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Heavy, Light and Medium

Bill Starr explains a simple way to plan a week's worth of lifting for maximum gains.

By Bill Starr

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Knowing how to utilize the heavy, light and medium system in your strength program is perhaps one of the most important things you can do to ensure ongoing success.

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Getting stronger requires working the body's larger muscles, and the best way to do that is with compound movements.

This is certainly not a new idea. It has been around since the early '30s, when Mark Berry wrote about it in his book, *Physical Training Simplified*. Yet few people of my era had ever read his book, and the system was seldom mentioned in the few magazines that catered to weightlifters and bodybuilders.

Discovery by Accident

I began my quest to gain strength and size in the mid-'50s, right after I joined the Air Force when I was 17. At my first two duty stations, Great Lakes Naval Training Center and West Palm Beach A.F.B., I trained alone. I put together a program from what I remembered of the manual I bought mail order from George Jowett when I was in high school. With no one to guide me, I used common sense to select the exercises that would help me get bigger and stronger.

The equipment at those bases was meager to say the least: standard bar, an assortment of metal plates and two adjustable dumbbells. I realized that I needed to work

my larger muscles much harder than the smaller ones if I wanted to get stronger, so I did back squats by cleaning the weight, flipping it over to my back, squatting, then reversing the process. I did power cleans and presses and upright rows, then French presses, curls and lateral and frontal raises.

Typically, I did 3 sets of 10 because that's what I recalled from Jowett's instruction manual, and for the arm work I did 2 sets of 15. It wasn't much, but it proved to be sufficient. At the same time that I was embarking on my journey in physical culture, I was fortunate enough to have all the food I could possibly eat at my disposal. The food at the hospital mess was delicious and plentiful, and the combination of doing regular strength work—although my numbers were pitiful—and all the calories I could wolf down triggered a growth spurt. For one glorious month, I gained a pound a day, going from 130 to 180. That's heady stuff for a puny teenager to go through, so I was, naturally, hooked on weight training.

Like most beginners, I went just as heavy as I possibly could every time I trained. I thought that's how it should be, to constantly put my body to the test. I wasn't alone, as I found out later on. All the Olympic lifters I got to know after I started competing in that sport had a similar story.

As I mentioned, information just wasn't that available back then. In fact, I had trained for over two years before I saw my first muscle mag. Only a few magazine stands carried them, and you had to know where they might be if you wanted one. A far cry from how it is today. Currently, so much information is out there that it's simply confusing because there are so many conflicting opinions. If you wanted some advice on weightlifting in the '50s, there were two sources: *Strength and Health Magazine* (with Bob Hoffman at the helm) and Peary Rader's *Iron Man Magazine*.

Throughout my formative years of training and even after I started competing in Olympic lifting, I had never come across an article about the heavy, light and medium system. However, I was aware that changing how hard I worked at the three sessions a week was important to my making progress. I stumbled across it simply by accident. At West Palm Beach A.F.B., if I wanted to lift weights I had to do it from noon to one because the gym closed at 4 p.m. and I didn't get off duty till four. Absolutely nuts, but I vowed then and there that I was going to lift regardless of the obstacles, and I did just that. Giving up a delicious lunch was indeed a sacrifice.

One Monday, I was feeling extra good so I decided to try and lift the 25-lb. bar plus six 25-lb. plates—175 lb. I power-cleaned and jerked it and was quite proud of myself. It was my final exercise of that day so I left the loaded bar on the gym mat for everyone to see, although in truth I had never encountered another person as long as I had been training there.

I had stumbled into the heavy, light and medium system, yet I didn't know that at the time.



On some days, working with slightly lighter weights will help you beat your records on heavy days.

On Wednesday, I had just finished with my warm-ups: sit-ups and leg raises on the stall bars when a kid of about 13 rode his bike into the gym, which was basically a basketball court with the weight tucked under an alcove on one side. He stopped, pointed to the still-loaded barbell on the mat and asked, "Who lifted that?"

"I did," I said, feeling very full of myself.

He looked me over and said doubtfully, "Let me see you do it."

With confidence, I stripped the bar, did a warm-up set, then reloaded the bar to 175. I can't actually recall how many times I tried to clean and jerk that weight, but it was a lot. Finally, I was exhausted. The kid gave me a smirk and rode on out of the gym. I was so depressed that I grabbed my gym bag and left.

For the next two days I fumed, and when I showed up on Friday, I was determined that I would lift that weight again or die trying. Then, to my amazement, I clean and jerked it even easier than I had done on Monday. Now I was confused. Why was I strong on Monday and Friday yet weak as a cat on Wednesday? Throughout my workout, I studied on the matter and finally came to the conclusion that the difference was I did a shorter and less demanding session on Wednesday, so I had a lot of energy for the Friday workout. Mondays were always my best days because I had the entire weekend to recuperate.

I had stumbled into the heavy, light and medium system, yet I didn't know that at the time. In fact, I discounted the medium day altogether. What I began doing was not going as heavy on Wednesday as I did on Monday, and on the final session of the week I went heavy if the weights felt light and backed off if they were really taxing.

And as I learned from fellow competitors in the ensuing years, that's what they did as well. It was an intuitive process out of necessity. There were no coaches to tell us this, and no one was actively writing about it in the magazines.

That's how we learned just about everything about lifting heavy weights: trial and error, then sitting back and considering just what had been done, both pro and con.

This seldom happens currently. When a strength athlete hits a wall in his routine, he doesn't study the problem and come up with a viable solution. Rather, he seeks advice from the bounty of experts out there, via books, videos, clinics and DVDs. That's certainly much faster and easier, but at the same time it's less effective. Having to beat your head against a wall until you solve the riddle about your program is much more beneficial than having someone else come up with the answer.

The Details of Heavy, Light and Medium

I finally did learn the finer points of the heavy, light and medium system after I enrolled at S.M.U. and started training under the guidance of Sid Henry at the Downtown Dallas YMCA. When a lifter trained with Sid, he did exactly what he was told. Period. And as soon as the concept was explained to me, it made perfect sense. I've used it ever since, for my own routines and for the many athletes I have trained at collegiate and professional levels.



You can't go heavy all the time, but the heavy, light and medium system will help you balance heavy training with adequate recovery.

The system basically prevents overtraining. In the very beginning, it really isn't all that important. Whenever I start someone on a strength routine, I want him to go to limit at every session on the selected exercises. I need to find his strength levels on those movements, and from that I can teach him how to incorporate the heavy, light and medium system. It's not at all unusual for a beginner to make progress on all his lifts for the first month or six weeks because as his form gets tighter, the numbers go up.

But once the numbers on the primary lifts flatten out, I install the heavy, light and medium system into their programs. This is how it works for beginners. I start everyone on the Big Three: bench press, power clean and full squat. Others use different primary movements, such as the incline or overhead press for the shoulder girdle, and deadlifts for the back. That's fine. Just so the three major muscle groups—shoulder girdle or upper body, back, and hips and legs—all receive direct attention. I also use the incline and overhead press, but I like to start all athletes, male or female, off with the power clean. It teaches them the correct line of pull and is great for athletes of every sport because it makes them considerably stronger while enhancing several athletic attributes, such as coordination, timing, balance and quickness.

Three times a week is enough in the beginning. It's important to have those off days to allow the body to recuperate from this new form of stress. The same set and rep sequence is used at every session: 5 sets of 5. Monday is the heavy day, which means they go to limit on all three primary exercises. Wednesday is the light day, where they do less than what they did on Monday. And Friday they will handle a load somewhere in between what they lifted on Monday and Wednesday.

I never use the cookie-cutter approach. Utilize the heavy, light and medium system to make sure it fully applies to that athlete on an individual basis.



Deadlifts are a great exercise, but Bill Starr usually starts athletes on the bench press, power clean and squat.

The confusing part to many coaches and athletes is exactly how much less and where in between the light and medium days should be. Some coaches like to use very specific percentages for the three days: 100 percent for the heavy day, 70-80 percent for the light day, and 80-90 percent for the medium day.

This will work OK if the athlete is putting together a program for himself and he knows these numbers work best for him, but I don't like it for a large group of athletes. Individuals differ far too much to assume that they're all going to respond identically. I've had athletes who could handle twice the workload of teammates of the same size and experience. For them to only handle 80 percent of what they did on Monday for their light day would be a waste of time.

Heavy ... (continued)

For instance, one beginner can use 300x5 in just a few short weeks of back squatting. If he sticks with the 80 percent idea, he will just use 240 for his light day. That's much too conservative. He needs to load the bar up to 265 or 275 at least.

I've had some experienced lifters who were able to recover from heavy loads rather easily. They used only a small percentage less than what they did on their heavy day for the other two days of the week. So when setting up a program, factor recovery ability into the equation. For some beginners, a very light day is in order, while others need to push the load much higher.

In this same vein of thought, keep in mind that every athlete has some area of his body that can handle a much higher load than the other two. It may be that he has to really pull back on Wednesday for his back or he will become overtrained in that muscle group, yet he seems to have no limit on what he can handle in the squat. That's why I never use the cookie-cutter approach. Utilize

the heavy, light and medium system to make sure it fully applies to that athlete on an individual basis.

If you happen to be working with a fairly large group of athletes, here is a simple way to incorporate the heavy, light and medium system into their programs without having to spend hours calculating the percentages. I have forms printed up with the three lifts for the three training days of the week. On Monday, they work up and do their 5 sets on these exercises and record them. Our sample lifter squatted 135, 185, 225, 255 and 275 for 5 reps. On his light day, he is only going to go up to what he did on his third set on Monday—225—so his progression would look like this: 135, 175, 195, 215 and 225, again for 5 reps.

While this may seem to be very light, and it is, it serves a purpose for beginners. These relatively light poundages allow them to concentrate all their energy on doing the movement perfectly. Learning correct form is just as important as moving the numbers up at this level, so it's OK to use light weights during this breaking-in period.



This would be heavy day.

For the medium day, the athlete will work up to what he handled on his fourth set on Monday—255—and he'll work up to that using these increments: 135, 185, 215, 235 and 255 for 5. By simplifying the process, the athletes can fill in the necessary numbers themselves, and that leaves the coach more free time to help them with their technique. Keep in mind that when the heavy day moves to a higher level, the other two days tag along.

This works really well for those just getting involved in a strength program, and the basic idea is also useful for those starting back into a routine after a layoff. Every year, nearly all of the football team took a month or more off from training after the end of the season. The exceptions were those who were also competing in Olympic lifting. But the majority were starting over, and they needed to be monitored or they would invariably try to get back to their former strength levels too fast. It's simply the nature of a competitive person to do so. And because they have already broken through the numbers barrier on many of the lifts—400 squat, 225 good morning, 325 bench, 275 incline and so on—their minds are ready to tackle those numbers again. However, their bodies aren't yet ready, and in every individual there's at least one muscle group that is always lagging behind. Care has to be taken to ensure that that susceptible group is strengthened slowly and brought up to par before rushing ahead to new personal records.

This problem usually occurs in the strongest athletes. Those who are hard gainers know their limitations and move back to their former best much more cautiously. So when you're starting back on a strength routine, when in doubt do less. There will be plenty of time to get back to your former best, and if you move up to your old numbers conservatively, you will have a much better chance of rolling right past them than you will if you attempt to rush the process.

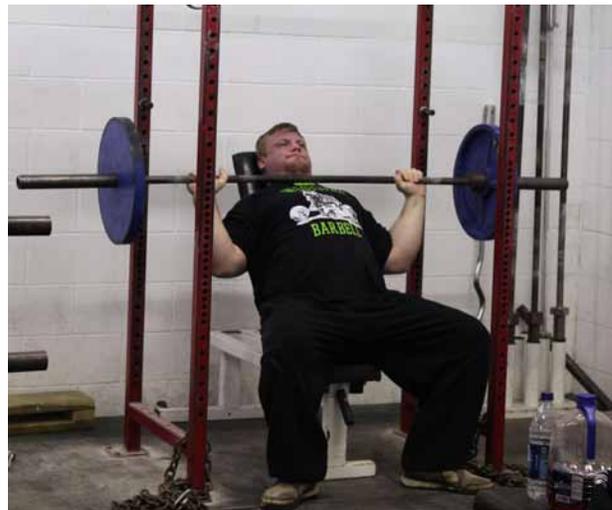
When the athletes start back on an off-season routine, I instruct them to only do 3 sets of 5 for the three primary exercises and don't go to limit. Naturally, some of the more seasoned veterans do not believe this advice applies to them. After all, they squatted 500 at the end of last year's program. So they do 135, 225 and 315 first day back and discover later that night that they can't walk up stairs without severe pain in their legs. Whether just starting out or getting back in the groove, make haste slowly. There's plenty of time to break new ground, and rushing things will only give you problems.

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Fine-Tuning the Program

Once a solid strength base is established and form is achieved, changes will be made in your routine. Instead of just doing three exercises for the large muscle groups, you'll start including more variety. When this occurs, many are confused as to where they belong in regards to the heavy, light and medium system.

The power shrug is the perfect example. More weight can be used on the shrug than any other back exercise, so does that mean it belongs on the heavy day? No, because it's a short-range movement and is actually one of the easier back exercises. Well, it obviously doesn't fit into the light day, so it belongs in the medium day. I like it there for yet another reason. When an athlete attacks the traps with very heavy, dynamic shrugs, his traps are going to be screaming the following day, and maybe even the day after that. That's why Fridays work best for them: it gives the athlete two full days to recover from the abuse.



Even awesome lifters like A.J. Roberts need a good warm-up before attacking a heavy day.

The exercises selected for the three days deal with three factors: degree of difficulty, amount of weight used and overall workload. The heavy day is fairly easy to figure out. Our athlete has moved from power cleans to full cleans, and he also does good mornings and shrugs for his back. Because full cleans are high-skill, they need to be given priority and are done on Mondays. These will be followed with good mornings, and shrugs will finish up the week.

If an athlete has deadlifts in his program, they belong on Mondays because the combination of form and how much weight is used is still greater than what is required of shrugs. Flip them, and the week's effort will not be as productive.

Exercises that use lesser amounts of weight can also be placed on the heavy day if the workload is high enough. For example, full snatches are never as heavy as full cleans, high pulls or deadlifts, and in some cases they are even less than what is used for power cleans. But if multiple sets are done with moderate reps—such as triples—then the overall volume qualifies them as the heavy pulling exercise for that week.

Selecting the exercises for the shoulder girdle is rather



Gaining strength is an art, but with some careful planning you can reach very high levels.

simple because it's easy to understand that the weights used for the flat bench will be higher than for the overhead press and incline. That's the proper order to do them during the week.

For the hips and legs, back squats need to be done twice a week, on the heavy and medium days; that is, unless you're an Olympic lifter. Then you need to front squat twice a week. If you back squat two times a week, then the light day will either be front squats or lunges, depending on what you're trying to accomplish. In the event the athlete wants to back squat at every session, I have him use 50 lbs. less on the light day than he handled on his heavy day for 5 reps. This most understand. What is confusing, however, is what to do on the back squat on the medium day.

Here's a program that I have used with my athletes, and it bears fruit over a long period of time. On Monday, our athlete works up and lifts 400 for 5 reps on his final set. If he's also back squatting on Wednesday, he will do 350 for 5 on his fifth set. On Friday, he will do this sequence: 135x5, 225x5, 315x5, 375x3 and finally 405 or 410x3. Then on the following Monday, he will do 5 reps with the same weight that he tripled on Friday. In this manner, he will steadily increase his squat strength, and I've had some athletes who were able to make gains every week for a three-month period.

You may be thinking, "Doesn't that throw off the heavy and medium deal because more weight is actually moved on Friday than it was on Monday?" No, it doesn't because the workload on Friday is going to be less than what was done on Monday even though the intensity is higher.

The exercises selected for the Friday, medium-day workout are most critical to the success of any strength program. It comes at the tail end of the week, which means the athletes are more tired, both physically and mentally, than they were at the first two sessions of the week. While I fully expect them to exert themselves on all the exercises for that day, I only include one really difficult one—the back squats. That's where I put the shrugs. Even when 500-plus lb. are used, they're still not as tough as heavy power cleans, full cleans, full snatches, high pulls or deadlifts. But because so much weight can be used in the shrug, the body needs more time to recover, and that's another reason why I put them on Friday.

It's important to understand that "heavy, light and medium" doesn't translate to "hard, easy and not-so-hard."

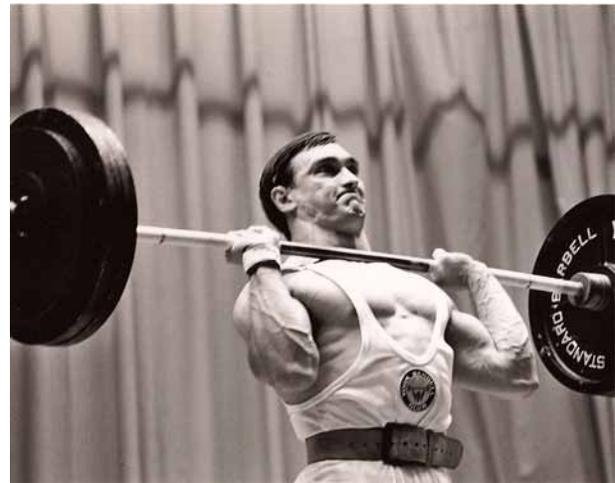
The exercise selected for the shoulder girdle on the medium day can either be inclines or flat benches. If inclines are done, they should be worked hard and to the limit. However, if the athlete is noticeably fatigued, I have him use a slightly lower poundage and knock out a few extra sets to keep his workload high without tapping into his upper-body strength for the following Monday. For those who want to bench press on Monday and Friday, I use this routine for the medium day: 4 sets of 8 followed by a heavy double. This is a way to increase their workload and intensity a bit without overtraining their attachments so that they're fully recovered for the heavy session on Monday. When an athlete becomes more advanced, I add in another heavy double to bump up his load even more.

It's important to understand that "heavy, light and medium" doesn't translate to "hard, easy and not-so-hard." Every workout, once you move out of the beginners' stage, has to be difficult. Otherwise, you're not going to make the gains you could. The light day is, in my opinion, the toughest workout of all because of good mornings. Plus, if you're front squatting, you're pushing to max, and the same thing applies for whichever shoulder-girdle exercise you select: overhead press or inclines. The simple rule of thumb is this: if you're not spent when you complete your workout, you didn't work hard enough.

Another factor in this regard, and especially for the light day, is the amount of time spent training. The heavy day should be the longest because more rest is needed between attempts. The medium is a bit shorter primarily because shrugs can be done quickly, and the light day should be the shortest of the entire week. This isn't a problem because good mornings are easier to do if you bomb-blitz through them. Sounds contradictory, but it isn't. Moving fast actually makes them hurt less. They'll still hurt, but not nearly as much as if you dilly-dally between sets.

Unless you're an advanced strength athlete, you should spend no more than an hour and a half training on your heavy day, an hour for your light day, and an hour and a quarter for your medium day. Stay within those guidelines and you'll be fine.

There is yet another variable to consider when determining the heavy, light and medium days, and that's overall workload. This, however, is a subject that requires quite a bit of explanation, so I'll cover that topic in a future article for the *CrossFit Journal*.



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 TheAsgaardCompanyBookstore.com.*