The SARMs Handbook

By Fynn the kid

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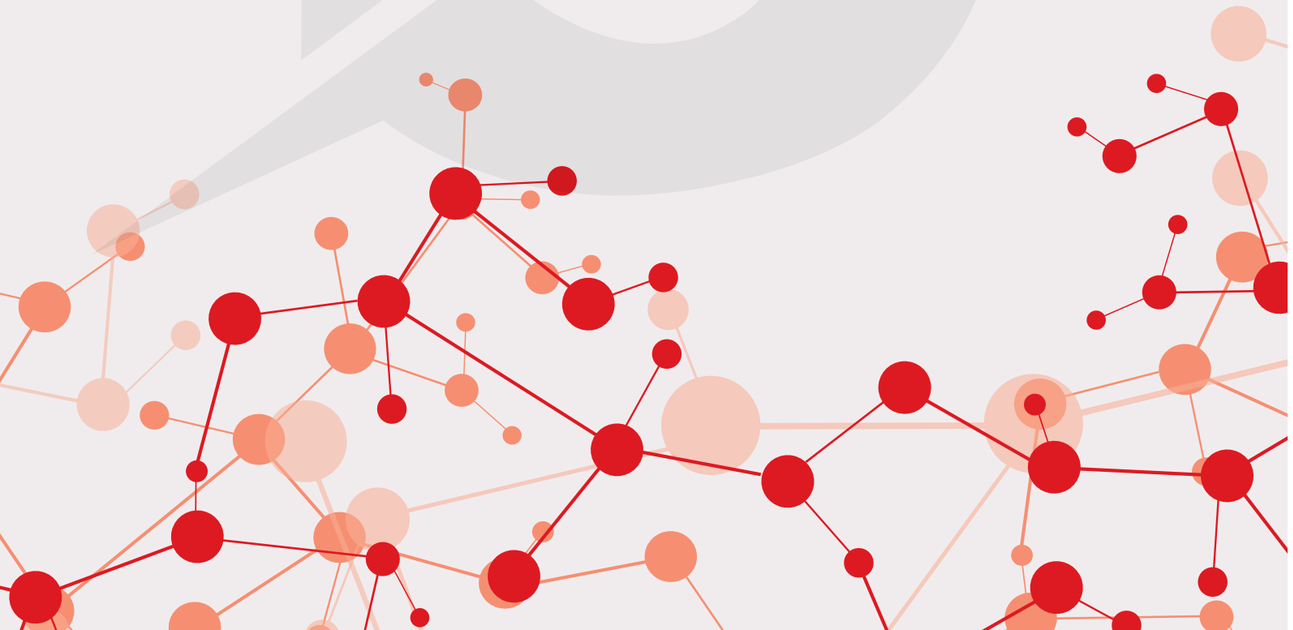
Introduction

I always had the idea of writing a little book about SARMs but I never made up my mind to do it, today I have finally decided to start writing it, I would like to thank the guys at Sterodify (http://steroidify.ltd/) for giving me the opportunity to write this ebook and the users of r / sarmssourcetalk for creating and maintaining an updated community about the use of SARMs.

SARMs have long been used by private by users, but Its use among PEDs users has spread like wildfire in in social networks partly due to its great usefulness and partly due to the myths that revolve around them, not everything is black or white , is gray and this book will be about the gray scales of SARMs.

Personally, I have been using SARMs for many years with very good results like most of my athletes, not all SARMs have the same utility, some are very useful and others are garbage. The theory of this book is based on the different publications and studies on SARMs, in my personal use with my Bloodwork as well as those of my athletes, in addition I will count on the opinions of users of different forums to obtain a bigger empirical sample.

Some say that SARMS are the future, others that SARMs are useless, in my opinion SARMs are an actual sample of how things will be like in the future... With that said, let's start!



Index

What are SARMs

SARMs were created around the 1940s after researchers modified the chemical structure of the testosterone molecule. These early SARMs differ a lot from the SARMs that exist nowadays since the first ones were created from a testosterone molecule and those that are being created nowadays do not have a steroidal origin, therefore it does not make sense to compare them with conventional steroids since they do not come from the same origin.

SARM stands for Selective androgen receptor modulator (For example, trenbolone at low doses could be considered a SARM) or to better understand it, just as SERMs, such as tamoxifen, exert their action on estrogen receptors, SARMs will exert it on androgen receptors.

SARMs were created with the idea of obtaining a compound with zero or almost zero androgenic activity (so as not to affect the prostate and even help with prostate problems) and with high anabolic activity in skeletal muscle tissue through a direct relationship with the ARs.

Therefore we have substances with a high anabolic activity, a low or no androgenic and estrogenic response and that cause a much lower liver stress ... Sounds perfect, right?

The main problem that we can find nowadays is that there are not many human clinical trials on SARMs published, the doses used in studies are much lower than those used by the average user of PEDs (and despite being low they give very good results in studies) and the rest of tests are carried out in animals, usually rats in which the anabolic effect is measured by seeing the growth of a muscle of the pelvis / anus ...

Therefore the opinions expressed here will be based mainly on studies carried out in humans and the results obtained for me, my athletes and the experiences of various users in forums.

How the hormonal axis works and how SARMs alter it.

One of the biggest myths that revolves around the use of SARMs is that they do not affect the hormonal axis, that post cycle therapy is not required and that you keep all the gains without performing a PCT ... I'm sorry to tell you that this is a lie (Surprised? Don't worry, now I'll free you of your doubts).

Generally, any substance that activates the androgen, estrogen or progesterone receptor causes to a greater or lesser extent a reduction in the endogenous production of sex hormones, with testosterone standing out among them.

Trying to think where this myth comes from, it occurred to me that it could be based on a truth, the myth that they are not very suppressive comes from the fact that in general the substances that interact only with the androgen receptor (as is the case with SARMs) and dont generate metabolites that interact with estrogen or progesterone receptors will be much less suppressive.

This does not mean that in the short, medium and long term they are as suppressive as the rest of AAS, it only means that the recovery will be "easier" than with AAS.

It should also be remembered that testicular damage is caused by cumulative doses in the life of the user, and that an inhibited axis does not lead to direct testicular damage, only that endogenously produced hormones are reduced.

As I have seen in bloodwork carried out on my own athletes and in different internet forums, SARMs at very low doses such as 20mg of Ostarine per day had already completely affected the gonadotropins in the 8 week cycle, after a cycle of Ligandrol at 10mg per day for 10 weeks in the 10th week the total testosterone levels were below those of a 90 year old man, doses of 40mg of YK-11 per day had completely inhibited the axis after 8 weeks and doses of 70 mg daily of RAD 140 administered for 14 weeks had left a completely inhibited axis after the 8 week where the first blood sample was collected and those are just some of the examples that I have.

After reading this we can verify that SARMs are indeed suppressive, they will need a PCT to maintain the gains (which we will talk about in the next chapters) as well as a possible estrogenic support for avoiding the most commonly mentioned side effect on the forums which is the loss of libido.

As an interesting fact to add, the majority of users in forums admit not having done PCT, having not used any type of estrogen support, having lost libido during the cycle and having lost most of the muscle gains after the cycle.

By binding to the androgen receptor, what positive effects do androgens and SARMs cause?

Androgens and muscle mass

Androgens bind to a cellular receptor to exert their activity and, therefore, will only affect cells that have the appropriate receptor for the hormone to exert its effect, in this case the receptor is called androgen receptor (AR).

The androgen binds to the intracellular receptor (which is located in the cytosol) forming a hormone-receptor complex, this complex migrates to the cell nucleus where it will bind to a specific section of the cell's DNA, called the response element to hormones (which belongs to the family of so-called response elements, this being exclusively about hormones).

After this the transcription of specific genes will be activated facilitating muscle anabolism processes, for example the increased expression of different myogenic factors among others.

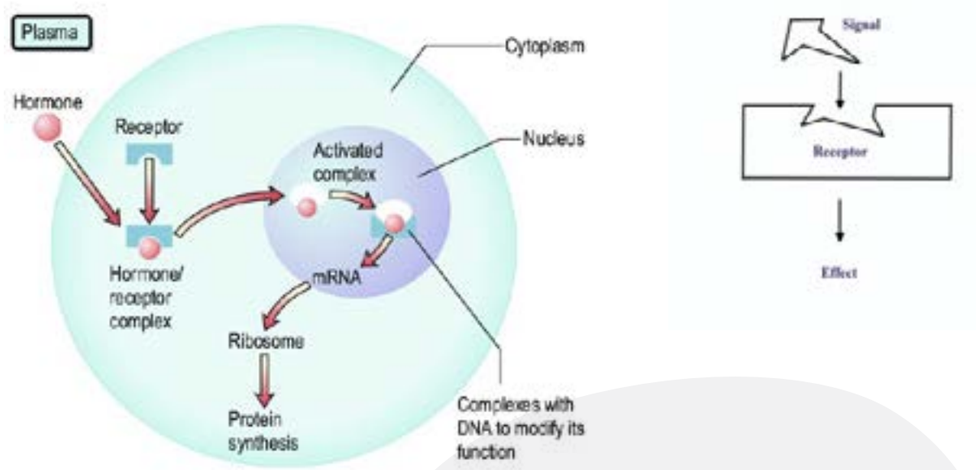
After the end of the cycle, a division will take place with the subsequent formation of new androgen receptors (therefore it is true that the use of PEDs can increase the number of androgen receptors, that these are not saturated, and the myth of saturation comes from an upregulation reaction of myostatin that will promote catabolism but later it will be regulated back to base levels).

Androgens and fat loss

The advantages of the interaction of androgens are not only given in the gain of muscle mass, it also occurs in fat loss, this is because adipose tissue, also known as fat or «I think that after eating 9 pizzas I am retaining water», also contains androgen receptors and here androgens perform lipolytic effects in part thanks to a regulation in the concentration of beta-adrenergic receptors (androgenic steroids are capable of increasing the levels of catecholamines, which would have a direct effect on the mobilization and burning of fat thanks to their interaction with beta-adrenergic receptors) and also by a modulation in general cellular activity, the higher the activationon of the AR, the higher the inhibition of lipid absorption by the adipocite will be.

Studies have shown that androgens that bind to ARs cause an upregulation of ARs in adipocytes, so the more affinity for AR an androgen has, the greater the upregulation of ARs in adipocytes, causing a significant reduction in adipose tissue subcutaneous.

Steroids that bind to ARs will decrease the lipoprotein lipase, which is an enzyme responsible for the transport of fat into the adipocytes.



SARMs GUIDE

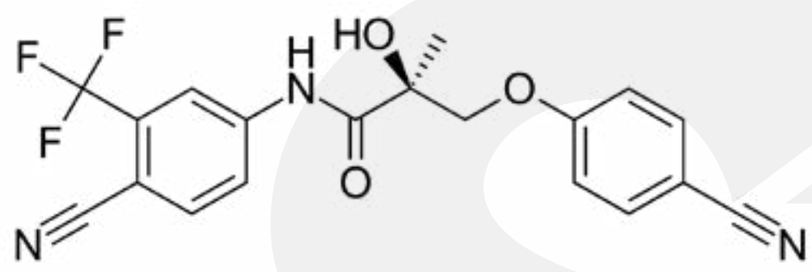
Next I am going to talk about the different types of SARMs on the market and two compounds that are not considered SARMs but that whenever SARMs are named they are included in the conversation.

Before starting to talk about them individually, I would like you to understand a few concepts:

- SARMs do not aromatize, yet they do not contain in their structure a ring that can cause aromatization, there is no way by which they can aromatize by any of the main mechanisms, therefore if it aromatizes it is probably a placebo effect and you are fat, you are not using a SARM (which is not strange given that there are several studies that indicate a very high counterfeiting rate) or that your body is not tolerating SARMs and that by secondary mechanisms it is rejecting them.
- SARMs have a treshold which once it is reached, the SARM begins to lose their specificity on skeletal muscle and will cause undesirable side effects, losing their main attraction, which is the lack of side effects.
- Each compound will have a recommended dose based on empirical experience and the few studies that are available for extrapolation.
- When talking about positive effects and side effects I will talk about the general experiences of my athletes and the user reports in forums, those are not 100% reliable and it is only to have a general idea for guidance.
- I will talk about their recommended doses and their treshold after I finish explaining each one.
- All the SARMs can be bought from Sterodify (http://steroidify.ltd/).

Ostarine (MK-2866, GTX-024)

We start with the most famous and used SARM as can be seen in most forums as well as the polls taken from Reddit (greetings to the sarmssourcetalk subreddit, your experiences have been very useful). Developed by GTx, Inc., formerly under development by Merck & Company, It was created with the intention of being a treatment to increase muscle mass, strength, to decrease fat and to increase bone mineral mass, its use for prostate cancer is currently being investigated. Its half life is 24 hours.



Pros ⊕

- Gains in muscle mass (proven in studies, with various dexa-scans and empirically), this is due to its interaction with AR.
- Enhanced fat loss (proven in studies, with various dexa-scans and empirically), this is due to its interaction with ARs.
- Improved strength (proven in studies and empirically), this may be due to the gain in muscle mass and various physiological mechanisms.

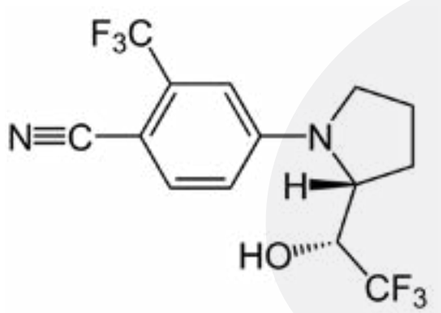
Cons ⊖

- Worsening of the liver profile (proven in studies and with bloodwork), this is because SARMs cause liver stress, although to a much lesser extent than conventional oral steroids.
- Libido problems (anecdotally proven), this is due to the inhibition of the hormonal axis and the reduction of endogenous testosterone production.
- Inhibition of the axis (proven in studies and with bloodwork).
- Acne (anecdotally proven).
- Water retention (anecdotally proven), as said before, this cannot happen unless there is an underlying problem, due to the product being contaminated or it is a placebo effect.

* It is generally used recomposition or cutting phases, it can be used while bulking without problems.

Ligandrol (LGD-4033, VK5211)

It is another of the most used SARMs, it has several clinical trials in humans and its already in phase 2 of clinical trials, it is the SARM that I like the most at the potency level, discovered by Ligand Pharmaceuticals and currently under development by Viking Therapeutics has proven to be very successful among PED users (and deserves this fame in my opinion). It is effective as a treatment to increase muscle mass, strength, bone mineral density and decreases fat mass. Its half life is 24-36 hours.



Pros ⊕

- Big gains in muscle mass (proven in studies, with various dexa-scans and empirically), this is due to its interaction with ARs, it causes much greater lean mass gains than other SARMs and mg for mg is much more potent than most oral steroids.
- Strength gains (proven in studies, empirically and anecdotally), this may be due to the gain in muscle mass and to various physiological mechanisms.
- Improved libido (anecdotally), during the first 3-4 weeks after that, there was a decrease in libido, this is due to the reduction of SHBG levels prior to the suppression of testosterone.

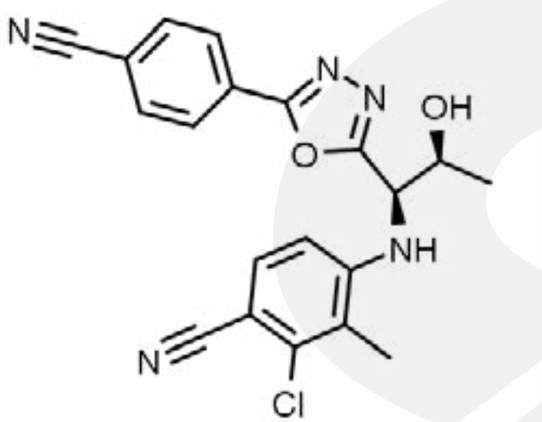
*It is generally used in bulking phases due to its gains in lean mass, I do not recommend using it in cutting or recomposition since it does not affect the loss of body fat significantly

Cons ⊖

- Does not cause significant fat loss as seen in clinical trials (proven in studies, with various dexascans and empirically).
- Water retention, many users experienced water retention (anecdotally proven), as said before, this cannot happen unless there is an underlying problem, due to the fact that the product is contaminated or that it is a placebo effect. As an anecdote, none of my athletes who used the same brand experienced any type of water retention according to their experience, those who used «gray» or little known brands were those who experienced some type of water retention.
- Libido problems (anecdotally proven), this is due to the inhibition of the hormonal axis and the reduction of endogenous testosterone production.
- Inhibition of the axis (proven in studies and with bloodwork).
- Elevated liver enzymes (proven in studies and with bloodwork)

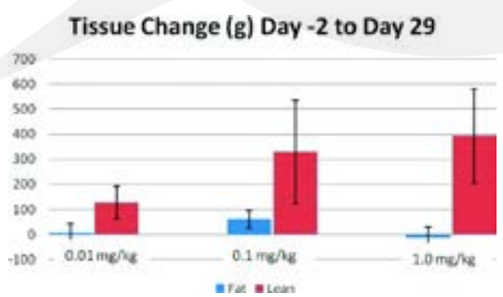
RAD 140 (Testolone)

RAD140 is a SARM created with the idea of being the substitute for testosterone in a TRT, also as a treatment for cachexia and for breast cancer, under development by Radius Healt, it is currently in phase 1 of clinical trials. It is effective as a treatment to increase muscle mass, strength, bone mineral density and decreases fat mass.
It has a half life of 60 hours.



⊕ Pros

- It has a very long half-life of 60 hours (proven according to tests).
- Its tolerable dose in essays is very high, 100mg, and it has been seen that the gains in muscle mass are increased almost proportionally while increasing the dose (proven according to tests).



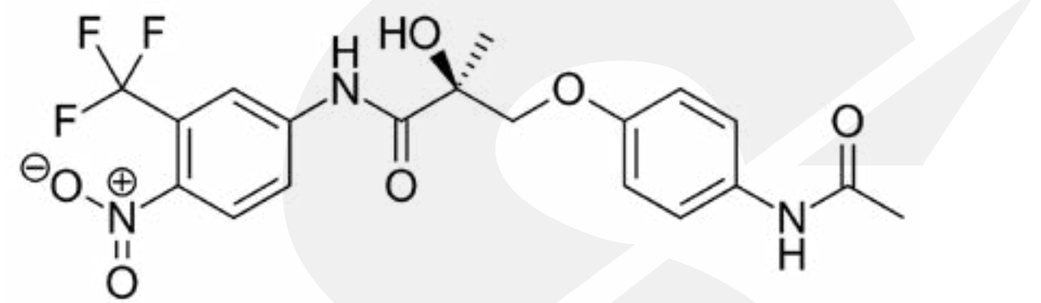
- Muscle mass gains (proven in studies, with various dexa-scans and empirically).
- Strength gains (empirically and anecdotally proven).
- Decrease in body fat (proven with various dexa-scans, empirically and anecdotally but in the studies there was no significant change) this is due to its high affinity for ARs, increasing liver lipase and therefore fatty acid oxidation.
- Testolone does not alter liver enzymes significantly (proven empirically with bloodwork).
- Improved libido and sense of well-being (anecdotal and empirical proven), possibly due to its antagonistic effect on estrogen receptors.

⊖ Cons

- Acne (anecdotally proven).
- Hair loss (anecdotally proven).
- Inhibition of the axis (proven in studies and with bloodwork).

Andarine (S-4, GTX-007)

Is one of the of the most used SARMs, it was created to treat muscle wasting, prostate cancer and osteoporosis among other diseases by GTX, inc. Unfortunately there is not much information on this SARM. It is effective as a treatment to increase muscle mass, strength, bone mineral density and decreases fat mass. Its half-life is unknown, it is rumored to be 4 hours but if measured by the duration of its side effects it would be more than 48 hours.



⊕ Pros

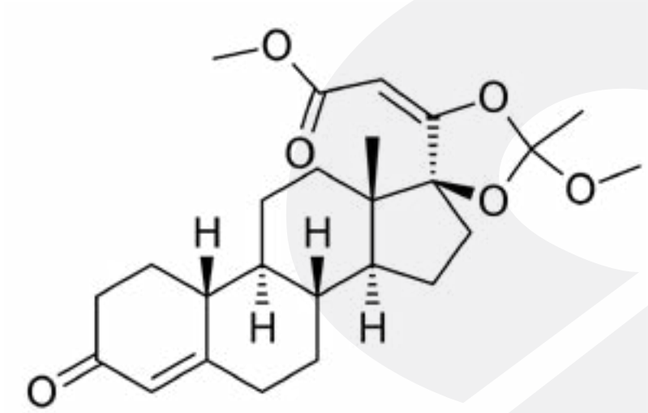
- Muscle mass gains (proven with various dexa-scans and empirically).
- Fat loss (proven with various dexa-scans, empirically and anecdotally).
- Strength gains (empirically and anecdotally proven).
- It does not inhibit the hormonal axis significantly (proven with bloodwork, empirically and anecdotally).

⊖ Cons

- Vision problems such as nyctalopia and the appearance of floaters in the eyes (proven empirically and anecdotally).

YK-11

It is a steroidal SARM that became very famous for its properties as a myostatin inhibitor since it is capable of drastically inducing the release of follistatin, myostatin is a protein that is responsible for limiting the growth of muscle tissue so that it does not grow indefinitely, follistatin is responsible for inhibiting myostatin. Its structure is steroidal and it is only considered a SARM because it is highly selective with the tissues in which it acts. Its half life is unknown, it is rumored to be between 6 and 12 hours.



Pros ⊕

- All of SARMs
- All those advantages associated with the inhibition of myostatin.

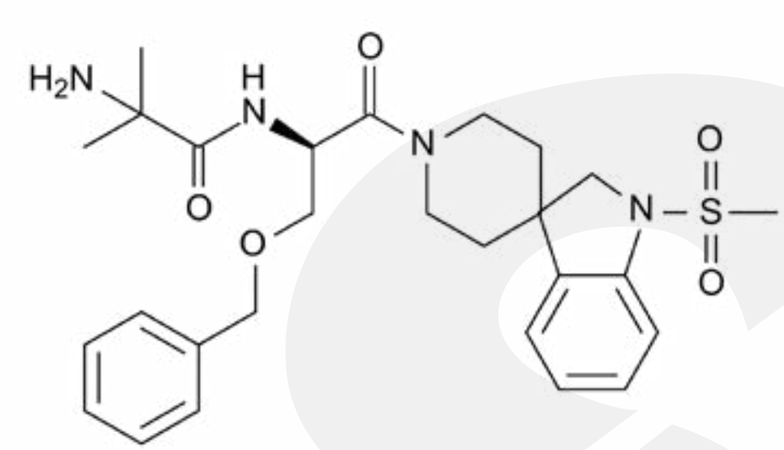
Cons ⊖

- Common Side Effects of SARMs
- Raises liver enzymes significantly having more similarities in this respect to conventional oral steroids than to the few SARMs.
- It has not even been tested on animals.

* Since it has not even been tested on animals i am not going to explain more about this compound much until new information is available.

Ibutamoren (MK-677)

This compound is commonly confused with SARMs, in fact Ibutamoren is a non-peptide agonist of the ghrelin receptor, its action is the same as that of a GHRH (amplifies growth hormone pulses). Its half life is 24 hours.



Pros ⊕

- Efficiently helps to increase GH and IGF-1 levels.
- Helps to improve body composition.
- Improves sleep quality.
- It has a long half life, you only have to administer it once every 24 hours.

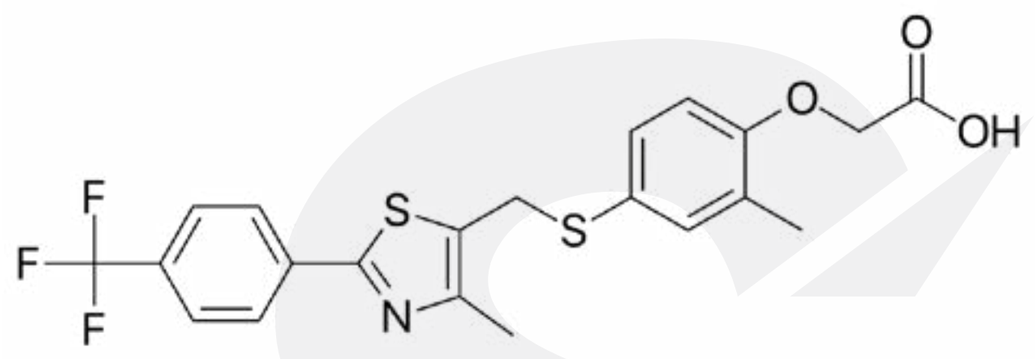
Cons ⊖

- Increases appetite as it is an analog of Ghrelin.
- Causes water retention.
- If used for a long time, it can cause insulin resistance.

*I recommend taking it in the morning, I'll talk more about it in the PCT section.

Cardarine (Endurobol, GW-501516)

Cardarine is often confused with a SARM, but it is a specific agonist of the omega receptor activated by peroxisome proliferation. Its use seems very useful for endurance athletes as well as for PEDs users who want to improve their lipid profile in a short time.



⊕ Pros

- A notable improvement in endurance.
- Improvement in explosive exercises.
- It promotes fat loss through various mechanisms.
- Reduces the formation of lactate.
- Increases slow twitch fibers.
- It significantly improves the lipid profile of the athlete.

⊖ Cons

- Causes cancer in mice.
- The clinical trials were canceled.

Attention: the daily carcinogenic dose in humans was incorrectly calculated, it is not 400mg per day, it is 32.4mg per day for a man weighing 80kg or you can calculate it by yourself with this formula: (your weight) x0.405 = carcinogenic dose , therefore it is recommended to use lower doses than those that has been calculated.

In in vitro studies the use of metformin (or berberine) inhibited carcinogenic factors.

Potency comparison to other steroids, treshold and dosages, SARMs at high doses lose selectivity in musculoskeletal tissue

As you may have seen, I have not previously mentioned the recommended doses of SARMs or its dose of treshold (as I have said previously, it is the theoretical dose over which SARMs begin to lose their selectivity at the tissue level and begin to cause various more side effects typical of oral steroids than of SARMs and the main advantage of these SARMs is the general absence of side effects typical of steroids.). Now I am going to talk about these issues and I am going to make a small reference to their potency compared to the rest of steroids.

* If you are a woman, the most common recommendation that can be read online is to multiply the dose that a man would use by 0.5; I have followed these recommendations with my female athletes and there have been no virilization effects, at higher doses it has been seen that women experience virilization.

- **Ostarine:** the maximum dose in men would be between 40-60mg a day to reach the treshold.
- **RAD-140:** the maximum dose in men based on available studies would be 100mg per day.
- **Ligandrol:** the maximum dose in men would vary between 15 to 25mg per day.
- **Andarine:** the maximum dose in men (taking into account that at these doses we would always suffer from nyctalopia) would be 75-90 mg per day.
- **YK-11:** the maximum dose in men would be 40 mg per day.

If we take the human clinical trials using Ostarine, Ligandrol and RAD-140 it can be seen that mg per mg SARMs are much more potent than testosterone (especially Ligandrol), if we compare these three SARMs with most oral steroids SARMs will be more powerful mg for mg than most of the oral steroids despite having fewer side effects.

To make this comparison I have used the clinical trials of Dalton published in 2011 and those of Basaria et al published in 2013 compared, for example, with the trials used by Shroeder et al in 2003 and in 2005 it can be seen that after making a milligram to milligram equivalence, dose of Ostarine and Ligandrol with those of Oxymetolone and Oxandrolone the two SARMs had a much higher potency with the advantage of not altering the liver or lipid profile in the same way as oral steroids.

How to increase the potency of SARMs

* This can be applied to a big quantity of oral compounds, not just SARMs.

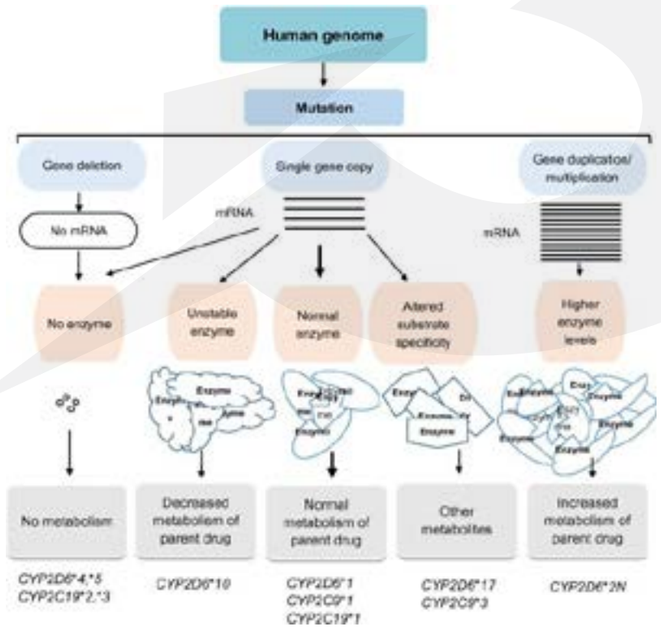
Today we have access to various substances that increase the oral bioavailability of various drugs, we will use this to increase the bioavailability of SARMs, without going too deep into the science behind this phenomenon, basically it is about modulating certain enzymes of cytochrome P450, more specifically CYP3A4 and CYP2C9. The increase in bioavailability will be accompanied by an increase from any side effects associated with a higher dose of the substance used, in addition to that when we inhibit these enzymes, we also do it for all types of toxins and substances in charge of metabolizing different compounds, which can interact with the different drugs we take.

You will use ONLY one of the 5 compounds listed below with each dose of the SARM.

The enzymes may be inhibited for up to 15 hours, therefore we must be careful with the interactions with the rest of the drugs we take.

We can use:

- **Piperine:** consume 5-10mg, it is very cheap and easy to use.
- **Curcumin:** consume 40-50mg.
- **Quercetin:** consume 500mg.
- **Hesperidin:** consume 500mg.
- **Bergamotin with Naringin:** 250-350ml of grapefruit juice.



CYP2C9 Assay	Substrate Concentration (μM)	IC_{50} (μM) [1]	$IC_{50(rel)}$ [2]	α [3]
Warfarin (positive ctrl)	15	29.4	1.96	1.00
Bergamottin	15	14.7	2.94	0.50
SL-Bergamottin	15	>60.0	>4.00	-
CYP2C19 Assay	**Substrate Concentration (μM)**	**IC_{50} (μM) [1]**	**$IC_{50(rel)}$ [2]**	**α [3]**
Ticlopidine (positive ctrl)	5	7.67	1.53	1.00
Bergamottin	5	1.01	0.20	0.13
SL-Bergamottin	5	14.6	2.92	1.90
CYP3A4 Assay	**Substrate Concentration (μM)**	**IC_{50} (μM) [1]**	**$IC_{50(rel)}$ [2]**	**α [3]**
Ketoconazole (positive ctrl)	5	0.24	0.05	1.00
Bergamottin	5	2.04	0.41	8.50
SL-Bergamottin	5	0.40	0.08	1.67

[1] IC_{50}: concentration of the inhibitor which induces 50% inhibition of the metabolite formation; [2] $IC_{50(rel)}$: IC_{50} of the inhibitor divided by the substrate concentration; [3] α: IC_{50} of the inhibitor divided by the IC_{50} value of the positive control.

A Complete Guide to SARMs use for woman

With this chapter of the guide I just want to make one thing clear, SARMs are the perfect compounds for women who decide to follow the enhanced route.

Due to the nature of these types of compounds, SARMs are the perfect drug for any woman who wants to improve their physical performance or body composition, whether for the elite sports arena or just for aesthetic purposes, thanks to its high selectivity on musculoskeletal tissue, however, as I have indicated before the higher the doses used, the lower the selectivity on musculoskeletal tissue, reaching a point where there is not much difference in terms of side effects compared with with the anabolic androgenic steroids.

As it has been seen in the section on their anabolic potency compared to other steroids, SARMs have a much higher mg per mg potency, therefore a woman will not need to use high doses that go through the previously indicated threshold to achieve her goals, such as I have previously indicated the doses to be used by women = (dose used by men) x0.5; With these doses we will achieve the best possible results without having virilization side effects.

The axis of women is quite complex, they do not require a PCT (and if a PCT were prescribed, it would not be with the objective of reestablishing the hormonal axis, but rather to preserve the greatest part of the gains and to regulate the menstrual cycle), they also will require an estrogenic support during the use of SARMs which we will explain throughout the following chapters.

Also note that several of the SARMs that women can use are being tested in clinical trials to treat breast cancer.

Estrogenic support during the use of SARMs in men

One of the reasons why preparations with SARMs often fail is the absence of estrogen support throughout the cycle, either in men or women.

Estrogens fulfill a wide variety of functions in the human body, improve recovery, promote libido and mood or fat loss among other functions ... as you can see, estrogens are very useful and by not using an estrogen support during our cycles of SARMs we will be losing a very valuable addition to our pharmacological arsenal.

Therefore our intention when referring to the use of an estrogenic support during the cycle will be to use hormones that can be converted to estrogens to avoid the side effects of the absence of estrogens and obtain the positive effects of a stable estrogenic environment, therefore we will start with estrogen support in men.

Testosterone

The first substance that we had to name as estrogen support during a SARMs cycle was obviously going to be the king of hormones, testosterone, considering that an adult man produces 5-10mg of testosterone per day, if we do not want to use supraphysiological doses of testosterone as in an usual cycle and only stay in the high range of the usual levels, depending on the ester we would use:

Propionate: 85-100 mg weekly distributed every 24 hours.
Enanthates and cypionates: 90-110mg weekly distributed every 24-48 hours.

TIP: *the testosterone can be bouhgt from Steroidify (http://steroidify.com/), depending on the brand they have third party testing lab analysis.*

DHEA

This hormone, through its interaction with the enzyme 3b-HSD, is transformed in androstenedione, which through interaction with the enzyme 17b-HSD is transformed into testosterone, and this through interaction with 5-AR is transformed into DHT, androstenedione also can be transformed into estrone via aromatase, apart from giving us the necessary estrogenic support, it also improves the conversion of T4 to T3, improving basal metabolism and reducing body fat.

There are two versions of DHEA, a micronized and a non-micronized with different effects, non-micronized DHEA is converted into other hormones such as testosterone or estrone, if you want to increase DHEA-S levels, the micronized form will be the adequated one.

The dose to be used will be: 100-150mg daily (1.4mg / kg / day for men), taken with breakfast.

Estradiol

For men, I do not recommend using estradiol patches or women's birth control pills because they cause a hormonal breakdown that is very difficult to anticipate and side effects such as gynecomastia or mood swings would be very difficult to avoid.

Estrogenic support during the use of SARMs in women

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Therefore our intention when referring to the use of estrogenic support during the cycle will be to use hormones that can be converted to estrogens to avoid the side effects of the absence of estrogens and obtain the positive effects of a stable estrogenic environment, now we will look at estrogen support in women.

In women the main difference is that stable levels of estrogen and progesterone will be required.

DHEA

This hormone, through its interaction with the enzyme 3b-HSD, is transformed in androstenedione, which through interaction with the enzyme 17b-HSD is transformed into testosterone, and this through interaction with 5-AR is transformed into DHT, androstenedione also It can be transformed into estrone via aromatase, apart from giving us the necessary estrogenic support, it also improves the conversion of T4 to T3, improving basal metabolism and reducing body fat.

There are two versions of DHEA, a micronized and a non-micronized with different effects, non-micronized DHEA is converted into other hormones such as testosterone or estrone, if you want to increase DHEA-S levels, the micronized form will be the adequated one.

The dose to be used will be: 100-150mg daily (1.7mg / kg / day for women), taken with breakfast.

Estradiol

The simplest way would be the use of third generation hormonal contraceptives to maintain an adequate hormonal environment, women would have to make sure that their contraceptives carry 30mcg of Ethinylestradiol per dose since lower doses will not be enough.

I do not recommend the use of estradiol patches in women since they would also need another drug that provides adequate doses of progesterone to avoid side effects of estrogens at the specific tissue level in women.

Testosterone

Obviously I do not recommend the use of testosterone in women since the function of using SARMs in women is to avoid virilization effects that are associated for example with the use of exogenous testosterone.

PCT after a SARMs cycle introduction

One of the most important side effects derived from the use of anabolic androgenic steroids (AAS) is the inhibition of the natural production of testosterone.

This is because the use of almost any substance that interacts with AR (Androgen Receptor), PgR (Progesterone Receptor) and the ER (estrogen receptor) will interfere with the endocrine system. This complex system of glands and brain structures normally it is maintained in a homeostatic state of balance by the action of innumerable subtle feedback mechanisms.

For the purpose of this section and given the great absence of bloodwork in people who use this type of substances, and that therefore may generate doubts or confusion regarding which hormonal values should be taken into account to evaluate if a correct one has occurred. recovery, it is considered that the following parameters should be reviewed in a generic way: Total testosterone and leutinizing hormone.

While this depletion problem cannot be avoided, there are ways to recover (or at least partially) after a cycle and reasonably quickly.

Within post cycle therapies, it is necessary to distinguish those focused on men and those focused on women, which will be very different due to the obvious differences between the two sexes.

Substances that interact only with the androgen receptor (such as SARMs) and do not generate metabolites that interact with estrogen or progesterone receptors will be much less suppressive, which does not mean that in the short, medium and long term they are as suppressive as the rest of AAS, it only means that their recovery will be «easier» than with AAS.

It should also be remembered that testicular damage is caused by cumulative doses in the life of the user, and that an inhibited axis does not lead to direct testicular damage, only that endogenously produced hormones are reduced.

PCT that can be used after a SARMs cycle by men

Next I am going to give some basic guides on the most effective PCT in my opinion when using SARMs or SARMs + the estrogenic support mentioned above, I am also going to talk about certain additions already indicated in a previous post about how to improve our PCT with certain PEDs.

Remember that it is very important to carry out bloodwork at the beginning and end of PCT to see if your values have returned to normal and to see if even with a simple cycle of SARMs you have ended up very suppressed.

- **Clomiphene:** consume 25 mg every 24 hours for the duration of the cycle divided by 1.5, with 6 weeks being the minimum number of weeks of duration.
- **Tamoxifen:** choose this option instead of clomiphene if clomiphene usually causes side effects to you, consume 10 mg every 24 hours for the duration of the cycle divided by 1.5, with 6 weeks being the minimum number of weeks of duration.
- **Ibutamoren (MK677)** 15-25 mg if used in the morning or 25 to 40 mg if used at night, consume every 24 hours for the duration of the PCT, I recommend taking it during the day, as can be seen in various studies when used during the day it has a much greater effect.
- **Insulin:** typical relationship protocol .
- **D-Aspartic Acid:** Take 3 grams per day during the first two weeks of PCT.
- **HGH:** Take 4IU or more daily in the morning during PCT.
- **DHEA:** Take 1,4mg / kg every 24 hours for the duration of PCT.
- **Clenbuterol:** take 60-150mcg according to tolerance (depending on the side-effects) for the duration of the PCT, if you have heart problems combine it with Nebivolol.
- **Telmisartan:** 40-80mg per day given nightly during PCT.

TIP: if you have psychological problems, consume 25 to 100mg of Pregnenolone every 24 hours during PCT.

TIP: *all the compounds that are necessary for a PCT can be bouhgt from Sterodify (http://steroidify.com/), depending on the brand they have third party testing lab analysis.*

PCT that can be used after a SARMs cycle by woman

A PCT in a woman works very differently from the PCT of a man, women do not need a post cycle therapy, for them what we will mention here as a PCT is a way to maintain the gains made during the cycle for the maximum time possible.

The substances to be used will be the following:

- **Ibutamoren (MK677)** 15-25 mg if used in the morning or 25 to 40 mg if used at night, consume every 24 hours for the duration of the PCT, I recommend taking it during the day, as can be seen in various studies when used during the day it has a much greater effect.
- **HGH:** Take 4IU or more daily in the morning during PCT.
- **DHEA:** 1Take 1,7mg / kg every 24 hours for the duration of PCT.

TIP: if you have psychological problems, consume 25 to 100mg of Pregnenolone every 24 hours during PCT.

TIP: If the menstrual cycle cannot be restored, use 50mg of clomiphene every 24 hours for 5 days.

TIP: *all the compounds that are necessary for PCT can be bouhgt from Sterodify (http://steroidify.com/), depending on the brand they have third party testing lab analysis.*

Naltrexone and SARMs

Before explaining the protocol, I will explain the physiological basis on which it is based, if the explanations bore you, go directly to the recommended doses in the practical application section.

In the hypothalamus there is a network of intermediaries that govern the release of GnRH from the influence of steroid hormones; More specifically, it is the combined efforts of neuroactive peptides and catecholamines that send the «suppression» message to GnRH-releasing neurons once activated by steroid hormones. These primary messengers are known as a group of neuroactive peptides called endogenous opioid peptides (EOPs). EOPs consist of the three main peptides: b-endorphins, dynorphins and enkephalins, which act on their respective opioid receptors, more specifically the mu, delta and kappa subtypes. It seems that the most influential EOP in modulating GnRH release is b-endorphin, which acts on the u-opioid receptor. When steroid hormones reach the pituitary portal, they activate EOPs, which suppress GnRH and consequently suppress LH and FSH. We know that steroid hormones must communicate with these opioid receptors in order for them to inhibit GnRH release from GnRH neurons, since GnRH neurons do not have their own androgen or estrogenic receptors; What we must keep in mind is that the suppression of GnRH neurons can be intercepted by an antagonist of the u-opioid receptor, such as naltrexone. This is accomplished by blocking the opioid receptor u and preventing the inhibitory effects of b-endorphin on the GnRH-releasingneuron. Naltrexone is orally active, and doses of 1mg / kg have been shown to be safe and effective in humans.

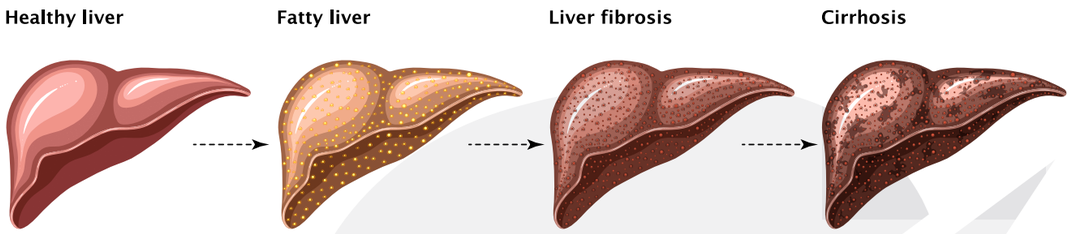
Practical application
Therefore, taking into account the context that it is being used in a steroid cycle and that therefore, the activation of the AR will be high and that the physiology is not an «ON» and «OFF» switch, we must use the above mentioned dose range of 0.35 to 1mg / kg / day in both men and women.

The use of naltrexone can cause common mild side effects such as nausea, headaches, or fatigue during the first few days.

NOTICE: As for the use during a cycle of the so-called LDN (Low Dose Naltrexone) protocols have no place. As we can see in the trials published by Ron Velthuis on Naltrexone , we know that a dose of 1mg / kg in humans provides a 40-100% elevation in LH levels, and that the minimum dose to be used in humans for this purpose is 0.35mg / kg / 24h, you can also see trials such as those of Antonio Lanzone in which doses of 50mg per day are used by women.

SARMs and liver damage

Stages of Liver Damage:



Since it has always been known that oral steroids cause liver damage, SARMs cause liver stress and not by the same mechanism as oral steroids, I will dedicate this chapter to explain their differences and how to reduce liver stress caused by SARMs. Normally oral steroids generate side effects at the hepatobiliary level because they are 17α alkylated orally, this means that a hydrogen has been replaced by an ethyl or methyl group in the C17α position, facilitating its passage through metabolism at the liver level and improving its bioavailability.

Liver damage is produced mainly by the incorrect circulation of bile through the liver to the duodenum, this process is called cholestasis and there is damage and subsequent death in cells due to the accumulation of bile.

SARMs do not have the same structure as oral steroids and the liver stress that they cause is due to direct damage due to their interaction with ARs and, as can be seen in the bloodworks, alterations at the hepatic level will be due to an elevation in transaminases but the values at the biliary level will not be altered, this liver stress will not constitute a serious problem and the greatest risk we have will be the interaction between oral steroids and SARMs at the same time, which we will try to avoid.

After having explained its mechanism of action, it should be noted that TUDCA will not be used as a liver protector in a cycle of SARMs since there will be no problems at the biliary level, therefore we will resort to antioxidants in medium doses to avoid interactions with muscle anabolism .

It is recommended to take:

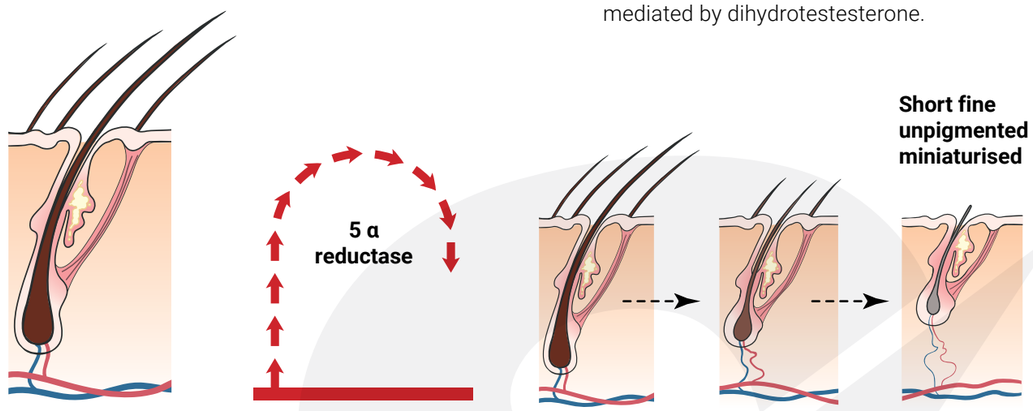
- NAC: at doses of 600 to 1200mg a day before going to sleep for the duration of the SARMs cycle.
- ALA: 400-600mg daily in the morning for the duration of the SARMs cycle.

At the end of the cycle, taking liver protectants can be stopped (which would not happen with TUDCA after taking oral steroids).

How to avoid hair loss while using SARMs

Androgen sensitive regions

Stepwise miniaturisation of the hair follicle and shortening of the anagen growth phase, mediated by dihydrotestesterone.



Any substance that interacts with androgen receptors can cause hair loss in all people with androgenetic alopecia.

As has been commented on in various forums, the use of certain SARMs at high doses has caused a not very relevant sample of users to have experienced hair loss, nowadays correct hair health is very important for most PEDs users.

Since SARMs offer a direct effect on androgen receptors, the easiest way to prevent hair loss would be by blocking this receptor by applying a topical Ketoconazole cream twice a day to the affected areas.

New SARMs

To finish this manual I would like to talk a little about the new SARMs that are emerging in the market through pages of dubious reputation, these new SARMs are attributed improved properties and much more power with fewer side effects…. Too pretty to be real.

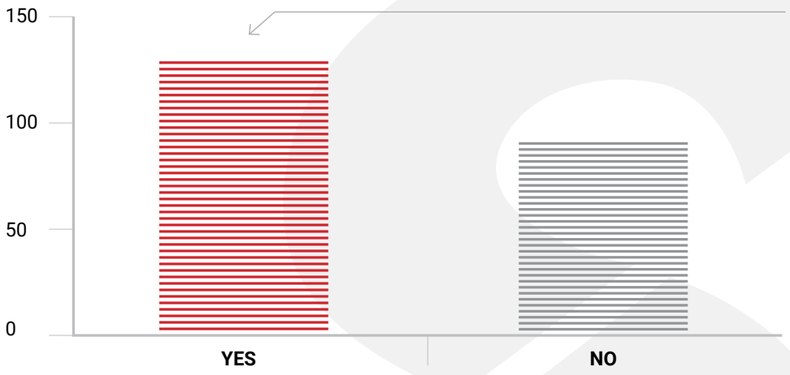
Actually these «new SARMs» belong to two categories, the first of them is for pure marketing to increase the sales of an existing SARM and the second of them is to make small modifications to the structure of an existing SARM to avoid lawsuits for patent infringement.

Don't be fooled my friends.

Survey graphics

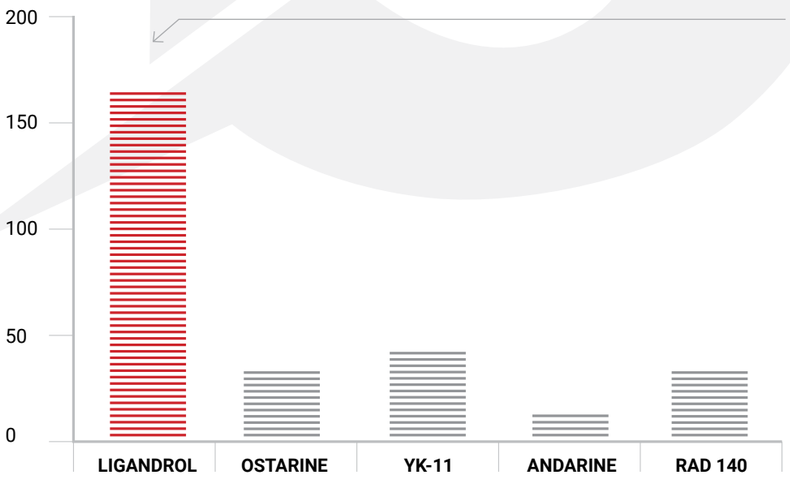
This is a compilation of the answers that 300 users answered to my questions about SARMs, I would especially like to thank the users of r / sarmssourcetalk and the users of the Sterodify Telegram chat, these data would not have been possible without them.

1 | Do you think SARMs are more powerful than oral steroids?



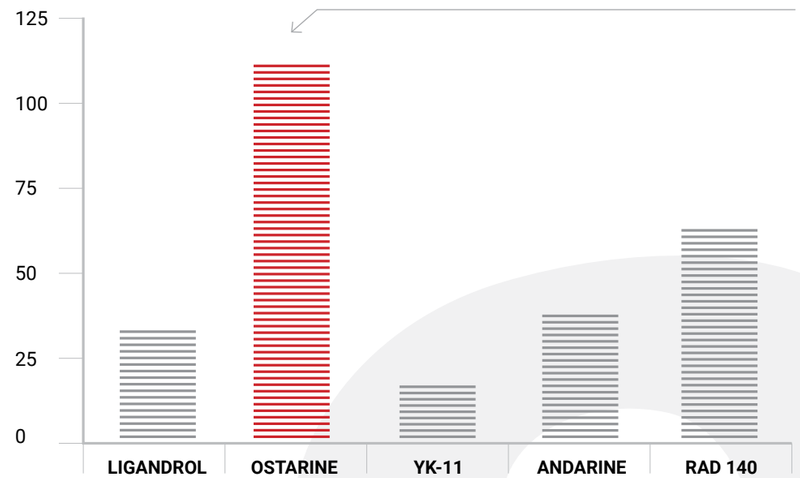
Surprisingly the majority of users answered yes.

2 | What do you think would be the most effective SARM in a bulking phase?



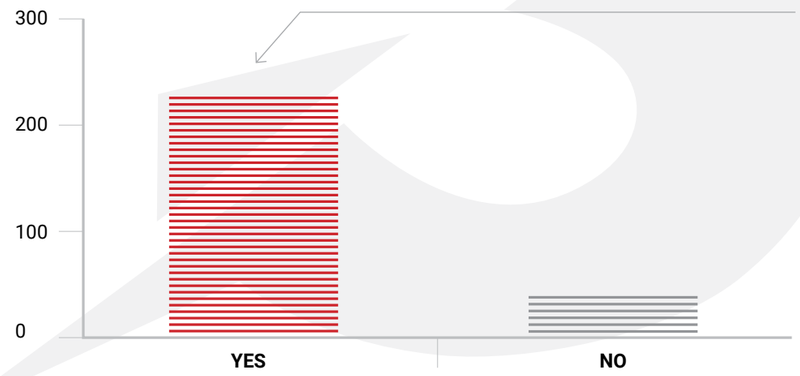
Most users responded Ligandrol, which is not surprising due to its potency relative to muscle mass gains seen in clinical trials and not reducing body fat.

3 | What do you think is the most effective SARM in a Cutting or Recomp phase?



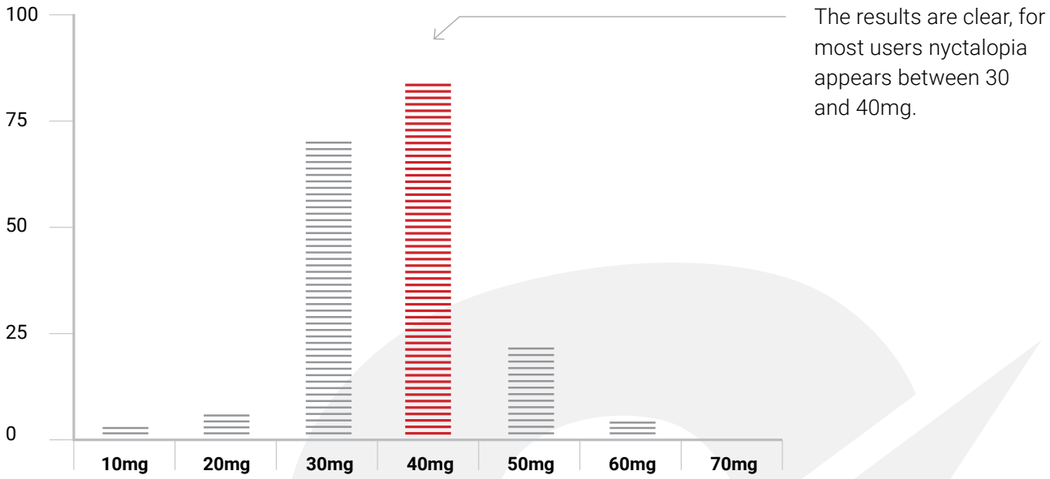
Here the results are more diverse, the Ostarine is the clear favorite, but the RAD140 and the Andarine have also proven to be very good in general opinion for this type of phase.

4 | Do you think they have fewer side effects than traditional steroids?



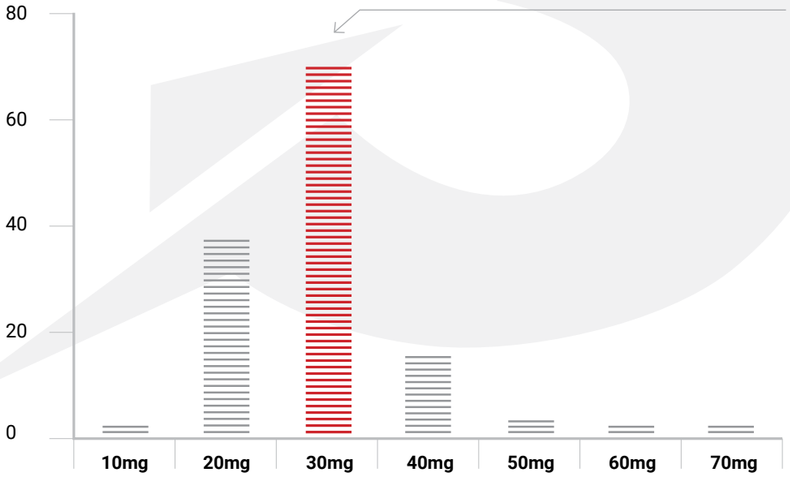
The response was overwhelming, SARMs have fewer effects than traditional steroids, which is consistent with one of the purposes for which they were created.

5 | From what dose does the side effect of Nyctalopia occur when using S4?



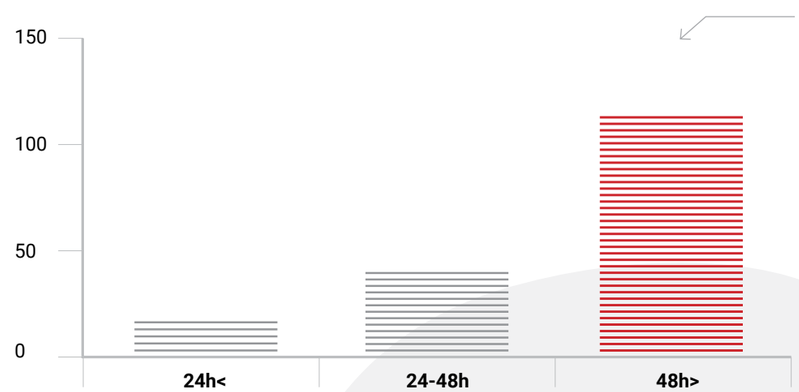
The results are clear, for most users nyctalopia appears between 30 and 40mg.

6 | Dose from which nyctalopia appears after having used a substance that improves bioavailability



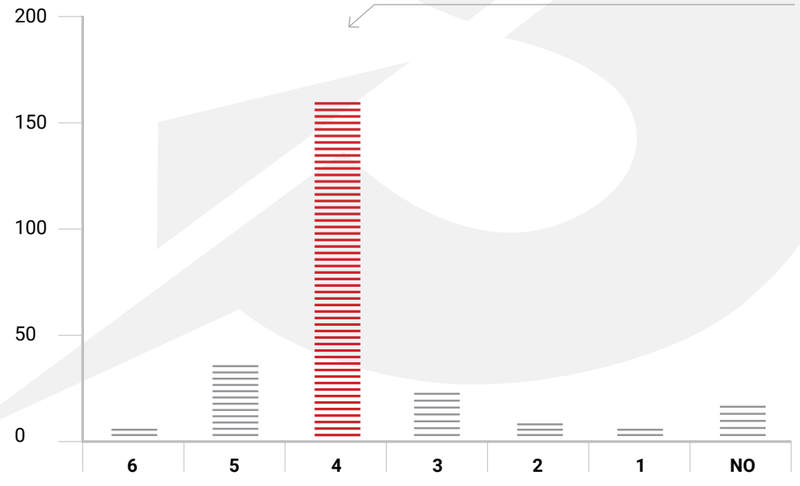
The conclusions that can be drawn are clear, when using substances that improve its bioavailability, side effects will occur in previous ranges, demonstrating the improvement in potency.

7 | How long does it take for nyctalopia to go away?



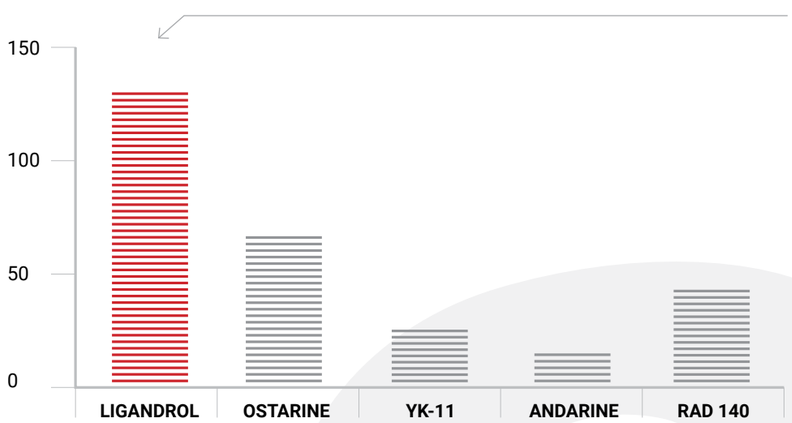
Most users agree that 48 hours, with this we can get an idea of its half-life from the duration of its side effects.

8 | How long does the libido improvement last after using ligandrol



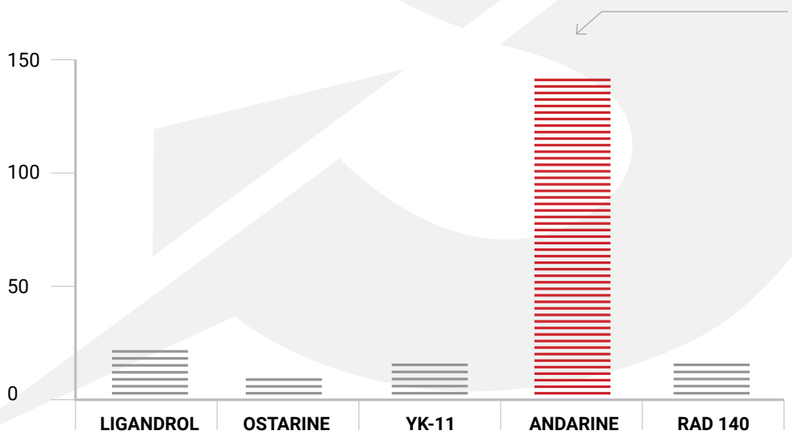
Most users agree that it takes about 4 weeks.

9 | Which SARM did you find the most potent?



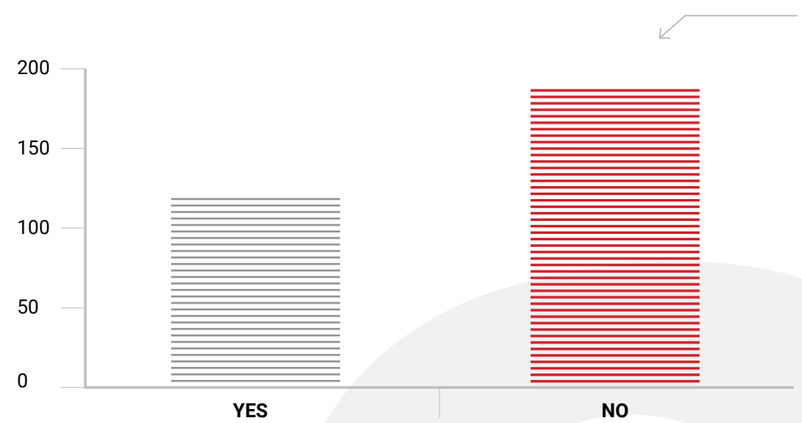
Most users agree that Ligandrol is the most potent, followed by Ostarine and RAD 140.

10 | Which SARM has caused you the worst side effects?



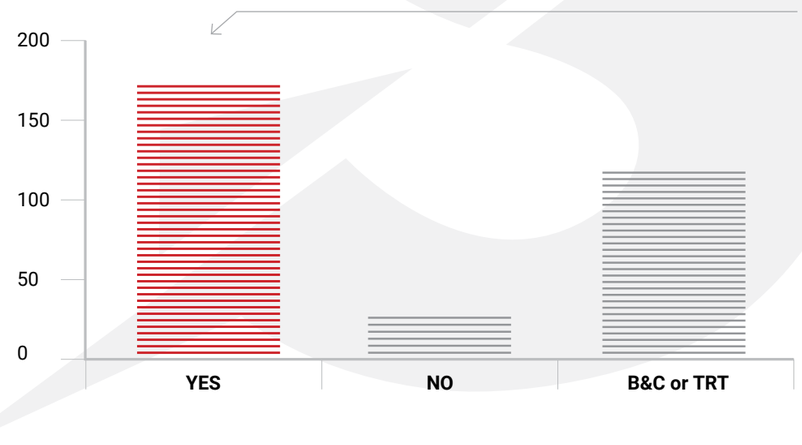
Most users agree that Andarine causes the most side effects.

11 | Have you suffered hair loss while using SARMs



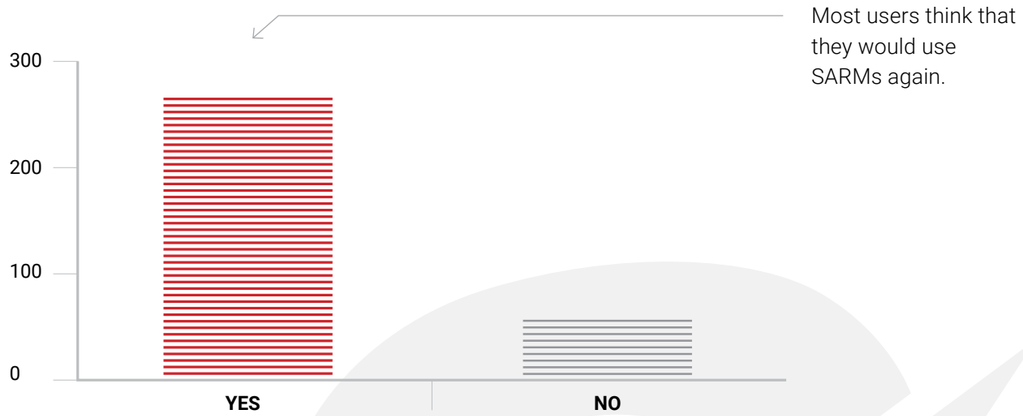
Most of the users answered no, but a significant size of the sample answered yes, so this is something to take into account.

12 | After a simple PCT have you recovered completely?



Most users claim that their axis was completely reset after a simple PCT.

11 | Would you use SARMs again?



Official store

I would like to clarify that all the products mentioned in the ebook can be purchased from Steroidify (http://steroidify.ltd/), which are the sponsors of this book, if you are interested in reading reviews about their reliability, look at the reviews they have in Eroids (https://www.eroids.com/) and you can see for yourself why it is the first source in the ranking.

I would like to point out that apart from the products mentioned in this ebook, they also have many other products available in their catalog, take a look at the page because more books will be published after this one.

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Bibliography and acknowledgments

First of all I would like to thank to my athletes, the users of r / sarmssourcetalk (https://www.reddit.com/r/sarmssourcetalk/) MesoRx and Eroids, without them most of the anecdotal experience would not have been possible, also to the users of the Sterodify Telegram Channel for their experiences and their help, finally i want to thank Sterodify (http://steroidify.com/) for making this ebook possible.

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