

Hippocrates - Was He Hardcore?



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I fancy myself an intense intellect of historical exercise science. Our's is the benefit of time, as over several millennia athletes from ancient Israel, Babylon, Assyria, Minoa, Media, Persia and the Greece have excelled, experimented, and most importantly built on each other's accomplishments. Some of the earliest documented feats of athleticism took place on the field of battle, as is recorded in the History of the Kings of Israel.

Eleazar is known as one of the most fierce soldiers and athletes in Israelite history. Though thousands of years have passed, one principle remains the same: Success is directly proportional to the state of being hardcore!

" And after him was Eleazar the son of Dodo the Ahohite, one of the three mighty men with David, when they defied the Philistines that were there gathered together to battle, and the men of Israel were gone away: 10 He arose, and smote the Philistines until his hand was weary, and his hand clave unto the sword(1). "2 Samuel 23:8-39

Certainly the most famous in regards to their influence on training would be Greek Civilization. In fact, the actual discipline of Exercise Physiology has much of its roots there, beginning with scholars such as Herodicus(5th century B.C.), Hippocrates (460-470), and Claudius Galenus (131-201 A.D.)(16, 31).



Herodicus' writings were based on both personal athletic experience, as well as intense practice in the field of medicine. He is credited as one of the first to document the vital concepts of nutritional science combined with complex training regimens to heighten one's health. So incredible were his dissertations, that they inspired the Father of Preventative Medicine, Hippocrates. His works fill over 87 dissertations.(16). To the medical field he is perhaps most celebrated for devising

the " Corpus Hippocratum, " which today is known as the Hippocratic Oath(the famous pledge taken by physicians covering various ethics which they are sworn to upkeep)." Hippocrates is additionally famous for applying careful observation, and meticulously basing his writings on the concept of *cause in affect*.

It is this concept which influenced who many consider the first true Exercise Physiologist, Gladius Galenus, also known as Galen. Renowned for his medical breakthroughs, Galen produced as many as 580 writings, many of which devised the known Laws of health(16). Utilizing the principle of cause in effect, he noted that sedentary individuals were highly prone to disease, harmful ailments, and lower life spans. Further, he documented the very opposite effect in those which regularly trained. Applying his knowledge of physiology to sport, Cladius Galenus documented numerous forms of exercises, as well as intense training regimens. Perhaps his most famous work in this regard is De Sanitate Tuenda, which can be translated to " Hygiene. "

Galen was one of the first to recognize, or at least record that gain producing workouts resulted from a temporary disruption in **homeostasis**:



" To me it does not seem that all movement is exercise, but only when it is vigorous. But since vigor is relative, the same movement might be exercise for one and not for another. The criterion of vigorousness is change of respiration; those movements, which do not alter the respiration, are not called exercise. But if anyone is compelled by any movement to breathe more or less or faster, that movement becomes exercise from him. This therefore is what is commonly called exercise or gymnastics, from the gymnasium or public-place to which the inhabitants of a city come to anoint and rub themselves, to wrestle, throw the discus, or engage in some other sport. ...The uses of exercise, I think are twofold, one for the evacuation of the excrements, the other for the production of good condition of the firm parts of the body(12). "

Today, science has delved much further into Claudius statements. For example, we realize that oxygen is needed as the terminal acceptor in the electron transport chain(i.e. it is necessary for the synthesis of ATP), and that heightened activity calls for increased ATP production, and thus a greater delivery of O₂ to the musculature. By increasing respiration, and cardiac output(heart rate Xs stroke volume or the amount of blood pumped per beat via Starling's law and contractility of the ventricular myocardium), the increase in O₂ is subsequently delivered. However, even with our increased knowledge, the stress-adaptation relationship noted nearly two millennia ago still stands.

In all my research, I believe that Selye's theory of Stress, published in 1956 describes this process best(35). You see, the human body works continuously to maintain homeostasis, or a steady state of being. For example, your blood PH levels (level of acidity) must be maintained in an extremely narrow range. Anything below or above 7.35 to 7.45 pH can have deleterious(harmful and yes, deadly) effects. Several mechanisms such as buffers(these have the ability to resist

changes in pH), secretion of hydrogen ions out of the body via the kidneys, and increased respiration rate(increased carbon dioxide levels lower pH, meaning they make the blood more acidic, by blowing off more CO₂ you effectively regulate this, consequently the medulla oblongata, where your respiratory center lies is sensitive to CO₂ levels as well as acidity and proportionally increases the rate at which you breathe when levels rise).

Selye defined stress as the state manifested by a specific syndrome(explained momentarily). Stress can more easily be defined as anything which disrupts homeostasis. By understanding the following theory, you will be that much more equipped to force your body into a state of adaptation. In fact, you will see a number of articles on this very subject over the next twelve months. Adam Knowlden confronted it for a vital reason in Shock Yourself Out of The Comfort Zone(21, 22, 23).

The General Adaptation Syndrome is defined by three stages.

- 1.** The first is the Alarm-Reaction or Shock-Counter-Shock stage. The shock, such as lifting a weight causes the body's steady state to be disrupted. The system immediately counters this shock via various processes which regain homeostasis. Using the example above, running requires more oxygen than sitting. Therefore the increase in cardiac output and respiration are methods of counter-shock.
- 2.** The stage of resistance – During this stage, a more permanent adaptation occurs.
- 3.** If the stress is chronic, and does not allow for recovery, or nutrients are not supplied to aid recovery, then the stage of exhaustion or over training is reached. And, either the athlete can rest, give his or her body the nutrients needed, or face subsequent or further maladaptation.

Your goal, as a competitor is obviously to stay within stages one and two, and avoid stage three.

It is vital to point out that the above theories all rely on a concept known as *overload*. For it is this concept which leads to " The stage of Resistance. " Once again we have a theory rich in historical roots. We begin by analyzing the Greek athlete Milo of Crotona. He lived about the end of the 6th century B.C. Six times was he crowned at the Olympic Games and six times at the Pythian for wrestling, and was famous throughout the civilized world for his feats of strength(28).

Feats of strength which can be contributed to the principle of overload. Legend has it, that Milo raised a calf and carried it each day to prepare for the up and coming games. Over the years as it grew, its additional weight progressively overloaded his muscles, which would subsequently increase Milo's strength. Finally, after four years he carried the massive heifer on his shoulders around the Olympic stadium, rendering the crowd into a state of frenzy for accomplishing such a great feat.

Note: It is interesting to note, that Milo is recorded to have eaten up to 20 pound of meat daily!

Unfortunately this warrior met with an untimely death. Traditionally it is said that while training, Milo came across a wedged open tree. To test his incredible strength he proceeded to rip the tree apart with his bare hands. While attempting to rend it asunder; the wedge fell out and the tree closed on his hand, imprisoning him until wolves came and devoured him(28).



Though his traditional death was untimely, the legacy and contribution left on exercise physiology will forever be encapsulated. The concept of overload, illustrated above can be defined simply as follows: *To introduce the body to a demand greater than it is accustomed to handling.* Delorme and Watkins, are in many circles credited with the modern popularization of the overload principle. In 1948 they devised a set program, for each body part based on a total of 30 repetitions. These two Giants, divided the repetitions into the classic 3 x 10 system, which is still used today by trainers world wide:

- set 1 - Perform 10 repetitions at 50 percent of 10-Rm Maximum
- set 2 - Perform 10 repetitions at 75 percent of 10-Rm Maximum
- set 3 - Perform 10 repetitions at 100 percent of 10-Rm Maximum

When the participant could perform more than 10 repetitions on the final set, they would up the anti. Since 1948 countless scientific journals, and books have been dedicated to exploiting this principle. Its expansion can be summed up into the following components:

- 1.** Intensity - Such a concept is frequently defined by the level of pain, exertion, and lactic acid build up in one's training session. However, it is also defined as the percentage used of one's maximum. In the above example, Delorme and Watkins constituted that their athletes most intense set would be their third. Therefore, by simply increasing the weight of a particular exercise you will expose the body to more load then it is used to.
- 2.** Volume - This term can be classified as that which encompasses both frequency of training and total sets performed. It has been shown in scientific studies that to a point, volume is directly proportional to adaptation. Dr. Kraemer, who himself is one of the most respected exercise scientists in the world, worked with several other distinguished colleagues in the Journal of Strength and Conditioning. They tested multiple sets vs. single sets. Here is their conclusion: *" The results of this study indicate that multiple sets, yield superior results in 1 rep max squat strength*

compared to moderately trained individuals (25). " To illustrate how sets can alter overall load, if I were to perform one set of 10 repetitions with 315 pounds on the bench press, I would expose the body to an overall load of 3,150 pounds. If I increase that to five sets total of 10 repetitions a set, that load is increased to 15,700 pounds. Thus set manipulation is a skill one must master. Further, if an athlete was accustomed to training each body part once every seven days, he would increase the volume over a certain time period(i.e. a month or even a year) by simply increasing frequency to a session once every 5th day.

Note: Volume can be further broken down by defining the properties of a set. I.E. total repetitions for each set. Also note that the total amount of work performed can be calculated in further depth. . It can be determined precisely by calculating the work done in joules (i.e., force × distance), but total repetitions and volume load (or total load) are simple estimations for training volume that are used more commonly: 1. total repetitions = sets × repetitions (3); 2. volume load = sets × repetitions × weight used(31).

3. Finally overload can be manipulated by calculating the amount of work done over a specified time period. This will be discussed further into the article.

This principle, which I have summed up into three stages is based on both specificity, as well as progression. The theorem of specificity states that in any training program, a session must be designed specifically for the goals of the individual(10, 18,) . This is based on much empirical evidence which validates that muscles respond specifically to the load imposed or rather the amount of stress, or load, applied to the muscle, will determine to a large extent the response of that muscle. Once again we are lead back to a phrase used in a past issue of our publication, that is: " If you want to be freaky, you will have to freaky things. "

It is for this reason that I have decided to take you through the following methods. Methods which I deem capable of searching and destroying the target muscle group. The goal is to stimulate the body into constant progression, through the process of *forced adaptation*.

Before continuing however, I would like to clarify that term. Adaptation is an adjustment in physiological function which occurs as a result of a specific stress. Such a process unveils itself during periods of recovery from a previous homeostatic disruption. Following recovery physiological functioning compensates by elevating its baseline levels(35). Such adaptations afford the athlete to do more work or perform the same amount of work with noticeably less disruption. It is for this reason that journals are recommended to track one's progress.

We have identified the goal: " To become as freaky as humanly possible. " We have identified the theorems of specificity, adaptation, stress and overload. Let us now delve into tools meant to assist your mission. I warn you however, many of these are extreme. They are meant to heighten your ability to break down plateaus, or specifically target a body part. As such, they are to be classified as shocking principles, in every sense of the word, and should be used accordingly(see Mr. Knowlden's articles on Shock Yourself Out of The Comfort Zone for further clarification).

Note Also: For clarification on hormonal mechanisms involved in the above adaptive responses, I refer you to Mr. King's articles on the endocrine system(19, 20).

Split Volume Training

Popularized on abc by Mr. Knowlden(24), split volume training takes full advantage of all three overload principles: frequency, total sets, and optimal intensity. I have researched this area thoroughly and found tremendous scientific support for it. Allow me to illustrate. In the journal of Clinical Neural Physiology, Hakkinen et. al. tested the following:

" Neuromuscular adaptations were investigated in ten female athletes during a "normal" intensive strength training period for 3-weeks (I) as well as during a separate second 3-week training period (II), when the same total training volume was distributed into two daily sessions. "

The above is self explanatory, Hakkinen and colleagues took these experienced athletes, and compared their normal regiment performed in one session, as compared to the same regimen, split into a morning and night session. Here are their results:

" No systematic changes took place in the maximal voluntary neural activation (averaged integrated EMG) of the leg extensor muscles, in the cross-sectional area (CSA) of the quadriceps femoris muscle or in maximal voluntary isometric strength of the leg extensor muscles over training period I with one daily sessions(16). "

In the first three weeks, no notable gains took place. This can be expected as these were advanced athletes. In their stage of advancement, gains come quite a bit slower. Which is why it is vital to incorporate methods meant to thwart such plateaus. The following documents the results of the second three week sessions, utilizing Split Volume Training:

" However, a significant increase was observed in maximal strength from 2493 +/- 553 to 2620 +/- 598 N (p < 0.05) during period II accompanied also by a significant (p < 0.05) enlargement in the cross-sectional area of the muscle and by slight (ns.) increases in the maximum IEMGs of the trained muscles. The individual changes in the maximum IEMGs of the trained muscles during period II correlated significantly (p < 0.01) with the individual changes in maximal strength(16). "

These scientists then rightfully conclude the following:

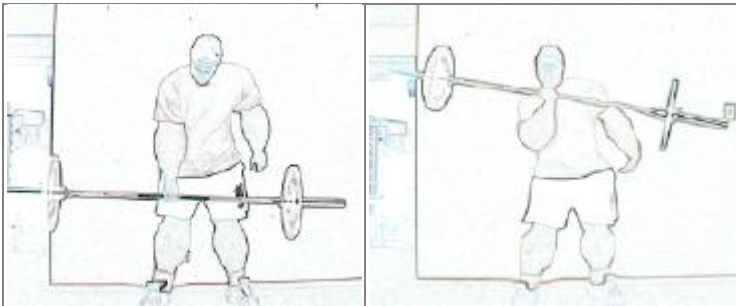
" The present results with athletes suggest that the distribution of the volume of intensive strength training into smaller units, such as two daily sessions, may create more optimal conditions not only for muscular hypertrophy but by producing effective training stimuli especially for the nervous system. These kinds of training conditions may lead to further strength development in athletes being greater than obtained during "normal" strength training of the same duration(16). "

Therefore according to the above study, you would see immediate gains in both strength and size, by simply splitting your volume into two sessions. Lets say that you perform 20 total sets for the pectoral muscles in a single session. Split that into

ten sets in the morning, followed by 10 sets at night and you should see a major difference! One might also prescribe further variations to the theme. For example, this can be an effective way to increase volume period. It allows the athlete to train longer, but still get optimal rest due to the *severing of sessions*. The question is, why does this work? There are several reasons.

1. Due to rest periods, the body can significantly clear waste, and begin refilling glycogen stores before session two. This allows the athlete to lift more weight than he or she normally would have. Again, if you lifted 20 sets in a session, the final 10 would certainly be a more fatigued state if done immediately, as opposed to after hours of rest. Therefore, "intensity" is kept to an optimal.
2. Sufficient rest allows the athlete to maintain optimal focus
3. Study, after study have shown increased protein synthesis, as well as increased hormonal output after a training session(38, 19). The premise therefore is that two sessions, will raise the bodies anabolic hormone output twofold, as opposed to only once in a single day.

The Long Bar One Arm Method



In war anything goes. Each opposing side works frantically to develop new and deadly weaponry to vanquish the enemy. Much focus in bodybuilding has been directed toward machinery meant to throw the body's homeostatic defense mechanisms out of whack(G). In your battle against it, you should take careful note to realize that what appears to be simple, can actually be quite complex. For example, a simple barbell curl can be changed to countless variations just by manipulating hand positioning.

The long bar method takes this one step further! Normally the tools for one arm work apply to dumbbells, or single handle attachments. This method calls you to use a barbell in place of the dumbbell. Take the bench press for example. Rather than bench with two hands, you will place your hand in the middle of the barbell and bench with one arm. The same applies to the biceps curl(see above).

Therefore, any exercise you would normally perform one arm dumbbell curls with, switch to the utilization of a barbell. This will tear your muscles apart like no other variation, and it will also vastly enhance your strength due to severe nervous system shock.

The 1-10 system

Imagine the most excruciating pain known to man, multiply it exponentially, and you have the 1-10 system. Forged in the fires of yester yore, this absolute blitz will force any muscle group into immediate growth. Nothing is more effective!

- 1: Pick an exercise, such as the barbell curl and thoroughly warm up as if you were going to test your one rep max.
- 2: Perform your one rep max
- 3: Strip just enough weight immediately afterwards so as to allow yourself to eek out an additional two repetitions
- 4: Strip so as to allow yourself only three repetitions
- 5: Repeat successive strips until you reach a set which allows you to get 10 repetitions.

Thus, the total amount of sets will equal 10, the rest between sets will be only long enough to strip the weight, and the sum of repetitions will be 55 in number. Why does this system work so well? The answer is that it forces the body to recruit a maximal amount of muscle fibers. There is a concept known as "maximal motor unit recruitment." The body recruits as many muscle fibers as it possible can, when forced to. When failure is reached, for that moment maximal motor unit recruitment has occurred. The 1-10 system forces the athlete to reach such a stage 10 successive times. Brutality is the only word to describe such a concept.

Tapering For Accelerated Gains

I make it a priority to analyze as many athletic activities as is possible. As a consequence I find many principles from these various disciplines transfer rather nicely to the sport of "hypertrophy at all costs." One such concept that is prevalent in almost all sports is that of the taper. Tapering can be defined as follows:

The Systematic decrease in overload to facilitate a physiological Fitness Peak(6). Also known as a regeneration cycle.

Recently much study has gone into this process. For example Trappe et. al. in the Journal of Medicine and Science in Sports Exercise, tested swimmers response to such a method. Here is the opening of their dissertation

PURPOSE: To examine the changes in whole muscle function and single cell contractile properties of Type I and II muscle fibers from the deltoid muscle of highly trained swimmers before and after a 21-d reduction in training volume (taper)(6).

Trappe and fellow scientists tested the effect on skeletal muscle before and after a 21 day taper. The results are as follows:

1. Whole muscle power increased ($P < 0.05$) 17% and 13% on the swim bench and swim power tests, respectively.
2. Swim times improved by 4%
3. There was no change in Type I fiber diameter, whereas Type IIa fibers were 11% larger ($P < 0.05$) after taper.
4. Peak force (P_0) of the Type I fibers was unaffected by the taper but increased ($P < 0.05$) from 0.63 ± 0.02 to 0.82 ± 0.05 mN in the IIa fibers.

5. Shortening velocity (V_0) was 32% and 67% faster ($P < 0.05$) in the Type I and IIa fibers, respectively.
6. When power was normalized for cell size, the power was still elevated twofold (6).

Quite tremendous indeed. They conclude the following:

These data suggest that tapering induces alterations in the contractile properties of single muscle fibers. Further, it appears that the Type IIa fibers are more affected than the Type I fibers by the taper. The increased size, strength, velocity, and power of the IIa fibers may be responsible for the improvements in whole muscle strength and power after the taper(6).

With such results, one could easily conclude that a permanent underload would be optimal. However such thoughts are short sighted, and not based on the concept of a year long training cycle. The whole point of tapering is to cut back on training, so as to allow the body to completely regenerate from previous **hardcore training**(26). For example, in the Journal of Sports Medicine, Graves et. al tested a much longer taper, which lasted 12 total weeks, in which he showed a marked decrease in size and strength of the participants. Results such as this have been confirmed in other scientific journals(14) . Therefore we must note the following:

Firstly, the swimmers above were pounding themselves pre-taper. The regeneration phase allowed their body's ample time to recover from such sessions, and the results were obvious. Much of them however, were due to the fact that the brutally trained muscles of these athletes had adapted so well to intense training, that they had a greater ability to store nutrients. This is known as sarcoplasmic hypertrophy. The sarcoplasm being the cellular environment. Due to the muscles conditioning, they simple had a greater opportunity to fill with such substances as glycogen, as well as other nutrients which would enhance size.

From the above studies we realize that a planned taper can certainly improve performance, the key is how to incorporate it. First, as I have stated, the use of this method should follow elevated training. This is confirmed by Hakkinen et. al in the Journal of Clinical Physiology, in which he has similar conclusions as myself on the subject(15). In their experiment, they had strength athletes train full out for two weeks, followed by a one week taper. The combination yielded notable results in strength. The entire concept of cycling workout intensities has seen immense popularity among physiologists (8, 26, 27). It is also interesting to note that many will shorten this concept into smaller miniature cycles(see cliff hanger as I utilized this pattern myself)(38, 39). I.E. Two hardcore training sessions followed by a single taper. I intend on covering the subject of cycling in the most extreme depth imaginable, shortly in our monthly publication. I will reveal incredible methods, that will blow you away.

For now, recognize that if you have hit a wall, a regeneration cycle can actually improve your gains. Dr. Mujika in the Journal of Sports Medicine gives an excellent summary of how to apply the taper

The taper is a progressive nonlinear reduction of the training load during a variable period of time, in an attempt to reduce the physiological and psychological stress of daily training and optimize sports performance. The aim of the taper should be to

minimize accumulated fatigue without compromising adaptations. This is best achieved by maintaining training intensity, reducing the training volume (up to 60-90%) and slightly reducing training frequency (no more than 20%). The optimal duration of the taper ranges between 4 and more than 28 d (29).

According to the journal of strength and conditioning, strength athletes are in most danger of losing gains the longer the taper continues(0). Thus, It may be wise to lower the window for those who train with weights from 4-14 instead of 4-28 days on a taper. Finally, tapers provide two benefits

1. During the regeneration phase, the body is able to fully recover and adapt, and subsequently grow if an optimal tapering window is utilized.
2. When the athlete re-steps his or her training back up, the body is once again shocked out of homeostasis and forced to adapt to the enhanced load. It is a very nice manipulation of the " confusion principle "

Reverse Pre-Fatigue

The pre-fatigue method, is based on several factors. In its simplified form it requires the athlete to isolate a larger muscle group before hitting it with a compound movement. By implementing this, smaller muscle groups will not fail before the larger have had enough time to be fully exhausted.

Reverse Exhaustion takes an alternate route. You begin by isolating a smaller body part, and then blast it with a compound movement! For example, if you blast your biceps with barbell curls the muscle will be thoroughly fatigued. You would then proceed to continue its annihilation by performing close grip pull-ups.

I am also an advocate of RPF supersets. Try this the next time you work your forearm flexors:

1. Perform Seated barbell wrist curls to failure
2. Upon cessation, stand and perform barbell curls to failure
3. At this stage, your forearms will be pumped completely full of blood, now walk over to the chin station and perform close grip pull-ups.

It is important to note that the fatigued state of the smaller muscle will not afford the athlete the ability to fully stimulate their larger counter parts(i.e. the latisimus dorsi on pull-ups). That is not the point however. Rather, it is to maintain a maximal load on the body part, and compound movements allot this. What it will do is bring fresh blood to those other body parts and enhance protein synthesis (37, 38, 39h). Therefore it may be a good idea to train the larger body part in the morning, and the smaller at night. This way the larger gets a second dose of blood after its morning session. Such a concept is extremely valid scientifically. For example, Sayers et. al compared a lighter training session(active recovery) compared to pure rest. Eight subjects rested after a taxing elbow flexor workout, while Nine performed a lighter training session to aid recovery. The results showed that Strength recovery was better after light exercise when compared with just rest(34). This study confirms, that even if you do not perform split volume training, that a light training session while the muscle is recovering can be very beneficial.

The Single-Rep System

What do you believe is responsible for muscle tone, and or your ability to pose aside from body fat? The answer is twofold. First we need to define two terms.

Intrinsic - Originating and included wholly within an organ or part

Therefore, muscle cells, tissue, and the nutrients which permeate these aspects of a whole muscle combined are responsible for *intrinsic tone*.

Extrinsic - originating outside a part and acting upon the part as a whole

Dr. Hnik states it this way

"muscle tone" comprises at least two mechanisms: a) reflex, neurogenic ("extrinsic") tone which is graded by reflex pathways and mediated by action potentials, and b) resting, myogenic ("intrinsic") tone which is not mediated by conducted action potentials, but is dependent upon local conditions in the muscle and is given by the number of sarcomeres and their mean length(17).

Note: Study after study has confirmed that emphasizing eccentric training, and movements which take advantage of the stretch portion of an exercise, such as the preacher curl, will in turn add sarcomeres in series, a significant aspect of intrinsic tone(30, 9).

Extrinsic tone is therefore related to muscular innervation(i). In other words, your nervous system is responsible for your ability to create tension in a muscle group. It would follow that the more proficient this system is, the greater your ability to pose will be. One way to increase this efficiency is to go through specific strength cycles, in which your entire goal is to condition the proficiency in which your muscles are innervated. Further, when you go back to regular hypertrophy training, you will have a greater ability to lift heavier loads in the normal hypertrophy range. One such system which has had quite a bit of success in enhancing one's ability to recruit motor units is the " Single-Rep System. "

1. You will begin with a proper warm up. In order to perform this program you will need to know your one repetition maximum(the total amount of weight you could possible lift for 1 all out exertion).
2. Load the bar up with 94 percent of this maximum weight. For example, lets assume that your max bench press is 300 pounds. 94 percent of this would be 282 pounds.
3. Perform one repetition and rack the weight
4. Rest exactly 70 seconds
5. Perform one repetition and rack the weight
6. Rest exactly 70 seconds continue this pattern until you have performed exactly 10 sets of one repetition a piece.

Recover for 5-7 days

After recovery, you will go back to the exact same weight you lifted the previous week, however this time you will attempt to perform two repetitions per set. You will

again recover for 5-7 days, and attempt to add two more the following week. Continue until you cannot add at least one rep, and return to normal training.

The above program will yield marked results in strength and hypertrophy of fast twitch IIB fibers.

Condensation Overload

Now here's an interesting topic. Overload applied to the issue of time. Condensation refers to the process of calculating your total work output in a session, and compacting it into a shorter period of time. As a shock, it works quite well. The steps are simple

1. Carefully analyze a particular workout. This calls for the athlete to document his or her exact workout protocol. Of prime importance are exact rest periods. I recommend documenting this over 2-3 total workouts. You must know with a certainty what your strength and endurance levels are over a specified time period! Meaning if you can squat 400 for 10, 8, 6 repetitions for three sets respectively, you will need to write down the rest periods between those sets. I.E. 3 minutes per set.
2. Once this has been documented, you will subsequently perform the same workout, but cut the rest periods in half. You will continue training at this level until you can perform the same amount of work(force x's distance), in half the amount of time! That is the process of condensation

When this is finished, you will find that your strength has increased as well as the overall size of your musculature.

The Zane Blitz

From 1977-1979 an era existed which historically is known as "*The Reign of Zane*." He has been regarded as the epitome of classic sculpture, and a master of symmetry. But what was the former Mr. Olympia's secret? In his book entitled: "Frank Zane - Mind, Body, and Spirit, he notes in his journal's an interesting conclusion:



" Over the years I've come to the conclusion my body is sore whether I train or not. This is no mere illusion no matter what time of year, cold or hot might as well train anyway and since I need to shower everyday at least with weight training I'll build my body this way and pain can be voluntary(40). "

Frank Zane 3 Time Mr. Olympia

What is this method you ask? Allow me to explain.

Zane's Purpose: To bring a body part which lags behind others up as quickly as possible

Method: Two Week's of pure, endless bombardment of the target muscle group

Steps

1. Choose specified body part
2. On Day One Train the muscle with a total of 25 sets
3. On Day Two Train the muscle with a total of 15 sets
4. On Day Three Train the muscle with a total of 10 sets
5. Rest On Day Four, you know the drill - Catch up with past issues of Hyperplasia Magazine
6. On Day Five Train the muscle with a total of 25 sets
7. On Day Six Train the muscle with a total of 4 sets
8. Rest Two Days
9. Repeat Seven Day Cycle Once More

The man was the three time world champion! After this split it would be a good idea to taper a few days. I prefer to split this into five different exercises when utilizing 15-25 sets. Thus, on 25 I would perform 5 Xs 5, where as with 15 I would perform 3 Xs 5. When utilizing 10 sets, three exercises will be sufficient at 4, 4, and 3 respectively. Finally, 1-2 exercises will do on day seven.

The advantage here is that it gives you an opportunity to hit every aspect of the muscle. Take legs for example. You can do numerous varieties of squats, and even use the abductor machine, which in my opinion is the most underestimated mass exercise on the market.

Observed Week point training

Observation is a key aspect in developing an optimal physique. The following calls for an analysis of movement. Next time you watch an athlete lift a weight, notice that most have a weak point in a certain aspect of each particular lift. Take the biceps curl, athletes normally when lowering the weight accelerate faster on a certain aspect then another. In other words they lack control on specified portions of the lift. The same holds true on the squat. Countless bodybuilders will control the weight at an even pace, until a specific portion of the rep, and at this point it is obvious that they can no longer control it with as much efficiency, this is usually marked again by an acceleration as gravity begins to win the battle on the weaker portion of the rep. Allow me to illustrate my point clearer. Graves et al. in the Journal of Sports medicine " *evaluated the effect of limited range of motion (ROM) variable resistance training on full ROM strength development(11)* . " These scientists performed this test on three groups as follows: " *Group A trained in a ROM limited to 120 degrees to 60 degrees of knee flexion. Group B trained in a ROM limited to 60 degrees to 0 degrees of knee flexion. Group AB trained full ROM.* " Here are their results:

" **...strength gains for the limited ROM trained groups were greater in the trained ROM than in the untrained ROM "**

We can therefore conclude that strength throughout a range of motion is can be non-uniform, and can grow in its imbalance if one portion continues to be emphasized. Moreover, studies also show that body position specificity exists. In the European Journal of Applied Physiology

Porter and colleagues compared the transfer of seated and standing strength of the anterior and posterior leg(see note) muscles and found that the transfer rate in strength was extremely lacking(20). There are numerous studies which have shown a heterogeneous(non-uniform) response in range of motion. For example, Chris Barnett, Vaughn Kippers and Peter Turner in 1995 examined the effects of different bench angles and grip widths on muscle activity. The clavicular head of the pectoralis major as well as the long head of the triceps brachii were more active when using a narrow grip vs. a wide grip on the bench press(2). Brown et al. using surface EMG recorded from the long and short heads of biceps brachii, found that the long head produced more EMG activity at the beginning phase of the lift when the muscle was at it's longest. Furthermore, it was found that the short head produced the most EMG activity at the top phase of the lift when the muscle was at it's shortest(7). Dr. Antonio in the Journal of Strength and conditioning stated that " *Within a single fiber, one can find differences in MHC isoform expression and diameter*). " Sakuma, K., A. Yamaguchi, and S. Katsuta. asked the question "Are region-specific changes in fiber types attributable to non-uniform muscle hypertrophy by overloading? " They discovered that in their experiment that type IIB fiber areas increased more in the middle and distal regions of the muscle cells they tested rather than the proximal regions (33).

Note: In anatomical terms, it is proper to refer to the calf region as the " leg " and the upper leg region as the thigh.

My point in the above is that weak points within a range of motion have been shown to be affected in all aspects of the spectrum, be it due to non uniform hypertrophy, or nervous system activity. The goal of this training method is to target those weak points for destruction. By singling out these aspects of your lift, you will expose the muscle to extreme overload, thus increasing both strength and hypertrophy rapidly! Here's how its done:

Specified Movement Weak Point Training - You will test a specific movement and your training partner will judge the aspect to be emphasized. In this sport, the negative is of extreme importance, and due to the pain zone, is normally the place to most easily identify the weakness, in addition, this aspect of the lift is performed the slowest. Your goal will be to lift the weight and lower it as you normally do. Your partner will take note at which point you have the least control of the load. For example, during the biceps curl while lowering the weight you may be fine for the first 2/3rds of the movement, but noticeably accelerate on the bottom aspect. Once this is identified, you will focus all your effort into bombarding the muscle at that point. The easiest way is to simply focus with all your might on controlling the bar at that point with absolute perfection! A second method is to lower the weight just slightly and when you reach that point control the weight with more intensity then ever.

For example, lets say the bottom aspect of the squat gives you trouble. Lessen the load slightly, and overemphasize that point in the lift. Even pause for an extra second on the bottom range of motion. Almost everyone has one aspect such as

this, and most have many. Moreover, most are aware of these weak points already. This forces you out of your **comfort zone**(24).

Specified Body Position Weak Point Training - Each of us has our personal squat stance. Additionally, most stick with this stance, while avoiding those that cause the most discomfort. For example, you may prefer close stance, toes pointed nearly forward squats, while wide stanced toes pointed out variations are avoided like the plague. Whatever your weakness is, the mission is to utilize it above all else! By making this a strength you will overload the body into an extreme state which is favorable for hypertrophy.

Static Annihilation and Step Ladder Static Climbs

Static Annihilation is touted as having the ability to harden and striate the target muscle group. It allows the athlete to focus on the aspect which is most highlighted on stage - full flexation! As a review, this method calls for the trainee to lift a weight, and hold it in a singular position for a specified amount of time, normally at the most difficult aspect of a repetition.

Static Annihilation

The following is long and excruciating and you might prefer utilizing a smith machine for complete control.

- 1.** Choose a weight that you can hold in a static position for approximately 20 seconds(you might even choose one that allows up to 30 as this calls for extreme volume)
- 2.** Again, I prefer the smith, or a power rack, as Old School highly recommends(23). Take the bench press as an illustration. You will unrack the weight, and pause at the top for a peak contraction for 10 straight seconds. When the ten seconds are up, re-rack the weight
- 3.** Rest ten seconds
- 4.** Repeat 10 second lift
- 5.** Continue alternating between rest and lift until you have reached 40 repetitions!

I can guarantee growth like you have never seen. This is a method from yesteryore, use it and prepare to explode! The main reason Old School athletes used it was muscular hardness, and posing control. Most do not realize how grueling and exhausting a posing routine is. One must over prepare for the event or run out of gas when it counts most!

Step Ladder Static Climbs

- 1.** This is similar to the above method however you will utilize several angles. Begin by holding the weight in a static position at the lower 1/3 of the rep
- 2.** rest
- 3.** Hold The weight In the middle portion of the rep
- 4.** rest, and follow this by holding it at the top 1/3 of the movement
- 5.** Continue until 30-40 repetition have been completed.

Twelve Hours Of Non-Stop Pain!

The one day method has intrigued many, but failed to be tried by most. What is it? A test of will power, its that plain and simple. Does it work?

As a shock, it actually does, and did for countless bodybuilders in the Golden age of the sport. However, extremely hardcore training such as this has fallen out of favor with most in today's field. No longer is it recommended to train until your hands tear open from gripping insanely hardcore poundages. We need to turn back the clock, and revel in twelve hours of 1960's style bodybuilding. Here's how it goes:

Diet - If you are turning back the clock, then I'd eat like that. My advice: **tear the kitchen apart all day long!** You must equip yourself with an animalistic mentality!

Training Style I - Body part of Your Choice

1. Perform Three Total sets at 6-8 repetitions
2. Rest 30 minutes
3. Perform Three Total sets at 10-12 repetitions
4. Rest 30 minutes and begin again
5. Repeat until you have reached 72 sets

Training Style 2 - Example - Arms

Simply cut the volume in half for a total of 36 sets, with one hour rest periods between sets.

Unconventional? Indeed it is, but building a body that causes eyes to pop out every time you are viewed is an equally unconventional goal. This of course should be used sparingly and on a bulk.

Final Thoughts



As you soared through time today, what did you notice about the experience? I think the conclusion is quite simple:

Hippocrates, was indeed hardcore. Remember that next time you battle the iron.

Yours In Sport

Jacob Wilson

President Abcbodybuilding / Hyperplasia The Magazine

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