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Chapter 1: Steroids- some general facts that a user must know

For those of our readers who have a bend towards chemistry, a steroid is typically an organic compound that is a combination (a specific combination, to be precise) of four cycloalkanes joined together. For those of you who do not understand chemistry, we would still recommend them to read this bit since it might help them in identifying various compositions and types of steroids available in the market.

While testosterone and hormonal steroids are the most used and well known amongst the common folk, there are other types as well. Some examples of typical steroids include dexamethasone (an anti-inflammatory drug), dietary fat (or cholesterol) and estradiol (another sex-hormone). The chemical structure of steroids consists of three cyclohexane and one cyclopentane rings joined together- sharing a common edge (or a "bond") with each other. Doing simple math would tell you that such a structure is possible only in case the number of carbon atoms forming the structure is seventeen. There have been many scientific classification of steroids- some have been based on the chemical structure of steroids while some have been derived from the source of the steroid. For normal readers, getting into the details of the chemical structure and related theories might just be a bit too taxing- thus we would look at only the taxonomical classification of steroids.

Broadly speaking, steroids can be classified into Animal steroids, fungi based steroids and plant based steroids. Animal steroids are further classified into insect based steroids and vertebrate steroids. While insect based steroids might not be of much use to the common user, vertebrate steroids are of primary importance and the class includes the likes of sex steroids (androgens, estrogens and progestagens), cholesterol, corticosteroids that are associated with developing the immune system and blood levels in the human body and the anabolic steroids that we most commonly know and confuse with the term steroid itself.

As a brief up, anabolic steroids refers to the class of steroids that are used to beef up the muscle mass and strength of the human body by manipulating the extent of sex hormones produced in the human body. Anabolics increase the muscle and well as bone synthesis and have therefore been used and abused over the last half a century by athletes and bodybuilders from all over the globe. The usage, its gains and the side effects have been so widespread that the term steroid in itself has become synonymous with anabolics. Plant and fungus steroids are again out of scope when it comes to this e-book.

Chapter 2: Steroid Metabolism

The term used to signify the complete set of reactions in the organisms producing or consuming steroids is called steroid metabolism. Steroids are primarily made up of testosterone, estrogen, progesterone and cortisol. While testosterone is the male hormone and is naturally made in the male testes, progesterone and estrogen are made up in the placenta and the ovary- the female sex glands. Testosterone is converted into progesterone and estrogen on the fly in both the males and females in order to regulate the balance of the respective hormones in the body. There are certain enzymes and reactions in the nervous system that bring these changes about and artificial steroids are aimed at regularizing and manipulating these in order to increase the levels of hormones in the body- thereby bringing exaggerated effects. Steroid Metabolism is broadly divided into three phases namely synthesis, genesis and degradation.

Steroid Synthesis:

This is the process of producing or manufacturing steroids using simpler substances or precursors. Technically speaking, this is an anabolic metabolic process and results in creation of a pathway for the synthesis and production of steroids. There are different pathways created in different organisms and in the case of human beings, it is the Mevalonate Pathway where the synthesis starts out from. In case of plants and bacteria, the synthesis begins out at the non-Mevalonate Pathway. Apart from this information about synthesis, the rest would just be an overhead for the beginner level users- so we leave it at this.

Steroidogenesis:

This is the process in which steroids are produced from cholesterol. The term also encompasses the process in which the first level steroids manufactured from cholesterol are transformed into other types of steroids. The main products of steroidogenesis include androgens (testosterone), corticoids (aldosterone, cortisol), estrogen and progesterone. It would be worth noting that this is almost an exhaustive list of steroids that might actually be of importance to human beings and therefore, this is one of the most important steps of steroid metabolism.

Elimination of steroids:

This is the final step of steroid metabolism and is one of the most important processes. The elimination of steroids is very important from the body in order to maintain hormonal balance. Scientifically, the steroid rings are typically oxidized by cytochrome oxidase enzyme which weaken the steroid ring. The weakening of the steroid ring helps the other enzymes into breaking up the steroid structure to form bile acids as the end products. These bile acids are handled by the liver and are secreted out in the bile- thus ensuring that the body is clear of the end products.

Chapter 3: Anabolic steroids

After taking a brief look at the bio-chemical processes associated with steroids, it is time to expand our knowledge to the steroids that matter the most to us- the anabolic steroids. In this chapter, we would be taking a bottom up approach towards understanding anabolics to a greater depth. We would be touching upon almost every aspect of these steroids- right from the bio-chemical processes to what makes them so popular amongst bodybuilders and athletes.

Anabolic steroids are artificially produced drugs that mimic the effects of the male sex hormone- testosterone. They help in gaining the cellular tissue (and hence, lean muscle mass) by way of a heightened protein synthesis. Anabolic steroids also have androgenic properties that result in the highlighting of male characteristics because of which their official name is Anabolic-Androgenic Steroids (AAS). Some of the common effects of using anabolic steroids include an increase in muscle mass, lean mass, strength, development of vocal chords, growth of facial hair and in development of male sex features. Overuse and abuse, however, can spell doom and lead to acne, development of male breasts, increased aggression, a high blood pressure and an imbalance of sex hormones in the human body.

First synthesized in the 1930s, anabolics steroids have found their use in many real life therapeutic problems. While their main usage had been to increase muscle and bone density, anabolic steroids have also been used to induce male puberty and to help in chronic waste and degradation brought about by diseases like aids and cancer. Anabolic steroids have been recognized by the American Council of Sports Medicine as being responsible for the increase of muscle mass when combined with proper diet. The council also recognizes that Anabolic Steroids can also lead to a boost in the performance of athletes when taken at the right time. Due to these reasons, dope tests conducted on athletes test for permissible limits of these steroids in the athletes' bodies before permitting them to take part in internationally recognized events. AAS also happen to be the most found banned drugs in athletes' bodies in all major international sporting events. The usage of AAS has been banned in all major international sporting events because of the considerable advantages they lend to the user over others- commonly considered as cheating. There are, however, many countries in the world where AAS drugs are allowed to be used in a controlled environment. Such countries usually have black markets where these drugs are sold without prescription- something that has been a constant issue of worry for the policy makers and the regulatory authorities.

History of synthesized AAS:

It was in the late 19th century that medical use and synthesis of testicle extracts had begun. The studies on the strength increasing characteristics of testicle extract were still being pursued at that time. The first documented isolation of testicle extracts can be dated back to the year 1931 when Adolf Butenandt, a scientist from Marburg, was able to extract about 15 mg of a substance called the androstenedione from hundreds of liters of urine. This can be considered to be the first major event in the world of synthesis and extraction of steroids.

Later, as time passed, mutually competing pharmaceutical firms from the Netherlands, Germany and Switzerland were heavily funding scientists and researchers to extract testosterone- a more powerful male hormone existent in the testes. It was in 1935 that three scientists- Karoly Gyula David, E. Dingemans, J. Freud and Ernst Laqueur were able to lay down the exact steps of synthesizing and isolating the much revered male hormone (which they later named testosterone). The chemical method to prepare testosterone from cholesterol was laid down and formalized in August 1935 by another group of scientists. There were a couple of other methods laid down and discoveries made in this direction

by scientists from all over Europe. There were a number of patents filed as well in this respect. The Nobel Prize in Chemistry was given away to Butenandt and Ruzicka in 1939 for their work in this field.

Chemical synthesis of AAS:

It was in the 1940s the Eastern block countries and the Soviet Union started working on development of steroids to bring about enhanced performance in their athletes and to give them a certain advantage over the competition. This showed results and soon the Soviet athletes were ruling the Olympic standings. Noticing the sudden increase in efficiency, lifting power and strength of Russian athletes, the Americans also started working on development of synthetic steroids to boost their chances at the Olympics. It was under the aegis of American Chemist Dr. John Zeigler that the world saw the development of a strong anabolic steroid with low androgenic effects.

The composition was marketed as Dianabol and was an instant success in the commercial market. The FDA gave a nod to the drug and the steroid was used as a cure for burn victims and the elderly people who required to put on weight. It was around that time that the mass gaining effects of this wonder drug were being discovered and soon the drug was a hit in the underground market. The drug was used mostly by body builder and weight lifters without proper medical guidance and this often led to havoc. The abusers soon started witnessing effects like enlarged prostates, reduced testicles and other common steroid side effects. Looking at the immense popularity and the negative effects it brought about on the amateur users, the IOC banned AAS in 1976. It was in the 1980s that the IOC decided a strict "out-of-competition" rule against athletes found to have used AAS even during their training period. This saw some awareness and sanity towards steroid usage even amongst the amateur users and normalized the usage to manageable proportion. This era saw the use of certified steroids rolling into the market and drug laws being enforced more stringently against steroid use and abuse.

How they act:

Well, broadly classifying, there are three ways of administering steroids into the body- pills, oral tabs and through skin patches. Although oral administration of steroids is the easiest in the human body, the testosterone that is actually used up at the end of the dosage is just about 1/6th the administered levels. This is due to the reason that the steroids is rapidly absorbed when taken orally and is converted into useless metabolites. These are not only useless, but sufficiently difficult for the liver to break down. Thus, the intake has to be low- which means that even lower volumes of testosterone are actually available to act on the body. If you are planning to inject steroids into the body- it is never ever supposed to be intravenous as it might alter the hormonal levels in the blood to dangerous proportions. Thus, steroid is always injected into the muscle as opposed to the veins. Skin patches are also available to provide doses of the hormone to the bloodstream at regular intervals. Injections are the most preferred way of taking in steroids and oral administration can lead to liver damage over a period of time.

Steroids act by penetrating the membrane of the cells they are supposed to act on. After this penetration is through, the steroids cling themselves onto the anabolic receptors of the cells. These receptors are located in the cytoplasm (one of the main areas of the cell body) of the cell. After this, the substance diffuses into the nucleus of the cell. The nucleus is the center of genealogical activity in the smallest part of an organism- the cell. After entering the nucleus, the steroids start acting on the genes and bring about hormonal changes that are responsible for bringing about the desired changes- weight gain and increase in the lean muscle mass.

Steroids are known to bring about the increase in muscle mass by a dual action- first up, they in-

crease the synthesis of protein in the body and secondly, they inhibit the tiring up of the muscles (a process otherwise termed as catabolism- the reverse of metabolism). An increased protein synthesis helps the body in gaining weight and also supplies the body with additional energy and strength to workout without tiring. The inhibition of catabolism further inhibits the production cortisol- the stress hormone of the human body. This leads to the body being less fatigued during workout- which results in a more stringent workout combined with an excessive aggression. Some AAS have also known to increase the BMR (or the Basal metabolic rate) which greatly reduces the fat content of the body- thereby making more room for the muscles to expand. This explains as to why the use of steroids leads to a lean muscle mass increase.

Chapter 4: Effects of using AAS (Anabolic Androgenic Steroids)

The effects of using Anabolic Androgenic steroids can be best understood if we take a look at the anabolic as well as the androgenic aspects of the drugs independently. The effects of using AAS can be both separate as well as overlapping. We will take a look at each of these aspects through this chapter. Taken literally, the term anabolic signifies cell growth and the word androgenic refers to the maintenance of muscular characteristics.

Anabolic effects:

Most of the effects for which steroids have found usage and gained popularity amongst bodybuilders and athletes account for the anabolic effects of steroids. The anabolic effects include an increased muscle mass owing to the heightened protein synthesis by way of amino acids, stimulation of bone marrow- leading to an increase in the RBC (Red Blood Cell) count in the body, a better bone profiling and an increased appetite. There are a number of processes (some of which we have discussed in the previous chapters) that lead to a step by step increase in the muscle mass of the body- thus leading to an increased muscular profile and strength over a period of time.

Androgenic effects:

Androgenic effects of steroids are mostly centered around bringing about changes in the sex hormones of the human body. Androgenic changes are responsible for the growth of clitoris in females and penis in male children, and increased libido, an increased urge to engage in coitus, increase aggression, growth of hair in the pubis region and well as facial hair, deepening of voice due to development of vocal cords, a decrease in the production of natural sex hormones (which is the body's way of controlling the hormonal count and maintaining the balance in the body) and a reduction in productions of sperms in the male.

The androgenic:anabolic ratio of an AAS:

The preferred choice for bodybuilders would be a low androgenic:anabolic ratio. Some drugs have a high ratio and are recommended for use in androgen-replacement therapies in male. While steroids with a lower ratio are considered therapeutically well suited to treating those with anemia and osteoporosis. In effect, however, there are very low digressions in the way a substance with low ratio acts on the human body as compared to a substance with a high ratio. Still, to be on better grounds, a substance with a low ratio is always considered to be a safer bet.

The weight gaining effects of steroids have closely been studied over the last three odd decades and it has been found out that short term AAS use can result in up to 2 to 5 Kgs of weight gain in a short span of 10 weeks. In some cases, the fat percentage was also seen to have been reduced and the lean muscle mass increased. It has also been observed that the upper body is more prone to mass gain as compared to other parts of the body. The reason can be attributed to the fact that the upper body (neck, thorax, shoulders and arms) has the maximum number of androgen receptors in the body- thus converting the steroid into giving the desired effect at these areas. After withdrawing the drug, its effects might still persist for a period ranging anywhere between 6 weeks and 12 weeks. The overall strength of the users is also seen to increase to about 15% to 25% of the baseline strength before the administering of drugs. This increase, however, is dependent upon the amount of dosage and the kind of steroid being taken. Besides, the increase in strength is prominently more amongst regular bodybuilders and weightlifters as compared to those who'd have recently started weight training.

Adverse and psychiatric effects of steroid usage:

Some of the most common side effects of excessive steroid usage include loss of hair in men (due to conversion of testosterone to DHT), deepening of vocal chords and development of facial hair on females, development of male boobs, variation in the natural levels of cholesterol in the human body- which can lead to cardiovascular diseases, heart seizure and other coronary artery diseases. Apart from these side effects, steroids stimulate the sebaceous glands, which can lead to acne and other skin conditions. Oral anabolic steroids need to be burnt down and digested by the body and this can also lead to severe liver damage if the doses are not controlled or backed up by injections. Excessive steroid usage can also lead to lack of interest in sexual activity as well as temporary or permanent infertility in case of males. In short, excessive steroid use can really tamper with the hormonal balance of the body- something that is capable of leading one onto quite a lot of complications. The negative effects on hormonal secretions due to overdose of steroids are magnified in case of usage in adolescence. It can lead to premature stoppage of bone growth, premature puberty and certain other conditions that can really affect the overall body structure of the user. It is therefore highly recommended that people under 21 years of age should not use steroids, and even if they do- it should be under proper medical assistance.

Psychiatric effects:

There have been documented case studies which prove that steroids abuse can use to maniac-like conditions often leading to aggression, hypertension and even suicide in some extreme cases. Prolonged usage can cause withdrawal effects and dependencies on steroids, which, in most cases leads to progression onto usage of other substances to control the urge. All this can be attributed to mood swings and heightened irritability in steroid users around the world. The term coined for describing this condition is popularly called as "roid rage" in common language and has been termed as "hypomania" by scientists and psychiatrists alike.

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Chapter 5: Usage directions and legal use/abuse of AAS (Anabolic androgenic Steroids)

Almost all the major sporting organizations around the globe have banned the use of AAS- during tournaments as well as before or after them. Some of the most important organizations that have passed the verdict against AAS use include the International Olympic committee, FIFA, ITF, European Athletic Association, WWE and International Cricket Council.

In the US, Anabolic Steroids are listed as schedule 3 drugs and thus, having possession or using them without a prescription is deemed illegal. It is only under controlled environment and with proper medical reasoning and backing that AAS can be used in the US. In countries like the UK and Canada, similar restrictions exist on the usage and possession of AAS. In Canada, however, possessing AAS might not land you up in the jail but unprescribed usage, trading and export/import of these drugs will definitely land you into trouble. In most of the countries around the world, AAS is banned and categorized at a minimum of schedule 4 while in some countries like Thailand or Mexico, these drugs are readily available and there are no restrictions whatsoever on their usage.

In the US, the movement against the abuse of AAS in sports had gathered pace after the controversial victory that Ben Johnson had got in the 1988 summer Olympics in Seoul. The US Congress was adamant on listing the AAS as schedule three but the three major medical bodies of that time- American Medical Association, the FDA and the Drug Enforcement Administration supported the view that AAS should not be banned since the hormones are natural and so not produce dependence in the long run. The addiction factor was absent. Nevertheless, these drugs were eventually banned because they were considered as giving the users an undue advantage over their competition and thus, were seen as a cheating practice.

Detection of steroids is usually carried out using urine samples and hair samples. Traces can also be found in blood and perspiration. Depending upon the route of administration, the dosage and the substance used, anabolic steroids may be detected in the urine samples for a period lasting up to 30 days from the last usage. The detection of steroids is not an easy task and the metabolic compositions of a number of substances might actually overlap with those of endogenous steroids- often leading to confusion about the actual use and dosage of the substance.

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Chapter 6: Steroid cycles for beginners

The biggest myth about bodybuilding and using steroids is that people feel whoever uses steroids would bulk up in the right proportions at the right places- this is a potentially dangerous myth. Steroids are no magic and getting results ultimately rests in the hands of the users themselves. For a novice, getting confused is very easy since there is such a lot of information available all around. In this part of the e-book, we would be helping you in channelizing your energies after steroid usage to get maximum results. Steroids are like time bombs- ready to explode and wreck havoc. It is up to the user to be educated enough to use them the right way.

In this section of the e-book, we would be taking a look at a dummy cycle. Users are expected to make notes from this dummy cycle and apply them to whatever drugs they are using in the correct proportions. We are using the basic doses here and as a tip, we would like our beginner level readers to stick to the basic doses rather than trying out the exquisite and hard to find stuff. Cycles should be cost and health effective. After all, your main purpose of body building is to become healthier rather than someone who look good on the outside with something tragic and disastrous boiling up within. For beginners, we would start off with a 12 month cycle and this is usually the suggested practice the world over. You are bound to experience weight gains in the first month or so and they will subside towards the end of the cycle. The first few days will also see enormous effects on your body and you might experience side effects like acne and aggression. This is quite normal and one should realize that these things are your body's way of adjusting to the doses- called homeostasis. Nothing to worry about as long as you are sticking to the prescribed quantity and not overdoing these drugs. The brief break up of the cycles is given below. Please note that we are looking at stacking here and in case you are not sure about your medical history, consult a doctor before trying this yourself. The break up of weekly dosage is as follows:

Testosterone- 400 mg per week for 12 weeks coupled with 20 mg/day of Dianabol for the first five weeks. Stacking is optional and if you are not sure about your stacking potential and/or if you feel that the gains and the effects are too much for you to handle- keep off stacking and cut down on Dianabol doses. You can also eliminate Dianabol altogether if you are not being able to handle the effects well. Testosterone form the base of any beginners cycle and this is a great substance for single use as well as for the purpose of stacking. Being a natural hormone, it'll bring upon positive changes to the body including the production and synthesis of protein and IGF. This leads to an increased muscle mass and the hormonal changes bring about an increase in strength as well as aggressiveness in the gym. There can be other small-time over the counter medicines that can be added to the dosage in case side effect persists. The chances of side effects showing up are very low at this dosage, but sore nipples and hair loss can be a concern for some people. In case of sore nipples, you can add 10 MG dosage of Nolvadex till the soreness subsides. Hair loss can be countered by using common medicated shampoos like nizoral and propecia. Testosterone finally converts into two androgens- the DHT and the female hormone estrogen. Therefore, overdoing the dosage can really results in your body loosing its state of homeostasis- be careful and be considerate of the fact that hormonal imbalance can lead to irreversible changes over a period of time. The 400 mg dosage that we are talking about here should be administered through injections.

The other drug we are taking into perspective is Dianabol. Dianabol is also a testosterone based drug which is tweaked to be administered orally and the conversion of testosterone to androgens is highly limited in case of Dianabol. Stacking this drug with injection based testosterone during the beginner cycle will help you rake in better gains and more strength during the initial few weeks of your cycle.

This will also give your body the much needed testosterone with a highly subsidized rate of conversion to estrogen- thus making sure that the gains are prolonged and the aggression doesn't burn out sooner than required. Dianabol should never be used as a substitute for injection based testosterone at any cost since an oral dose of the injectible equivalent can actually do a ton of harm to your liver and kidneys since oral doses need to be broken up by the digestive system.

Another word of caution for those who are looking to follow this or related beginner steroid cycles- keep doing cardiovascular exercise for about 15 minutes each day- four times a week while on the cycle. The reason is simple- you can expect a weight gain of about 20 pounds or even more while on this cycle and the body needs to get used to the excess weight. Make sure your heart and cardiovascular organs are responding well and that you are able to carry out regular day to day work with efficacy. Besides, some people might develop a "bloated" look. Most of it would be water retention and having a balanced diet during the cycle is very important to prevent that boating of the body. The body needs to come out more chiseled and better toned than what it was before putting yourself on the cycle- thus apart from putting your body through immense workout routines and steroid usage, make sure you are taking a proper high-calorie, well balanced diet.

Chapter 7: Basics of nutrition

Steroid usage needs to be supplemented with a good and nutritious diet. In this chapter we would be taking a closer look at what exactly qualifies as nutritious. There are certain characteristics and ground rules that define a diet comprising of the right nutrition values. Play and fiddle around with these rules till the time you are sure of what kind of diet suits your needs the most. You can then make your own diet routines and list down your own diet plans.

Maintaining the balance:

Proteins, carbohydrates and fat are the three major constructs of a balanced diet. Other things like fiber, minerals and fluids also play an important role. Proteins help in bulking up. They are the building blocks of the body. Carbohydrates help in increasing the sugar levels of the body- thus providing adequate energy for the body to expend on working out. Fat keeps the muscles and the bones lubricated apart from providing the heart with healthy cholesterol and also helping to maintain the overall stature of the body. Thus, your meal can be tweaked to the kind of workout you intend to indulge yourself in. If you are doing heavy weightlifting then you can increase the protein intake and keep the other two variables constant. If you are looking to loose weight, then lowering the carbohydrate intake can really do wonders. If you are looking to loose out on body fat, then say no to greasy food items. You should, however, not cut down on any one of the three main constituents all at once. Doing so might fetch you fast results, but it'll hamper the overall equilibrium of your body. The ideal ration should be 40% each of proteins and carbs and 20% of fat, fiber and other minerals. The equation can be further simplified by having the same serving of proteins for an equivalent serving of carbs- plus stuff like green vegetables, fruits and milk to cover up for the other elements of a balanced diet.

Time your calories:

Calorie timing is a relatively new concept, but it is designed to prevent the plateau from occurring. Calories should be properly cycled as this prevents the body and the metabolism from getting used to a particular amount of calorie intake- thus leading to stagnant results. For those looking to gain muscle mass, you should stick to 5 days a week of heavy calorie intake (lean mass) and 2 days of low intake. For those looking to reduce body fat, you should focus on 5 days of low calorie intake and two days of high intake. For those who are looking to build muscle while losing body fat, should random-

ize things up even further. For those who are looking to tone their bodies without really worrying about the muscle mass or the body fat percentage- you can switch between high and low calorie diets every week. This will keep your metabolism from stabilizing at lower levels.

Number of meals a day matters a lot:

Well, it is a popular practice amongst bodybuilders to have six or eight smaller meals spread equally throughout the day rather than having two or three larger meals. This not only helps in keeping the body nourished all through the day, but it also helps in ensuring that if you are doing heavy workout, you do not fall short of body sugar and energy levels. This is one of the easiest ways of maintaining a healthy diet while working out.

Chapter 8:What are carbohydrates, proteins and fats and how do they affect me?

Carbohydrates:

Carbohydrates are the primary source of natural energy for the human body. Insulin is produced by the body when the pancreas burn carbs and insulin is elementary for the body since it helps the body in getting the much needed energy. Insulin breaks carbs into suitable substitutes and stores them either as fat or in the muscles. The storage is dependent upon how one utilizes the energy derived from carbohydrates. Insulin also helps in grabbing proteins (amino acids) and helps in storing the amino acids inside the muscle cells. This not only helps in growth, but also helps in recovery of the fatigued muscles. Therefore, insulin plays a major role in muscle building and the production of insulin is directly triggered by ingestion of carbohydrates in the body.

Although carbohydrates are important for insulin production, yet a high carb diet may lead to excess insulin being produced, which in turn leads the body into storing every part of your diet as fat. More the insulin, more your body tends to get fatter. Lower insulin levels on the other hand might result in your body not being able to utilize the amino acids for proper growth. Thus, the right amount of carb intake is elementary for a proportionate body building.

Carbohydrates are broadly classified into two types- simple carbs and complex carbs. Complex carbs are relatively more difficult to break down and take time to be broken down thus, giving timed energy. Simple carbs give immediate energy as they are easier to break down. Normal meals should mainly consist of complex carbs but breakfast and post-workout meals should have an abundance of simple carbs. The reason is simple- when the body is depleted of energy (in the morning or post workout), it requires instant energy to rebuild its internal glycogen levels and therefore, you should always stick with simple carbs. Complex carbs should be thrown out proportionately during the meals in order to give your body a sustained and prolonged energy boost throughout the day.

Complex carbohydrates include starchy edible stuff like potatoes, rice, wheat flour etc. and some green vegetables. Simple carbohydrates consist of fruits like apples, bananas and orange. Mix and match the quantities to suit your body's needs and your workout timings.

Proteins:

If you are a beginner at bodybuilding, you would have definitely heard a lot about proteins and how they are the building blocks of the body. The fact remains that each and every tissue of the human body is made up of proteins and therefore, if you are looking to increase lean muscle mass- you

ought to increase the protein intake in your day to day meals. Having said that, it is not as simple as it sounds. Proteins and carbs work in tandem. Carbs give the body the energy to convert protein into muscle while proteins help in the timing of carbs- thus providing all throughout the day. Besides, having proteins increases the metabolism of the body by up to 15% at a time and this is a very significant figure for those looking to burn fat and increase lean muscle mass. The equation for protein consumption is simple. For every pound of your weight, you should consume 1 to 1.5 grams of protein. For instance, if you weight 200 pounds, you should consume about 175 grams of protein everyday. More than that might get converted into fat and lower protein levels will not give optimal results. Therefore, measuring and timing are the two most important aspects of maintaining a balanced protein diet. As a thumb rule, you should consume an equitable amount of carbs as well- this aids in protein synthesis. Remember- carbs and proteins should always work in tandem rather than contradicting each others' effects on the human body. Eggs, chicken, turkey, fish and bacon are good examples of proteins. Mix and match with other meat types to get the required amount.

Fats:

This is where it gets tricky. The main purpose of a bodybuilding diet is to increase muscle. Some people have a notion that the best way of doing it is by reducing the fat intake- and this notion, our dear readers, is dangerously convoluted!

Fats aid in hormonal reactions, they help in keeping the joint lubricated and their absence makes the body look out for fats. This will result in all of the food you consume to be accumulated as fat, which would hamper testosterone production in the body- thereby hampering the whole process of muscle building. You might end up losing weight and this will be counter productive to your overall bodybuilding regimen. Therefore, in order to have a balanced metabolism running, you should always look towards including healthy fats in your diet. Fats are broadly classified into three types- saturated, monosaturated and polysaturated.

Saturated fats are the primary culprits behind heart related diseases, including high cholesterol levels and heart attacks. Saturated fats are found mostly in red meat and hydrogenated vegetable oils- mainly constituting packaged food. If there is something you really need to avoid when it comes to fats- its saturated fats.

Polysaturated fats have no effect on body cholesterol levels and are therefore the better of the three types of fats. These are mostly found in vegetable oils that do not get hydrogenated to saturated fats. Common examples include sunflower, soybean and cottonseed oil.

The best of the three fat varieties is monosaturated fats. These fats help in increasing the levels of "good" cholesterol in the human body. These might have antioxidant properties as well- something that really aids in establishing a healthy metabolic rate. When combined with protein shakes and carbohydrates (like wheat bread) monosaturated fats can really give your cardiovascular system a positive boost up. Some common sources of monosaturated fats include fish, flaxseed oil, olive oil and peanut butter.

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