

HEADLINES  
SIGN UP FOR OUR  
HIV/AIDS NEWSLETTERS

Enter Your Email Address

GO

Home

What's New

Ask the Experts

Blogs

Just Diagnosed

Treatment

Prevention

Living

Personal Stories

Tweet

Recommend

Email | Print-Friendly | Glossary

## Anabolic Steroids: A Practical Guide

by Nelson Vergel

From AIDS Community Research Initiative of America

Summer 1998

For those who need to regain their lost lean body mass (LBM), anabolic steroids are a possible answer. These compounds are being prescribed increasingly by some physicians to treat their HIV-infected patients. Androgenic/anabolic steroids are synthetic analogs of the natural androgenic "male" hormone called testosterone that is produced primarily in the testes in males and in the ovaries in females. Many of them were originally synthesized in the 1930's and 40's in an effort to deliver a more optimal protein tissue building (anabolic) effect with less of the potential for masculinizing (androgenic) side-effects that are characteristic of testosterone itself. Although they are not part of the "standard of care" for HIV disease, anabolic steroids have gained acceptance in reversing the loss of LBM, strength, sexual function, appetite, and general sense of well being in HIV positive patients. However, they have received a lot of bad press due to their abuse in the bodybuilding and sports world and were banned for general public use with the Anabolic Steroid Control Act enacted by the U.S. Government in 1990. This act made anabolic steroids Class III regulated drugs, available by prescription only to people with justifiable health problems. All anabolic steroids but one have been approved to treat anemia related to renal insufficiency and other non-wasting related disorders. So physicians who prescribe these compounds to treat LBM loss are doing so under an "off-label," yet legal, application.

### Women and Children Often Forgotten

Women and children are often ignored when it comes to wasting. Physicians may be afraid to prescribe anabolics to women because of the potential to masculinize them. Women also have the added pressure from society (and sometimes their physicians) to be thin, so wasting may go unreported and untreated in this population. Most anabolics will stunt growth in children (children with HIV also have slow growth problems). Some anabolics agents like human growth hormone (Serostim™), and the oral anabolic steroid oxandrolone (Oxandrin™) appear to be safe and effective for women and children with HIV. However, they are both very expensive, so many HIV-positive people have to turn to pharmaceutical compassionate use programs, which can be difficult to access. Furthermore, no State AIDS Drug Assistance Program (ADAP) includes these compounds in their list of approved drugs for those who are uninsured.

### How do Anabolics Work?

The anabolic effect of anabolic steroids is elicited by the action of the steroid on androgen receptors in muscle tissue. The steroid binds to the receptor and is carried to the nucleus of the cell where it instructs the cell to increase protein synthesis. This results in hypertrophy (growth) of the cells and the muscle tissue itself.

The different molecular configurations of the various anabolic steroids cause significantly different responses, and even a subtle change of one atom can elicit a unique response for a specific steroid.

Advertisement

### Potential Side-Effects

Testosterone, being the most androgenic of all compounds soon to be discussed, is responsible for most of the side effects cited in the literature. Long term use of moderate to high doses (greater than 200 mg/week) may cause side effects which can include acne in the back and shoulders, hair loss, testicular atrophy (reduced size of testicles), mood changes, prostate enlargement, facial hair growth in women, and water retention. Other anabolic compounds are more benign than testosterone and still very effective in their anabolic action.

Oral steroids may cause liver toxicity which manifests as increases in liver function tests in the blood. Dr. Patricia Salvato from Houston has found that common injectable steroids have not caused this kind of liver burden in over 200 of her patients using anabolic steroids. Some people prefer injectables to oral steroids for this reason. Injectable steroids, however, may appear to cause elevated liver function tests during increased [exercise](#) and other stress in the body. Liver test elevations usually reverse with cessation of the steroids.

### Injectable Anabolic Steroids

#### Testosterone

Testosterone is the primary androgenic/anabolic hormone in the body of men and women. The forms of injectable testosterone available in the U.S. are testosterone cypionate and testosterone enanthate, both of which maintain blood levels of testosterone for a number of days. Without the cypionate or enanthate "carriers," testosterone is cycled through the body in several hours, so these carriers are important for ease of use, as they allow weekly rather than several times per day administrations. Both products come in a 10-ml bottle with 200 mg/ml. Many physicians prescribe anywhere from 200 mg/every other week to 100 mg/week.

The first controlled study on high dose testosterone enanthate with normal HIV negative men was published in the New England Journal of Medicine on July 4, 1996. This study involved the use of 600 mg per week of testosterone enanthate for ten weeks, and was controlled for weight training. Four different combinations were evaluated; testosterone with exercise, testosterone without exercise, exercise without testosterone and no exercise with no testosterone. Those who were given testosterone plus exercise had the greatest increase in muscle strength and greater increases in body weight compared to the other groups.

#### SEE ALSO

[An HIVer's Guide to Metabolic Complications](#)

[More on Treatment for HIV/AIDS Wasting](#)

#### LIVING WITH HIV



"You don't have to fight this fight by yourself." [Watch Susan's Story >](#)

VIEWED E-MAILED

#### MOST VIEWED

[HIV Undetectable = Untransmittable \(U=U\) Fact Sheet](#)

[HIV/AIDS Cure: The Basics](#)

[Who Tends to Gain Weight With HIV Treatment?](#)

[San Francisco Will Be First U.S. City With Legal Injection Site to Prevent Opioid Overdoses; Others Scramble to Follow](#)

[People With HIV Take Note: This Year's Flu Strain Can Be Dangerous, Especially for Elders](#)

[More >>](#)

Advertisement

#### TOOLS

[TheBody.com App](#)

[Get Our Newsletters](#)

[My Health Tracker](#)

[Medication and Health Reminders](#)

[Assess Your Risk for HIV](#)

[Follow Us: Facebook, Twitter, RSS](#)

### Nandrolone Decanoate (Deca Durabolin™)

Nandrolone decanoate is felt to be one of the best anabolic steroids for men because it has much less potential for side effects than testosterone, yet it still has basically as much or more anabolic potential as testosterone. The decanoate "carrier" delivers nandrolone over a slightly longer period of time than a cypionate carrier, but weekly injections are still preferred. The package insert administration recommendations of the manufacturers of nandrolone decanoate have recently been changed from bi-weekly injections to weekly injections. Keep in mind that nandrolone decanoate is the generic version of Deca Durabolin™ and can be purchased for about one third the cost per vial.

Nandrolone does not produce as much androgenic activity in the body as testosterone, so there is considerably less potential for hair loss or prostatitis (inflammation of the prostate).

Dr. Julian Gold in Australia published two studies in 1996 and 1997 showing that 100 mg of nandrolone decanoate produced significant increases in lean body mass and quality of life for HIV positive male patients.

At the XI International Conference on AIDS, in July 1996, Dr. Gary Bucher of Chicago's Center for Special Immunology, presented the first placebo controlled study of the anabolic steroid nandrolone decanoate with 73 HIV patients over 12 weeks. There was a significant increase in lean body mass, even though there was no specific weight training protocol, and we know that steroids exert their greatest effect on gaining LBM when weight training is performed. Hematocrit increased significantly.

There are several points that should be noted. First, the dosage used in this study is rather low at 100 mg of nandrolone decanoate per week. For instance, a study underway at University of Southern California at Los Angeles that was being directed by Dr. Fred Sattler, is using 600 milligrams of nandrolone per week. This higher dose is being studied because there is good reason to believe that it will be much more effective for increasing lean body mass yet still be safe. There are several other studies in progress using these higher dose.

## Oral Anabolic Steroids

### Stanozolol (Winstrol™)

A study that reviewed patient charts of HIV-positive men given stanozolol showed that it may be valuable for lean body mass improvement at doses of only 6-12 mg per day. stanozolol is priced much lower than oxandrolone at about \$80 per 100 two-milligram tablets. So, this makes it much more accessible than oxandrolone, which costs about \$300 per 100 2.5 milligram tablets. Stanozolol is an unusual compound that is considered to be relatively free from side effects, even for women, because like oxandrolone, it has a very low androgenic potential. While the previously mentioned study on HIV-positive men using stanozolol showed significant bodyweight improvements from doses as low as 6 and 12 milligrams per day, anecdotal information suggests that stanozolol exerts its greatest effects when combined with anabolic steroids like nandrolone or testosterone. An appropriate dose for stanozolol used in combination with either nandrolone or testosterone appears to be between 6-18 mg/per day for men, and 4-12 mg per day for women. Stanozolol, for unknown reasons, also appears to have a positive effect on libido, and much more so than oxandrolone. Watch for liver enzyme increases if taking [protease inhibitors](#) and stanozolol.

### Oxandrolone (Oxandrin™)

Unlike all the other anabolic steroids, oxandrolone is an oral steroid specifically approved for the treatment of weight loss due to trauma, [sepsis](#), surgery, and other conditions. Oxandrolone is also very mild and, according to the manufacturer, not liver toxic. However, there have been reports of people on [ritonavir](#) or other protease inhibitors who have experienced increases in their liver enzymes, which made them stop taking oxandrolone.

Oxandrolone does not virilize women in low to moderate doses and it has been used in children also. It is an expensive drug, and the manufacturer has created an expanded use program which is probably the most accessible in the AIDS industry. Dosages of 20-60 mg/day for men, and 5-20 mg/day for women have been used successfully. CRIA is participating in a multicenter study of oxandrolone for women with unintentional weight loss and recently completed a similar study in men.

### Oxymetholone (Anadrol™)

Oxymetholone is an oral anabolic which was recently reintroduced in the US market last year. It used to be called the "gorilla" steroid by bodybuilders in the 1980's.

A study published in 1996 in the British Journal of [Nutrition](#) showed that this powerful oral anabolic steroid improves body weight with what appeared to be no significant side effects in HIV-positive men and women. Oxymetholone was given for thirty weeks at a dose of 150 mg per day. Weight gain averaged 14.5% of bodyweight, which is significant because there was no exercise program instituted, and it is known that anabolic steroids exert their greatest effect when weightlifting is used. Notably, even the subset of patients burdened with AIDS-related infections continued to gain weight on oxymetholone.

While oxymetholone is considered to be a harsh steroid with a high potential for side-effects, the subjects were reported to have no significant problems with liver function, water retention, virilization, and several side-effects thought to be associated with its use. The dose was three times what many bodybuilders would use and the treatment period was considerably longer. Since oxymetholone was brought back to the U.S. early in 1998, we will see how effective it is and also see whether there actually are side-effects in real world situations with HIV positive people.

Steroid	Anabolic*	Androgenic*	Reported Doses	Side Effects
<b>Nandrolone Decanoate</b> <b>Deca Durabolin™</b> (injections) Available in the U.S.	<b>High</b>	<b>Low to Medium</b>	Men 100-200 mg/wk Women 25 mg/wk	Some water retention
<b>Methenolone Primobolan™ Depot</b> (injections) Available in Europe & Mexico	<b>Low to Medium</b>	<b>Very Low</b>	Men 100-600 mg/wk Women 25-100 mg/wk	No information available.
<b>Methenolone/Primobolan™</b> (Oral = tablets)	<b>Low to Medium</b>	<b>Very Low</b>	Men 50-200 mg/day	No information available.

Available in Europe & Mexico			Women 100 mg/day	
<b>Stanozolol Winstrol™ (injections)</b> Not available in the U.S. Can be obtained overseas.	<b>Low to Medium</b>	<b>Very Low</b>	Men 100-200 mg/wk Women 25 mg/wk	Slight chance of virilizing for women. Pyrogenic (fever-causing). Watch liver function.
<b>Stanozolol Winstrol™ (Oral)</b> Available in the U.S.	<b>Low</b>	<b>Very Low</b>	Men 6-18 mg/day Women 4-12 mg/day	Slight chance of virilizing for women. Watch liver function.
<b>Oxandrolone Oxandrin™ (Oral)</b> Available in U.S.	<b>Low to Medium</b>	<b>Very Low</b>	Men 15-20 mg/day Women 10-40 mg/wk Children 2.5-5 mg/day	Slight chance of virilization for women. Patients on protease inhibitors should watch liver function. Women report water retention.
<b>Oxymetholone Trade name Anadrol™ 50 (oral)</b> Available in the U.S.	<b>Very High</b>	<b>Very High</b>	Men 150 mg/day Women 150 mg/day	Balding in men, high blood pressure, water retention, body hair growth in women and breast enlargement in men. Watch liver function.
<b>Testosterone Cypionate or Enanthate (Injections)</b> Available in the U.S.	<b>High</b>	<b>Medium to High</b>	Men 100-200 mg/wk Women 25 mg/wk	Water retention, balding in men, acne, breast enlargement in men, may virilize women.
* Many of the above dosages are not based on clinical data. Any individual considering using anabolic steroids should consult their physician. "Anabolic" characteristics are desirable for wasting therapy because it means increased lean body mass (LBM), which correlates with survival in AIDS. "Androgenic" means having a masculinizing effect, which is generally undesirable for women. Generally speaking, the less androgenic a steroid is, the fewer side effects there will be. The upper dosage listed for women is usually for severe wasting only. Women's systems do not tolerate anabolic steroids as well as men in general; caution is advised, and high dose is usually reserved for severe wasting.				

## Optimum Nutrition and LBM

Anabolic steroid therapy is much more effective when a high-protein (one or more grams of protein per pound of bodyweight per day) slightly hyper-caloric diet is maintained consistently, along with resistance weight training (one hour, three to four times a week) and an adequate micronutrient program. Whey protein, a byproduct of cheese manufacturing, is the most bioavailable protein known (eggs and meats follow). One small but interesting study showed that over a three month period HIV patients using whey protein gained between 4 and 15 pounds (without anabolic steroids). This type of new "high-tech" protein has also been shown to increase tissue glutathione levels and glutathione content in blood mononuclear cells, which no other commonly available protein supplement seems to do. It also does not seem to cause GI disturbance, like gas, bloating and diarrhea, commonly seen with other protein supplements.

## Resistance Weight Training

Resistance exercise with weights and machines has been shown to increase muscle hypertrophy (growth) with or without the use of anabolic steroids. As preciously mentioned, Dr. Shalender Bhasin in Los Angeles determined that HIV negative men receiving injections of 600 mg per week of testosterone and who exercised with weights had more LBM gains than those receiving testosterone but no exercise. Dr. Marc Hellerstein in San Francisco just finished a controlled study using oxandrolone and exercise in HIV positive men. He also found that men who exercised and took oxandrolone were the best responders to therapy.

All exercises should be performed to one's best ability to finish 8-12 repetitions in 3 sets per body part. Splitting the body in three areas ( chest + shoulders + triceps, back + biceps + abs, legs) gives all body parts enough time to recover. The most common and effective exercises are: barbell flat bench press, overhead cable front pulldowns, barbell biceps curl, triceps pushdowns, abdominal crunches, and leg press. Working out with a partner and keeping a workout logbook are also great ways to ensure success.

The use of anabolic steroids for HIV therapy is a complex yet successful way to increase LBM and strength. Without proper nutrition and exercise, this therapy is only marginal in its effectiveness. Anyone who is considering the use of this therapy should become knowledgeable and empowered with information about these compounds, and the optimal nutritional and exercise programs.

*Nelson Vergel is the Executive Director of Program for Wellness Restoration, PoWeR, which disseminates information to enhance LBM, quality of life and survival in HIV.*



Email | Print-Friendly | Glossary



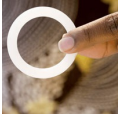
This article was provided by [AIDS Community Research Initiative of America](#). It is a part of the publication *CRIA Update*. Visit [ACRIA's website](#) to find out more about their activities, publications and services.

SEE ALSO

[An HIVer's Guide to Metabolic Complications](#)

[More on Treatment for HIV/AIDS Wasting](#)

WHAT'S NEW AT THEBODY.COM



High Uptake and Use of Vaginal Ring for HIV Prevention Observed in ...



Once-Daily Tenofovir Alafenamide Appears Sufficient When Dosed With ...



HIV Research Highlights From First Day of CROI 2018



© 2018 Remedy Health Media, LLC. All Rights Reserved

**The Body:** [About The Body](#) | [Contact The Body](#) | [Site Policies](#) | [Content Providers](#) | [Advertise With Us](#) | [Site Map](#)

**Remedy Health Media:** [About Remedy Health Media](#) | [Contact Remedy Health Media](#) | [Terms of Use](#) | [Privacy Policy](#)

The Body is a service of Remedy Health Media, LLC, 750 3rd Avenue, 6th Floor, New York, NY 10017. The Body and its logos are trademarks of Remedy Health Media, LLC, and its subsidiaries, which owns the copyright of The Body's homepage, topic pages, page designs and HTML code. **General Disclaimer:** The Body is designed for educational purposes only and is not engaged in rendering medical advice or professional services. The information provided through The Body should not be used for diagnosing or treating a health problem or a disease. It is not a substitute for professional care. If you have or suspect you may have a health problem, consult your health care provider.

