

INTRODUCTION

Searching for the perfect program is kind of the the quest for the Holy Grail; it doesn't exist and the people looking for it (*or paying hard earned money for the promise of it*) are just wasting their time and cash chasing a fairy tale.

That being said, there certainly are training methodologies and regimens which are superior to others particularly for the natural lifter.

At this point bro splits or body-part splits where each major muscle group is hit once per week with a lot of volume, have been kicked to the curb by all but the most dedicated meatheads.

The common rule of thumb for training frequency is to target each main muscle group twice per week, or at the bare minimum every 5th day.

The post stimulus hypertrophy curve for naturals lasts approximately three days maximum according to the current research so this makes sense.

There is of course some wiggle room here with higher frequency programs being quite effective, particularly at reinforcing motor patterns for strength development, albeit with a corresponding decrease in volume per session which may be less optimal for hypertrophy.

HYPERTROPHY VS STRENGTH



Often times you hear Hypertrophy and Strength talked about like they are somehow mutually exclusive; as if they require vastly different programming to achieve optimally. How many times have you heard a popular Instagram or YouTube fitness guru say "*I don't care about strength, I'm not a powerlifter*".

The reality is that strength and hypertrophy are related and in some cases actually dependent on each other.

This means that even if your sole goal in training is hypertrophy or aesthetics, you should care about strength, and vice versa.

Hypertrophy is driven by progressive tension overload; that is the increase of the workload volume and weight for a given set and rep range. Increasing strength also increases your workload capacity; *that is the volume - sets x reps x weight* - that you can accomplish in a given workout, so in this manner increases in strength are a central driver of hypertrophy.

HYPERTROPHY VS STRENGTH

This is precisely why the program is regimented in the way it is, with a top set of 1, 3 or 5. So, every training session you're getting exposed to weights which are 85% or more of your max to constantly improve central nervous system output.

The top set also has the added benefit of exposing the CNS to a stronger stimulus and therefore higher action potential frequency before your working sets. This prepares the CNS for subsequent exposure to the same strength of stimulus, which will actually make your back off sets for squat, bench, deadlift and overhead press actually feel lighter than they otherwise would have if you just warmed up the weight of your working sets.

This phenomenon is known as central nervous system priming; and it's a great way to get yourself used to handling heavier weights and improving CNS conditioning (and therefore strength), while also allowing for optimal volume for hypertrophy.

WHAT IS DUP?

Daily Undulating Periodization, or DUP for short, in general terms is the changing of the nature of a stimulus in its intensity and duration from training session to training session.

The central function of DUP is to counteract the body's natural tendency to maintain homeostasis by becoming more efficient at recovering from a given stimulus. This phenomenon is known as the repeated bout effect.

With conventional training your body is effectively encountering the same stimulus each workout. Even when a lifter is achieving progressive overload and increasing the weight for a given set and rep range each workout, the body still becomes more efficient at handling the same general volume, set and rep ranges, so over time the effectiveness of that stimulus for muscle growth is weaker than it would have been when the body first was exposed to that stimulus.

DUP erases this by varying the volume, intensity, and load each and every workout. This allows the lifter to enhance CNS conditioning from frequent exposure to the same motor patterns, while benefiting from muscular adaptation to the change in stimulus.

WHAT DOES THE SCIENCE SAY?

Now, that all sounds great hypothetically, but what does the hard data actually say about the effectiveness of DUP?

A study published in the Journal of Strength and conditioning by Rhea et al in 2002 tested the efficacy of daily undulating periodization vs linear periodization. Twenty college aged men, with 2 or more years of lifting experience were randomly assigned to DUP and linear periodization groups. Their one rep maxes were recorded for bench press and leg press before and after over a 12 week period. Training involved 3 sets of bench press and leg press each, 3 times per week.

The linear periodization group performed sets of 8 reps during weeks 1-4, 6 reps during weeks 4-8, and 4 reps during weeks 9-12. The DUP group altered training on a daily basis (Monday, 8 reps; Wednesday, 6 reps; Friday, 4 reps).

The results were incredible. Keep in mind that over the 12 week period both groups did the EXACT same amount of work, yet the DUP group nearly DOUBLED the strength gains of the linear periodization group in the leg press and significantly exceeded the linear periodization group in the bench press

Exercise	Exercise	Percentage Increase In 1RM Strength
Linear Periodization	Bench Press	14.37%*
	Leg Press	28.78%*
DUP	Bench Press	25.61%**
	Leg Press	55.78%**

* Statistically significant increase from baseline

** Statistically significant increase over linear periodization test group

Rhea, M. R., Ball, S. D., Phillips, W. T., & Burkett, L. N. (2002, May). A comparison of linear and daily undulating periodized programs with equated volume and intensity for strength. <https://www.ncbi.nlm.nih.gov/pubmed/11991778>
J Strength Cond Res. 2002 May;16(2):250-5.

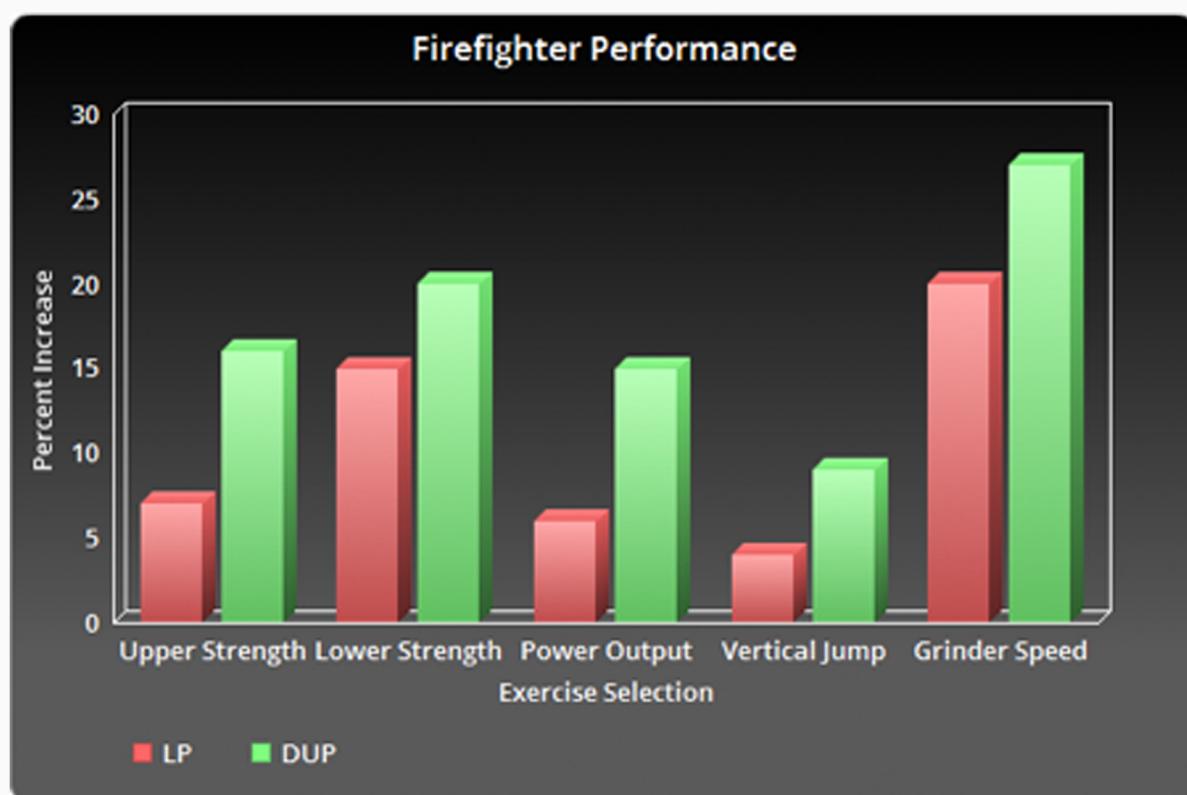
WHAT DOES THE SCIENCE SAY?

A study conducted by Peterson et al in 2008 examined the effects of DUP vs linear periodization on firefighter training performance.

Given that firefighters are always on call, the goal was to find a method of training that maximized results when time and training volume were limited, even sub optimal.

Specific tests were administered to evaluate upper and lower body muscular strength, lower body power output, print speed and jumping ability, individual stress resistance, and firefighter grinder performance (a job specific task).

The study consisted of 14 trained firefighters split up into DUP and LP groups over a period of 9 weeks. The DUP group not only offered increased performance in exercise performance, but also in the speed and efficiency of job specific tasks.



Peterson, M. D., Dodd, D. J., Alvar, B. A., Rhea, M. R., & Favre, M. (2008, September). Undulation training for development of hierarchical fitness and improved firefighter job performance. <https://www.ncbi.nlm.nih.gov/pubmed/18714214>
J Strength Cond Res. 2008 Sep;22(5):1683-95. doi: 10.1519/JSC.0b013e31818215f4.

RUNNING YOUR DUP PROGRAM

As for the program itself, it was designed with minimalism and adaptability in mind. This isn't a cookie cutter program that just spits out set and rep ranges and leaves you with the guesswork of weight selection. With the input of your maxes or projected maxes for squat, bench, deadlift and overhead press your core lift workout numbers are calculated for you.

One thing to keep in mind is to err on the side of caution with the input of your maxes particularly if you are estimating and haven't maxed recently, you can always increase and adjust the weights as you progress. In addition, lots of people nowadays are reverting to home gyms with readily available equipment online, or more hardcore powerlifting and strongman gyms that mainly carry free-weights.

Programs aren't these rigid chemical structures where changing one molecule will magically render it ineffective; you should adapt programming to your environment preferences and equipment particularly when it comes to accessories. As long as you're hitting the same target muscle group, feel free to swap accessories in and out based on personal preference if you are at a gym that has more specialized equipment available over and above free-weights.

Furthermore, muscle groups which have a higher partitioning of slow twitch muscle, as well as stabilizing muscles which are not primary movers can take more frequent training stimulus; so if you have calves, medial or posterior delts, biceps, triceps etc. that are lagging feel free to add in some arm work on pull or leg days or some back work on push days, it won't negatively impact core lift performance and may just be what you need to bring up lagging muscle groups.

Finally, your weight selection for your accessories will be based on the RPE (Rate of Perceived Exertion) Scale; 1 being very light activity that doesn't interrupt normal breathing patterns, and 10 being absolute maximum effort.

You should shoot for a weight that offers an RPE of 8-9, so that it is sub maximal enough to ensure that you won't fail any reps on your last set

RUNNING YOUR DUP PROGRAM

of a given accessory, but sufficiently heavy to promote progressive overload and require significant exertion. To make it simple, pick a weight that you could reasonably hit for a 12 rep max for a single set.

Good Luck with the Program!

I'm so excited to see what kind of progress you make on this.

Please use the hashtag **#DavidLaidDUP** on Instagram to track your physique progress, post your lifts and PR's, and give me any feedback you have on the Program while you are running it.