can only be enhanced by eliminating the distresses that are actually caused by SMA. Other dedicated meditators will struggle with pains — hip or back problems, shallow breathing, etc. — that hinder further progress of their meditation. Rather than straining to make the meditation dissolve these problems, Somatics can make them disappear, enabling the meditator, like the frustrated yogi, achieve higher and deeper levels of their practice.

In addition to helping many movement therapists do their jobs easier, Clinical Somatics offers practitioners the opportunity to not just manage certain chronic pain and musculoskeletal disorders, but to eliminate them entirely.

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Appendix C:
Clinical Somatics and Athletics

As discussed earlier in the description of Somatic Exercise, the flexibility benefits of Somatics can replace more conventional approaches to stretching (and eliminate the risks and potential counter-productivity associated with stretching). Average and performance athletes can use Somatic Exercises routines to more safely *and* more effectively lengthen and loosen the muscles, fascia, and joints. An injured athlete (be it a weekend warrior or trained professional) might attend a course of Clinical Somatics sessions to resolve the problem area (possibly in lieu of braces and pain killers that temporarily abate but do not cure the problem), and then continue with Somatic Exercises where they might otherwise stretch, to indefinitely improve flexibility and avoid the old injuries as well as new ones (which inflexibility or even conventional stretching itself might cause). This is why, for example, a Somatics practitioner who was also a personal trainer achieved the lowest injury rate in her county when she replaced all her body builders' stretching routines with Somatic Exercises instead.

Somatics gets patients back in the game[2] and keeps them flexible, but it goes beyond what many athletes think of as mere flexibility or rehabilitation. For those looking to maximize efficient movement, Somatics is an indispensable tool. As a performance machine, the body is an intricate and highly advanced assembly of levers, joints, and dynamic structures. The act of movement of any kind relies on this, but it is never so tested and proven than in the performance of sports. The elaborate training of coordination and patterns of movement — slow and fast, gross and fine — are utterly vulnerable to the interference of unnecessary or even counteractive muscle contractions. If one's primary goal were to walk up a hill, no one would do so with a boulder strapped to his or her back. The counteractive force of the boulder's pull against the goal of walking up the hill would absolutely diminish the performance of the athletic event of walking up the hill. The net effect is that a body's power, strength, speed, or energy available to walk up the hill is subtracted by the amount the boulder is pulling the body backwards. The same equation occurs all of the time in movement tasks, when one wishes to move, say, westward, but opposing muscles (called "antagonist muscles") are pulling the body or body part eastward. Why, one might ask, would the body do that? If I want to move forward, why would my body have some of its muscles pull me backward?

The answer is simple, if you know as Clinical Somatics does about SMA, and about the role of the brain's voluntary and automatic centers in motor learning. Remember, of course, that it is the very ability to automate that allows athletes to perform in the first place (no one could voluntarily coordinate every aspect of a movement every single time from scratch with any reasonable degree). However, remember too that when a muscle contraction is automated sufficiently that

2 On the one hand, Somatic Education practitioners are worried when one pursues many stretching and performance routines without the brain-body retraining of at least some basic Somatics exercises. On the other hand, the reason for the Somatic Exercises is to get the athlete back on to the field, or the hobbyist back in to the pursuit he loves and lost capacity to do.

we call it SMA, it is so far from voluntary/conscious, that the voluntary/conscious part of the brain is no longer conscious of it and no longer in voluntary control of it. So, it is the conscious/voluntary part of the brain that decides to run forward and voluntarily initiates contraction of the necessary muscle groups, but it does not stop contraction of the opposing muscles; indeed, if opposing muscles are in contraction from SMA, the conscious brain does not know they are contracted, and would not know how to release them if it did.

This counteractive equation caused by SMA happens in many people, a lot of the time. It slows us down, makes us tired sooner than we'd otherwise be, and impacts the net amount of power, strength, speed, or energy we have to do a task. Even the act of walking involves a complex coordination of muscles of the front on one side contracting while muscles on the other side relaxing for one step, with an elegant reversal of those sides for the next step. The same is true for jogging and for running. If SMA is holding some of those front or back muscles tight, they will stay tight (at a low level at least) all of the time; SMA does not give special day passes for the day of the big game. These tight antagonists will antagonize the walker's or runner's progress forward at whatever point in the movement they oppose. Athletes trained without Somatics are not immune to this. The strength and coordination exercises they perform do not generally discover or teach out of SMA. Instead, commonly what occurs is that athletes develop greater strength (as well as improvement of movement efficiency everywhere they *don't* have SMA by learning the best possible style of running or throwing) so the "westward" muscles have more strength than the average person to fight against the "eastward" antagonist muscles. In the end, this is a recipe for wearing out the bones and joints, as the structure that is so unfairly and commonly blamed for injury finally does give out after a valiant job of withstanding unfair tug-of-war forces. This is especially the case with the amount of strength built by many professional athletes, that creates the kind of sheer mechanical forces that not only cause wear long-term, but create risk of epic damage to joint and skeletal integrity throughout careers.

A casual athlete who runs against SMA in his morning workout might see a significant power gain by eliminating the, say, 35% loss he was experiencing from SMA. This would come by using Somatics to let go of the SMA, without having to pursue any greater level of strength or aerobic training. The gains might exceed those gained by a professional athlete who instead just pursues the conventional approach of bulking up more. The professional athlete has this same opportunity for easy and sometimes dramatic gains in performance. This is how strength is not simply a matter of bigger or more powerful muscles, but also a matter of muscles that are free from SMA, so they can each work at their maximum level of strength individually and in the most effective state of coordination together.

Remember that this equation is true for all movement. A golf swing involves certain muscles contracting at certain points in the swing, while others must be relaxed to their maximum length. The same is true for the throw of a ball, the swing of a bat, or the twist of a torso in any sport. This is why golfers see gains in the power and grace of their swing from Clinical Somatics for their hips, waist, abdomen, chest, and shoulders (in varying combinations, depending on where is the SMA in the particular golfer), and why similar gains are seen in athletes and dancers of all kinds. Efficiency gains from Somatics may provide performance improvements in areas that might not be gained otherwise. For example, an injured college track runner was kept off her team for two seasons. She underwent a course of Clinical Somatics sessions to address the problem areas, and returned to the team. Journalists covering the athlete reported that she performed better than before she was injured.

Joint instability and hyper-mobility are common problems identified in athletics and orthopedics. Here too SMA may be the culprit. Some conventional approaches to joint stability problems are to inject inflammatory agents into the joint to limit movement[3], or to strengthen or

3 Encouraging inflamation in this manner (in cases of hypermobility) is the opposite of the conventional approach taken when SMA limits mobility (range of motion) in the joints or

chronically contract the muscles around the joint so as to provide what is believed will be stabilizing muscle tone or tension. Clinical Somatics has found that if SMA is present in some muscles around a joint, the imbalanced tension of some muscles being chronically tight from SMA while others are relaxed (or even held flaccid by reciprocal inhibition) may chronically pull a joint out of alignment or out of its healthy neutral resting state. Rather than getting the client to tense or freeze up muscles more, Clinical Somatics works with these clients to make all muscles around the joint become free of restriction, symmetrical and balanced in range and length, and under the client's control. Then the joint may become stable and usable in all positions and ranges of motion.

There are many clients who will have already been told by coaches, physical therapists, orthopedists, massage therapists, and pain management specialists that they have ultimately worn out their knee, or found themselves with the misfortune of a back that "went bad" sooner than their fellow athletes. They must stop running to avoid destroying the knees or stop soccer for good, to avoid their back and shoulder pain and stopping it from getting worse and needing surgery. Both alternative and conventional approaches abound which take just such an elimination approach to avoid the assumed inevitable decline into decay. Many times in Clinical Somatics, when we have restored the natural shock absorption of the knees by eliminating the SMA tension which held them locked, or reversed the back and shoulder stiffness that was formerly aggravated with each new soccer practice, the clients are free to return to their athletic passions — or they are free to newly pursue their dreams of hiking, running, dancing, meditating, or learning yoga, now that long-term struggles with seemingly un-resolvable tension, joint weakness or instability, or pain has been replaced by sensory-motor freedom and ability through Clinical Somatic Education.

muscles. In cases of limited range of motion, some medical professionals will inject anti-inflammatory agents locally to decrease the inflammation they believe to be the cause.

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