

# Vitruvian Man

## Private Testosterone Services

### Full Blood Count Tests

“Pretty good pump you’ve got there, mate”. For many, the holy grail of an exercise session. Muscles swollen, skin tight and wow, where did the vascularity come from? Arnold Schwarzenegger famously drew the comparison between the sensation of a muscular pump and an orgasm.

During a cycle of steroids it’s even more dramatic. Why is this? And moreover, how could this possibly be a problem? I mean you take regular exercise, eat clean(ish!!), don’t drink alcohol excessively nor smoke. Presumably...

This article is not a judgement of those who use anabolic/androgenic steroids (AAS), nor is it a presumption that just because you train hard that you do. My clinical expertise is working with athletes who actually do use performance enhancing drugs. I simply provide you with the facts. You’re all grown ups. The rest is up to you.

Red Blood Cells (RBC), also called erythrocytes, is a blood cell containing the red pigment Haemoglobin (Hb), the principle function of which is the transport of oxygen. Testosterone and its derivatives increase the production of Red Blood Cells (RBC), a process known as erythropoiesis. This increase results in a greater circulating volume of blood as well as its oxygen carrying capacity. This, in essence, is what results in dramatic pumps from resistance exercise. You may even note that simple everyday activities will lead to this too. Ever pumped up a bicycle tyre whilst on the gear? I’ll wager your arm ended up more inflated than the tyre itself! Nice.

Now for the bit that isn’t. Too much of a good thing leads to undesirable effects. It just doesn’t seem fair and it’s easy to simply ignore. After all, microscopic bits are not too obvious to the naked eye. Their impact unfortunately is.

Increased RBC, haemoglobin and/or haematocrit (or packed cell volume, expressed as a percentage) from AAS use is called secondary polycythemia. This condition can be either relative (from decreased blood plasma volume - hence a relatively raised RBC percentage - caused by dehydration for example) or absolute (as a result of increased RBC production). AAS use absolutely can result in absolute polycythemia, and that’s what we’ll focus on now, but let’s keep the relative variety on the backburner for now.

Normal reference ranges for haematocrit is 42.0-52.0. Hb is 130-180 g/L. Values which exceed these upper parameters are the diagnostic criteria for trouble. It’s not uncommon. I’ve seen it a lot. But that’s quite enough medical jargon. Here’s what it translates to;

Polycythemia increases blood pressure. Enough said. It’s no secret hypertension imparts negative impact on cardiovascular health. Of further concern is the attendant increase in blood viscosity (thickness or stickiness) which can reduce blood flow and its ability to circulate through the blood vessels to the organs. This is a risk factor in thrombosis (clots) and subsequent heart attack or stroke.

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Symptoms of hyperviscosity include a ruddy complexion, generalised headache, blurred vision, dizziness, ease of bruising, slow ability to think, itchy skin (particularly after a hot bath or shower) and nose bleeds. Grim. Still, nice pump though, mate!

Your average RBC has a lifespan of roughly 120 days (4months). Due to the high turnover of RBC in polycythemia there is a greater quantity of by-products from RBC degradation. The kidneys, which have to handle the excretion of these by-products (dead RBC), may be overburdened and subsequently damaged. They're only little. And you've only got two.

So what is to be done?

Some forms of polycythemia can be treated by removing a quantity of blood (venesection or blood letting) at varying intervals until a satisfactory haematocrit is attained. This requires referral by your GP to a Haematologist (specialist blood doctor) who may arrange venesection. But don't get your hopes up. A recent article from Blood Transfus in Jan 2014 states "Patients on testosterone therapy (and athletes using anabolic steroids) are not candidates". Worth an ask, perhaps?

Medical consensus in testosterone replacement therapy (TRT) recommends checking haematocrit every 3-6 months initially and the testosterone dose decreased or even discontinued if haematocrit increase above 50. In fact, if it was above 50 to begin with then TRT is not even recommended.

This reinforces the need for regular blood test monitoring and a judicious approach to AAS use. And an appropriate off cycle is equally important. Bottom line, if your haematocrit is dangerously raised into the realms of polycythemia it's definitely time for a break.

And briefly, in regards to relative polycythemia, the use of any diuretic in conjunction with prolonged AAS use will exacerbate any hyperviscosity. Profoundly. On the bright side, you may be the most shredded and driest patient in A&E.

But what about donating blood to lower haematocrit? I am fully aware this practice exists. Let's be clear about this. You shouldn't. To further clarify this position I contacted the NHS National Blood Service and I quote; "Any bodybuilding drugs used by injection mean we are unable to accept a donation". It transpires the risk of Blood Borne Viruses (HIV, Hep C) transmission associated with injecting behaviour is unacceptably high. Thank you, but we're terribly sorry is the message.

However, as is often the case in life, what people are told and what they actually do seldom make for compatible bedfellows.

So I'll leave you with this; **DO NOT, under any circumstances**, even consider donating blood if you've used Isotretinoin (Roaccutane), an anti acne drug or Finasteride (Proscar), an alpha-5-reductase inhibitor used to reduce the conversion of testosterone to DHT in an attempt to minimise male pattern baldness. They will cause birth defects if transfused into a pregnant woman.

Keep safe and monitor your health.

Squaring the circle of men's health