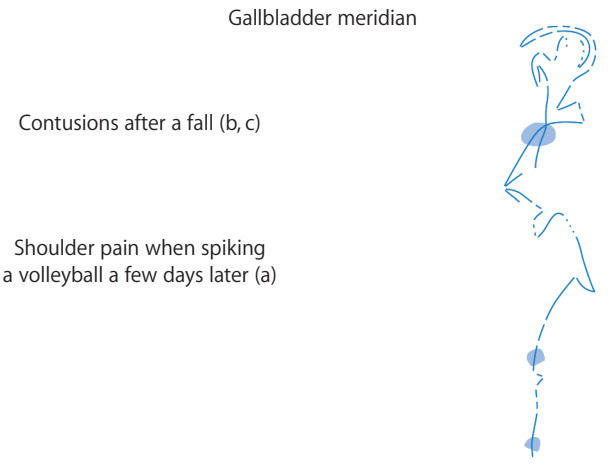


Symptoms like pain are induced by imbalances in movements of the body as a whole. The mutual influence of multiple joints in movement appears along the longitudinal axis. It is easier to understand the mechanism of the manifestation of symptoms when we apply the concept of meridians.

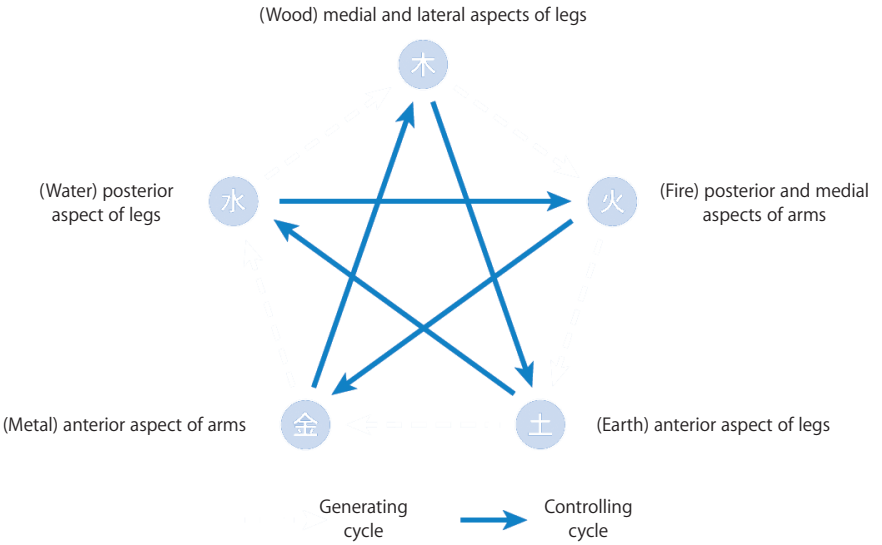
● **Figure I–1** Application of meridians to the analysis of movement

pattern from head to toe. Acupuncture points are located bilaterally on the arms and legs, and the meridians are presented as a line or pathway connecting these points. Since these meridians run along the vertical axis of the body, movements can generally be analyzed in terms of connections along these vertical lines.

Let me explain this concept using a case from my clinic. A volleyball player came to me who experienced shoulder pain while spiking the ball (Fig. I–1). I could not find any physical abnormality in the shoulder (a), and I could not explain the mechanism causing the pain. But I learned that, while doing a blocking exercise a few days earlier, this player had taken a fall that caused minor contusions on his knee (b) and the side of his ankle (c). The locations of the contusions corresponded to the acupuncture points GB-40 and GB-34 on the Gallbladder meridian. Even though this player did not experience any discomfort there, these points were extremely tender when pressed. Although acupuncture performed on the shoulder area was ineffective, acupuncture at GB-40 and GB-34 immediately alleviated the shoulder pain. As shown in the figure, it can be seen that the spiking movement that triggered the shoulder pain stretches the muscles on the side of the body (along the Gallbladder meridian in this case). If we think of the contusion in the lower extremity as the origin of the problem that initiated a restriction in the extension of muscles along the Gallbladder meridian, then we can understand

F. Movement and the five phases

The principles of the five phases is an ancient Chinese ideology that classifies all phenomena in the natural world as products of the interaction of five types (or phases) of matter. The five phases are wood, fire, earth, metal, and water. This principle is also applied to the characteristics and functions of the organs in the human body; thus each organ is classified as wood, fire, earth, metal, or water. This system is used to explain the mutually assisting and mutually constraining relationships between the *zang-fu* organs. The mutually assisting relationship is called the 'generating cycle, and the mutually constraining relationship is called the 'controlling cycle' (Fig. I–12).



● **Figure I–12** Relationships between generating and controlling cycles of the five phases and the distribution of meridians

Movements of the human body can also be classified according to the five-phase principles. Wood is associated with the Liver and Gallbladder meridians, which are located in the medial and lateral aspects of the lower extremities. Fire is associated with the Heart, Small Intestine, Pericardium, and Triple Burner meridians. These meridians are respectively located in the posterior aspects of the upper extremities (Heart, Small Intestine) and the medial (Pericardium) and lateral (Triple Burner) aspects of the upper extremities. Earth is associated with the Spleen and Stomach meridians, which are located on the anterior aspects of the lower extremities. Metal is associated with the Lung and Large Intestine meridians, which are located on the anterior

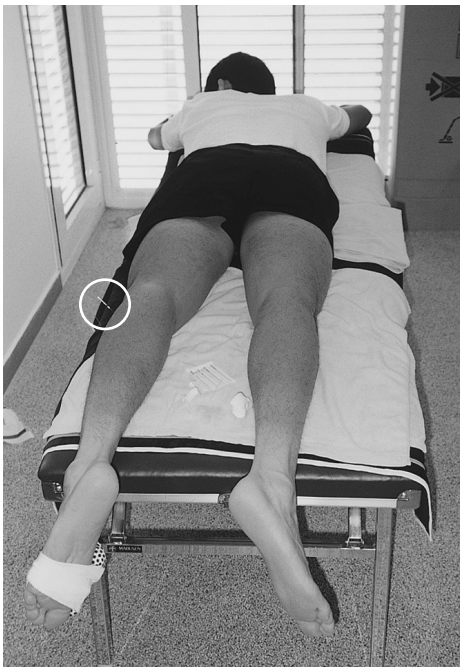


Figure I–15
Acupuncture treatment for conditioning

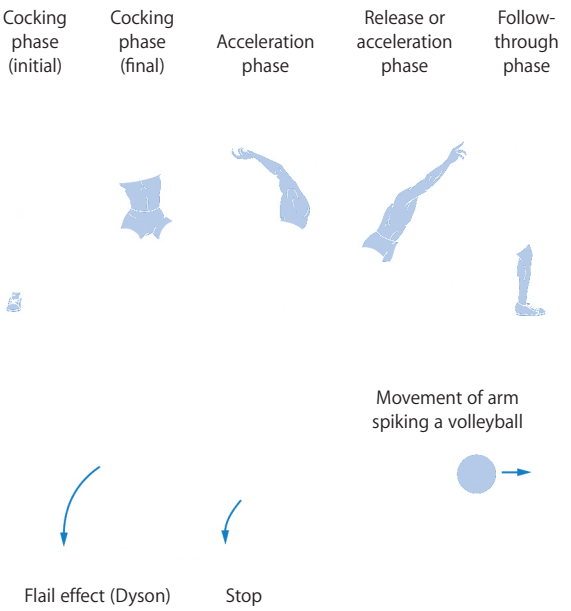


Figure I–16 Pitching phases and the structure of joint movements (flail effect)

2) Using biomechanics to analyze body movements

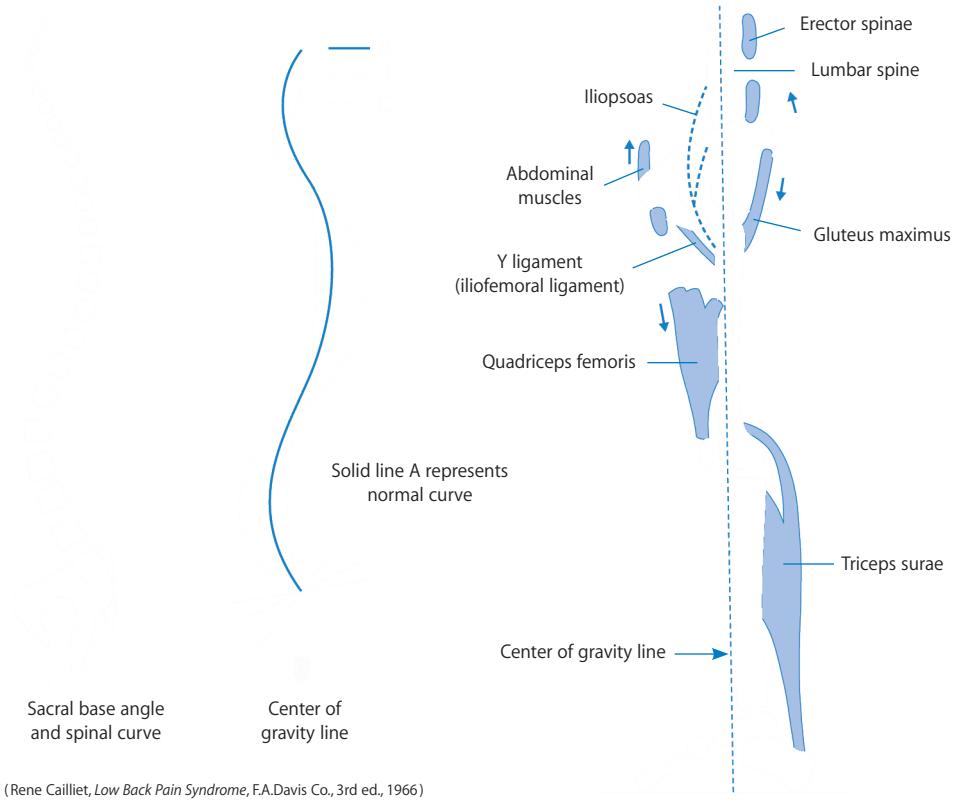
a. The basic concept: How to understand joint movement and movement in the entire body (are they dynamically balanced?)

(1) Analyzing single joint movements

When we carefully observe a large movement involving the entire body, we see the joints become fixed one after another in order to enable the next joint to move. This phenomenon is called kinetic setting. Many joints are involved in the throwing of a baseball. Even if we limit our observation to the upper half of the body, the throwing movement starts from the neck and trunk, and goes on to the shoulder, elbow, and wrist. The joints become sequentially fixed, starting with the trunk (the core). An efficient and beautiful form is created only after this sequential kinetic setting. A British exercise physiologist, G. Dyson, called this the "flail-like action" (Fig. I–16).

(2) Analyzing the linkage of multiple joint movements

In a similar manner, when standing upright, energy from the lower half of the body is transmitted to the upper body. The force of movement



● **Figure I–20** Changes in spinal curve and muscle related to lumbopelvic rhythm

tension in excessively tense muscle serves as treatment. It should be noted here that the use of acupuncture in athletes should not be limited to treatment in the narrow sense, but should also serve as a vehicle for conditioning. At the very least, it must include some advice on muscle strength training. Furthermore, when you serve as a trainer for an athlete, you must have a deep insight into optimal performance, which is a result of balance in the whole body. When we actually treat athletes, we must make them understand the aims of our treatment in relation to their particular circumstances. Acupuncture treatment in athletes is almost always contraindicated just before a game. In giving treatments we have to adapt to the circumstances, and possess the knowledge and ability to choose the best approach and techniques, and vary the amount of stimulation according to the receptivity of the athlete to acupuncture.

The above check points a) to e) can occur simultaneously, but depending on an athlete's situation, only a few may be identified. Therefore, in order to understand which muscles need a reduction

Coffee Break

I

Treatment Applying the Meridian Test and the Theory of Biomechanics

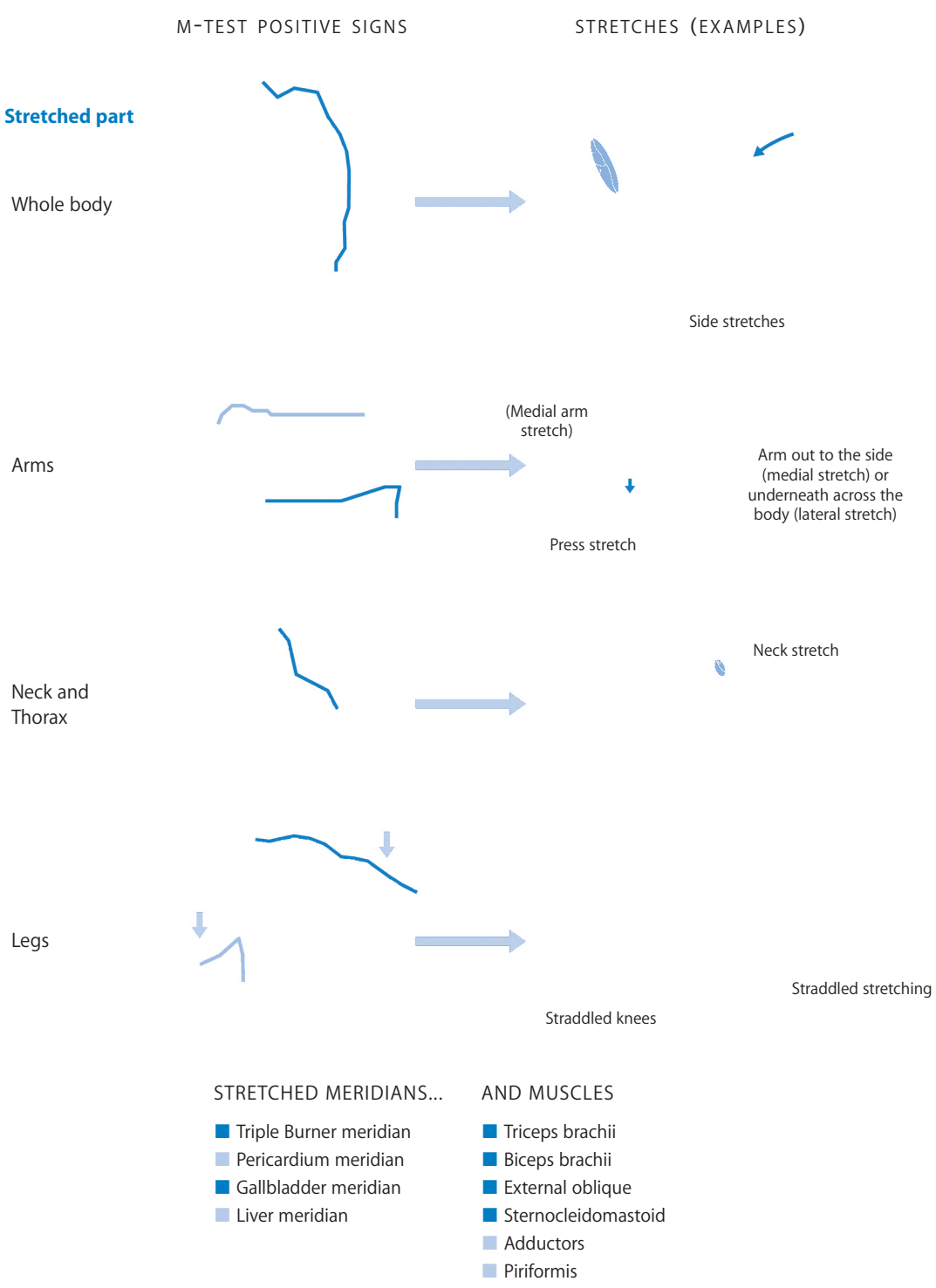
Sakuraba Hinata, Licensed Acupuncturist, Student of the Tsukuba College of Technology

Once a young baseball player came to our college clinic complaining of lumbar pain. He was in junior high school in the eighth grade, and was a leading hitter of a senior team in Little League. The doctor who examined him told me, "It's nothing. It's no big deal." Nevertheless, the boy looked to be in too much pain to be standing, and his mother seemed worried. So I immediately performed the Meridian Test ('M-Test'). The movement that caused the most pain was extension of the torso. Aside from this, there were some obvious restrictions in the movement of his lower extremities, but he did not complain of symptoms like pain or fatigue in his legs. Based on my assessment, I treated acupuncture points on the Spleen and Stomach meridians on the torso. This reduced his pain somewhat, but he still had restriction in movement.

From a biomechanical perspective I thought that the loss of elasticity in the muscle groups of the anterior lower extremities due to fatigue may have caused the restriction in the extension of his torso, so I needled additional points on the Spleen and Stomach meridians in the tibialis anterior and the rectus femoris muscles, using the simple insertion[1] technique. The restrictions I observed in his movements were almost gone after needling, and the residual pain in his lumbar area all but disappeared. Neither the patient, who was new to acupuncture, nor his mother could believe that treating his legs could cure his back pain.

In this case, I was able to alleviate pain and restriction in movement by a treatment based on a combination of the M-Test method and my understanding of biomechanics. I have seen many cases like this among athletes in my clinic. The important thing when giving treatment is first to understand the aim of a particular movement in a sport. In baseball, for instance, a pitcher wants to swing his arm faster in order to throw the ball faster. The second thing

1. Simple insertion: The needle is inserted to a certain depth and then immediately withdrawn.

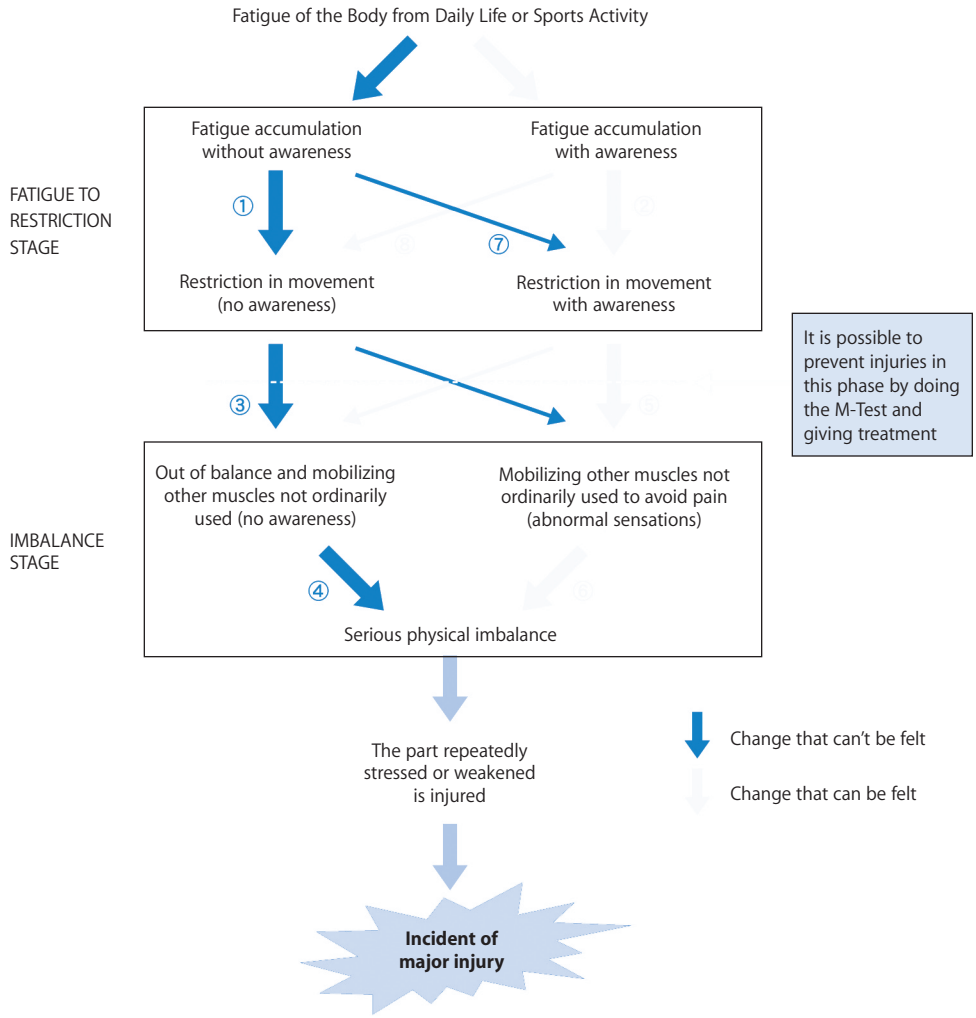


● **Figure II–8** Example of stretching exercises for restricted movements (lateral aspects)

of fatigue spreading to other parts of the body. Furthermore, engaging in competition in this condition with compromised movements compounds the stress on certain parts of the body, and this can lead to an injury. This is why it is important to take countermeasures to relieve fatigue in the early stage.

2) Progress from fatigue to injury

The mechanism leading from fatigue to injury is complex and difficult to explain in a just few words. Nevertheless, by treating athletes using the M-Test, we can visualize the process by which fatigue leads to an injury by correlating the positive findings of the M-Test with information gathered from questioning (Fig. II–9).



● **Figure II–9** Process from fatigue to injury

STEP 1 Perform the M-Test ARM MOVEMENTS

4. Extension

left arm extension

right arm extension

5. Medial rotation

left arm medial rotation

right arm medial rotation

6. Flexion

left arm flexion

right arm flexion

7. Lateral rotation

left arm lateral rotation

right arm lateral rotation

Figure III–12

Coffee Break

Low Back Pain and the Big Toe

Mukaino Yoshito, M.D., Professor of the Faculty of Sports Science, Fukuoka University

I was giving a lecture on sports medicine at a certain college, and, when I finished talking about acupuncture and moxibustion, a young judo wrestler came up to the podium asking me to examine his low back pain. Every time I teach there, several athletes come up to get my treatment and this had become something of a tradition.

I performed the M-Tests on him, and, as shown in the figure below, adding stress with movement 16 on the right and movement 27 aggravated his low back pain. In other words, the low back pain seemed to be caused by restriction in extension of the anterior aspect. In addition, he had a mild pulling sensation when adding stress with movement 10 on the left. This finding indicated a restriction in extending the medial aspect of the left arm. I had him assume a prone position again and performed movement 16 on the right, as I successively pressed points along the Stomach and Spleen meridians on the anterior aspect. When I pressed SP-2 on the medial aspect of the big toe, the pain associated with the movement was relieved the most.

The abnormal sensation accompanying movement 10 with the left arm indicated a restriction in extending the Pericardium meridian (medial aspect of arm). I had the patient sit up and successively pressed points on the Pericardium meridian as he performed movement 10 with his left arm. He said the pulling sensation was the least when I pressed PC-7. So I had him stand up and repeat movement 27 as I pressed on his right SP-2 and left PC-7, and he no longer felt the low back pain. It seemed that these two points were the key to alleviating his low back pain.

16 right 27 10 left SP-2 PC-7

M-Test positive findings (see M-Test Chart, p. 204)

ANTERIOR: None

POSTERIOR: Right shoulder pain increased by lateral rotation with flexed elbow (Fig. IV–2). Some resistance felt with 6 (flexion of right shoulder) and 7 (supination of right arm).

LATERAL: Some resistance felt with 8 (horizontal extension of right shoulder) and 14 (flexion of right wrist).

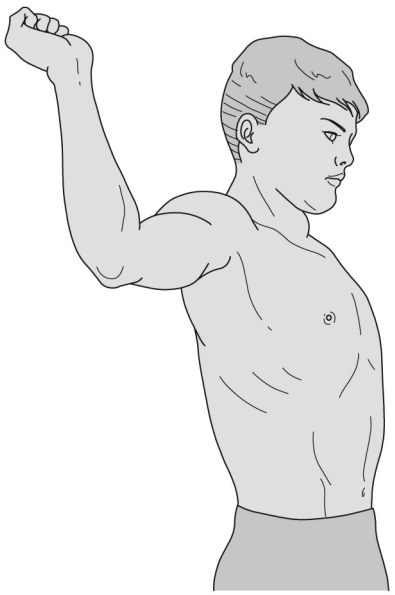
Assessment & Treatment

Positive findings for movements in Figure IV–2, and 6 and 7 in M-Test Findings Chart: restriction in stretching posterior aspect of right arm (right Heart and Small Intestine meridians)

POINTS: SI-4, SI-5, SI-8, SI-9, SI-11 on right side
HT-1, HT-3 on right side

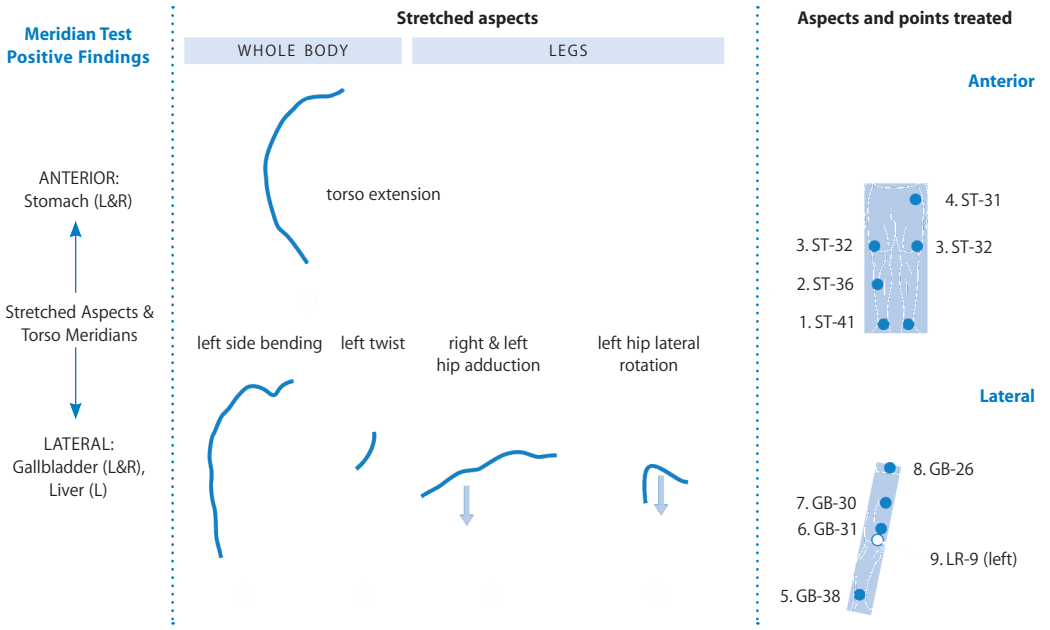
Positive findings for movements 8 and 14 in the M-Test Findings Chart: restriction in stretching lateral aspect of right arm (right Triple Burner meridian)

POINTS: TB-4, TB-5, TB-10, TB-15 on right side



● **Figure IV–2** External rotation of right shoulder (elbow flexed)

● **Figure IV–3** Pitching form of right-handed pitcher (acceleration phase)



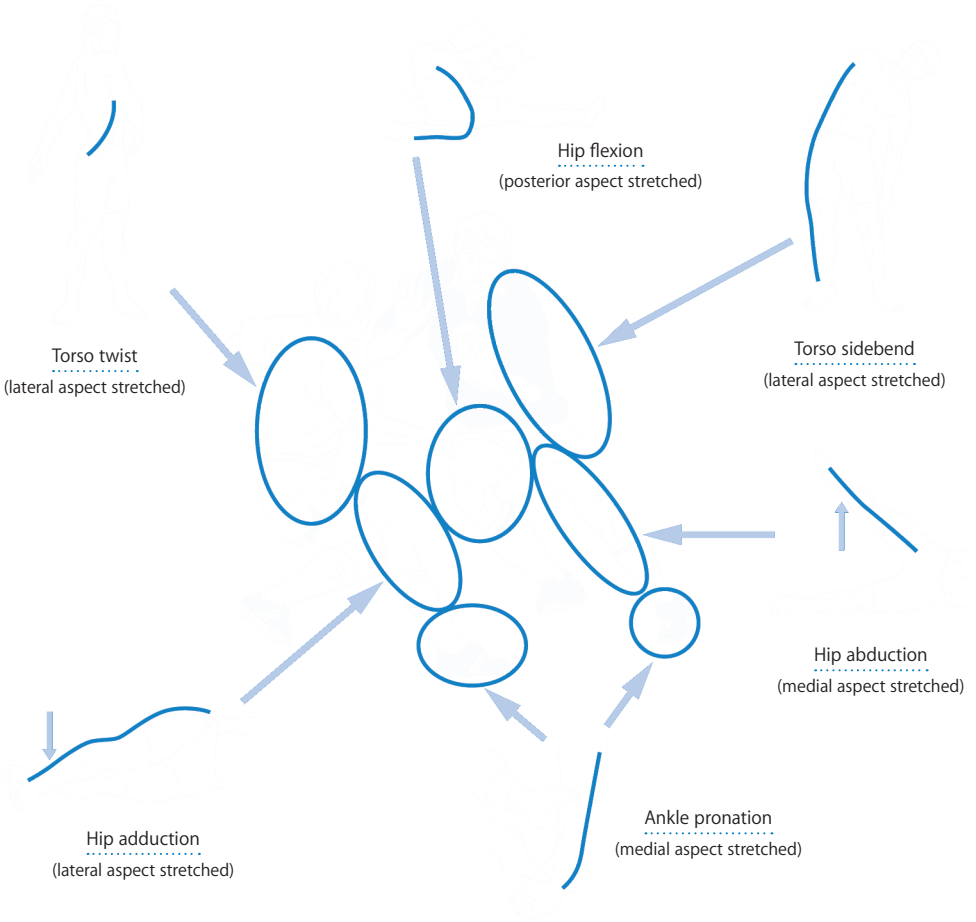
● **Figure IV–18** Case study: 23-year-old rugby player

Observations

In the case of this rugby player in the back position, fatigue accumulated in the muscles on the medial and lateral aspects of his leg because he repeatedly practiced for a game with his opponent in mind. Furthermore, when this player hit (ran into his opponents with the ball), he twisted his upper body to the left, so it is likely that the lateral aspect of his low back was strained as well. This was clearly indicated as restrictions in M-Test movements of the lateral aspect.

As shown in Figure IV–19, the player feints to evade his opponent and moves abruptly in order to catch him off guard. This mainly takes the form of quick movements to either side. When a player constantly moves fast and abruptly changes direction or quickly stops, this causes fatigue, especially in the medial and lateral aspects of the legs. In the case of this player in the back position, it appears that the pain resulted from repeated stresses on the low back, which was affected by the fatigue in his legs.

In general, backs in rugby tend to accumulate fatigue in the low back, hamstrings, knees and ankles, which are stressed by running. Among these places, injuries tend to occur most often in the low back and hamstrings. When the M-Test is performed on injured backs, pain or restriction is often present with adduction, abduction, and flexion of the hip.



In rugby, extension of the lateral aspect is most frequent in both offense and defense. Muscles in the lateral aspect become fatigued when movements like this are repeated over and over. This creates an imbalance in the body and this affects not only the legs, but the low back as well. Performing the M-Test allows one to identify the fatigued areas using simple movements.

● **Figure IV–19** M-Test of movements involved in a feint

On the other hand, forwards tend to strain their necks and shoulders in scrums and tackles, as well as their lower back and legs from running. When the M-Test is performed on injured forwards, pain or restriction is often present with anterior flexion of the neck and torso, as well as flexion of the hip and dorsiflexion of the ankle.

Finally, the M-Test is highly effective for treating athletes because the test movements relate closely to how they use their bodies. Also, the M-Test can be used to prevent injuries, especially since the state of muscle fatigue is reflected in the outcome. In a sport like rugby,

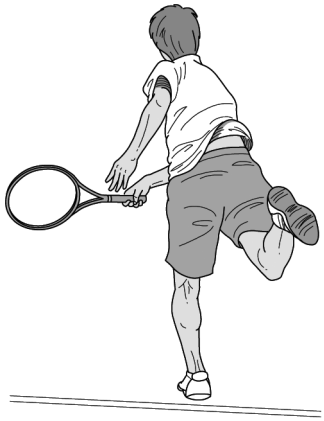
Results

The patient could walk after the treatment, and the abdominal pain that he experienced when he served disappeared. He was able to play in his match the next day.

Observations

To serve in tennis, the knees are flexed (Fig. IV–25) and then the torso is extended (Fig. IV–26). In the case of a right-handed player, all the weight of the body comes onto the left leg (Fig. IV–27). Thus almost all the weight of the body comes over the medial aspect of the left big toe. This was the case for the player here, and there was a considerable strain on the Spleen and Stomach meridians of the left leg due to playing matches every day for over a week.

● **Figure IV–25** Knees flexed



● **Figure IV– 26** Torso extended

● **Figure IV–27** Weight of whole body supported on one leg

Furthermore, in all shots from the serve, stroke, volley, to the smash, the shot is only effective when the knees are flexed deeply and the player steps into the shot with great force. Thus fatigue accumulates in the legs, and many players complain of problems in their anterior legs (especially with extension of the hip in the prone position, or movement 16 of the M-Test). Also, many players develop corns on the medial aspect of the big toes, and it's quite obvious that the Spleen meridian is repeatedly stressed.

The above case was abdominal pain originating from fatigue in the anterior legs, but performing acupuncture to relieve the fatigue in the legs often resolves other symptoms, regardless of whether it is