

# Long-Term Steroid Use and Jaundice: An Integrated Perspective

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Many elite-level athletes, both male and female, take steroids to increase their performance. The illegal use of steroids dates back to the late 1950s. However, performance-enhancing substances have been around for as long as athletes have competed.

Centuries ago, the Incas chewed cocoa leaves to sustain strenuous work, and Berserkers ate mushrooms containing muscarine before battle. Ironically, "doping" follows one step behind the discoveries of herbs and drugs.

Unfortunately, this abuse is not just in the ranks of elite athletes. It is within high schools and even junior high schools. In the early 1990s, it was estimated that approximately 6.6 percent of all high school male seniors in the United States under the age of 18 used, or were currently using, anabolic steroids. This represents between 250,000 and 500,000 young male adults, especially bodybuilders trying to maintain their physique.

Orally active steroids tend to have a greater effect upon liver function (Western), with prolonged (24 months or greater) use causing peliosis hepatis, a rare hemorrhagic cystic degeneration of the liver, which develops benign and malignant tumors and creates jaundice. Thus, treating steroid-induced jaundice with traditional Chinese medicine, using the philosophy from which it is derived and not protocol treatments, has very effective results, including possible reversal.

Steroids are hormones, synthetic derivatives of testosterone, which are anabolic (building) and androgenic (masculinizing) in nature. Athletes usually "stack," meaning they will take oral steroids and injections simultaneously. The anticatabolic effect relates to the ability to reverse the effects of cortisol. The effect of cortisol results in the "overtrained" state of an athlete, which includes negative nitrogen balance and muscle wasting. Levels of cortisol increase dramatically during intense training and stress. Anabolic steroids reverse the effects of cortisol, allowing the athlete to train at continuously high levels. The anabolic effect relates to the ability to induce protein synthesis within the muscle cells and stimulate the release of growth hormone. Once steroids are discontinued, many adverse effects upon the liver are reversible. It must also be noted that weightlifting alone also elevates the SGOT (serum glutamine-oxaloacetic transaminase), SGPT (serum glutamic-pyruvic transaminase) and LDH (lactate dehydrogenase) levels.

Steroid hormones include oral versions, such as methandrostenolone (Dianabol), oxandrolone (Anavar), stanozolol (Winstrol), oxymetholone (Anadrol), fluoxymesterone (Halotestin), methyltestosterone (Oretin-M), and mesterolone (Proviron), and injectable versions, such as nandrolone esters (Deca-durabolin), testosterone esters (Delatestryl, Sustanon), stanozolol (Strombaject), methenolone enanthate (Primobolan-depot), trenbolone acetate (Parabolan), and boldenone undecylenate (Parenabol). These chemicals are banned from national and international competitions because they are reputed to give an unfair advantage to the user.

Legal use of steroids only includes medical use for treating diseases and disorders such as

testosterone deficiency, decreased libido, some breast cancers, severe catabolism secondary to trauma and/or surgery, and specific types of anemia. They are also used in patients experiencing rapid weight loss and those taking the regiment of combined drugs called the "AIDS cocktail."

Many health-related factors are associated with steroid use, including high blood pressure, muscle ruptures, severe acne, jaundice, and liver tumors.

More gender development-specific health-related factors include:

#### Females

- facial hair
- irregular menses
- deep voice

#### Males

- baldness
- infertility
- testicular shrinkage
- decreased sperm count

#### Teens

- damaged growth plates
- stunted growth

All categories include mood swings, "Jekyll-and-Hyde" personality, and possible psychosis, which sets the stage for very violent behaviors and often uncontrolled responses.

#### Western Perspective

This form of jaundice represents hepatic jaundice, which is the result of the failure of bilirubin transportation into the bile duct due to liver cell damage, specifically by tumors. As liver cells become damaged, over time, liver tissue can no longer function in that particular area. This limits liver function, causing a bilirubin buildup across the cell membranes. This develops into obstructions (in this case due to overuse of oral steroids), creating tumors and, in turn, bilirubin accumulation within the blood, resulting in a yellowish appearance of the whites of the eyes and skin .

#### Eastern Medicine

Steroid-induced jaundice is a yellowing of the sclera of the eye, urine and skin due to an accumulation of dampness in varying degrees. According to traditional Chinese medicine, there are two theories of mechanisms. The first is the Five Phase/Element correspondence between the element Earth and its corresponding color yellow and its relationship to dampness because of the relationship with the *zang/fu* organs spleen and stomach. The spleen's primary function is transportation and transformation. Damp accumulates in the eyes and skin, leading to different degrees of yellowing of the skin. The second mechanism revolves around body fluids and the "pure" fluids (bile) stored and excreted within the gallbladder. Although very similar to Western medicine, do not confuse it with TCM, as this philosophy reflects the idea that damp and heat simultaneously steam the liver and gallbladder, and then force bile to the skin surface and eyes, which leads to a jaundiced appearance.

The main causes are pathogenic damp, heat and heat toxins (pestilential factors). The liver and gallbladder heat up due to the accumulation of dampness within the spleen and stomach, which leads to overflow of bile to the skin, resulting in an acute case of "yang jaundice" (damp heat liver and gallbladder). Yin jaundice deals more with chronic conditions like deficiency of the spleen and stomach *qi* due to irregular diet and overtraining. This in turn impairs the function of the middle *jiao* yang, and creates even more accumulation of dampness, which obstructs the normal passage of bile. Bile then overflows to the surface of the skin, and is diagnosed as damp cold in the liver and gallbladder with spleen *qi* deficiency, usually progressing from unresolved conditions. Usually yin jaundice involves a combination of spleen *qi* deficiency, cold damp and *qi*/blood stagnation.

Acute cases represent yang jaundice and reflect external damp heat invasion that develops into internally generated damp heat, either through pre-existing conditions or sitting. This invasion creates yang jaundice as damp greater than heat or heat greater than damp, which can further progress into liver/gallbladder stagnating heat. Another progression from the exterior involves epidemic heat progressing directly into heat toxins.

Yin jaundice encompasses chronic cases of unresolved damp heat. Spleen *qi* deficiency is either due to pre-existing constitutional weakness involving the spleen or persistent damp heat/cold. The spleen is already weak and thus unable to clear accumulated dampness or generate sufficient blood. Another mode is due to cold dampness accumulated within the middle *jiao*, inhibiting and damaging the body's yang. The last factor involves *qi*/blood stagnation due to the prolonged accumulation/presence of an unresolved pathogen (in this case, damp heat) blocking the movement of *qi*/blood, creating stagnation due to steroid use.

#### TCM Treatment Principles for Steroid-Induced Jaundice

The pattern of differentiation in the case of cold damp would be to transform damp and promote urination. With spleen *qi*, the treatment principle would be to strengthen the spleen and warm the middle *jiao*, and also to tonify the blood. The treatment principle should also include soothing the liver, invigorating blood circulation and eliminating blood stagnation.

Points that can be used include:

- ST 36 (*zusanli*) and SP 6 (*sanyinjiao*) - drain damp downward
- R 12 (*zhongwan*) - influential point for *fu* organs, tonify spleen/stomach, resolve dampness
- ST 25 (*tianshu*) - front *mu* SI - warms cold (moxa)
- D 9 (*zhiyang*) - warm yang *qi* (moxa)
- R 4 (*guanyuan*) - front *mu* LI - warms cold (moxa)

Modifications of points are dependent upon what an individual presents with. Herbal formulas are also specific to individual needs. These are just an example.

#### Generalized Overview

Yang Jaundice	Yin Jaundice
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<ul style="list-style-type: none"> <li>• Bright fresh clear-yellow or yellow-orange skin, sclera</li> <li>• Thirst</li> <li>• Fever</li> <li>• Scanty yellow urine</li> <li>• Nausea</li> <li>• Constipation</li> <li>• Abrominal distention</li> <li>• Stuffiness in chest</li> <li>• Tongue = yellow greasy coating</li> <li>• Pulse = rapid, slippery</li> </ul>	<ul style="list-style-type: none"> <li>• Dim or darkish dull yellow skin, sclera</li> <li>• Lassitude</li> <li>• Poor appetite</li> <li>• Loose stool</li> <li>• Aversion to cold</li> <li>• Lifelessness</li> <li>• Abdominal distention</li> <li>• Epigastric fullness</li> <li>• Tongue = pale body, greasy coating</li> <li>• Pulse = slow, deep</li> </ul>
<p>Acupuncture points Damp Heat Clear heat, resolve dampness and free flow of liver/gallbladder <i>qi</i></p>	<p>Acupuncture points Damp Cold Resolve dampness, warm cold, stenghen spleen</p>
<ul style="list-style-type: none"> <li>• LV 3 (<i>taichong</i>) - regulate <i>qi</i> of liver</li> <li>• GB 34 (<i>yanglingquan</i>) - clear heat, gallbladder</li> <li>• SP 9 (<i>yinlingquan</i>) - <i>he</i>-sea pint, foot taiyin</li> <li>• ST 44 (<i>neiting</i>) - <i>ying</i>-spring point, foot yangming</li> <li>• UB 19 (<i>danshu</i>) - clear heat, gallbladder</li> </ul> <p>Modifications Chest stuffiness/nausea</p> <ul style="list-style-type: none"> <li>• P 6 (<i>neiguan</i>) - confluent point - harmonize stomach</li> <li>• SP 4 (<i>gongsun</i>) - confluent point - harmonize stomach</li> </ul> <p>Abdominal distention/constipation</p> <ul style="list-style-type: none"> <li>• ST 25 (<i>tianshu</i>) - front <i>mu</i></li> <li>• UB 25 (<i>dachangshu</i>) - back <i>shu</i></li> </ul>	<ul style="list-style-type: none"> <li>• ST 36 (<i>zusanli</i>), SP 6 (<i>sanyinjiao</i>) - drain damp downward</li> <li>• R 12 (<i>zhongwan</i>) - influential point, <i>fu</i> organs, tonify spleen/stomach, resolve dampness</li> <li>• D 9 (<i>zhiyang</i>) - warm yang <i>qi</i> (moxa)</li> <li>• UB 19 (<i>danshu</i>) - ease gallbladder</li> <li>• UB 20 (<i>pishu</i>)</li> </ul> <p>Modifications Loose stool</p> <ul style="list-style-type: none"> <li>• R 4 (<i>guanyuan</i>) - front <i>mu</i> LI - warms cold (moxa)</li> <li>• ST 25 (<i>tianshu</i>) - front <i>mu</i> SI - warms cold (moxa)</li> </ul> <p>Aversion to cold, listlessness</p> <ul style="list-style-type: none"> <li>• R 6 (<i>qihai</i>) - tonify, warm kidney yang (moxa)</li> <li>• D 4 (<i>mingmen</i>) - tonify, warm kidney yang (moxa)</li> </ul>

Of course, modifications of points will depend based on what the individual presents with. Herbal formulas are also specific to individual needs.

## Conclusion

In both Western and TCM philosophical approaches, steroid abuse over a period of time inhibits the liver to perform its functions due to excessive overload. The integration of allopathic and TCM strategies such as dietary restrictions, acupuncture, and traditional herbal formulas enhances the patient's quality of life dramatically and potentially reverses jaundice altogether, depending upon the length of time the individual has been using steroids. Chinese medicine can also address the repercussions of steroid use from the mental/emotional aspect, representing poor self-image due to an inability to maintain the muscle mass acquired with anabolic steroids.

Successful steroid-induced jaundice treatments should involve a psychologist to work through serious depression, self-image issues, steroid euphoria, loss of sexual interest, and possible suicide attempts. This is a complicated condition, one that encourages collaboration of medical professionals within traditional and nontraditional arenas in sports medicine. The key to success is mutual respect and the ability to implement integrated treatments and referrals as needed. Working as a team creates better quality of care for the athlete/patient and increased knowledge

for Western medical professionals as they work in collaboration with acupuncturists as part of the medical strategy.

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