

## Chapter 1 : body by science | Corporate Warrior

*Body By Science Workout With Free Weights This is the more traditional free weight version of the Body by Science Big 5 Workout. If you already work with free weights, prefer them, or simply don't have access to machines, use this workout.*

It is the best starting point and a ideal fundament to stimulate all of the metabolic benefits necessary to optimize human health and fitness. You can do the workout with machines or as a free weight option. However given that it is basically a resistance training, which means that the goal of your training is a point where you can no longer produce enough force to lift the resistance, the machine option is the better choice. The Exercises The program consists exclusively of compound exercises, that means that they involve rotation around several joint axes and therefore involve also several muscular groups per exercise. Let them ride neutrally in the natural plane along which they tend to want to move – tracking in line with your hands, wrists and shoulder. Chest Press Upper Body Push Start the movement with plane of your palms at the front of your armpits, which means that the arms should be kept at a degree angle to your body. Concentrate on keeping your shoulders tucked down as you perform this exercise important! Pulldown Have your arms in front of you, not out to the sides, and use an underhand grip, with your hands a little narrower than shoulder-width apart. This grip is preferred because it provides a slightly greater range of motion. From a position in which your arms are fully extended above your head, pull the handles or bar down to the top of your chest. Hold the concentration for three to five seconds before allowing your arms to return up to the straight position. Overhead Press It is important to move your arms overhead with your hand in front of you, rather than out to the sides, ideally with a parallel grip palms facing each other. Leg Press The machine should be preset so that when you are seated in the machine in the flexed or tucked position, your thighs are perpendicular to the ceiling. Push your legs slowly and smoothly out to the point just short of lockout. From this position perform a slow transition, or reverse of direction, with your legs now bending until they have returned to the starting position. The whole movement should be a fluid, smooth and circular motion. In a machine in which you are standing: Your feet should be shoulder-width apart, and your back should be straight. Slowly bend your knees, keeping you back straight, until the bar on your shoulders lightly touches the weight stack. Descend with control, not rapidly. In the video below you can get an impression of all movements and how intense it should be. The movements are shown by McGuff himself. The Rep Speed – How slowly? All repetitions have to be made slowly. Your goal is not simply moving a weight from point A to point B, but rather the inroading, or weakening, of muscle. In addition to building more strength, training with a more controlled cadence significantly reduces the risk of injury. The weight should be moved as slowly as you possibly can without the movement degenerating into a series of starts and stops. I found a 5 second cadence fine, that means 5 seconds up and 5 seconds down. Depending on the equipment you are using this can also be 10 or even 15 seconds. It can vary because some machines have a difficult start but a easy finish position and therefore the cadence can also vary in the up and down part. A rule of thumb is that the move should be as slowly as possibly and without turning into a stuttering, stop-and-start scenario, this can vary from exercise to exercise. However in this workout we time the duration of the set from the moment it begins until the moment muscular failure is reached. It is much more meaningful than just the repetitions. For example if you make 6 reps in exercise A with a TUL of 1 minute and 30 seconds and in the next workout you make again 6 reps in exercise A but with a TUL of 1 minute and 40 seconds you actually have a improvement of 10 seconds which would otherwise be missed. The TUL to achieve is about 90 seconds. If you find that you have misjudged the resistance you should be using and are performing the exercise for too long more than ninety seconds , keep going until you hit positive failure, and increase the weight by approx. Frequency Once every seven days is an excellent frequency if you are going to true failure and not just to the level of toleration of discomfort. If you have difficulty with progression, that is an early marker that you need to start inserting more recovery days, because you are now accumulating enough strength to produce enough of a workload that it is difficult for you to recover at that particular frequency. When to Change the Program You should stay on

this program from four to twelve weeks, depending on how you are progressing.

**Chapter 2 : Body By Science Review and Big 5 Workout PDFs**

*McGuff and Little outline two Body By Science basic full body training routines: The Big 3 and The Big 5. The Big 3 consists of pull-down, chest press and leg press. The Big 5 adds the overhead press and rowing.*

When I read their myth-busting book, I was skeptical of many of their claims, despite the evidence they presented. I had a particularly hard time believing the claim that training frequency could be significantly reduced with minimal sacrifice in results. I read scientific papers every day and I have a finely-tuned and well-trained B. So I went looking. Not on this topic, anyway; there are definitely some other problems with the book. McGuff and Little cited 4 studies and I easily found 5 more, and scanned several others. The results were clear in every case, and I found no studies contradicting their position. Every available experiment shows basically the same thing: All are cited below, with links. The evidence is not strong. Note, of course, that someone might well heed this evidence and still train 3 times per week – but rotating between different muscle groups. However, most people can probably achieve most or many of their strength training goals without such zealousness. A surprising reason that more is definitely not always better. Some people who go to the gym a lot may really be wasting their time – because genetics. The results of training muscle are extremely unpredictable because of individual differences in biology. For this non-trivial chunk of the population, the basic message of this article is going to be especially true. No loss at all. These data suggest that muscular strength can be maintained for up to 12 weeks with reduced training frequency. In , Graves led another study, 9 larger and more rigorous, focusing on lumbar strength in adults, and testing a wider range of frequencies: Every training frequency produced results, though somewhat less at the lowest frequency. But results were basically identical for training 1, 2 or 3 times per week! In , DeRenne 10 put 21 teenaged athletes through 12 weeks of pre-season strength training at three times per week, and then continued for another 12 weeks at reduced frequencies. They were divided into groups training 1, 2, or 3 days per week. They all did well. They all got equally stronger. A program of once or twice weekly resistance exercise achieves muscle strength gains similar to 3 days per week training in older adults. The finding is not accurately reported in Body by Science , due to what appears to be a case of mistaken identity – summarizing the wrong paper. However, training only 1 day per week was an effective means of increasing strength, even in experienced recreational weight trainers. So less was less here – but not a lot less, and that is pretty important. I imagine that a great many people would happily sacrifice some of their progress in exchange for reclaiming two trips to the gym each week. Once again, they found no difference at all. One set of exercises performed once weekly to muscle fatigue improved strength as well as twice a week in the older adult. Our results provide information that will assist in designing strength-training programmes that are more time and cost efficient in producing health and fitness benefits for older adults. These results indicate that performing a single set of the leg press once or twice per week results in statistically similar strength gains in untrained women. Both groups increased lean tissue mass 2. These results suggest that the volume of resistance training may be more important than frequency in developing muscle mass and strength in men and women initiating a resistance training program. All of this data is remarkably consistent. I simply could not find any research showing that twice as often is twice as good, let alone three times as often being three times as good. How strange for me – studying health care for injuries and pain problems, the research is never unanimous. This is most unusual! Krieger on sets Most of the evidence above is about training frequency – how often you go to the gym, how much time you allow for recovery between visits. Do you do one set of leg presses? Red set, blue set? Every set takes almost as long as the last. If you could get decent results from one set, it would be a big deal. Carpinelli, a critic of much exercise science, did not like this paper , but Krieger defended himself persuasively on his blog, Weightology. In and , James Krieger published important reviews of the above studies and more. Specifically, he looked very, very carefully at the effect of the number of sets on both strength 20 and muscle growth, 21 both showing basically the same thing. Which just keeps piling on. State of the science as of – and the last word? The only results that were statistically significant show an obviously modest effect: Which is exactly consistent with the point of this article. And this is undoubtedly why, when

summarizing his results in a blog post , Dr. Performing less than 5 weekly sets per muscle produced an average hypertrophic gain of 5. So if you are time-pressed and not concerned about achieving the upper limits of your muscular potential, it should be heartening to know that you can build an impressive physique without spending a lot of time in the gym. I believe the only safe conclusion to draw from the data is the one based on the only statistically significant result: The less-is-not-less theme you see in the research above continues as you expand the search to other variables in strength training. Is this the best evidence the American College of Sports Medicine and the National Strength and Conditioning Association can produce to substantiate their more-is-better philosophy? The NSCA is disingenuous at best, editorially incompetent at worst. Shame on the editors. Shame on the NSCA. Shame on the ACSM. That was quite a while ago, but nothing much has improved since then, according to Carpinelli. Because ACSM Position Stands are so bereft of any science and apparently not open to criticism, there is very little expectation that the ACSM or its Position Stands will gain any respect from those who carefully read the studies and evaluate all the evidence. My favourite excerpt from the conclusion is this excellent observation: The complex resistance training recommendations are based on the unsubstantiated opinion that the obsessive manipulation and specific combinations of training variables such as loading amount of resistance , the number of repetitions, number of sets, interset rest intervals, repetition duration, time under load, frequency of exercise, modality of exercise, order of exercise, and exercise selection single or multiple joint results in significantly different specific outcomes. Most resistance training studies do not support that opinion. Trainees would be required to spend a minimum of 20 hours per week performing resistance exercise; that is, approximately five hours a day four times per week. This is really astute stuff. Obviously there is something wrong with official recommendations that require hopelessly impractical dedication to follow. This reminds me of the common example of nutritional serving recommendations: How much are you really getting out of that extra half hour on the StairMaster? Have you ever thought that conventional exercise regimens have a diminishing returns problem? That it seems to take an enormous amount of effort for relatively little additional benefit? How do you know how much is enough? The theme of efficiency in exercise has continued and expanded with new cardio science. They found that only a few second sprints on a stationary bike are intense but quick and only twice per week may be nearly as effective at preventing disease as much more time-intensive traditional cardio exercise programs. This is both a physiologically important observation and potentially useful as it highlights a preventative intervention that could logically be implemented as an early strategy to prevent age related development of cardiovascular disease. If true, it should change lives. And the researchers were well aware of this: The study is noteworthy because the encouraging benefits could be halved and still be at least noteworthy: The point is not that this research proves that sprints can replace tedious cardio although that is a possibility but that slow cardio has a diminishing returns problem: It has many health benefits especially weight loss, and related it reduces the risk of metabolic syndrome a set of biological dysfunctions which is strongly linked to poor fitness, obesity, aging and pain too, by the way. Muscle mass is metabolically expensive. It costs a few calories per hour. More of it will modestly increase your basal metabolic rate BMR your base rate of calorie burn. Reduced muscle mass and BMR with aging is one reason people tend to get fatter over the years. A higher BMR can help tip things back in your favour. And you can get a higher BMR by building some more muscle. Both the workouts themselves burn calories though they do , and the extra muscle: That number is probably a fair bit bigger for recovering muscle. Muscle recovery is more metabolically expensive. Therefore, the more muscle you have, the more calories you will burn after working out. You would need a lot of muscle for it to make a major difference. Calorie restriction is still the trump factor in weight loss the first thing you have to get right but muscle mass is in the equation. Body by Science does a good job of presenting all of this science as well. Strength training may even be great for aerobic fitness What if it was just as good for your aerobic fitness to lift weights as to run? This unproved possibility is yet another reason to work with weights even more bang for your buck, perhaps. A paper makes a detailed basic science case that relatively brief, intense doses of muscular training may actually be able to build cardiovascular fitness about as well as steady-state aerobic exercise like, say, running. Why, the authors of this paper!

### Chapter 3 : Strength Training Frequency: Less Is More Than Enough

*In Body By Science, bodybuilding powerhouse John Little teams up with fitness medicine expert Dr. Doug McGuff to present a scientifically proven formula for maximizing muscle development in just 12 minutes a week. Backed by rigorous research, the authors prescribe a weekly high-intensity program for increasing strength, revving metabolism, and.*

To view it, [click here](#). BY FAR the best single book for getting on the right path toward exercise. This is one hefty book on information going off of real world results and science based studies. I personally have searched high in low for a lot of information that is present in this book and ending mostly looking at studies and trials on exercise. So for me most the information in the book I already had a very good understanding at least on most of the inner workings of metabolism and intensity. First thing to consider is intensity, which is the main focus of the book, the higher the intensity the better. Second being recovery, without recovery you put your body into a higher stress state as well as creating a larger inroad muscle damage than the body can repair. Third it covers a huge range of benefits for become healthy by training this way. It also covers other things like elderly, losing body fat, building muscle, genetics, and examples of why most exercise that people do is harmful. First thing that I want to highlight because it brought together everything I was doing wrong was fat loss. What most people think of fat loss is they have to burn it off with steady state exercise exercise that is repetitive but low intensity for long periods of time. Also people believe in the restricting calories which is a closer bet on losing fat. So first lets look at burning off calories with steady state exercise, with say a step machine that counts your calories burned gives a read of calories burned for 1 hour on the machine, which is actually closer to or even less depending on your weight and muscle mass this is why the machine asks weight height and a number of other factors because it bases it off metabolism. What happens is the steady state is not intense enough to stimulate higher orders of muscle so the body starts eating away at them because they are perceived as "dead weight". Now what happens is you can easy loss 5 pounds of muscle doing steady state exercise and even more if you are stress and do more exercise to burn more fat. So why is this important? It is important because muscle mass is what is burning the energy, a single pound of muscle burns 50 to calories a day by just being there so that 5 pounds of muscle lost means or increase of calories that you would have to burn off extra. So now you are already under in numbers for burning calories and will start to store more calories. So what is more important is to put more muscle on and restrict the calories. Second part is the restricting calories can also slow metabolism if it is not done properly such as not drinking enough water or working out properly to stimulate anabolic metabolism to develop muscle. All of this is really outlined in the chapter fat loss and is an interesting read. So coming full circle my problem was working out for 2 or 3 hours a day to burn fat while not restricting my calories. So I lost muscle mass and put more body fat on and became really unhealthy that way even though I was trying to do the opposite. First with the weight lifting they do go into the degrees of isolated movements to protect joints and isolated muscle development for strength. I am not condemning weight lifting at all but I believe master of ones body weight should come first. There is not miracle "thing" you can take that will come anywhere close compared to HIT. But there are somethings that can enhance recovery through increasing anabolic metabolism if taken properly. One example would be non denatured whey protein isolate which I get from nutrabilio. In truth most products fall very short of what they advertise so in truth aside from protein most everything else should be avoided. A last note about steady state exercise. When you start working out say you start trying to run but you are so out of shape that you can barely go 10 yards without stopping and you work your way all the way up to running a mile a day. Through that period of time you were at a very high intensity so you would see all the results you would expect from a high intensity training. But say after you got to a put of running a mile you started going 2 miles or 3, 4, 5, or whatever amount of miles you are no longer pushing your muscles if you are just "putting in the time" you are now doing steady state exercise. This is were people notice they stop losing weight and hit that "wall". They might change it up and see results again till they become steady state again and so on. This applies basically ALL workouts that are popular today. By far the worst is woman workout stuff because it starts at steady state

so they just loss muscle mass and start gaining fat. This also applies to people that say that their job is like a workout, which in truth I guess it is but one that is making you loss muscle and put on fat. I have seen this myself as I use to work as a carpenter even though we were doing physical demanding work we never pushed to a high level intensity even though we got to the point of exhaustion from the heat of the Florida sun and busting ass to get the job done. From just looking at the other workers they were all overweight and broken men so to say with pain throughout their body as well as overall weakness in a lot of areas. A last LAST note is women Something that is covered in the book is that most men have no way of becoming bodybuilder size, reason why they think they can is because it is advertised that anyone can become HUGE by lifting heavy weights where if it can happen with anyone than it can happen with woman to. Since this is not true in any manner there is no reason not to put for high intensity to become healthy and strong while losing the body fat.

**Chapter 4 : Body By Science High Intensity Training Review: My 9 Month Experiment**

*This time I am going to experiment a bit with (semi) free weights. Semi, because for the Bench press and Squats I am going to use the Smith rack.*

Full body workouts build muscle fast Source Use Full-Body Workouts to Build Muscle Mass If you want to build muscle mass, there are hundreds of different training programs you could choose from to help you achieve that goal. This is especially true for those who are just starting out. But the only real reason for this is that this is what all the top bodybuilders do. However, what works for top bodybuilders may not work for the rest of us. This is because competitive bodybuilders take a lot of steroids to enhance their muscle growth. They also have really great genetics. And on top of this, they are very near their limits in terms of how much muscle they can put on. So they need a very large amount of volume and intensity in order to stimulate further growth. And the only way they can achieve this is to use body part splits. But if you are natural, genetically average, and simply want to put on pounds of muscle as quickly as possible, a full-body workout is the best way to go. Full-body workouts are the best way to build muscle because they allow you to train all your major muscle groups more often. This, of course, means you get more frequent growth stimulation, which leads to greater muscle growth over time - provided you can recover from it. Another reason this type of training works so well is that the focus of your workouts tends to be on compound exercises. This is because compound exercises enable you to train more total muscle tissue in less time, so you can work your whole body quickly and efficiently. Compound exercises also produce a much higher level of hormonal response than isolation exercises. And this again causes more muscle growth. So a full-body workout routine can pack on muscle more quickly than anything else, provided that you know how to structure it in the right way. The Best Full-Body Workout All you really need is a squat, lunge or deadlift variation, an upper-body push, and an upper-body pull. Do sets of reps. Instead, alternate two or even three, if you are more advanced different routines over the course of the week. Your workouts should not be too long. A big mistake many people make is doing too many exercises. You can work your whole body very well with just three or four exercises. And six is the most you should do. Doing more than this will only make it more difficult for you to recover, and this will limit your gains. All you really need for an effective full-body workout is a squat, lunge or deadlift variation, an upper-body push, and an upper-body pull. As an example, a simple, but highly effective routine might look something like this:

### Chapter 5 : The Big-Five Workout Program | [blog.quintoapp.com](http://blog.quintoapp.com) - Notes

*Doug lives in South Carolina and is the co-author of Body by Science, owner of Ultimate Exercise gym, [blog.quintoapp.com](http://blog.quintoapp.com) and [blog.quintoapp.com](http://blog.quintoapp.com), and a full-time ER Room Physician. Doug is one of the world's leading experts in High Intensity Strength Training and works tirelessly to help people .*

Losing excess fat and cellulite without starving yourself or endless exercise! Receiving compliments from friends, family and co-workers about how great you look! Lowering your blood pressure naturally without harmful drugs! Regulating your blood sugar levels naturally without harmful drugs! Lowering your triglycerides naturally without harmful drugs! Developing a shield against heart disease without harmful drugs! Developing a shield against cancer without harmful drugs! Looking 10, 15 even 20 years younger without going under the knife! Having an increased sex-drive naturally without harmful drugs! Having boundless energy like you did when you were 18 years old without stimulants! Too many other health benefits to mention! Not only are many of these diet plans, pills and potions worthless and ineffective based on science, they could be hazardous to your health! Here was someone going against everything we have been told by the medical establishment, the government and the FDA about how to be healthy. Just take a look at the deplorable state of our health today. Adult obesity rates rose in 31 states last year, 22 states experienced an increase for the second year in a row, and no state had a rate decrease. Obesity lurks behind several serious illnesses, including type 2 diabetes, heart disease and some cancers. According to the new report, rates of adult obesity exceed 25 percent in 19 states, up from 14 states last year and 9 in In , no state had an adult obesity rate exceeding 20 percent. Diseases that used to be considered adult illnesses like type 2 and high blood pressure are becoming increasingly common among children. Dramatic boost in energy level Most of us have been following what we have told, eat more fruits and vegetables, a low fat diet, exercise more and the results continue to get worse and worse. I was blown away with with the science I heard and read. He has also studied biochemistry and physiology. Electrical engineering is an exact science. His nutritional discoveries and practical applications through Life-Systems Engineering are unprecedented. No more sugar cravings. Calls this program the missing link Brian went to the Houston Academy of Medicine-Texas Medical Center Library “ with over , monographs and 1, journals on-line, considered to be one of the best in the country. He spent long hours studying everything he could find from leading medical textbooks and medical journals. He avoided reports and articles based on opinion as well as those that might have been biased or inherently incomplete or inconclusive, or stating statistically incorrect recommendations. Being schooled in statistics, Brian can quickly determine which experiments and studies have been correctly analyzed and which conclusions are incorrect. Unfortunately, most studies are improperly performed and their stated conclusions are incorrect and that is why recommendations are frequently reversed years later. Early in his research Brian discovered that due to modern growing methods and food processing, essential nutrients were missing from our food. He researched these nutrients intensely, then tried to find a way to get enough of them either in food or supplements, but had little success. No one was formulating and manufacturing the nutrients we need in the proper bio-available form. Not only are our foods missing essential nutrients, but the foods recommended for better health are often more harmful than good. In formulating his nutritional recommendations, Brian often relies on complex systems analysis tools, which emphasize the entire system and not isolated effects or results. Borrowing from his MIT engineering background, this systems analysis allows Brian to view the issues without the subjective bias that years of conventional medical training often imposes on even the most open-minded of doctors and nutritionists. This science rarely makes it to the popular press, radio, or television.

**Chapter 6 : Body By Science Book Review**

*The Body by Scienceâ„¢ program cuts through all the marketing hype and empty promises to give you the guaranteed weight loss and health results you need, want, desire and deserve. Brian's intense research is still going on to this day!*

Does the science they cite support them? In this review I will show that in fact the science they cite does not support some of their specific claims regarding exercise volume and frequency. Body By Science Key Claims McGuff and Little claim that exercise must be performed extremely slowly to prevent traumatic joint injury, and yet also that just one set of exercise lasting minutes does so much damage to a muscle that most if not all people need at least 7 days to recover from a single bout. Here I will review those studies. It should be obvious that this is not ordinary resistance exercise. This is high force eccentric exercise of an unusual volume, namely a total of 70 maximal eccentric actions! Thus, this study is not informative about what happens to muscle after a normal training session, and does not support the claim that one needs at least 7 days to recover from a normal training session. Clarkson and Nosaka did find that this extreme eccentric protocol resulted in muscle damage and inflammation, and that the muscles did not recover their pretrial strength even after 10 days of recovery without any exercise. This adaptation could also be produced when the first exercise was less stressful and produced little change in the indicators of damage compared with the second exercise. More specifically, when subjects performed 24 maximal eccentric actions, this exercise produced an adaptation such that less damage than expected was observed 2 wk later when subjects performed a second exercise bout consisting of 70 eccentric actions. We have found that subjects who performed the second exercise 5 d after the first exercise already showed an adaptation response! Thus, some adaptation has already been produced before the muscle is fully restored. It only describes what happens after an extreme protocol of 70 maximal eccentric actions. On top of that, it showed that the body rapidly adapts to even this extreme protocol, such that much less damage is produced in subsequent training sessions. Study 2 The second study [2] cited by McGuff and Little in Body By Science to support their claims again involved untrained subjects who had not done any endurance or resistance training of the lower body within the 6 months preceding the study. When fatigue prevented completion of at least 7 repetitions, the resistance was reduced on subsequent sets. This again was an extreme protocol in both volume and intensity. Again, this study does not support the Body By Science claim that trained individuals will need 7 days of recovery after performance of sets of normal resistance training to failure. Study 3 The third study cited also involved untrained subjects performing either 24 or 70 maximal eccentric arm flexor actions [3]. This study in fact showed that the MAX condition did not produce the same damage nor require the same recovery period as the MAX condition. After the MAX session without prior training, isometric force did not return to baseline by day 5. However, after the MAX session isometric force returned to baseline by day 2, and after the MAX session that was performed 2 weeks after a MAX session, isometric force returned to baseline by day 1. This study therefore showed that muscles rapidly adapt even to very extreme exercise protocols, reducing recovery requirements to hours. Again this study does not support the Body By Science protocol. Study 4 The fourth study [4] again used untrained subjects who had not been involved in strength training during the year prior to the study. In other words, three maximal eccentric sets. No surprise, these untrained subjects got very sore and only slowly recovered from this extreme training session. Again we are dealing with individuals unaccustomed to training and an extreme training protocol that does not represent a normal training plan. It does not support the Body By Science claim that a trained individual needs a week or more to recover from a normal resistance training session. Study 5 The fifth study was done with rabbits [5]. This treatment imposed acute passive lengthening eccentric contractions of the maximally contracted muscles of the anterior compartment. Again, no relevance to a normal training session which might have total repetitions, and no support for the Body By Science Protocol. Study 6 The sixth study only argues that delayed onset muscle soreness DOMS is caused by inflammation [6]. If you have any experience training, you will know that DOMS usually occurs only after long layoffs or introduction of new exercises. If you train regularly you will find that DOMS is generally mild to non-existent, because you are adapted to training. Again this is an extremely large number of repetitions to perform within a single

training session with such a load. This study does not tell us anything about the effects of a training session wherein one performs only total repetitions, nor can it tell us how long it takes to recover from such a session. In short, none of these studies really supports the Body By Science claim that most people will tolerate only one set to failure once weekly for each muscle group. All of these studies have also come to the conclusion that training once a week produces all of the benefits to be had from a workout program and that training more frequently serves no additional purpose. However, the deviations from the mean were 15, 18, and 10 percent respectively, suggesting that as frequency increased, the variation in response may have decreased. Further, these were untrained elderly individuals. As such, they were not adapted or accustomed to exercise. A dosing of once weekly may produce similar results to thrice weekly in such a population. However, we know that the body adapts to all stimuli by becoming more resistant to those stimuli. Therefore, people who have become accustomed to training might be more resistant to its stimulus, and therefore need more frequent training to overcome this resistance. The Body By Science program fails to acknowledge the fundamental principle of adaptation. A person who follows a Body By Science program will be less adapted to exercise than someone who trains with greater volume and frequency. And as I will discuss below, research shows that adaptation is likely a prerequisite for hypertrophy. Frequency Study 2 This leads us to the second study, which involved experienced trainees [9]. After the study, a post-test conducted on eight out of the nine strength measures indicated that there was no statistical difference between the two groups, which led the researchers to conclude that training once per week delivered the same results as training three times per week. Larger increases in lean body mass were apparent in the 3DAY group. The findings suggest that a higher frequency of resistance training, even when volume is held constant, produces superior gains in 1RM. However, training only 1 day per week was an effective means of increasing strength, even in experienced recreational weight trainers. From a dose-response perspective, with the total volume of exercise held constant, spreading the training frequency to 3 doses per week produced superior results. So, either of these study groups performed a total of 3 sets per muscle group per week, which is 1. The researchers also concluded: Also, greater increases in strength were observed in the higher frequency group with an equal volume of training per week, suggesting that frequency is a key factor in strength adaptations. This means the 1DAY group was sustaining more muscle damage and yet less muscle growth. Below I will discuss a study which may explain why this happened: Moreover, it suggests that trained individuals will get better results in both strength and hypertrophy by training 3 days weekly than training 1 day weekly, which is consistent with what we would expect due to adaptation to the stimulus in trained individuals making increased dosing necessary. Now For An Important Observation According to McGuff and Little, resistance training is so stressful and does so much damage to muscles that people absolutely need at least 7 days recovery between sessions. Yet these two studies they themselves cited to support their protocol show both untrained and trained subjects gaining substantial strength and muscle mass training 3 times weekly with hours between training sessions. Therefore, these studies actually provide evidence that people only need hours between sessions to recover and progress. Thus, they actually provide evidence that the Body By Science Protocol may be not only unnecessary but suboptimal for trained individuals. Further, when you read beyond the abstract you find that the conclusion is acknowledged to be a misleading statistical artifact. The large standard deviations within groups indicated that some of the subjects in Group 1 once per week made larger strength gains than some of the subjects in Group 2 twice per week. Moreover, the authors add: Due to the relatively short duration of the current study, these strength gains were likely due to neural adaptations rather than muscular hypertrophy. Finally, the authors recommended caution in interpreting their results, noting: Therefore, individuals with performance related goals, such as athletes, might consider performing the leg press exercise two or more times per week. Its failure to find a statistically significant difference between training once and twice weekly was most likely due to its inclusion of only 21 subjects, not evidence that training once or twice weekly produce the same results. Moreover, like the previously discussed studies, this one proved that people make excellent progress training a muscle group twice weekly, and better than training only once weekly, which should not occur if resistance training is as stressful and the body is as fragile and limited in adaptation ability as McGuff and Little claim in Body By Science. In summary, the research that McGuff and Little cite in Body

By Science fails to provide much support for their claims that a single set of normal resistance exercise produces extreme muscle damage requiring at least a week to repair, and that one set per muscle group per session produces effects similar to multiple sets per muscle group per session, or that one training session per week produces the same results as multiple session per week. In short the studies they have cited provided no support for their protocol at all; in fact, the studies they have cited disprove their key claims about resistance training volume, frequency, and recovery. Although it has been proven that most published research findings are false and probably merely report the biases and opinions of the researchers, reviewers, and scientific community at time of publication [14], the studies on resistance training frequency and volume are rather consistent in giving the advantage to greater frequency. Consider the formation of callouses. Resistance training is akin to callous formation, NOT akin to wounds such as burns or lacerations. The body forms callouses very readily if a surface is exposed to sufficient but not excessive stress, even if the stress is daily. Further, infrequent exposure to callous forming activity results in Greater frequency results in greater callous formation. This is not rocket science. A study by Gentil et al reported that individuals with at least 12 months of training experience produced similar and minimal improvements in strength and muscle mass whether they trained twice weekly or only once weekly [15]. In fact, only the once-weekly group produced an improvement in muscle mass as measured by elbow flexor muscle thickness. However, this could have been measurement error or bias. Moreover, the once weekly group performed 6 sets of exercise for each muscle group, every set to momentary muscular failure the twice weekly group spread the same 6 sets over two training sessions, i. This is six times the volume prescribed in Body By Science, so once again this study does not provide support for the BBS protocol. Most people would probably find it easier to complete the shorter sessions performed twice weekly, versus the much longer session performed only once weekly, because longer training sessions are just harder to complete. It is difficult to determine whether this volume was excessive or necessary for the minimal improvement in muscle mass that occurred in these subjects. It is possible the subjects in both groups were doing too much exercise to progress; and also possible that they were doing too little exercise to progress. It is interesting to notice the fact that all of this research they cited suggests that muscles adapt to training very quickly so that muscle damage is no longer a concern. Does this adaptation make muscles more resistant to progression? If so, one might need more frequent stimulus, not less frequent training, as one progresses. Adaptation May Precede Hypertrophy Damas et al. Moreover, they provided evidence that muscle hypertrophy ensues only after the muscles have adapted to exercise to the extent that repeated bouts of exercise no longer cause muscle damage. In short they provided some evidence that muscles must be made accustomed to training and therefore resistant to damage before they will hypertrophy. If so, this would explain why higher training frequency has been reported more effective for hypertrophy [9, 12, 13]. Therefore, while low frequency training will provide some benefits, it may provide less progress than more frequent training, at least in some individuals. In the words of Damas et al. This has important implications for designing effective resistance training programs.

## Chapter 7 : MedCure | Donate Body to Science & No Cost Cremation

*Body by Science is a form of high intensity training, also known as HIT (not to be confused with HIIT, or high intensity interval training). The video below shows the type of workout that Body by Science involves, if you'd like to watch.*

Seated Shoulder Press Lying Hamstring curl. Yes, this now meant the whole workout was completed in 10 minutes. And yes, you do 1 session a week. Along with this, I performed a short interval sprint session every fortnight 5x 6 seconds sprint with 1-minute rest. Does HIT really work? It has now been 9 months and I have been following this protocol religiously. To answer the billion-dollar question "does it work?" I performed a HIT session on average once every 10 days over the 9 month period. The average session would have taken no more than 12 minutes. Including setup setting the weights etc. I was usually finished within 20minutes of entering the gym. Here were my key results: I lost about 4kgs of mass in this 9-month period. In fact, during this 9 month experiment I starting doing a lot of fasting , including a few 24 " 72 hour fasts. Both which took 45 days to complete and invovled extremely restrictive diets. And finally, in the last few weeks I started doing a strict nutritional ketosis diet. I personally think if I was eating to excess or even my normal diet during this 9 month period that I would have maintained and maybe even put on size. Still plenty of mass! I loved all the free time! Remember, I used to train on average x a week, each session lasting minutes. Now I had all this extra time in the week. It was great, I focused on writing articles, building my business, fixing health issues etc. I stayed lean Again, this is heavily influenced by diet. I stayed lean the whole time I was on this program. This was the biggest surprise. They had a 3 day Fittest Man of Paleo Fx competition. Beating some pretty serious athletes. There were a lot of CrossFit and obstacle racing athletes including the uber fit Ben Greenfield , and somehow I came out on top. The events that made up this competition included Deadlifts for reps, 40 yard dash sprints, leg and chest strength tests, rowing intervals, agility exercises, vertical leap, chin ups and a medicine ball throw. Remember, for the 6 months prior I had only been using machines for 15minutes a week. It may be kg or Pin 16 on the stack, for seconds. So you would aim for seconds at kg etc. Once you hit seconds, then increase the weight next session. The reason why machines trump free weights with this type of training is due to the targeted load on the muscle. However, not all machines are designed well. Likewise with machines that have sticking points, perhaps half way through the chest press it gets very hard. You find you fail here every time, but if you do get through this sticking point then you feel like you have more reps in you. Again, there is nothing you can do about this, but in an ideal world you would use a machine that has been designed to have an even force load. Nautilus and Med X machines are the best for this. However, there are some newer machines hitting the market that do an even better job. I learnt all about this revolutionary piece of equipment. The next day I spent a few extremely intense seconds on an ARX. The ARX allows you to set the tempo " no matter how hard you push the tempo is fixed. The magic of the ARX is that it pushes back against you with an perfectly matched force. The machine moves the handles or foot pads at the selected speed during the positive and negative regardless of how hard a user exerts. And even better, you can apply even more force in the eccentric phase as you are stronger in the eccentric phase of a lift. The best analogy is this " imagine a chest press machine that is designed in a way so the weight is changing in real time " every millimetre you press the weight forward, it adjusts based on your strength at the new position. Then, on the way back down eccentric it loads up even more weight and now you have to resist this weight in a controlled manner. There is even a video of someone using the ARX with a big 5 workout routine that you can see here. I did a few of these when travelling or when I wanted to train outdoors in the sun. It starts with the first exercise and only ends once you have finished the last exercise. There is no talking between sets, no watching tv or getting distracted. As I mentioned above, a total session should only take minutes. Adequate Recovery HIT sessions are brutally tough. Not only do they take the muscle to failure, they create a large amount of stress on the central nervous system " again assuming you have done it properly. You cannot expect to do these sessions multiple times a week. You can try, but your numbers will plateau and go backwards. Even attempting to do 2 sets in the same session is unwise. I hear of stories where individuals started lifting a weight that was far to heavy for them. After 45seconds they have hit failure. They then decide to redo it at a

lighter weight, again they fail within seconds. You literally get one shot at each lift. Do once session a week, and skip all other weight training sessions. To reap all the benefits, you need to do these sessions properly, and that means taking the muscle to absolute failure, which in turn means pain. But all you are doing is cheating yourself. Your previous TUL times will keep you honest, if you did 2minutes at 90kg last week, that means you are aiming to exceed that time this week. However, there were sessions when even I caved too soon, finding an excuse to stop early for example. Having someone present when doing these lifts helps. Fair enough, I was initially in the latter camp and then swung to the curious state of mind. Eventually I decided to jump in and give it a go, and the rest as they say is history. Now that I have a bit of experience with HIT training both with myself and with my clients I think that everyone could benefit from this type of training, but it may not be ideal for everyone. What do I mean? If you want to maintain strength and minimise time whether you are training for other sports or simply busy with life this is it. Simply because those sports require specific movements that need to be trained and developed. Obviously I found that there was a ton of carry over between my HIT training and deadlifting, but would I be able to go and break a personal best using this training? As for hypertrophy – could you put on muscle training this way? In fact, some of my corporate coaching clients have put on muscle while using this protocol. The training creates a stress on the muscle, it creates lactic acid build-up and fatigues the muscle fibres. All things required for growing muscle. Would it be the best way to build muscle though? However, I personally enjoy lifting big weights. There is something about it that I love. I would question whether I could continue doing HIT for a long period – the pain levels are extreme, and some sessions I went into the gym in a state of anxiety though this was true with some rowing sessions, powerlifting sessions and bodybuilding sessions , and it may get rather monotonous over time. Though I survived 9 months and only stopped because I thought up a new experiment! Finally, I think specificity is a big factor in successful training. I have recently decided to get back into competitive sports can you guess which one? But I am extremely glad I did this 9-month experiment. If you have any questions about HIT training or my experiment please post them below. Then You Might Like:

### Chapter 8 : [PDF] The Body By Science Question and Answer Book Full Online - Video Dailymotion

*Body By Science High Intensity Training Review: My 9 Month Experiment Last week I put together an article on High Intensity Super Slow Training. This is a type of strength training popularised by Doug McGuff in his book Body By Science, it involves minutes of training a week, total.*

It presents a ludicrously simple workout routine, along with the well-documented and highly persuasive science to back it up! Weight training is one of the best methods of strength training! If you want to start weight training safely and effectively, with the best info, diet, and routines, check out the 5 Day Beginner Weight Training Course! While BBS only came out in , this book has rapidly gained traction because of the efficiency of its workouts. It recommends working out a lot less than most other workout routines. A Short Body By Science Review McGuff and Little have worked hard to compile a stunningly compelling book about the science and most effective techniques for getting stronger and adding muscle. The science is truly impressive! In the beginning of BBS they present studies showing that for many individuals, working out 2 or 3 times a week is no better than working out once a week in terms of actual results. So they advocate once weekly workouts. McGuff and Little deserve praise for challenging the prevailing opinions of fitness gurus through methodical research. Broscience Definition from Urban Dictionary: The predominant brand of reasoning in bodybuilding circles where the anecdotal reports of jacked dudes are considered more credible than scientific research. They are extremely simple, and produce great results. Criticism The only criticism I have of BBS is the overly strong emphasis on genetic determinism found in the book. McGuff and Little place a lot of weight on genetics as the main factor behind your strength and muscle development. In my opinion genetics are certainly important, but not as important a factor as most people seem to think. And while hard work will not make up for not having Olympic-level genes, hard work can take you a lot farther than you think. During your workout you should remember these points Form Move as slowly as possible without stuttering or pausing. Do not hold your breath the valsalva maneuver. Sets Each set should be no longer than 90 seconds, and the last 30 seconds should be hell! Sets, Number of Exercises, and Rests Do 1 set of each exercise, with 5 different exercises. Rest for 30 seconds to a minute between sets. Frequency Since it takes 5 to 7 days to grow more muscle, most people should workout just once a week. Just a tiny bit of high intensity weight training each week and you can get much stronger. But machines are much safer and allow beginners to exert themselves fully without having to spend a lot of time focusing on proper form. This workout routine has space for an entire month of training, one short workout per week. You can see the schedule of one workout to your right. The downloadable PDF allows for a month of workouts, one each week. You can see an example workout to the right. Unconventional, But Effective These workout routines challenge all conventional wisdom about what a good workout should be. And yet, they work and give excellent results. The two workouts above are great for people who want the most bang for your buck in terms of time for strength gained. They also show how important it is to workout intensely, right up to the point of failure and beyond! Or even if you just want a change of pace! McGuff, Doug, and John R.

### Chapter 9 : Full text of "Body By Science"

*Ebook Body by Science: A Research Based Program for Strength Training, Body building, and Complete Fitness in 12 Minutes a Week: A Research Based Program to Get the Results You Want in 12 Minutes a Week Full.*