

---

# THE CrossFit JOURNAL

---

## Upward, Onward

Bill Starr explains how to plan strength work for maximum gains.

---

By Bill Starr

March 2012

---



Mike Warhentin/CrossFit Journal

If a program for beginners is fundamentally sound and they get in their workouts consistently and put lots of effort into them, they will make progress. This is especially true for younger athletes because their bodies are hitting growth spurts and being provided with a surplus of energy and natural hormones to aid in their quest for greater size and strength.

---

1 of 8

The very best program for beginners is one that gives equal attention to the three major muscle groups: shoulder girdle, back, and hips and legs. Each of these groups should be exercised vigorously on a primary movement, with extra work later on aimed at the smaller groups: biceps, triceps, deltoids, calves and so forth. Gains come quickly and steadily, and if the athletes are getting a sufficient amount of rest and eating wholesome foods—including high quantities of protein—the numbers climb even more rapidly.

As he perfects the form on the various exercises in his program, he becomes even stronger and can't wait to get back to the weight room for his next session. Progress is very motivational, and there are few things in life more addictive than gaining strength. This is doubly true for a young athlete who is undersized and way below the norm in overall strength.

Most self-taught beginners push each of the lifts to the limit at every workout, believing that this is the only way to stimulate the muscles and attachments so that they grow bigger and stronger. And for some time, this works well, partly because they haven't as yet mastered the technique and have not gotten strong enough to really handle any demanding numbers.

---

**I did know enough to realize that if I wanted to get stronger, I had to constantly do more work.**

---

Invariably, they hit a wall. They're stuck at using the same amounts of weight at every workout, and on some they're using less than they previously handled. Very frustrating. Fortunately, there are a great many sources of information to remedy the situation now, but when I first became interested in lifting weights, that sort of data was hard to come by.

In the mid-'50s, when a person decided he wanted to learn how to lift weights, he taught himself. This was true for myself and nearly every competitive weightlifter and bodybuilder I met during those formative years. This, for the most part, was slow going, but at the same time it served as an excellent primer for later. If someone is given



***After lifting for a time, many weightlifters hit a wall where they are stuck at the same weight, week after week.***

the answers to all his problems in the weight room without him having to do any thinking about it, he loses something in the process. Some of my contemporaries told me that they had often been stuck at the same top-end numbers for over a year before they broke out of the rut.

I knew very little about the procedure to move to a higher strength level, yet I did know enough to realize that if I wanted to get stronger, I had to constantly do more work. It just made sense to me that a muscle and the corresponding attachments have to be pushed past their normal limits in order to make them stronger and, hopefully, bigger. Like any other beginner, I wanted a fine physique to go along with my newfound strength.

So the first thing I would do when a lift was stuck at a certain level was to exercise it harder. When that didn't work—and it usually didn't—I did the exact opposite: I did less work. I reasoned that the group in question might be overtrained and cutting back might be the secret to getting it on the move again. This didn't work too well either. So my lifts remained stagnant for quite some time, although I did not get discouraged. I figured that I would come up with an answer to my situation if I kept hammering away at the weights. If I gave up, then all would be lost.

### **Weight-Room Wisdom**

Some readers may have come across this story in one of my previous articles, but it's worth repeating because it serves as a good example of how we can stumble across the solution to a puzzle if we constantly pay attention to what we're doing in the gym.



***Why is it that we can do multiple reps of a weight on one day and then are unable to even complete a single rep the next time we lift?***

At West Palm Beach A.F.B., the base gym consisted of a basketball court and some weights on a mat under an alcove off to one side. From the get-go, I believed that I had to get in three workouts a week if I wanted to make any progress. This was based on the experience that I had gained while learning the basic principles of weight training at my first duty station at Great Lakes Naval Training Center just north of Chicago. There, duties kept me from going to the gym regularly, and whenever I missed a planned workout, the weights felt a great deal heavier the next time I did train.

On Monday, Wednesday and Friday, I passed on lunch and hurried to the gym to get in my workouts. One Monday, I was feeling my oats and decided I would try to clean and jerk the standard bar and six 25s—175 lb. (I should also mention that I was the only person on base who used the gym.) I succeeded with the 175 and was elated. I left the still-loaded bar right on the mat where I had placed it after I finished the clean and jerk. I hoped someone would come in, notice it and wonder, “Who in the world lifted that much weight?”

On Wednesday, the loaded bar was exactly where I had left it. I was about to unload the bar when a young boy of about 12 or 13 came riding into the basketball court on his bike. He stopped next to me and asked, “Who lifted that?” pointing to the loaded barbell.

“I did,” I informed him with pride in my tone. He looked me over and said, “Show me.”

It was obvious that he didn’t believe me. At that point in time, I wouldn’t have believed me either.

I was hyped. I stripped the bar back down to 75 lb., did a couple of reps, then quickly worked back up to 175. For the next 20 minutes, I battled that weight. All in vain. When I cleaned it, I couldn’t jerk it. Then I was unable to even clean it. The kid shot me a shit-eating grin and rode off. I was embarrassed and completely dejected. So much so that I just left the gym, the first time I had ever cut short my workout.

For two days I stewed over what had happened, and by Friday I had worked myself into a state of determination that I was going to clean and jerk that weight if I had to stay in the gym for an hour. To my utter surprise and total delight, I made the lift easier than I had on Monday. My next emotion was confusion. How had this happened? Because I had no prior experience to draw from, I was stumped. Through the rest of my workout I thought about what had occurred, and on my walk back to the E.R. where I worked, the answer came to me.

I wasn't as strong on Wednesday because I had pushed past my normal limit on Monday. I was strong again on Friday due to the fact that I had cut short my usual session on Wednesday. What I had stumbled into was the basic premise of the heavy, light and medium system. Of course, I didn't know that such a thing existed, but I began to incorporate what little I did know into my future programs.

### Learning and Improving

What I did was make my first workout of the week the hardest and worked only my large muscles. Then at the following workout, I would do those same exercises, but



***A heavy, light and medium system for weightlifting will help you push past your plateau while giving your body time to recover.***

with less weight. I began to look forward to that lighter day. I could move faster through my routine and still have time left over to work the smaller group—for the arms, of course. After all, I was only 18. On Friday, the third workout of the week, I would use the same routine as I did on Monday and see how my body was responding on that day before I fixed the amount I would use on my final sets. I was employing intuitive training, although I didn't know that.

---

**In my ignorance, I followed my gut feelings and began shifting the various exercises around until I started to make more significant gains.**

---

It paid dividends right away, so I continued to utilize the idea even after I started incorporating more exercises into my routine. This happened at my next duty station in Iceland. For the first time, I had training partners. Just three or four, but they all brought some new ideas to the weight room. I also got my hands on some physical-fitness magazines and learned there were a great many other exercises that I had never heard of. I was particularly interested in the three Olympic lifts: overhead press, snatch, and clean and jerk. I had been doing cleans and presses, but by looking at photos I altered my form considerably.

The equipment in Iceland was similar to that at West Palm Beach, and our weight room was a converted bedroom in a barracks. At my final duty station, Sheppard A.F.B. in Wichita Falls, Texas, I was delighted to find a well-equipped weight room at the YMCA in town, which brought me face-to-face with a new problem: how do I fit all these exercises I want to do during a week into my program and still use my heavy, light and in-between idea?

Even though the heavy, light and medium system had been around since the early '30s, I had never heard or read anything about it. Later, I learned that Alan Calvert, owner of the Milo Barbell Company and the publisher and editor of *Strength Magazine*, had devised the notion that a heavy session should be followed by a lighter one, and the next workout in the sequence should be somewhere between those two workouts.



In my ignorance, I followed my gut feelings and began shifting the various exercises around until I started to make more significant gains. It was trial and error, and all the bodybuilders and competitive lifters I met during that period and even later on said that's what they did too. Well, sometimes we get lucky and come across a knowledgeable coach. When I finished my tour of duty and enrolled at Southern Methodist University, I was fortunate enough to have Sid Henry coach me. He fully understood the heavy, light and medium concept and taught me how to use it correctly. Once I did that and got excellent instruction on my technique, my lifts improved quite a bit.

Another thing I learned in my early years of training is that the body has to be continually pushed in order for it to get stronger. I found that it was close to impossible to hold my strength at a certain level for very long. If I didn't impose my will on my physical self, it slipped back, and I also learned that my body is always seeking complacency. It would much rather be lounging on a recliner swinging cold drinks and watching a ball game than be forced to do some rather brutal stunts in a hot, humid or freezing-cold weight room.

That means the heavy days have to be even heavier, which in turn has a direct bearing on the light and medium days. There are several ways to deal with the heavy, light and medium system but one thing is certain: it has to be a part of the program or that routine will not be nearly as effective.

---

### The smart athletes realize when they have entered in to a state of overtraining and quickly make some changes.

---

Over the years, I have examined countless programs sent to me by individuals and coaches of various sports (most typically football coaches because of my book *The Strongest Shall Survive*). Nearly all of them failed to utilize the heavy, light and medium concept once they move from the beginning level. In some programs I looked at, the exercises were just arbitrarily stuck in on different days of the week with little regard to order or how difficult they



***Only gifted athletes can go heavy all the time. The rest of us need to vary our workloads from workout to workout.***

were in relationship to other movements, The result was that the light day was often omitted entirely and there was no difference in the three workouts in terms of how much total weight was lifted.

Some gifted strength athletes can get away with this, but they are rare animals. Most of us cannot push our bodies this hard for very long because we will become overtrained. I know that in order to reach a higher level of strength fitness, a person must overtrain. Otherwise, how is he or she to know where his or her limits are in the weight room? But the smart athletes realize when they have entered into a state of overtraining and quickly make some changes. The problem is not overtraining per se, but rather staying in that state for an extended period of time. When that happens, progress comes to a halt, and if it continues even longer, dings and more serious injuries begin to show up on a regular basis.

The reason behind utilizing the heavy, light and medium concept is to prevent the athlete from becoming overtrained, and when used properly, it does just that. I'll begin with a basic beginner's program and work up from that.

### The Basics

A beginner's routine should be extremely simple: three exercises, one for each of the three major muscle groups (shoulder girdle, back and hips/legs), done at three workouts a week. Three days are plenty because those off days allow the body to recover from the new form of stress. Try to cheat on that and you'll hit the wall early.

Many coaches know about the heavy, light and medium system and like to have definite percentages laid out for those three sessions. Some use 85-90 percent for the medium days and as little as 75 percent for the light day. While I want my athletes to use less on the light day than what they handled on the heavy and medium workouts, I don't want the weight to be so light that it does little good. Let's say an athlete is using 200 for his heavy day on the back squat. If he goes along with the 75 percent idea, he will only handle 150 on his light day. A waste of effort. The workload on the three days does not have to be a great deal different. Just a little bit different works well and is more productive in the long run.

Percentages are OK when an individual is working up his own routine, but it's a huge pain if a coach is dealing with 40-60 athletes at the same time. I use a very simple method of determining the top-end poundages on the various lifts for the three workouts and forget about percentages. I'll use the back squat as my example.

On his heavy day, our athlete did these numbers: 135, 185, 225, 255 and 275, all for 5 reps. On his light day, he will only go up to what he handled on his third set on the heavy day: 225. He would follow this sequence: 135, 175, 195, 215 and 225, again for 5. The final set on the medium day will be the fourth set on the heavy day: 255. His increments on that day: 135, 185, 215, 235 and 255 for 5.

This method greatly simplifies the process of weight selection, and the athletes can do the calculations for the week themselves, allowing the coaches to spend more time teaching technique.



*On heavy day, it's time to load up and go big.*



***Tempting as it may be, don't overdo it on assistance work on light day.***

The reasoning behind doing just three primary movements, rather than four, five or six, is that once the athlete has perfected his form on the basic lifts—bench, squat, power clean—he can move on to other exercises more readily. This is particularly true for the power clean. Learn how to do that properly and there's no trouble picking up the form for high pulls, power snatches, full cleans and snatches, and power shrugs.

But once the form is at least good and the strength base has been established, the athlete must up his overall workload if he wants to move to the next level, which, of course, is what everyone wants to do just as soon as possible. That's when coaches and athletes get confused as to how to utilize the heavy, light and medium concept. Now instead of doing just three exercises throughout the week, an athlete will be doing other exercises for his back and shoulder girdle, and sometimes also for his legs. But not always. Some prefer to stick with the back squat as their primary hip/leg movement.

There are several upper-body exercises I insert into strength programs at this juncture: inclines, overhead presses and weighted dips. For the back, there are lots to choose from: power snatches, full snatches, full cleans,

bent-over rows, clean and snatch high pulls, shrugs, and deadlifts. The question arises as to where these exercises should be placed in the weekly program and how heavy they should be worked. At this point, the percentages are discarded and replaced with the notion that the various heavy, light and medium days are determined by three factors: degree of difficulty, amount of weight being used and total workload. While workload is a major player in the overall scheme of constantly getting stronger, I will not go into detail on that phase of training in this article. It needs more than a few pages to explain it fully.

The lifts used on the heavy day are the easiest to figure out. That's the day you will handle the most in the back squat. Because you will be able to use more weight in the flat bench than any other upper-body movement, that lift belongs on the heavy day. The exercise selected for the back will depend on whether you have decided to start doing the Olympic lifts or plan to stay with less technical exercises. If you want to improve the Olympic lifts, clean and snatch, do one on the heavy day and the other on the medium day. Or you could do deadlifts or a combination of power cleans and high pulls. In other words, you want to load up on the heavy day.

Next comes the light day, and this, strange as it may seem, is the most difficult day to get right. In nearly every program I went over, this was the day most abused. The first thing to understand once you have moved to this level is that the light day is no longer an easy day. In fact, in many ways it will be the most demanding. That's because the good mornings belong on the light day, and much less weight is used on them than the other back exercises. Yet good mornings are without any doubt the hardest exercise to do when they're done correctly. By that I mean when they're done with 50 percent of what you can back squat for 5 reps.

Plus, you will also be doing more work on your squat even though you will be using much less than you did on the heavy day. Instead of doing just 1 work set, you will graduate to 3. When an athlete reaches the point where he can squat with 400 for reps, I have him use 315 for 3 sets on his light day. Not as tough as the heavy-day workout, but it's no walk in the park either. Overhead presses fit nicely in the light day, but they, too, need to be worked diligently. You will go to limit every time you do them.

Medium day will find you back squatting once again and doing inclines and shrugs for your shoulder girdle and back. On the heavy day, the lifter will do 5 sets of 5 on the back squat, going to the absolute limit. On the medium day, he will do 3 sets of 5 and 2 sets of 3, with the final set of 3 being 5 or 10 more pounds than he handled on his last set on Monday. Let's say he did 405 x 5 on Monday, his heavy day. On Friday, he will move that to 410 or 415 for 3. Then, on the following Monday, he will do whatever he handled on the previous Friday for 5 reps. In that manner, his squat will steadily climb upward.

---

### The next step in moving to a higher strength level is to add in another day to your weekly schedule.

---

But isn't that breaking the rule? He's using more weight on the medium day than he is on the heavy day. True, but he is doing less workload-wise on Friday. That same question could be asked about doing shrugs on the medium day because more weight, by far, is handled on that exercise than any other back movement. Shrugs are a short-stroke lift and are not nearly as difficult as heavy power cleans or any other full-range exercise. I also know that after the traps have been hammered, they need a couple of days rest in order to recuperate, so putting them on the final workout of the week works well.

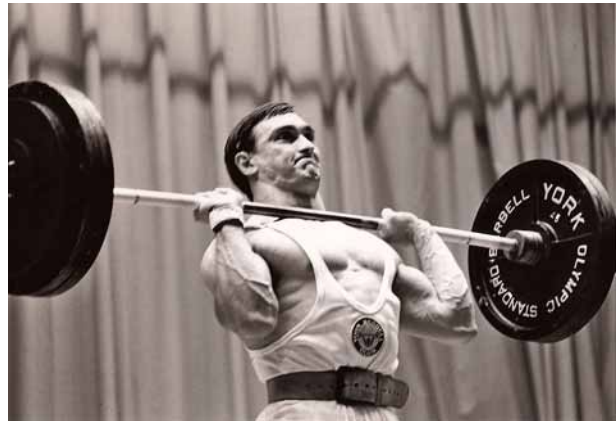
The next step in moving to a higher strength level is to add in another day to your weekly schedule. I like Tuesdays. This needs to be a light-light day, and you should be in and out of the weight room in 45 minutes. This is a day where you can hit your weaker groups or spend time doing arm exercises that you haven't been able to fit into your three-day schedule. You can also move your overhead presses to Tuesday and put inclines on Wednesday. That will open up the medium day for weighted dips. Just don't get overly ambitious on that extra day for a while. Keep the workouts short and sweet, then leave.

#### Review, Evaluate, Refocus

The main point I want to get across is that you need to constantly examine your program to make certain that you are adhering to the heavy, light and medium principle. If

you're not, make some changes so that you are. Otherwise, you're going to fall into the trap of chronic overtraining, and you're going to stop progressing. In some cases, you will even start sliding backwards. Sometimes, it's just a matter of dropping an exercise or two from your light day. One of the things that often happens is that an athlete will zip through his light day workout and have plenty of juice left. So he spends another half an hour doing bench work, which greatly ups his workload and has a negative effect on his upcoming medium day, which, in turn, affects the next heavy day. And so on and so forth.

While all this may leave you even more bewildered, just think in these terms: always follow a strenuous workout with one less demanding, and take it up a notch at the next session. The basic concept is to allow your body to recover from the stress of the harder workouts, and if you stick with the heavy, light and medium system as you get stronger and stronger, you will always be ahead of the game.



Jody Forster

#### About the Author

*Bill Starr coached at the 1968 Olympics in Mexico City, the 1970 Olympic Weightlifting World Championship in Columbus, Ohio, and the 1975 World Powerlifting Championships in Birmingham, England. He was selected as head coach of the 1969 team that competed in the Tournament of Americas in Mayaguez, Puerto Rico, where the United States won the team title, making him the first active lifter to be head coach of an international Olympic weightlifting team. Starr is the author of the books *The Strongest Shall Survive: Strength Training for Football* and *Defying Gravity*, which can be found at [The Aasgaard Company Bookstore](http://TheAasgaardCompanyBookstore.com).*