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Treating Rotator Cuff Injuries in Competitive Freestyle Swimmers, Part Two

ORIENTAL MEDICINE ZANG/FU ORGAN PRINCIPLES

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To treat this condition, one must understand the dynamics of the swimming movements and the key muscles involved with this particular stroke. First, one needs to focus on scapular stability. There are no other muscles that can really compensate for the serratus anterior, as it fires continuously throughout the stroke. Another area of importance is called the "anterior wall," which is the first muscular layer for joint protection, and the primary muscle involved is the subscapularis. Typical pain-avoidance pattern involves the scapular muscle, upper trapezius and shoulder-joint muscles: the deltoids (anterior/middle) and infraspinatus.

Using and understanding the principles of traditional Chinese medicine (TCM) is paramount for results at this level of treatment. Protocol treatments do not work in these circumstances. In this arena, you either get results or you don't, but you better know what you are doing, because you don't get a second chance.

The age, training schedule, nutrition, social support and family support network the athlete has can affect various *zang/fu* organs and channels, creating various pre-existing conditions. Treating the whole body is imperative. This relates in TCM to not only the *qi* and blood, but also channels/vessels, collaterals and *zang/fu* organs. In this type of injury, not only does the treatment include the local area, but also moving the *qi* and blood stagnation. With long-term shoulder pain, the kidney and liver are more affected, creating more severe conditions and requiring treatment by counterbalancing the deficiencies.

Lack of recovery and rest predispose athletes to decreased muscle-firing and spleen functions. If there is not enough recovery, this also damages the kidney's functions. With continuous training, fatigue occurs and results in compensation within the muscle-firing patterns, which chronically affect the tendons. This leads to liver imbalance, specifically liver blood and/or liver yin, which can potentially progress to liver wind due to liver blood deficiency. Of course, all of these patterns of differentiation are results of pre-existing conditions.

In TCM, the spleen also governs the four extremities, produces blood and is involved in transformation/transportation functions. If there is spleen *qi* deficiency, this affects the spleen/stomach, which is the origin of *qi* and blood because it's the root of the post-heaven/natal *qi* that supports the kidney *jing*/essence. If the spleen/stomach become impaired, these organs cannot perform their functions of transportation and transformation, creating partial to complete obstructions due to damp accumulations, not allowing *qi* to move freely. An athlete's schedule is rigorous - keeping up with school work, training multiple times a day - and some athletes even work to pay for their coaches. These are all predisposing factors that create spleen *qi* deficiency.

The liver is another organ commonly affected in swimmers. The liver nourishes the tendons/sinews. Liver blood can be affected from pre-existing liver *qi* stagnation, or vice-versa. It can also be a result of pre-existing spleen *qi* deficiency. Liver yin supports the liver blood as it is the yin part of the liver. If the blood becomes deficient and is not counterbalanced, the yin becomes affected; conversely, if the athlete has pre-existing liver yin deficiency due to kidney yin deficiency, it can affect the liver blood.

The kidney is yet another organ affected in swimmers. Kidney yin and yang deficiencies are pre-existing conditions that develop over a long period of time. The kidney is the origin of the yin and yang energies of the whole body. Once either of these have been affected due to irregular diet, long study hours, long training sessions, irregular work schedules, and a great deal of performance anxiety, the athlete's hectic lifestyle will, over time, deplete the yin and/or yang. If yin deficiency is predominant, one must look at the liver as well. Kidney yin supports liver yin. Chronically deficient yang usually involves deficiency of the spleen yang as well, because the spleen and kidney are closely interrelated with transformation, excretion and movement of the body fluids.

Channel Theory Principles

The channels/meridians/vessels not only transport *qi* and blood, but also regulate yin and yang. Competitive swimmers develop severe blood and *qi* stagnation within the channel/meridian/vessels. Not only do we need to support the *zang/fu* organs involved, we also need to treat the channels. Over time, these conditions develop into wind-cold-damp *bi* syndromes. The primary function of the channels and collaterals is to transport the *qi* and blood. This is due to the interrelationship of yin and yang (internal/external) between the channels and the *zang/fu* organs. Once stagnation is present in the channels, this affects the movement of *qi* and nourishment of blood to the *zang/fu* organs. The primary channels/meridians/vessels involved with the shoulder pain of a swimmer include the Heart channel/vessel (hand *shaoyin*) for the lower fibers of the pectoralis; the Small Intestine channel/vessel (hand *taiyang*) for the infraspinatus and teres minor; the Lung channel/vessel (hand *taiyin*) for the anterior deltoid; the *Large Intestine* channel/vessel (hand *yangming*) for the middle deltoid, subscapularis and rhomboid major/minor; the *San Jiao* channel/vessel (hand *shaoyang*) specifically for the supraspinatus and posterior deltoid; and the Pericardium channel/vessel (hand *jueyin*) for the pectoralis major's upper and middle fibers and the serratus anterior.

Treatment Strategies

Treatment strategies are dependent upon what the athlete is presenting first and foremost. In most cases, rest regenerates both *qi* and blood. However, rest will not necessarily get rid of the fatigue associated with competitive swimmers. The next step would be to tonify the spleen *qi* using acupuncture points ST36, R12 and SP3. As for the kidney, one would want to not only tonify kidney yang but yin as well, as they support one another. Acupuncture points R4, ST36 and K3 are for kidney *qi* deficiency; R6, R4, K2, K7 and ST36 are for kidney yang deficiency; and ST36, K6 and R4 are for kidney yin. If the liver blood became deficient, one would tonify the blood using ST36, SP6, LI4, LV3, LV8 and D20. In the case of liver yin deficiency, one would tonify the liver yin using LV8. The most effective treatment is tui na and acupressure to get the best results. Herbal formulas that tend to be very beneficial are *zang jin yang xue tang*, which activates blood and strengthens tendons, and *bu shen zang jin tang* to tonify kidney and liver deficiencies. For chronic conditions involving *bi* syndromes, *gui zhi shao yao zhi mu tang* is very effective, using channel theory with SI9, SI10, SJ14 and LI15 to include *ah shi* points. Local and distal points also are recommended, depending upon muscular distribution along the channels/vessels involved. This will promote *qi* and blood circulation in

the channels/vessels. It also is important to get the athlete to move the shoulder girdle and/or shoulder joint that is involved while manipulating the needle. This increases range of motion significantly.

I must mention there are many point and herbal prescriptions that can be used. This is only one example that can be implemented within one's practice.

Conclusion

An integrated approach is imperative for the athlete to have a successful career and prevent chronic rotator cuff injuries. The stabilization of the scapula, stretching and nutritional recommendations are paramount. All of these *zang/fu* organ patterns can be treated and prevented by using appropriate acupuncture points and herbal formulas with modification for combined or pre-existing conditions, all of which are based on the Eastern philosophy of counterbalancing TCM diagnostic principles. This diagnostic methodology can be used to offset limitations within Western medical protocols, adding more specific training parameters to prevent shoulder pain in elite, competitive swimmers.

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