

Androgel (transdermal testosterone)

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[Androgel](#) & Androderm

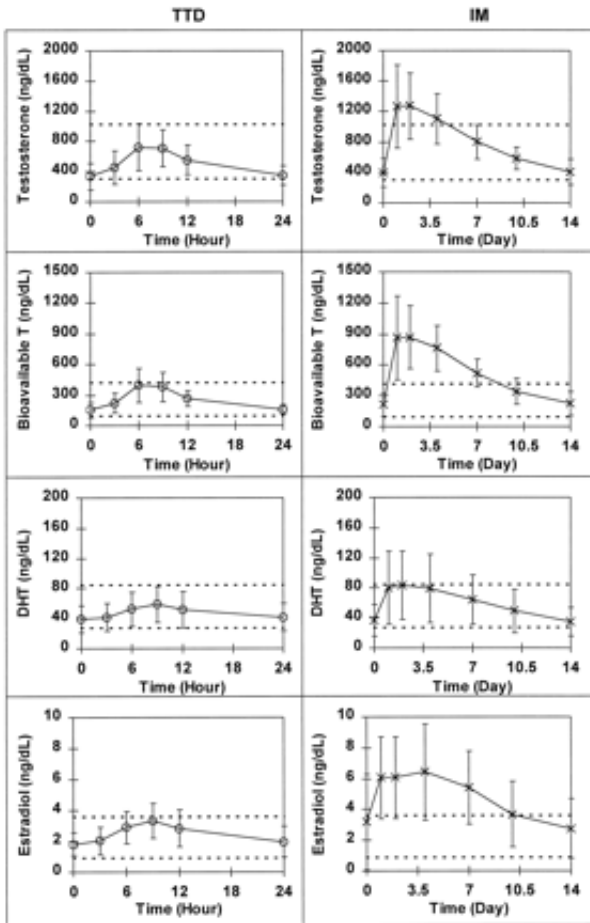
(testosterone)

Transdermal Testosterone has been marketed heavily in the Hormone Replacement Therapy Market for the last decade. For over 50 years, testosterone therapy has been used for the treatment of hypogonadism. In recent years, there has been an increase in the use of testosterone therapy for men with late-onset hypogonadism, sometimes referred to as andropause. Testosterone therapy in older and hypogonadic men can significantly improve their sense of well-being, and lead to increases in muscle and bone mass, upper body strength, virility and libido (5). Oral delivery of unmodified testosterone is not really a viable option, due to its rapid first-pass metabolism, possible liver toxicity, and its relatively short [Half-Life](#). Thus, injectable testosterone was used for a very long time as an effective hormone replacement method. Roughly a decade ago, alternatives to injectable and oral testosterone were developed. Originally, these alternative methods of application for testosterone meant shaving an area of the skins surface (*usually the scrotum... no, really) and attaching a testosterone patch with low, dry heat (again, no, really) like a hairdryer, which basically hot-glued the testosterone patch to the scrotum. I can't see, for the life of me, the logic employed by the doctor who thought this method was preferable to weekly or twice-monthly injections. Luckily, this painful procedure progressed to the point where it's at now, and you can simply apply a self sticking patch or rub some testosterone gel anywhere on your body, and get the same effect. Recently, the BALCO scandal featured many references to the gel method. I think, for an adequate understanding of these types of products, we're going to have to take a look at both the drug (testosterone) as well as the method of administration (transdermal delivery), and see how they work together, and how they compare with testosterone injections.

When some (nonscrotal) [transdermal testosterone](#) preparations have been examined, they showed that the plasma concentration of TS increased very rapidly, and reached the peak level within 3-6 hours of application of the experimental patch..(2) This is comparable with some of the better oral products out there, in my experience, an athlete would usually swallow a pill than have a patch hanging on them for a day, though.

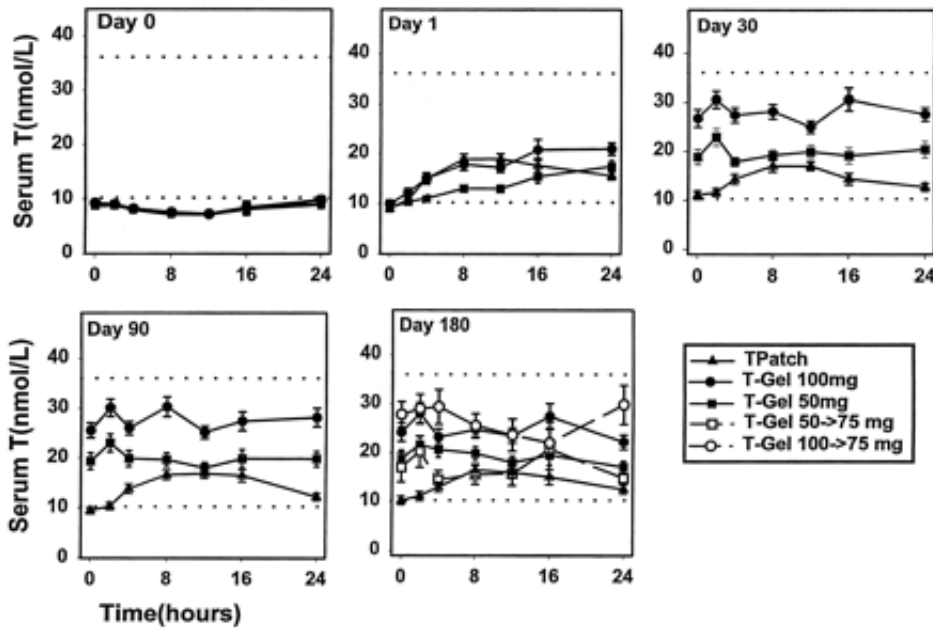
Basically, you can expect all of the benefits of injectable testosterone with the transdermals (if the mg doses were the same, which they are not). What we're dealing with here is Androderm, which is a patch containing 12.2mgs of testosterone, and [Androgel](#), which gives you about the same (you only get 10% of the total drug contained in the preparation... thus a hundred mgs of test in a gel form, would yield a 10mg amount in your body).

Here's a chart comparing a transdermal with an injectable, both using testosterone:



Steady-state pharmacokinetic profiles of T, BT, DHT, and E2 profiles during nightly applications of TTD systems (n = 27; , left panels) and biweekly IM injections of T enanthate (n = 29; X, right panels) measured at week 16. Dashed lines denote upper and lower limits of normal range based on morning serum samples (T, 306-1031 ng/dL; BT, 92-420 ng/dL; DHT, 28-85 ng/dL; E2, 0.9-3.6 ng/dL). Error bars denote \pm SD.(1)

Not so great, huh? A mere 100mg shot of injectable testosterone provides much higher peak plasma concentrations of testosterone, even though the [transdermal testosterone](#) was more stable, with regards to blood plasma levels. So what are the advantages of transdermal application? Clearly, it provides a very stable blood level of the compound administered. I know it seems like I´m killing you with charts, but take a look at this one:



Serum T concentrations (mean \pm SE) before (day 0) and after transdermal T applications on days 1, 30, 90, and 180. Time 0 h was 0800 h, when blood sampling usually began. On day 90, the dose in the subjects applying T gel 50 or 100 was up- or down-titrated if their preapplication serum T levels were below or above the normal adult male range, respectively. In this and subsequent figures the dotted lines denote the adult male normal range, and the dashed lines and open symbols represent subjects whose T gel dose were adjusted.

So it ´s consistent, ..but who cares? The levels of testosterone it give us are just enough to provide a slight boost, at a high (financial) cost. Wouldn´t it be great if we could get this stuff dosed more highly? Or maybe even with [Clen](#), so we could apply it directly to fatty areas? Or with Tren? That would be great, huh? It would even have potential for first time needle-phobic steroid users to use items which were formerly only available as an injectable! Women could use a Tren product without leaving needle marks! In fact...with a little creativity, underground labs could even make transdermal products which would never get caught by customs (perhaps disguised as stickers or whatever).

Anyway...I guess that ´s not in the cards, though...

Lets move on...

One particularly successful [transdermal testosterone](#) delivery method involves the combination of DuroTak 87-2510 as an adhesive polymer. This is combined with 3% dodecylamine and 10% span 80. This, combined with testosterone creates a nice transdermal delivery system (4). Another experimental [transdermal testosterone](#) preparation contains occlusion, octisalate (OS), and propylene glycol (PG), called Solugel (which is a proprietary hydrogel containing PG 25% w/w) and Tegaderm (a semipermeable film dressing) on the permeation of TES was assessed. Occlusion had no effect on the permeation of TES, however, OS increased the flux of TES 2.9-fold. The concentration of PG which produced optimal TES flux was 20% v/v, and this concentration resulted in a 1.9-fold increase in TES permeation. By combining OS, PG, and occlusion, [transdermal testosterone](#) permeation through the skin was increased 8.7-fold, which was a synergistic enhancement, obviously, meaning the sum of the parts was far more than their individual totals (3). Why did I bother telling you all of the ingredients, which can easily be found at a chemical supply house, and bought legally? Certainly not so you could make your own transdermal preparations of testosterone (or Tren, or [Clen](#), or whatever)& that would be illegal. Even though you now know the ingredients, and could just make a gel with them and some testosterone (or tren, from Finaplex pellets), and create your own transdermal drug delivery product. That would be wrong

