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**Special Edition:**

**Re-Evaluating the Legal Status of Anabolic-Androgenic Steroids**

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The Think Muscle Newsletter publishes the latest news and research on exercise physiology, dietary supplements, performance enhancement, lifestyle management, health & nutrition, and bodybuilding & fitness. The newsletter is dedicated to providing accurate and unbiased scientifically based information.

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## Message from Our Sponsor

**MESO/Rx is pleased to announce the release of Anabolics 2002.** It is in stock and available for immediate delivery at a special price of \$39.95 + S&H for Think Muscle Newsletter subscribers. Included in this new edition of the now "standard issue" performance enhancement text is a 24-page full-color anabolic steroid photo library. An extensively updated drug profiles section also brings you current on worldwide product availability, including in-depth coverage of the new flood of high-dosed veterinary anabolics, plus new and expanded research pulls you deeper into the science and biochemistry of these agents than ever before.

**Anabolics 2002:** <http://meso-rx.com/books/thinkmuscle/index.htm>

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## Message from the Editor-in-Chief: Controversial yet important issues...and a little something for everyone else.

by Bryan Haycock MS

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Happy Holidays everyone! We have quite an issue this month. We've got articles by Karlis Ullis, MD who is the Medical Director of the Sports Medicine and Anti-Aging Medical Group in Santa Monica, California and a faculty member of the UCLA School of Medicine, by Millard Baker the founder of Meso-Rx the most widely recognized steroid education website of its kind, by Sidney Gendin, PhD Professor of Philosophy of Law at Eastern Michigan University, and Rick Collins J.D. with an article he wrote that was originally published in the New York State Bar Association Criminal Justice Journal. Why all the big credentials? Well, many of you have expressed the desire to learn more about anabolic-androgenic steroids. ThinkMuscle hopes to provide information that can actually be classified as "educational". With the Olympics coming up and all of the hubbub about steroids and other performance enhancing substances it becomes us to discuss these issues in terms of facts, not fears, and to hear from educated people who are well known authorities on the subjects of psychology, ethics, fair competition, the law, and medicine.

If you have absolutely no interest in hormones, don't worry. I have included some reader Q&A so there would be something here for you too. The topics include pre and post workout nutrition, dealing with blisters from running, and even protein needs for nursing mothers.

For more Q&A please visit the [ThinkMuscle Message Board](#). There is a lot of great content posted everyday, and as I always say, "The more the merrier!"

There are some exciting developments emerging with the creation of a line of supplements specifically for ThinkMuscle readers. If all goes well, there will be a never before seen anabolic compound available soon. If you're thinking it must be a hormone, its not. We're still testing right now so it is a bit early to go into detail. In addition, I've scoured to research and have come up with what I think is the best proteins and have put them together in what I feel is the best way to enhance the training effect. Don't want to spill the beans to early though so I guess I'll stop there. Until next month, and the New Year, have a happy and safe holiday season.

-bryan

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## **Drug Education and Anabolic-Androgenic Steroids**

**Millard Baker**

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As the founder of MESO/Rx, the most highly trafficked website devoted exclusively to the discussion of anabolic steroids and performance-enhancing pharmaceuticals, my name has become practically synonymous with MESO/Rx – and by extension, anabolic steroids. My friends and colleagues repeatedly ask me why I persevere in my efforts at anabolic-androgenic steroid (AAS) education. After all, anabolic steroids are still demonized and, as controlled substances, are essentially illegal. Consequently, as an anabolic steroid “advocate,” I am often stigmatized, stereotyped, and the target for drug war crusaders. Clearly, the subject of AAS is not something that will be a popular topic during my family gatherings this holiday season!

So, why does MESO/Rx persist in discussing their uses and effects? Why do I care so much about the truth surrounding AAS. Why should you care about anabolic steroids?

My answer involves two primary reasons. First, I want to minimize the negative health consequences experienced by AAS users through a harm reduction approach. Secondly, I want to discuss *the major health benefits* of AAS use that have been ignored by the medical community in the past – these health benefits are some of the same performance-enhancing effects seen by athletes. I never anticipated how controversial such open discussion of AAS would be nor how uncomfortable it would make so many people feel. Because of the perceived subversiveness of the AAS information available at MESO/Rx, I would like to take a moment to discuss both of these reasons in a little more detail.

### **Philosophical Approach to Drug Education and Drug Abuse Prevention**

The success of traditional drug prevention programs is questionable at best. The main reason for this is the faulty assumption that all drug use is unhealthy; consequently, the

(unobtainable) goal of such approaches is complete drug abstinence. My approach to drug education has always been a strategy of harm reduction.

Rather than attempting to prevent steroid use, I feel the most practical and achievable approach was to prevent the abuse of steroids. This approach recognizes the distinction between drug use and drug abuse. A drug can be used without being abused. No drug is inherently evil – not even the highly-demonized anabolic steroids!

Knowledge is power – the more information available to the consumer, the better decisions they are able to make. The Internet has provided an extremely efficient method for me to disseminate anabolic steroid information to the consumer. MESO/Rx presents extensive factual information, education, and resources regarding AAS in an effort to minimize the harms associated with AAS use.

### **What *Exactly* is Harm Reduction?**

So, what *exactly* is a harm reduction approach? Well, harm reduction can include any of the following:

- teaching bodybuilders how to use AAS safely and responsibly,
- discussing the contraindications of AAS use in order to avoid exacerbating any health problems with AAS,
- teaching bodybuilders how to cycle drugs and avoid continuous use of AAS for extend periods of time,
- educating athletes regarding the inhibition and recovery of natural testosterone production,
- informing bodybuilders of the lowest possible dosage of AAS to produce their desired effects,
- discussing the pharmacological differences among commercially-available AAS
- teaching proper injection technique along with the importance of sterile needles/syringes
- educating athletes about the questionable strength and purity of black market androgens.

In short, it means doing everything possible to minimize adverse consequences to the health of an AAS user.

Regardless of the controversial nature of the harm reduction approach within the bodybuilding community, MESO/Rx feels obligated to hold health maintenance as the primary goal of its drug education efforts. I have always believed that the harm reduction approach would yield the greatest benefit, not only to the bodybuilder and athlete who choose to use AAS, but also to society in general.

### **The Disgrace Within the Medical Community**

With the passage of the Anabolic Steroids Control Act of 1990, there was a decided shift in the political climate and laws involving AAS. Unfortunately, this resulted in an unreasonable prejudice against the medical use of AAS. This demonization of anabolic-androgenic steroids severely impeded research into inexpensive treatments for muscle wasting, a disorder most commonly associated with HIV/AIDS. Since AAS were (and still are) a Schedule III controlled substance, most physicians were reluctant to prescribe them for off-label purposes even though AAS would have offered *major health benefits* to some of their patients.

What are some of the health benefits associated with AAS? The pairing of AAS with resistance exercise, a practice used by bodybuilders for decades, has been shown in several studies to reverse muscle wasting and significantly improve the health and well being for those individuals with debilitating diseases (such as HIV) and/or sarcopenia i.e. age-related muscle loss. Not only do AAS reduce and counteract muscle wasting but also serve as clinically significant-modulators of immune responsiveness. The good news is that androgen therapy is gaining acceptance as an HIV treatment as well as in hormone replacement therapy.

Thankfully, the constitutionally-protected right to free speech allows individuals and websites, like MESO/Rx, to discuss off-label and progressive uses of prescription and scheduled drugs like AAS (e.g. the use of AAS to increase lean body mass, muscle size and strength). The discussion of off-label uses by MESO/Rx is especially needed and important at times when social and legal forces undermine the objectivity of the medical community regarding valuable medical applications of AAS. Fortunately, the use of AAS as a standard medical treatment for muscle wasting is gradually gaining broad range acceptance.

### **Summary**

To the casual observer, MESO/Rx's extensive discussion of anabolic-androgenic steroids may only appear to be an exercise in freedom of speech. However, thousands of athletes, bodybuilders, patients suffering from muscle wasting, and their medical practitioners, see the information on MESO/Rx as much, much more.

MESO/Rx has provided individuals with harm reduction strategies that have made the outcome of AAS use as safe as possible. Innumerable individuals suffering from muscle wasting and/or hypogonadism have printed the articles from MESO/Rx and consulted with their physicians regarding progressive uses of AAS for improving their health and quality of life.

How could MESO/Rx avoid discussing the uses and effects of anabolic-androgenic steroids?

**MESO/Rx** – <http://www.meso-rx.com>

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## Contrarian Endocrinology Part I: Testosterone for Women

by Karlis Ullis, MD with Josh Shackman, MA

In this series of articles, I will attempt to bring clarity to two common myths about endocrinology. The first myth is the notion of the exclusivity of "male" and "female" sex hormones. While it is true that men have higher concentrations of testosterone and lower concentrations of estrogen and progesterone than women, all of these sex hormones play vital roles in both sexes. The second myth I will dispense with is the notion of "good" and "bad" hormones. Some hormones such as DHT and testosterone have been demonized and blamed for all sorts of health problems, but the fact is that every hormone plays a vital balancing role in the body. Rather than be labeled as "good" or "bad", each hormone has an optimal equilibrium level in the body with respect to the other sex hormones. It is when your sex hormones are out of balance—out of their proper ratios then you may manifest health problem, not just because of any one solitary "villain" hormone.

Testosterone is widely known as being the male hormone, yet it has been so villainized by society that even its medical use in men has been made into a social taboo for many years. However, now not only has testosterone replacement therapy became more accepted for use in men, more and more doctors are now also prescribing testosterone for women. In this article I will outline the benefits for testosterone use in women for increasing libido, mood, energy, skin quality, and most importantly to Mesomorphosis readers – body composition.

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## Testosterone and Female Body Composition

A woman in her late twenties, came to see me complaining about her difficulty in losing weight. After taking a medical history, it was very difficult to tell what the basis of her problem was. She was working out daily, with a balance of aerobic exercise and weight training under the guidance of a qualified personal trainer. Her diet was a basic low carbohydrate/ high protein diet. Even more perplexing, she had been taking a caffeine/ephedrine thermogenic stack and had previously experimented with some diet drugs as well. Something was obviously wrong. I did blood tests to check all of her hormone levels. When the results came back, all of her hormones were in the normal range except for, you guessed it, testosterone! She had very low free testosterone level. It was equal to that seen in a postmenopausal woman. This was an obvious source of her fat loss problem.

While the role of testosterone in maintaining muscle mass and losing body fat may be obvious to bodybuilders and athletes, it is a basic hormonal fact that is often absent in the medical community. It is known that many women begin to gain fat rapidly about ten to fifteen years before the menopause and also after. The connection between low to absent testosterone production and the deterioration of a healthy body composition is rarely made. Most women are often only given estrogens and progestins as hormone replacement therapy, but not testosterone. I have found in my medical practice that giving women estrogen and progesterone and not testosterone makes it almost impossible for them to lose weight/fat. With the scourge of increasing obesity in the USA, one would expect the medical community to pay closer attention to these issues. Yet the connection between sex hormones, and body composition is highly controversial.

Why is there such a controversy? Why is a hormone commonly used by farmers to fatten up livestock given to postmenopausal women at risk for obesity? Many doctors point to a recent study showing that when postmenopausal women given estrogen actually gained less weight than those not given estrogen (Espeland, et al, 1997). In this study 875 women were either put on .625 mg of oral estrogen a day or a placebo for three years. So does this mean that estrogen is actually a good fat-loss agent? Hardly! In this study, in spite of the publicity it was given, the authors note that when you control for lifestyle factors such as physical activity the effects of estrogen replacement therapy were insignificant.

From my clinical experience I have found that on the average when a young woman goes on birth control pills a 3-5 pound gain in fat mass can be expected, and at menopause with oral estrogens 4-8 pounds of fat mass gain can be anticipated - especially when oral estrogens are used. A recent controlled study showed that oral estrogens caused a gain in fat mass and loss in muscle, with a decrease in IGF-1 levels (O'Sullivan et al, 1998). This study is more consistent with my clinical observations.

So why isn't testosterone more commonly given for weight loss in women? The medical community actually commonly believes testosterone causes obesity. This is due to a number of studies linking upper body obesity /abdominal obesity in women to elevated testosterone levels. Once again, this is a case of blaming one hormone as a "villain". In these women, they do in fact have higher than normal testosterone levels but their whole

hormonal system is out of balance. Not only do they have high testosterone levels, but they also have poor insulin sensitivity as well as high insulin levels. Often these women have a metabolic problem of insulin resistance—which is associated with obesity. There is no serious evidence that testosterone replacement therapy for women will result in greater body fat – in fact the opposite is true.

With the social stigma against testosterone and anabolic steroids in general, and it is difficult enough to get a study approved on testosterone in men. Imagine how difficult it is to get a human use committee to approve a study on testosterone in women! However, there is one study that helped to illuminate the potential for androgens to help women lose fat. Lovejoy et al, in 1996, compared the effects of nandrolone decanoate and the anti-androgen drug spironolactone on body composition in obese, postmenopausal women. The dose given the nandrolone group was low – 30 mg every other week. All women in the study were put on a calorie restricted diet (500 calories below lean mass maintenance), and were told not to change their exercise habits. After nine months, the women receiving nandrolone lost an average of 3.6 percent of their bodyfat while the placebo group lost only 1.8 percent and the spiro lactone (an anti-androgen) only .5 percent. Nandrolone doubled the rate of fat loss over the placebo and the anti-androgen group barely lost any fat at all – the role of androgens in fat loss is clearly demonstrated. Even more impressive, the nandrolone group actually gained an average of roughly four pounds of lean mass in spite of the calorie restriction while the placebo and anti-androgen groups lost over two pounds of lean mass. Nandrolone also did not produce insulin resistance as androgens have been previously believed to do.

Lovejoy's group were impressed by the ability of nandrolone to produce increased muscle mass in spite of overall weight loss. Keep in mind that dose was fairly small and only given every other week, and that these women were put only somewhat extreme calorie restricted diets without being put on a weight training program. Imagine the improvement in body composition had these women been put on a balanced exercise program and were given a high protein diet in addition to their nandrolone!

Despite the positive result, the authors cautioned against using nandrolone decanoate as a weight loss therapy. There was a mild abnormality of blood lipids and a slight increase in abdominal fat in the nandrolone group. While these side effects were minor, I believe that if testosterone was used in this study instead of nandrolone, these effects would be smaller or non-existent. I also think that daily use of a testosterone gel would be more effective than a bi-monthly shot, since the gel would keep testosterone at a more physiological and consistent level whereas injections lead to huge up and down fluctuations.

It is clear to me, both from my clinical practice and from research, that testosterone is vital for women to preserve their lean mass and to prevent obesity. Not only will testosterone help mobilize body fat and negate some of the fat storing effects of estrogen, it is also extremely effective in building lean mass in women - even at small doses. Hormone replacement therapy that only includes estrogen and progesterone but leaves out testosterone is a curse of many a women's fat loss program. This is not only a



concern for postmenopausal women. Young women should think twice about using birth control pills. Birth control pills elevate estrogen and progesterone levels while drastically lowering testosterone levels. This is reason why many women experience large gains in fat as well as a decreased libido when using birth control pills.

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### **Energy, Mood, and Libido**

Far from being the cause of irritability and "roid rage" as widely believed, I have found that restoring testosterone levels to normal can tremendously improve energy levels and mood in women. Estrogen is sometimes believed to be energizing, but most women do not feel much of an "energizing effect" from estrogen. Natural progesterone can have a calming, relaxing effect on women, but the nasty synthetic and potent progestins like Provera (medroxyprogesterone acetate) or the more potent, nornorethindrone can actually cause irritability, aggressiveness, and even acne.

Libido is one area of use for testosterone in women that is starting to gain larger acceptability. One pharmaceutical company (Unimed) is close to getting a testosterone gel for women approved for use as a libido enhancing drug. While the thought of horny postmenopausal women may cause you to snicker, I believe that libido is a serious medical issue. The infamous study on sexual dysfunction funded by the Ford Foundation and the U.S. National Institute of Health showed that low interest in sex was the number one cause of sexual dysfunction in women (Laumann, et al, 1999, JAMA , Feb., 10, 199, Vol 281. No 6:pp537-544). Restoring a healthy libido in women can help bring back the spice in marriages, relationships, relieve stress and depression, and even improve body composition through increased sexual interest and activity. Testosterone is the primordial hormone for promoting both a sexy body and a better sex life.

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### **Testosterone and Skin**

Do you have dry and thin skin? This may be a sign of lack of oil production from your sebaceous glands. A lack of oil production can be related to a decline in testosterone . Also thinning, atrophy , or inflammation of the the introitus (the vaginal opening) can be from a hormone imbalance. Even painful intercourse can be due to the lack of estrogen and testosterone. I have treated young and older women with testosterone creams to thicken the vaginal entry so that they may be able to enjoy sex without pain. Using small and balanced doses of T gels and creams I have improved the quality of aging skin without the side effects of acne, hair loss or masculinizing effects.

The role of testosterone on skin condition is often ignored, even though this should be of obvious concern to anybody using testosterone to improve overall physical appearance. Normally it is believed that testosterone can only worsen skin by causing breakouts of

acne. However, low testosterone levels can only lead to worsening of skin conditions as well. Restoring testosterone to normal levels can make skin look much thicker and smoother than it was before.

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### **Protocols for Female Hormone Replacement Therapy**

Many women come to my office complaining of lack of energy, sex drive, and weight gain. They have been to other doctors who have told them that these are inevitable effects of aging and they should just learn to live with them. However, I have found that providing these women with a "hormonal makeover" can have profound effects on their lives. For postmenopausal women, I begin by placing them on "start up" small dose of a testosterone cream or gel (usually at .25 to 1 milligram every other day in the am applied to the neck area behind the jaw for best absorption capacity, or the inner non sun exposed area of the upper arm hangs next to the chest wall). The dose is individualized over time.

Next, I may redo their previous hormone replacement program. If they are currently on Provera, I immediately switch them to natural progesterone which I believe is far safer. Most postmenopausal women are on Premarin, which is an odd blend of estrogens derived from pregnant horse urine (pregnant mare urine). I reduce the dose of estrogen, and change them over to a natural bi-estrogen or a natural transdermal estradiol compounded formula. This change is significant, as one study showed that Premarin caused an increase in fat mass and loss of muscle in postmenopausal women while transdermal estradiol had no significant effects on body composition (O'Sullivan, 1998). I also encourage women to increase their intake of fiber, and phytoestrogens by taking a black cohosh containing formula and other plants that have estrogen like effects. Soy products are a must.

The goal of this program is to give women back an optimal balance of sex hormones similar to the one they had in their youthful days. Testosterone levels and sometimes progesterone levels can be restored with natural hormone replacement therapy. Balanced and safe estrogen levels can be obtained from a combination of estrogen production from the aromatization of the testosterone they are using, from phytoestrogens such as soy, black cohosh, and a small dose of natural estrogen. Once this natural balance is restored, women can often break the weight loss plateaus they previously reached and can reverse the loss of muscle and bone mass that occurs with age.

For younger women I am more hesitant to give any hormonal therapies, especially if they wish to someday have children. This is not to say that pre-menopausal women cannot benefit from higher testosterone levels. I have been using the prohormone 4-androstenediol (4-adiol) in selected women who are not wanting to have babies. It has a high conversion rate to testosterone and does not directly convert to estrogen. Since 4-adiol is short acting, I believe it can be used safely in women without causing much side effects or shut down pituitary production of the gonadotropins, if used infrequently. The only problem is that most 4-adiol products are made for men with 100 mg capsules,

whereas doses for women should be anywhere from 10 to 50 mg. There are now available 12.5 mg lozenges of 4-andiol in the sublingual cyclodextrin form. Women could take 1/4 to 1/3 of a lozenge intermittently to raise their T levels.

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## **Conclusion**

While traditional "female" hormones progesterone and estrogen may have a role in preventing heart disease, Alzheimer's disease, and osteoporosis, I believe testosterone replacement therapy in the near future will have a much larger effect on women's lives. In fact testosterone replacement therapy may soon become more widely practiced by women than men.

I also believe that testosterone and other androgens may have a critical role treating some types of female obesity - the estrogen dominant type. Precious little research has been done in this controversial area, but it is obvious that a major reason why women have more difficulty losing fat than men is due to their lower levels of testosterone. Since testosterone can not only help mobilize fat but also build muscle, women can attain higher resting metabolic rates. This is in stark comparison to most diet drugs that result in loss of muscle and usually the return of lost body fat once drug use is ceased. While androgens will obviously have some side effects in women, hence the controversy, however these side effects are likely less than the often life threatening effects of Phen-Fen and other diet drugs. Testosterone as a treatment for obesity is probably much safer and actually more effective in the long term than liposuction. I really hope more research is done in this area, as I believe androgens are crucial in the war against the rapidly evolving plague of obesity in this country.

I hope the medical establishment can soon move away from the concept of the ancient and antiquated model of male hormones are for men and female hormones only for women into a universal concept of optimum hormonal balance of all the sex hormones in both sexes. I really hope to see more studies on testosterone replacement therapy as testosterone becomes more accepted. As controversial as this is, the medical establishment is just as rigid in its approach to male hormone replacement therapy. I hope to help change this with my next article, which will deal with the controversial area of progesterone and estrogen replacement therapy for men.

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## **Ban Athletes Who Don't Use Steroids**

**Sidney Gendin, PhD**

Professor of Philosophy of Law  
Eastern Michigan University

Isn't time for the brainwashed public to know the truth about steroids? In their ideological zeal to ban "performance enhancing" drugs, national governments and the various local and international sports federations have ignorantly and self-righteously declared that steroid use is cheating, dangerous, and stupid. In fact, in general, it is neither dangerous nor stupid and it is cheating only because it has been capriciously commanded to be so.

In the first place, with respect to the alleged danger, people ought to know that there are dozens of steroids and it would be absurd to imagine that their risks are identical. Moreover, steroids come in two broad classes – the orals and the injectables. It is true that most of the orals have associated hazards but not a single one of them is as hazardous as smoking or drinking. The principle dangers of the injectables result from overdosing and, even so, they are mainly such alarming matters as acne and severe headache. Every legally obtainable prescription drug comes with a warning of dozens of worse side effects.

But what is that to you and me? Why should we legislate what risks people should run unless they can interfere with the rest of us? In our democratic, capitalist society many persons risk their last few dollars to start up businesses which will probably fail. We do

not stop them. If and when they become multimillionaires we congratulate them. We don't permit people to drive without seatbelts because their accidents drive up insurance rates for the rest of us but we let people engage in the far riskier business of climbing mountains since the danger is mainly self-regarding. So enough virtue-parading preaching.

As for the so-called cheating, who really are the cheaters? The average steroid user spends about \$100-150 per month while the supplement industries grow rich on suckering in the hundreds of thousands, possibly millions, of foolish people spending up to \$1000 per month on a variety of mumbo jumbo: androstenedione, 4-androstenedione, 19-androstenedione, androstenediol and the several 4, 5, 17, and 19 varieties of androstenediol, tribulus terrestris, enzymatic conversion accelerators, growth hormone stimulators, hormone-releasing peptides, testosterone "boosters", dozens of magical herbs and a ridiculous number of "non drugs" with unpronounceable names so they are always abbreviated such as HMB and DHEA. On top of all this, these folks who tend to be more affluent than steroid users, are pumping protein powders into their milk - \$9 per day - and gobbling down protein candy bars - up to \$3 each - while saving a bit of energy for screaming "Foul! Cheater!" at the poor steroid user. They are told by the manufacturers and distributors of these outlandish products that they look like steroids, feel like steroids and work like steroids. So? Why not ban them like steroids?

But I say ban them and only them. For one thing, they don't work as well as steroids. More importantly, what care I as a fan that someone sets a remarkable record because he used steroids? I pay money to see sporting events and I am entitled to an athlete's very best. Isaac Stern can afford a violin that few violinists and no high school orchestra player can afford. Is he taking unfair advantage of them? If I pay \$60 to hear Stern and learn his tone was not up to par because he was too lazy to bring his own violin and borrowed a \$50 one from a high school kid, I justifiably want my money back. What care I that he usually plays upon a \$200,000 instrument? I am not bothered by this; I want his very best. Likewise, I want the very best an athlete can give me. I don't want to watch athletes who could have done better if only they had used steroids. Talk of steroid performance as unnatural is as ridiculous as complaining about artificial hearts. As for me I plan to have a T-shirt made for me that will read on its front: "Use steroids or go home. Enough of crying and whining."

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## **The Anabolic Steroid Control Act: The Wrong Prescription?**

**Richard D. Collins**

(Originally published in the New York State Bar Association Criminal Justice Journal, Vol. 9, No. 2, Summer 2001)

According to the body of common knowledge, anabolic steroids are dangerous and deadly drugs. The mainstream media have thoroughly vilified these hormones for several decades. The use by mature adults of any amount of anabolic hormones to enhance physical appearance is invariably labeled anabolic steroid "abuse" and, consequently, the average American lumps the athletic steroid user into the same depraved category as the heroin or cocaine user. Law enforcement agents and prosecutors readily proceed accordingly in furtherance of our national "War on Drugs." Only the most progressive physicians accept the legitimacy of anabolic steroid use for any but the most limited medical purposes.

Understandably then, the proposition that our current approach to the non-medical use of anabolic steroids is flawed, failing and in need of reform is provocative to many.

While rarely reported in the lay press, there are actually very compelling reasons to revisit the legitimacy of our current anabolic steroid laws. There is mounting evidence that the actual health dangers associated with anabolic steroids for mature adults are significantly less than were suggested to Congress or are commonly perceived by the public. There is evidence that the tight regulations have stifled research, undermined beneficial applications, and effectively severed any connection between physicians and most steroid users. Further, there are strong arguments that the legislation has failed to solve the very problems for which it was enacted; rather, it has exacerbated the situation.

### **The Congressional Hearings**

In the mid 1980's, media reports of two problems came to the attention of Congress: the increasing use of anabolic steroids in professional and amateur sports, and a "silent epidemic" of high school steroid use. Between 1988 and 1990, Congressional hearings were held to determine the extent of these problems and whether the Controlled Substances Act should be amended to include anabolic steroids along with more serious drugs such as cocaine and heroin.<sup>1</sup> It is sometimes overlooked that the reported adverse medical effects of steroid use, such as potential liver damage and endocrinological problems, were completely irrelevant to the criteria for scheduling under the Controlled Substances Act.<sup>2</sup>

Many witnesses who testified at the hearings, including medical professionals and representatives of regulatory agencies -- including the FDA, the DEA and the National Institute on Drug Abuse -- recommended against the proposed amendment to the law. Even the American Medical Association repeatedly and vehemently opposed it, maintaining that abuse of these hormones does not lead to the physical or psychological dependence required for scheduling under the Controlled Substances Act. However, the records from the hearings suggest that any "psychologically addictive" properties of steroids were secondary considerations to Congress. The majority of witnesses called to testify at the hearings were representatives from competitive athletics. Their testimony, and apparently Congress' main concern, focused on legislative action far less to protect the public than to solve an athletic "cheating" problem.<sup>3</sup> Congress wanted

steroids out of sports and classified steroids as Schedule III controlled substances. As a result, these sex hormones stand out as a strange anomaly among the codeine derivatives, central nervous system depressants, and stimulants that form the rest of Schedule III.<sup>4</sup>

### **The Anabolic Steroid Control Act of 1990 and the New York State Legislation**

The Anabolic Steroid Control Act of 1990<sup>5</sup> added anabolic steroids to the federal schedule of controlled substances, thereby criminalizing their non-medical use by those seeking muscle growth for athletic or cosmetic enhancement. It places steroids in the same legal class as amphetamines, methamphetamines, opium and morphine. Those caught illegally possessing anabolic steroids even for purely personal use face arrest and prosecution. Under the Control Act, it is unlawful for any person knowingly or intentionally to possess an anabolic steroid unless it was obtained directly, or pursuant to a valid prescription or order, from a practitioner, while acting in the course of his professional practice (or except as otherwise authorized). A simple possession conviction is punishable by a term of imprisonment of up to one year and/or a minimum fine of \$1,000.<sup>6</sup> Simple possession by a person with a previous conviction for certain offenses, including any drug or narcotic crimes, must get imprisonment of at least 15 days and up to two years, and a minimum fine of \$2,500, and individuals with two or more such previous convictions face imprisonment of not less than 90 days but not more than three years, and a minimum fine of \$5,000.<sup>7</sup> Distributing anabolic steroids, or possessing them with intent to distribute, is a federal felony.<sup>8</sup> An individual who distributes or dispenses steroids, or possesses with intent to distribute or dispense, is punishable by up to five years in prison (with at least two additional years of supervised release) and/or a \$250,000 fine (\$1,000,000 if the defendant is other than an individual).<sup>9</sup> Penalties are higher for repeat offenders.<sup>10</sup>

In New York State, anabolic steroids are classified as Schedule II controlled substances,<sup>11</sup> and their possession can be prosecuted as a class "A" misdemeanor criminal offense,<sup>12</sup> punishable by up to a year in jail.<sup>13</sup> Sale of anabolic steroids is a class "D" felony in New York,<sup>14</sup> regardless of the quantity sold, punishable by up to seven years in prison.<sup>15</sup>

### **The Health Risk Issue**

Although the purported health risks of anabolic steroids are irrelevant to the criteria for scheduling controlled substances, they have provided a seemingly valid public basis for the enforcement of the legislation, justifying a policy favoring prosecution of mature adults involved with steroids over allowing them to "destroy themselves" with these substances. It is curious whether the policy would be publicly supported if the actual dangers to healthy adult males were significantly less than the general public has been led to believe. While a comprehensive review of the medical and scientific evidence of health risks is beyond the scope of this article, a few words on the subject are in order.

Without question, there are health risks involved in the self-administration of any prescription medicine, particularly in the absence of a physician's advice with respect to dosages and duration of use. Further, without regular monitoring by a doctor, some side effects may go unnoticed or untreated until it is too late. Anabolic steroids can have adverse effects upon the body, with particular risks for teenagers, who are more likely than adults to abuse anabolic steroids in dangerously high dosages and without any medical supervision.

But while steroids can have adverse side effects, including serious ones, to mature adult users as well, the scientific literature is far less conclusive than is claimed by government-sponsored physicians and anti-drug officials. Despite a virtually one-sided presentation in the lay press, the position that anabolic steroids are such dangerous substances as to warrant government enforcement tactics is surprisingly controversial. Mounting research strongly suggests that the actual health risks have been overstated to the public. A landmark 1996 study, for example, found virtually no adverse effects when anabolic steroids were administered at a dosage of 600 mgs per week (about six times natural replacement dose) for ten weeks.<sup>16</sup> The actual risk levels for mature adult males using steroids are related to various factors, such as the dosages and duration of use, the specific types of compounds administered, the existence of any preexisting pathologies, etc. Some highly knowledgeable authorities who have objectively reviewed the medical literature have concluded that "[a]s used by most athletes, the side effects of anabolic steroid use appear to be minimal."<sup>17</sup>

The public has been led to believe that "roid rage" -- the descriptive term for steroid-induced spontaneous, highly aggressive, out-of-control behavior -- is rampant among steroid users. While a handful of researchers have claimed that psychiatric symptoms including increased aggression are a common side effect of anabolic steroid use, these claims have been regarded with skepticism by experts. Indeed, the relationship between anabolic steroids and aggressive behavior is far more complex than the press has reported, and the most exhaustive review of the medical literature did not find consistent evidence for a direct causal relationship between steroid use and aggression even in those affected.<sup>18</sup>

### **Personal Freedom and General Comparative Risks**

The law does not prevent individuals from skiing, scuba diving or even hang gliding, although all are extremely dangerous activities. As one reviewer noted: "People in this country can choose to have tummy tucks, breast implants, nose jobs, smoke cigarettes, drink alcohol excessively, or watch strippers as long as they don't hurt other people. Actually smokers are allowed free reign to harm others with second hand smoke in most places in the country except California, so why aren't people allowed to exert their freedom of choice in regards to use of things like marijuana and anabolic steroids, either of which can be credibly argued to be less dangerous or no more dangerous than cigarettes and alcohol."<sup>19</sup> Smokers are not subjected to arrest and criminal prosecution, even though many, many more deaths result from tobacco annually than in all fifty years of non-medical steroid use.<sup>20</sup> Each year, the use of non-steroidal anti-inflammatory drugs



- including over-the-counter aspirin and ibuprofen - accounts for an estimated 7,600 deaths and 76,000 hospitalizations in the United States.<sup>21</sup> Although the inherent risks of dangerous sports and cosmetic surgery are unnecessary, and may well outweigh the benefits, we do not proscribe these activities. Is it appropriate, then, to prevent mature, informed adults from choosing cosmetic enhancement through physician-administered hormones?

### **Comparative Risks to Cosmetic Surgery**

Commentators from both the legal and medical communities have noted an interesting cultural irony in the comparison of anabolic steroid administration to cosmetic surgery procedures. Under a physician's supervision, these represent different approaches toward a similar goal. In a society preoccupied with physical appearance, confidence and self-image are often intertwined with body shape and condition. Interestingly, under the current views and laws of our society, it is criminal for a physician to administer anabolic steroids to a healthy adult for purposes of cosmetic physical enhancement. However, it is perfectly acceptable (and quite lucrative) to perform the much more radical and dangerous procedure of surgically implanting foreign prosthetics into virtually all parts of the human anatomy for the same purpose, subjecting patients to the potentially fatal risks associated with general anesthesia and post-surgical infection. Many more people have died or been permanently injured from botched liposuctions, breast augmentations and other cosmetic surgery procedures in the past few years than in nearly fifty years of anabolic steroid use by athletes. Liposuction, for example, is now the most popular cosmetic surgical procedure in North America despite the fact that it has resulted in significant incidences of blood vessel blockage and death.<sup>22</sup> Given the comparative risks, it would seem that the current state of legality regarding non-medical steroid use and these procedures might best be reversed.

### **The Goals of Criminalization for Non-Medical Usage**

Whether providing criminal penalties for illegal steroid use is the proper and most effective way of dealing with the "steroid problem" has been debated for quite some time.<sup>23</sup> Proponents of criminalization and law enforcement authorities say that the Control Act and similar state laws: (1) help to deter trafficking, (2) protect young people, and (3) preserve fair competition in sports. Against criminalization are arguments that such penalties have proven to be a failure in stemming abuse of other drugs and alcohol, that criminalization only increases the underground black market, and that efforts are best confined to education and rehabilitation.

### **Deterring Steroid Trafficking**

Proponents of criminalization contend that stiff penalties help deter trafficking,<sup>24</sup> and that the strict controls associated with controlled substance status prevent pharmaceutical companies from manufacturing more product than could be legitimately used for FDA approved purposes. Indeed, it was the allegation of such a "diversion" problem that helped sway Congress to classify steroids even

against the advice of medical authorities. The Control Act addresses the diversion problem by the triplicate "paper trail" that is associated with controlled substances. Every person who manufactures, distributes, or dispenses a controlled substance is required to register annually with the Attorney General.<sup>25</sup> But while the paper trail requirements have reduced the amount of legitimate steroids diverted, they have helped foster a booming counterfeit trade where underground labs make and label steroid products to mimic legitimate pharmaceuticals. An even bigger problem is the tremendous increase in production and importation of non-FDA-approved foreign products that have come to replace domestic preparations. All of these products completely bypass the Control Act's paper trail.

In a 1990 statement to Congress, Department of Justice officials estimated the black market to be a 300 million dollar per year industry.<sup>26</sup> In January 2001, federal law enforcement officials announced that they seized more than 3.25 million anabolic steroid tablets in the single-largest steroid seizure in U.S. history.<sup>27</sup> Last year, U.S. Customs agents made 8,724 seizures, up 46 percent from 1999 and up eight-fold from 1994. Public health experts estimate that the steroid black market has grown larger - perhaps far larger - than the \$300 million to \$400 million estimated in 1988.<sup>28</sup> But as officials from the Office of National Drug Control Policy issue statements supporting even broader interdiction, the Drug Enforcement Administration takes steps toward further regulations,<sup>29</sup> and prosecutors and lawmakers decry the dangers of this huge black market of illegitimate steroids, it seems only sensible to deride the "deterrent" effect of our approach.

### **Protecting Young People**

Protecting young people from danger is a worthy goal of any legislation. The Control Act appears to have had the opposite effect. A primary effect of the Control Act's restrictions upon legitimate product has been the increased manufacture and distribution of black market counterfeit products and substandardly made veterinary steroids never intended for human consumption. Some of these black market products are tainted with impurities or contain other foreign substances, supporting the assertion that "continued enforcement of steroid legislation will worsen health risks associated with steroid use. An investigation by The Atlanta Journal and Constitution concluded that 'tougher laws and heightened enforcement'... have fueled thriving counterfeit operations that pose even more severe health risks."<sup>30</sup>

A second major effect of the criminalization approach has been to discourage illegal users, including teens, from admitting their steroid usage to physicians. Since some of the greatest dangers inherent in self-administered steroid use involve the failure to be monitored by a doctor, the Control Act has succeeded in greatly escalating this danger and has created an even wider gap between the users and the medical community. Because the self-administration of anabolics is a federal crime, few users are willing to confess their steroid use to physicians. And because federal enforcement efforts have targeted physicians, few doctors

want anything to do with athletes taking steroids. Other than in legitimate and authorized research, physicians must prescribe steroids "for a legitimate medical purpose" and "in the usual course of professional treatment" or risk prosecution as a common drug dealer.<sup>31</sup> Doctors caught distributing steroids for bodybuilding have been criminally prosecuted.<sup>32</sup> The end result is that the people, including minors, using steroids illegally rarely get regular blood pressure checks, cholesterol readings, prostate exams and liver enzyme tests. "Thus, the risks involving the use of anabolic-androgenic steroids have increased well beyond those of the drugs themselves."<sup>33</sup> As one reviewer concluded: "By forbidding trained physicians from administering steroids in a controlled manner, the Legislature has forced athletes to either buy steroids off the black-market or seek out un-ethical and possibly incompetent physicians to supply them steroids.... [I]t appears that Congress' attempt at preventing steroid prescription has at best been futile and at worst harmful."<sup>34</sup>

### **Preserving Fair Competition in Sports**

Issues of cheating, "hollow victories," "winning at any cost," etc., were probably the primary ideological foundation for the Control Act.<sup>35</sup> "Permitting steroid users to compete with drug-free athletes reflects on the fairness of athletic competition at every level. Allowing those with an unfair advantage to compete can pressure drug-free athletes to use anabolic steroids to remain competitive."<sup>36</sup>

The Control Act has been of extremely limited value in addressing this "cheating" problem. Elite athletes are almost never prosecuted under the Control Act, obtaining their steroid supplies through sophisticated channels that avoid detection by law enforcement. The extremely remote possibility of criminal prosecution deters few if any Olympic and professional level athletes. The most effective way to eradicate anabolic steroids from competitive sports is through systematic drug testing. Athletes who fail the steroid test are prohibited from competing. While testing for anabolic steroids is not perfect, it does remove identified steroid-users from the sport and also serves as the most effective deterrent today. Serious athletes devote huge amounts of time, energy and resources into training for an event. The effect of drug testing -- preventing steroid-using athletes from competing -- is both a more effective and more appropriate deterrent than the Control Act's threat of making overly ambitious athletes into convicted felons. This is especially true because the vast majority of anabolic steroid users are not competitive athletes at all, but merely otherwise law-abiding adults who are using the hormones for physical appearance.

### **Problems Created or Worsened by the Control Act**

The Control Act has made it much more difficult for those who might legitimately benefit from steroid therapy to have access to it, such as in geriatric medicine. There are many who believe that hormones may be an antidote for aging. Serum testosterone levels decline in men as they age: replacement is being suggested as a beneficial therapy with few adverse effects. The restoration of strength, muscle mass and libido in the elderly would greatly benefit society. However, the

sweeping stroke with which the Control Act is applied has precluded many favorable applications for the elderly. When "physicians prescribe steroids for other than approved illnesses, they open themselves up to a presumption of illegality based upon the reading of the Anabolic Steroids Control Act."<sup>37</sup> "By respecting the federal law, physicians may not prescribe steroids to advance the physical strength and condition of the elderly. By subverting a doctor's determination concerning the best interests of a patient, elders are penalized as well -not for violating the law, but by submitting to it."<sup>38</sup> "Many illnesses requiring managed care possibly could be eliminated with hormone treatments. This would not only trigger a social benefit but a financial benefit as well. Congress has created a barrier for the revitalizing effects of steroids for the elderly."<sup>39</sup>

The prudent use of anabolic steroids is also becoming extremely attractive to middle-aged men, the tail end of the so-called "baby boom." As endogenous testosterone production decreases with age, the use of anabolic steroid therapy ("androgen replacement therapy") can be a godsend to men in their forties and fifties suffering from low libido and other ailments. Recent research supports the safety and effectiveness of this hormonal replacement therapy, and public awareness has begun.<sup>40</sup> The judicious use of androgens can improve age-related decreases in sexual desire and sexual arousal in many men, and would seem to have a positive effect toward lowering serum cholesterol when used in appropriate dosages. Some progressive experts anticipate that within a few years, androgen replacement therapy with anabolic steroids will be as common for men as estrogen replacement therapy is for women.

In a different area of medicine, specialists are coming to consider anabolic steroid therapy an essential component of the treatment of HIV( men, greatly improving quality of life by increasing protein utilization for muscle growth (actually stopping or reversing AIDS-related wasting), increasing appetite, stamina and libido, and promoting a general feeling of well-being.<sup>41</sup> The Control Act has sadly hindered the expansion of use for HIV+ and AIDS patients.

### **Reforming Our Anabolic Steroid Laws**

The Anabolic Steroid Control Act has been a prescription for failure. Illegal use has continued unabated and the potential dangers associated with anabolic steroid use have been significantly increased because of the Act. Meanwhile, legitimate uses and vital research have been suppressed. While anti-steroid experts try to minimize the real life effects of the criminalization approach upon those apprehended for merely personal use, the effects of arrest and prosecution, even where a sentence of incarceration is averted, can be quite devastating. This is especially true since most adult steroid users lead otherwise responsible, law-abiding lives.

Steroid prohibitionists have met any challenges to the status quo with resistance, maintaining: "However imperfect our present systems might be, it would be a terrible mistake to consider legalizing performance-enhancing drugs... We cannot

depend on athletes making judicious use of steroids during their athletic careers. From the earliest times, the pattern has always been one of excess. Alcohol regulation does not entirely prevent alcohol abuse by youngsters but it serves as a check that is in the best interests of society."<sup>42</sup> The argument invites two responses. First, the observation about athletes themselves being incompetent to judiciously use steroids more persuasively supports the contrary position. Reforming the law to again allow doctors to be involved in the dosage regulation, administration, and health monitoring of athletes using anabolics would vastly reduce the patterns of "excess." Second, the analogy to alcohol is well taken in a way that must have been overlooked. Recognizing the failure of Prohibition, Congress changed our national laws regarding alcohol use from prohibition to restriction, permitting use by mature adults but banning sales to minors. Just as our society views alcohol and tobacco as requiring maturity for responsible use, so too should any relaxation of laws regarding anabolic hormones be reserved for adults only.

An alternate solution to the problem is sorely needed, and discourse must begin on the details of the reformation. Regulation as prescription drugs and removal of criminal penalties for adult personal use with a prescription would solve some of the problems created by the Control Act itself. Physicians would no longer fear being arrested for dispensing moderate amounts of anabolics to mature adults for cosmetic purposes. Steroid users would no longer be discouraged from continuous health monitoring. Athletes and responsible cosmetic users would no longer be imprisoned or transformed into criminals. Those suffering from AIDS or age-related infirmities would have greater access to needed medications. Funding for anabolic steroid research would certainly increase. There would be a major shifting of the steroid supply to favor legitimately produced, FDA regulated products. Clearly, the two greatest dangers in the use of anabolic steroids today - the use of tainted black market substances and the failure to be medically monitored and supervised - would be averted by this approach. Of course, anabolic steroids would be restricted to adults, and non-physicians caught trafficking in steroids, especially selling steroids to minors, would be subjected to stiff criminal sanctions. Organized sports bodies could continue to ban steroids for participating athletes.

While there are obvious political hurdles standing in the way of such reformation, it is time for our laws to discard the view of anabolic steroids as "deadly drugs" for mature adults, based on the medical and scientific truth. The current scheme, with its unsupervised self-administration of potentially dangerous black market pharmaceuticals and the arrest and prosecution of mature adults seeking physique enhancement, is the wrong prescription indeed.

The author has been involved in the defense of numerous anabolic steroid cases in a variety of jurisdictions. He also has a background as a certified personal trainer and fitness instructor. He has written extensively, presented legal argument to Drug Enforcement Administration policy officials, and been interviewed by the media concerning anabolic steroid legal issues.

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1 See generally, Legislation to Amend the Controlled Substances Act (Anabolic Steroids): Hearings on H.R. 3216 Before the Subcomm. on Crime of the House of Representatives Comm. on the Judiciary, 100th Cong., 2d Sess. 99, July 27, 1988; Steroids in Amateur and Professional Sports -- The Medical and Social Costs of Steroid Abuse: Hearings Before the Senate Comm. on the Judiciary, 101st Cong. 1st Sess 736, April 3 and May 9, 1989; Abuse of Steroids in Amateur and Professional Athletics: Hearings Before the Subcomm. on Crime of the House Comm. on the Judiciary, 101st Cong., 2d Sess. 92, March 22, 1990; Hearings on H.R. 4658 Before the Subcomm. on Crime of the House Comm. on the Judiciary, 101st Cong., 2nd Sess. 90, May 17, 1990.

2 Adverse physical effects are not a basis for controlled substance status; potential for abuse and dependency are. Pursuant to 21 U.S.C. 812(b), a substance in Schedule III is supposed to be placed there if: A) The drug or other substance has a potential for abuse less than the drugs or other substances in schedules I and II; (B) The drug or other substance has a currently accepted medical use in treatment in the United States; and (C) Abuse of the drug or other substance may lead to moderate or low physical dependence or high psychological dependence.

3 John Burge, *Legalize and Regulate: A Prescription for Reforming Anabolic Steroid Legislation*, 15 Loy. L.A. Ent. L.J., 33, at 45 (1994).

4 21 U.S.C. § 812(c).

5 Pub. L. No. 101-647, Sec. 1902, 104 Stat. 4851 (1990), amending 21 U.S.C. § 812(c) (1981) to include anabolic steroids.

6 21 U.S.C. § 844(a).

7 *Id.*

8 21 U.S.C. § 841(a)(1).

9 21 U.S.C. § 841(b)(1)(D).

10 *Id.*

11 New York Consolidated Laws, Public Health Law § 3306 subdivision (h) defines anabolic steroids as follows: "Unless specifically excepted or unless listed in another schedule, 'anabolic steroid' shall mean any drug or hormonal substance, chemically and pharmacologically related to testosterone (other than estrogens, progestins and corticosteroids) that promotes muscle growth, any drug or hormonal substance that stimulates the endogenous production of steroids in the human body which acts in the same manner, or any material, compound, mixture, or preparation which contains any amount of the following substances: (1) Boldenone. (2) Clostebol. (3) Dehydrochlormethyltestosterone. (4) Drostanolone. (5) Ethylestrenol. (6) Fluoxymesterone. (7) Formebolone (formebolone). (8) Mesterolone. (9) Methandriol. (10) Methandrostenolone. (11) Methenolone. (12) Methyltestosterone. (13) Mibolerone. (14)Nandrolone. (15) Norethandrolone. (16) Oxandrolone. (17) Oxymesterone. (18) Oxymetholone. (19) Stanolone. (20) Stanozolol. (21) Testosterone. (22) Trenbolone. (23) Any salt, ester or isomer of a drug or substance described or listed in this subdivision, if such salt, ester or isomer promotes muscle growth."

12 New York Consolidated Laws, Penal Law § 220.03.

13 New York Consolidated Laws, Penal Law § 70.15(1).

14 New York Consolidated Laws, Penal Law § 220.31.

15 New York Consolidated Laws, Penal Law § 70.00(2)(d).

16 S. Bhasin, T.W. Storer, N. Berman, et al., *The Effects of Supraphysiologic Doses of Testosterone on Muscle Size and Strength in Normal Men*, 335 N Engl J Med (July 4, 1996), 1-7.

17 M.G. Di Pasquale, *ANABOLIC STEROID SIDE EFFECTS: FACTS, FICTION AND TREATMENT* (Warkworth, Ontario; M.G.D. Press, 1990), 5. See generally, Mark Myhal and David R. Lamb, *Hormones as performance-enhancing drugs*, in M.P. Warren and N. W. Constantini (Eds.), *SPORTS ENDOCRINOLOGY* (Totowa, NJ; Humana Press, 2000), 429-472; C. Street, J. Antonio, & D. Cudlipp, *Androgen Use by Athletes: A reevaluation of the health risks*, 21 Can. J. Appl. Physiol., 6 (1996), 421-440; R.D. Dickerman, R.M. Pertusi, et al., *Anabolic steroids-induced hepatotoxicity: is it overstated?*, Clin J Sports Med 1999; 01 (9):34-39; and this author's review of *The Health Risks of Anabolic Steroids*, January 15, 2001 [<http://www.steroidlaw.com/healthrisks.htm>].

18 Jack Darkes, *The Psychological Effects of Anabolic/Androgenic Steroids, Parts I through IV*, December 15, 2000 [<http://www.musclemonthly.com/author/jack-darkes.htm>].

19 Michael Mooney, *Decriminalizing Anabolic Steroids*, May 28, 2001 [<http://www.decriminalizesteroids.com/michael.html>].

20 According to the US Centers for Disease Control, from the beginning of 1990 through 1994 there was an average of 430,700 deaths annually attributed to smoking. See, <http://www.drugwarfacts.org/causes.htm> citing *Smoking - Attributable Mortality and Years of Potential Life Lost, Morbidity and Mortality Weekly Report* (Atlanta, GA: Centers for Disease Control, 1997), May 23, 1997, Vol. 46, No. 20, p. 449. But despite over fifty years of anabolic steroid use by athletes, "there is little evidence to show that their use will cause long-term detriment; furthermore, the use of moderate doses of androgens results in side effects that are largely benign and reversible." Street et al., *supra*, note 17.

21 R. Tamblyn, L. Berkson, W.D. Jauphinee, et al., *Unnecessary Prescribing of NSAIDs and the Management of NSAID-Related Gastropathy in Medical Practice*, *Annals of Internal Medicine* (Washington, DC: American College of Physicians, 1997), September 15, 1997, 127:429-438, from the web at <http://www.acponline.org/journals/annals/15sep97/nsaid.htm>, (May 1, 2001), citing J.F. Fries, *Assessing and understanding patient risk*, *Scandinavian Journal of Rheumatology Supplement*, 1992;92:21-4.

22 K.A. Smith; R.H. Levine, *Influence of suction-assisted lipectomy on coagulation*, *Aesthetic Plast Surg.* 1992;16(4):299-302.

23 See, for example, Norma H. Reddig, *Anabolic Steroids: The Price of Pumping Up!*, 37 *Wayne L. Rev.* 1647 (1991), at 1670.

24 House Legislative Analysis Section, *Analysis of H.B. 4081* (July 3, 1990).

25 21 USC Sec. 822(a)(1) and (2) (1988).

26 *Anabolic Steroids Control Act of 1990: Hearings on H.R. 4658 Before the Subcomm. on Crime of the House Comm. on the Judiciary, 101st Cong., 2d Sess. 90* (May 17, 1990) (statement of Leslie Southwick, Deputy Assistant Att'y Gen., Civil Division, U.S. Dep't of Justice).

27 Jeannine Aversa, *Govt. Announces Steroid Seizure*, *Associated Press (AP)*, January 19, 2001.

28 Tom Farrey, *Yesterday's Drug Makes Comeback*, part of the series *Crossing the Line: The Failed War on Steroids*, *ESPN.com*, December 20, 2000 [<http://espn.go.com/gen/s/2000/1207/929174.html>].

29 Former anti-drug czar Gen. Barry McCaffrey has made various statements suggesting that the over-the-counter prohormone supplement androstenedione should be defined and prosecuted as an anabolic steroid. See, e.g., Barry R. McCaffrey, *Statement Before the Senate Committee on Commerce, Science, and Transportation*, October 20, 1999 [<http://www.senate.gov/~commerce/hearings/1020mcc.pdf>]. The DEA has issued statements suggesting that it will attempt to bootstrap androstenedione into the Anabolic Steroid Control Act, and this author argued to the DEA in Washington, D.C., on behalf of a coalition from the dietary supplement industry against the proposed regulation.

30 Burge, *supra*, note 3, at 54-55, citing Mike Fish, *Steroids Riskier Than Ever, Drugs Easy to Buy South of the Border*, *Atlanta J. &mp; Const.*, Sept. 28, 1993, at D1.

31 21 C.F.R. 1306.04(a).

32 For example, Walter F. Jekot, M.D., a popular California physician who helped pioneer steroids for AIDS patients, was sentenced in 1993 to five years in federal prison for dispensing steroids to athletes.

33 Myhal and Lamb, *supra*, note 17.

34 Jeffrey Black, *The Anabolic Steroids Control Act of 1990: A Need for Change*, 97 *Dick. L. Rev.* 131 (1992), at 140 (citations omitted).

35 See, Burge, *supra*, note 3. See also, M.G. Di Pasquale, *Editorial: Why Athletes Use Drugs, Drugs in Sports* (Vol. 1, Number 1, February 1992) at 2: "Contrary to what most people believe (the media's irresponsible sensationalism has resulted in the widely held mistaken view that the use by athletes of anabolic steroids and other performance-enhancing drugs is a problem on par with heroin and cocaine abuse), the use of drugs, such as anabolic steroids, by athletes is a problem, not because of the addictive and dangerous side-effects of these compounds, but because these drugs offer an unfair advantage to the athletes who use them."

36 *Abuse of steroids in Amateur and Professional Athletics: Hearings Before the Subcomm. On*

Crime of the House Comm. On the Judiciary, 101st Cong., 2d Sess. 92 (Mar. 22, 1990) (statement of Frank D. Uryasz, Director of Sports Sciences, National Collegiate Athletic Association).  
37 Jeffrey Hedges, *The Anabolic Steroids Act: Bad Medicine for the Elderly*, 5 *Elder L. J.* 293 (Fall 1997) at 311.  
38 *Id.* at 313.  
39 *Id.* at 320.  
40 See, Audrey Hill, *THE TESTOSTERONE SOLUTION : INCREASE YOUR ENERGY AND VIGOR WITH MALE HORMONE THERAPY* (Rockville, CA: Prima Publishing, 1997); Eugene Shipper & William Fryer, *THE TESTOSTERONE SYNDROME: THE CRITICAL FACTOR FOR ENERGY, HEALTH, & SEXUALITY--REVERSING THE MALE MENOPAUSE* (New York, NY: M. Evans & Co., Inc., 1998); Ronald Klatz, *TEN WEEKS TO A YOUNGER YOU* (Chicago, IL: Sports Tech Labs, Inc., 1999); Jed Diamond, *MALE MENOPAUSE* (2nd Edition, Naperville, IL: Sourcebooks, Inc., 1998). See also, R. Lacayo, *Are You Man Enough*, *Time*, April 24, 2000, 58 - 64; A. Sullivan, *The He Hormone*, *The New York Times Magazine*, April 2, 2000, 46.  
41 For more information on the highly positive effects that anabolic steroids are having upon HIV+ and AIDS patients, and about the relative safety of anabolic hormones in general, see [www.medibolics.com](http://www.medibolics.com), the web site of researcher Michael Mooney, an internationally recognized expert in the field of AIDS survival strategies and the co-author of *BUILT TO SURVIVE, A COMPREHENSIVE GUIDE TO THE MEDICAL USE OF ANABOLIC STEROIDS, NUTRITION AND EXERCISE FOR HIV(+) MEN AND WOMEN* (PoWeR, 1999).  
42 Co-author Virginia Cowart in C.E. Yesalis & V.S. Cowart, *THE STEROIDS GAME* (Champaign, IL: Human Kinetics, 1998), 113-114.

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## **Reader Q&A: Pre and Post Workout Nutrition, Dealing with Blisters from Running, and Protein Needs for Nursing Mothers**

By Bryan Haycock MS

### **Question:**

*I am confused about what I should eat before and/or after I exercise. Some people say don't eat anything before, other people say don't eat anything after. How do I decide?*

-K

### **Answer:**

A pre-workout meal can help to ward off hunger and provide energy and nutrients to working muscles while blood flow to those muscles is greatest. The right kind of pre-workout meal may actually increase muscle-building hormones needed by your body for fast recovery.

To curb appetite, eat a small nutritionally complete meal containing carbohydrates and protein about 60 to 90 minutes before you exercise. A mixed meal containing both protein and carbohydrates will prolong digestion. This helps to curb appetite longer. Try to avoid high fat meals right before training though. High fat meals eaten before exercise can blunt, or prevent, the natural increase in growth hormone levels caused by exercise.



Exercise creates a temporary window of opportunity when nutrient uptake into muscles is easiest for the body. To take advantage of this window of opportunity, drink a meal replacement drink about 30 minutes prior to, or immediately after, your workout. As a liquid meal, it will digest quickly allowing glucose and amino acids to be plentiful in the blood stream when nutrient uptake is highest in your muscles. A good carb/protein drink will ensure optimal recovery and positive results.

There may even be some benefit from drinking a meal replacement (diluted) during exercise. Drinking a meal replacement during exercise causes the levels of cortisol (a catabolic hormone) to stay lower, while insulin and GH (anabolic hormones) stay higher. Over time this may lead to faster progress in the gym.

Don't forget fluid replacement! Drink at least 8 oz of water or other sports drink 15-20 minutes before strength exercise. Then continue to drink in moderation, yet frequently, throughout your workout.

For optimum fat loss, do not eat within 2 hours before your aerobic exercise sessions. Post workout meal recommendations remain the same as above.

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**Question:**

*I have always gotten blisters on my feet from running. I have tried different socks, taped my feet, powder, Vaseline. I read in a runner's magazine about something called "tannic acid". Have you heard of this? If so, how would a person use this to prevent blisters?*

*-Rick*

**Answer:**

First, let me explain a little bit about blisters. Prevention of blisters requires that you control two things, friction and moisture. There are simple techniques to deal with both problems.

The first line of defense against blisters is wearing properly fitting shoes. New shoes should be thoroughly "broken in" before wearing them in a race or during training.

Friction can be dealt with by placing a barrier at the contact point between the skin and the lining of the shoe. This can be done with athletic tape. Using "sport socks" designed to prevent blisters is also effective. If you don't have access to special socks, simply doubling them up with a thin tight pair underneath often works. Finally, the use of petroleum jelly can work by reducing friction.

Moisture can be dealt with by using talcum powder. As you mentioned in your question, an astringent may also work for some people. Astringents work by dehydrating the skin where it is applied. Astringents may also block the openings of the sweat glands though the exact mechanism is not completely understood. Without normal hydration, less fluid

is available to form the blister. Eventually, the chronic use of astringents can cause the skin to develop a tuff epidermal layer that is more resistant to blistering.

Tannic acid is an example of an astringent, as are various aluminum salts commonly found in antiperspirants. An astringent product called Drysol is often recommended by professional trainers and contains 20% aluminum chloride. The best way to use a product like Drysol, or other astringent, is to apply the astringent to the feet and allow to air dry before running. Then liberally apply a powder such as talcum, alum, or boric acid to the skin, socks and inside of the shoes. After running, thoroughly wash and dry the feet (hair dryer works well for rapid drying). Then follow the same procedure as before you ran. An astringent is applied to the skin followed by an absorbent powder. Be sure to powder and change into fresh socks and preferably different shoes. You should follow this procedure every day at least once regardless of whether you run or not.

One final note, remember that blister formation is a reaction to an unaccustomed stress to the skin. If you run too infrequently you are more likely to get blisters because the running isn't frequent enough to cause callus formation at the point of contact. For this reason it is important to use a periodized strategy to increase your running volume over time using frequent running sessions.

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**Question:**

*I've just had a baby and was wondering how my diet will effect breast feeding. I worked out before and throughout my pregnancy and feel that I ate pretty well. I've always taken a protein powder but I was wondering if my protein requirements go up while I'm breast feeding. Don't I lose protein in the milk? Will my protein drink effect the nutrient composition of the milk? Any help would be greatly appreciated.*

*Thanks,  
Sarah*

**Answer:**

While nursing it is important to consider both your protein and calorie needs. If calories are inadequate it may inadvertently increase protein needs. This is especially important for nursing women who exercise regularly.

Energy needs for an exclusively breastfeeding (no formula) woman are approximately 670 additional calories per day. Taking into consideration gradual weight loss, the average increase needed is about 500 calories per day. In women who are not unusually thin (unusually thin = <10-12% body fat during pregnancy), a moderately negative energy balance is not likely to affect milk quality or volume.

The recommended increase in protein intake during lactation is estimated to be about 20 g/day. This recommendation is based on information from "nitrogen balance" studies in lactating women. Low protein intakes are unlikely to affect milk volume but may alter the amino acid profile of breast milk. A chicken breast or other lean meat in an equal-size

portion would provide about 20 grams of protein. Protein powders are also very useful for adding protein to the diet because of their convenience and high nutritional value. Generally protein powders provide 20 grams of protein per serving. You can use a protein drink anytime to meet this need, with a meal, in the morning, before bed, or even when the baby wakes up in the middle of the night to be fed, just as long as you get 20 additional grams per day.

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## **Team Think Muscle**

### **Be on the Cutting Edge!**

Spread the word about the Think Muscle Newsletter and send the latest information on health, fitness, nutrition, training, and supplementation to all your colleagues, friends, and family. Give all these people THE BEST and latest information to allow them to increase their knowledge base and develop their best body ever! By sharing this incredible information, you are giving the gift of health. ACT NOW! Anyone can subscribe to the FREE weekly newsletter online at <http://www.thinkmuscle.com/newsletter.htm>. You can also send us the name and email addresses of five of your friends and we will automatically send them an invitation to join and a copy of our most recent newsletter. Imagine people you refer getting this amazing and detailed information for FREE. They will definitely be indebted to you! If you refer five people to us, we will also enroll you for FREE into Team Think Muscle, which will give you some great benefits in the future -- more details to come!

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## **Reader Survey**

*Tell Us What You Think?*

1. *Drug Education and Anabolic-Androgenic Steroids by Millard Baker*

- It was good.
- It was okay.
- I didn't like it.
- I'm not interested.

2. *From the ThinkMuscle Vault: Contrarian Endocrinology Part I: Testosterone for Women by Karlis Ullis, MD with Josh Shackman, MA*

- It was good.
- It was okay.
- I didn't like it.
- I'm not interested.

3. *Ban Athletes Who Don't Use Steroids by Sidney Gendin, Ph.D.*

- It was good.

- It was okay.
- I didn't like it.
- I'm not interested.

4. *The Anabolic Steroid Control Act: Wrong Prescription? By Richard D. Collins*

- It was good.
- It was okay.
- I didn't like it.
- I'm not interested.

5. *Reader Q&A: Pre and Post Workout Nutrition, Dealing with Blisters from Running, and Protein Needs for Nursing Mothers.*

- It was good.
- It was okay.
- I didn't like it.
- I'm not interested.

6. *What type of articles would you like to see in the future? (Check all that apply.)*

- Anabolic Steroids and Pharmaceuticals
- Anti-aging medicine
- Body Transformation
- Children's Health and Nutrition
- Competitive Bodybuilding
- Diet and Nutrition Reviews
- Dietary Supplements
- Exercise Physiology
- Fitness Competitions
- Fitness Psychology
- General Health Topics
- Lifestyle Management
- Men's Health
- Powerlifting
- Seniors Health Topics
- Sports Specific Training
- Women's Health and Nutrition

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We hope you have enjoyed the latest issue of the Think Muscle Newsletter. Suggestions? Comments? Questions? We'd love to hear them!

Best regards,

**The Think Muscle Editorial Staff**  
URL: <http://www.thinkmuscle.com/>

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