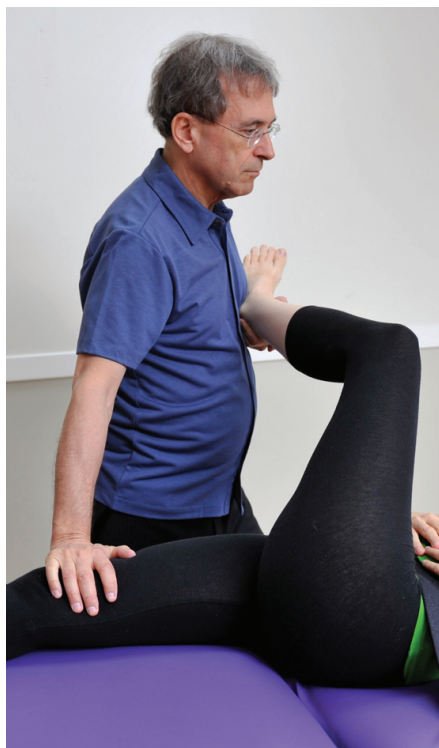
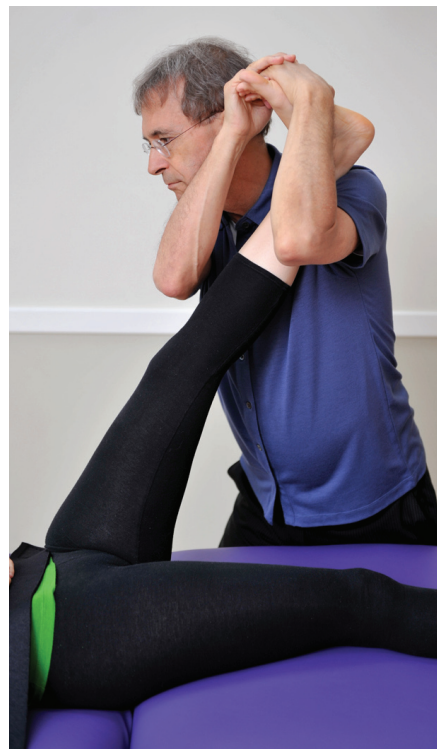


essential skills

BY BEN E. BENJAMIN WITH JEFFREY P. HAGGQUIST



ACTIVE ISOLATED STRETCHING

The Mattes Method, Part I

The field of massage therapy and bodywork encompasses a wide range of different styles and approaches.

Each of us brings a unique combination of skills that we've found to be effective over years of study and practice—in areas ranging from sports medicine and orthopedic massage to relaxation massage, craniosacral therapy, and a variety of ancient healing arts. There are few experiences more exciting than adding to your repertoire a new modality or technique that dramatically improves your ability to help clients. Over the past couple of years, I've been exploring one such modality that has exceeded all my expectations: Active Isolated Stretching (AIS), a system developed over the course of the past 37 years by kinesiologist Aaron Mattes.

A SURPRISING DISCOVERY

Discovering AIS has been the second major turning point in my professional career. The first came in the late 1970s. At the time, I was working quite successfully (running a small somatic therapy school, as well as a large private practice), using techniques focused almost entirely on muscles. I was operating on the assumption that most pain and injury problems could be traced back to muscular

tension and imbalances. It came as a great shock to learn that the majority of chronic pain is actually caused by injuries to fibrous connective tissues (ligaments, joints, tendons, and fascia). When I first heard this, I was highly skeptical. I wasn't convinced of the idea until I'd had it confirmed by direct experience, seeing Dr. James Cyriax's¹ therapies give lasting pain relief to people who hadn't responded to any other therapies. Those people included me—receiving treatment for my own injuries eliminated the back and neck pain I'd felt for the previous 22 years (for which massage of the muscles had provided only partial relief).

Learning how to assess and treat connective tissue injuries caused a radical shift in my thinking. I eagerly shared what I'd learned with my clients and students, and saw many pain conditions that I had previously assumed to be permanent or beyond my expertise respond readily to the new types of treatment. Over the past 30 years, I've devoted much of my life to refining, practicing, teaching, and writing about these techniques.

Recently, I've again had cause to question my assumptions about which musculoskeletal problems are likely to be permanent and which can be resolved. From my earlier study with Cyriax and my own work with clients, I came to believe that in the majority of cases, a combination of friction treatment, myofascial therapy, massage techniques, and/or exercise therapy could effectively relieve chronic pain, build strength, and improve range of motion. When these were not

sufficient, I could usually trust that either injection therapy or surgery would be successful. However, there were still various conditions that I thought of as untreatable, including declines in flexibility due to aging, degenerative arthritis, or serious injury and muscular dysfunction due to progressive degenerative diseases such as multiple sclerosis (MS) or Parkinson's disease. I'm happy to say that AIS has proven me wrong.

As in the previous instance, I initially came to AIS with a great deal of skepticism and was convinced only by direct experience. I've seen results in myself that I never thought possible: after receiving the work for just a few months, I achieved greater range of motion than I could ever remember having. Limitations that I'd attributed to the inevitable effects of aging simply disappeared. Moreover, once I received AIS training and began incorporating it into my work with clients, I started seeing remarkable changes—healing times for most soft-tissue injuries were cut in half and some conditions that had been gradually worsening over time (including one individual's MS symptoms) began to reverse course.

In this article and the next, I'm going to outline the mechanisms of AIS, explain how and why it works, and discuss the specific ways in which it complements massage therapy and supports healing. In the process, I will highlight a variety

of specific examples—including some surprising results I’ve seen in my clients, in myself, and in other individuals I’ve encountered—that demonstrate the usefulness, versatility, and power of this approach.

HOW AIS WORKS

The AIS method differs from most other types of stretching and strengthening programs in several important respects. Listed below are seven defining characteristics of AIS techniques. Each is supported by established principles of human physiology. Note that although this method is called Active Isolated Stretching, it actually incorporates both stretching and strengthening in almost every maneuver. (Aaron Mattes has also developed a complementary program focused more heavily on strengthening, which is outside the scope of this article.)

1. SPECIFICITY

AIS movements are precisely targeted to stretch individual muscles and parts of muscles, rather than larger muscle groups. For instance, in contrast to a simple forward bend that provides a general stretch for all aspects of the hamstring muscles, AIS uses six different stretches to focus on different combinations of the medial, lateral, oblique, proximal, and distal fibers. This enables the practitioner to independently evaluate—and then work to maximize—the flexibility of each section of the muscle. There are AIS protocols for every primary muscle in the body, amounting to more than 170 separate stretches. Using different combinations of these stretches, we can develop customized regimens tailored to the specific needs of any client.



Two of the six AIS hamstring stretches.

2. ACTIVE INITIATION

Although AIS stretches are supported and assisted by the practitioner, each movement is initiated by the client. This enhances the stretch, since contracting a muscle on one side of a joint causes the muscle on the opposite side to relax (a principle known as Sherrington’s Law of Reciprocal Inhibition), and that relaxation helps the muscle to stretch more efficiently. Moreover, having the muscles actively working helps to increase the temperature of the muscles and the fascia, which enhances flexibility even further.

3. INCREMENTAL ASSISTS

At the end of the client’s active range of motion, the practitioner provides just enough assistance to push slightly beyond what the person could do on his or her own. In this way, it’s possible to increase flexibility incrementally, typically adding two or three degrees with each repetition.

4. GENTLE MOTION

The movements involved in AIS are quite gentle, never approaching a muscle’s maximum sustainable force (i.e., the level of force that will cause that muscle to give out). Laboratory studies confirm that to avoid injury, it’s important to use 50 percent or less of the maximum force for the muscles being stretched.² Gradual, gentle motion also helps to delay activation of the myotatic reflex (commonly referred to as the stretch reflex)—a defensive mechanism that is designed to prevent muscles from stretching too far or too fast. A movement that is overly sudden or severe will cause the muscle being stretched to reflexively contract.

5. BRIEF DURATION

The key to avoiding the stretch reflex altogether is to hold a stretch for only a short time—no more than two seconds. Traditionally, exercise specialists have

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recommended holding stretches for much longer periods of time, up to 60 seconds. (This is referred to as static stretching.) However, research has shown that such prolonged stretching initiates the stretch reflex, decreases blood flow within the tissue, and leads to a buildup of waste products, such as lactic acid, that contribute to muscle fatigue and soreness.³ When people stretch in this way, they're working against themselves, causing a contraction of the very muscles they're trying to lengthen (sort of like trying to drive a car with the parking brake on). As a result, the tendons and ligaments get stretched more than the muscles, which can lead to tendon or ligament irritation and even laxity, and thus predispose these structures to future injury.⁴


6. MULTIPLE REPETITIONS

Static stretching relies on a principle known as stress relaxation: when muscles and connective tissues are held at a constant length, they eventually fatigue, release, and lengthen. In addition to promoting muscle fatigue, this type of action is also relatively slow. AIS achieves results much more quickly by using 6–10 repetitions of shorter stretches. This method can help increase the range of motion in a particular area by as much as 60 degrees in a relatively short period of time.


7. DEEP BREATHING

Throughout an AIS session, the client coordinates his or her movements with regular, relaxed breathing. Deep breathing helps to increase the flow of oxygen to the muscles, decrease muscle fatigue, and encourage the release of muscle tension and fascial restrictions. It is important to avoid holding the breath. With oxygen available as fuel, muscles burn fatty acids and glucose (aerobic metabolism). Without sufficient oxygen, glucose gets converted to lactic acid (anaerobic metabolism), again leading to muscle fatigue and soreness.

By adhering to these seven principles, AIS can bring about more reliable, consistent results than any other exercise system I've encountered. In Part 2 of this series, we'll go into more detail about how to incorporate these techniques into a massage therapy practice, as well as the reasons why it makes sense to do so (the specific ways in which AIS adds to the efficiency and effectiveness of bodywork). **m&b**

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Editor's note: *Massage & Bodywork* is dedicated to educating readers within the scope of practice for massage therapy. Essential Skills is based on author Ben E. Benjamin's years of experience and education. The column is meant to add to readers' knowledge, not to dictate their treatment protocols.

NOTES

1. Dr. James Cyriax, author of a major text on orthopedic assessment and treatment, and now commonly known as the father of orthopedic medicine, was a teacher of mine in the late 1970s.
2. J.C. DeLee, D. Drez, and M.D. Miller, eds. *Orthopaedic Sports Medicine*, 2nd ed. (Philadelphia, PA: Saunders, 2003).
3. A.L. Mattes, *Active Isolated Stretching: The Mattes Method* (Sarasota, FL: Aaron L. Mattes, 2000), 1.
4. For more information on the effects of stretching tendons and ligaments, see Ben E. Benjamin, *Exercise Without Injury* (Cambridge, MA: MTI, 1992).