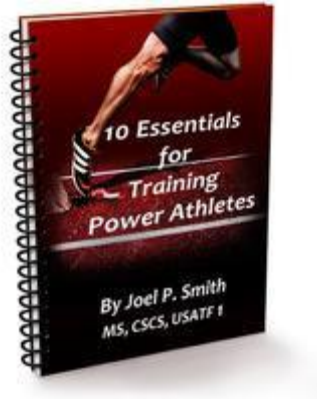


10 Essentials for Training Power Athletes

Joel Smith, MS, CSCS
Just Fly Sports Performance



Cover by Jake Clark

The 10 Laws:

Law #1. If you want to improve a skill, train it often

Law #2. Always leave something in the tank

Law #3. Keep your total reps low and don't let your power drop

Law #4. Strength training is critical, but it is also critical not to obsess over it

Law #5. Train in shorter/smaller blocks

Law #6. Put more money in the training bank than you withdraw

Law #7. Don't press; relax

Law #8. Pick the exercises which will yield the greatest result and don't jump around so much

Law #9. There are some things you should be doing every day

Law #10. Fine tune your athletic machine



Laws 1-3

#1. If you want to improve a skill, train it often!

Training is really a simple process, at least it typically starts out that way (and we then complicate it). Many times we train and don't even realize it. Perhaps the best example of this is actually performing your event, whether that be long jumping, discus, dunking, or skeet shooting. Practicing your event is the most specific training you can do, and also one of the most neurologically powerful methods you can manage.

If you want to get better at something, you need to do it a lot! In my own experience, one of the most backwards things that hampered my training for years was the suggestion of hitting a skill hard, and then backing off for 4-14 days to recharge before hitting that skill again. The specific skill I was dealing with in that philosophy was vertical jumping. I was convinced that you needed to hit a training session hard, rest a long time, and then when you feel good, train again. It seemed to make sense based on the "Westside Barbell" style anecdote, so I figured it should probably make sense for things like speed and jumping too!

This philosophy, although it can offer some results for a period of time, will never be as quick or effective as performing basic and vital skills to athleticism often. John Broz put it well when he stated: "If you only had one month to improve your best squat 100lbs upon the threat of the well being of you and your family. Would you do 4-6 good heavy squat sessions in hopes of gaining 20lbs each time, or would you be squatting every single day, hoping to gain a few pounds each day?". Despite what some textbooks tell me, I would be squatting every day. It is the same with other movements, especially those that are less physiologically demanding and intense than squatting!

Training a movement often brings a phenomenon into play known as "synaptic facilitation". What this means is that, the more you perform a movement, the more your nervous system will tune into that movement. On the neural level, this means more powerful connections between your brain, the nerves and the muscles they innervate. It also means thicker myelination on the motor neurons which mean faster nervous conduction. The bottom line is that the mastery of skill demands repetition.

If you want to improve something, you need to be training it often. Maybe not every single day, but at least 3-4 times a week, and possibly 6-7 times. This doesn't mean that you have to hit that skill maximally each day, but at least touch on it. If you are going for an increased vertical, try 20 maximal jumps two days out of the week, and go for 30 moderate jumps with maximal relaxation three other days out of the week. You will be amazed with the results! The same typically goes for something like sprinting. You can't do heavy short sprint workouts every single day, as hamstring pull rates will rise and chronic overload will become a reality,

but you can sprint hard every other day, and then fill in the gaps with relaxed sprint based work. This same principle goes for every power based skill out there. If you want to get better at something, do it often!

#2. Always leave something in the tank!

This principle is based on what some people know as "training drop-offs". A training drop-off is a percentage of how much your performance degrades over the course of a training session. For example, if I can bench 300lbs max, and lift during a session to the point where I can only manage 270lbs (due to the fatigue of the workout), I have "dropped off" by 10% during my workout. If I can perform a standing vertical jump of 30" and by the end of a workout, can only go 29", then I dropped off around 3% on that workout.

Some sources in the past have advocated dropping off between 4-10% per session and then resting by 3 to 7 days after each workout before repeating that movement. Based on the principle of synaptic facilitation alone, this is probably not a good idea for the average trainee. Science has also shown that the more spread out the workload, the better the results will be. Squatting one set of five each day of the week will provide better results than squatting a 5x5 workout on Monday and then waiting another week to squat again. Likewise, performing a set up 5 pull-ups a few times a day will work much better than cranking out 3x10 two times per week.

For each individual session, you will do a lot better to keep your drop-offs at a minimal level and work out more frequently. You should attempt to walk out of the weight room or the track feeling invigorated, and not like you just got hit by a truck! The key to long term success is consistent training where you manage fatigue properly. Getting a lot of good, quality reps in over the course of time will help to ensure success.

#3. Keep your total reps low and don't let your power drop!

In order to fulfill the second law, an athlete needs to keep a couple of things in mind in his or her training. The first is to keep the total sets and reps low. By low, I mean under 10 reps for each exercise. In the past, I have advocated 20x1 for some lifts, such as the Olympic lifts. As I progressed with this type of training, I started to realize that the first 10-15 reps of this type of work was really just to "punch the clock" on that lift, and try to get in the groove of it a bit better. Many times, I would start around 20 reps of that lift, and then work down to 15 and 10 lifts as the weeks went on. The weeks where I was only doing 10 reps, I was able to put in a lot more energy into my dynamic work such as sprinting and jumping. This is the key: Do only the work in the weight room that is necessary, and then save energy for your work out on the track, the basketball court, or whatever else it is you are trying to improve.

I will say that if size is your goal, you will need to do more than 10 reps per lift; probably a lot more. Sticking for good quality reps spread out through the week in volumes of less than 10 per day will be great for getting the most out of your nervous system without picking up significant mass gain (good for athletes concerned primarily with speed, agility and leaping ability, as well as weight class based athletes). If you are looking to pick up size gains, you will want to go for a heavier moderate to high rep set every now and then, or go for a bunch of lower rep, moderate intensity efforts with short rest. 8x3 with 80% of your 1RM with 60"

rest is a nice, athletic way to facilitate some fast twitch hypertrophy, but you will find it may hamper your dynamic sport practice a bit compared to something along the lines of 3x3.

When you get to your dynamic work, such as sprinting or jumping, always remember: Don't let the power drop! If you let yourself run or jump until you reach a drop-off greater than a couple of percentage points, you are going to be feeling the consequences of it over the next few days of training. Your body remembers your state at the end of workouts, and takes that state into the next workout. If you leave a workout fatigued and slow, you will enter the next one fatigued and slow. Of course, you could remedy this by taking 3 days to a week off of any sort of heavy or intense training, but that is 3-7 days that you missed out on opportunities to achieve better neurosynaptic facilitation in your skill of choice.



#4. Strength training is critical, but it is also critical not to obsess over it

Strength training is a wonderful tool in athletic enhancement. It is a lifeblood of athletes in collision based sports, and is an essential tool in injury prevention. It also bridges a vital gap in helping the average athlete reach greater levels of force production. Although strength training is huge in terms of becoming a better athlete, it can also be counterproductive if it takes over your training regimen, and you compromise your actual sporting skill practice.

Because of the nature of training nowadays, strength training is usually the first thing that any athlete is confronted with. You don't squat enough! Get your squat up to 1.5x or 2.0x bodyweight before you start worrying too much about anything else is a common war cry of a modern coach or trainer.

Now I'll be the first one to say that awesome athletes will typically carry with them big squats and deadlifts, but the truth is that the majority of those athletes didn't reach those lifts by obsessing over them and putting those lifts as the number one priority in their training. Give me an explosive athlete who doesn't have a lot of experience squatting, and I'll drive his squat up simply by teaching him the right squat form and having him do depth jumps. Anything explosive will help a developing athlete drive their lifts up. There is a harmony between explosive training and weight room numbers.

What is more important than things such as lifting heavy is lifting right. As an athlete you will want both power and mobility at the hip joint. To do this, performing lift variations such as goblet squats, overhead squats and wall squats will help an athlete to maximize the lift. After this is accomplished, put lifting in place as a supplement to a good power program and watch lift numbers AND dynamic performance rise. This method will also maximize the longevity of any athlete.

If there is one hard and fast rule when it comes to lifting and improving qualities such as speed or vertical it is this: steady gains made over time by coaxing up the quality, speed and strength of your 70-80% efforts are far better than gains made by hammering your 90-100% effort lifting in a short period of time. Be patient with strength and in the long haul, you will win!

#5. Train in shorter/smaller blocks

Modern coaching is moving farther and farther away from what we know as "linear periodization". Linear periodization is the concept of starting the year out with low intensity work, typically done in longer blocks and then whittling down to more high intensity work over the course of the year.

The honest truth is that most athletes spend too long building a "base" that won't even be present in their athletic condition later on during the competitive season. Athletes need to spend only as long in the GPP ("base building") as is completely necessary. This means that, for some athletes, after a period of active recovery, only perhaps a month of training should be spent focusing on the "general" aspects of training. The problem is that most coaches don't know how to manage fatigue well once the athlete gets into a mode of specific work. (Sometimes with coaches who don't know how to manage fatigue well during specific phases, a longer GPP can actually be a good thing.) They tend to make their training blocks too long (or don't have them at all), and this just leads the athlete into a downward spiral of chronic overloading syndrome.

The remedy to this is: After a shortened period of GPP, Special Physical Preparation (specific speed/power training that is similar to the competitive exercise) should be implemented. This training needs to be carefully monitored, however, and it should be performed in blocks no longer than 3 weeks long, and on average, 2 weeks. After each 2-3 week block, a week of backing off should be present. During the "back off" weeks, either the intensity or volume of training may be reduced, and possibly both in some cases.

Short blocks have been proven superior to long blocks when it comes to training speed/power athletes. It is also beneficial to use shorter blocks as you can alternate the training emphasis more often. Switching back and forth between two week long strength and speed oriented blocks can be a powerful stimulus and a plateau breaker for even the most experienced athletes!

#6. Put more money in the training bank than you withdraw

Training can be related to "putting money in the bank". You can think of your "balance" in the bank as your physical state of preparedness, i.e., how good of competition shape you are in. Athletes with higher balances are going to be in a lot better shape to set personal bests than athletes with "low" balances. Things that put money in your training bank are controlled maximal efforts (in dynamic activity) and submaximal strength training efforts that increase in volume and intensity over time (in dynamic activity and strength training). Things that take money away from your training bank are competition efforts and PR training efforts.

Any time an athlete "peaks" and sets a serious competition PR, or strings a couple of decent PR's back to back in the same event or movement, you can absolutely expect a decline in performance ability for the next couple of weeks. It is just going to happen; I have seen it countless times. It is for this reason that you need to keep a gauge of your withdrawals vs. your deposits in the

training world.

The following I would consider to be "training deposits" for speed/power athletes:

- *Relaxed/Controlled practice efforts in dynamic activity (sprinting/jumping/multi throws) up to 97% effort.*
- *100% dynamic activity efforts in practice performed before a drop-off in power occurs; also performed in a reasonable volume that is consistent with prior training loads.*
- *Strength training in a relaxed (no banging head into wall or death metal music) state, under 90 -95% of your training 1RM.*
- *General/Bodyweight strength training/elastic work performed in reasonable volumes*

The following are things that I would consider withdrawals:

- *Personal best efforts in competition*
- *Repetitive personal best efforts in a practice environment (dynamic, sprints and jumping)*
- *Strength training over 95% in practice*
- *Strength training to failure (reps) in practice*

To reach the highest levels of performance, withdrawals do have to be made from time to time, but they must always be followed up with a period of deposits. What does your training and competing tend to look more like? If you are making withdrawals week after week and are wondering why your progress has stagnated, start making a few more deposits into your training!



Laws 7-10

#7. Don't press; relax!

In sport, relaxation is absolutely a key principle. The best athletes in the world are able to achieve their feats by turning on the proper muscles at the proper time, and are able to virtually turn off every un-needed muscle in the movement. Turning on the wrong or extra muscles to complete a movement will cause inefficiency, loss of performance, and increased risk of injury. It is also more draining to your Central Nervous System to be constantly bringing more muscle fibers into the mix than necessary. For this

reason, relaxation should be woven into every activity in your training arsenal.

If you are a coach, you see it all the time; athletes who are not performing to the level they wish, so they try and force the issue. This is usually a very observable occurrence with some of the following symptoms: Tightened/raised shoulders, strained neck muscles, strained facial expressions, excessive arm movements, loud ground contacts, etc. Unfortunately, none of these efforts on the athlete's part will help them in reaching their highest potential.

What tends to happen in the training of many athletes is the negative cycle that follows: The athlete will train too hard and too often, and then becoming tight and rigid in their technique. To "remedy" this, they will start trying to press and push their way past the athletic valley that they are in, only to create more problems down the road, which will typically include injury. As an athlete, you need to make sure that being in a relaxed state is a trademark of your training sessions. If you feel a bit rigid or overtrained, take a break or work on an easier facet of your training that won't compromise a relaxed movement.

A great example with this is that of short approach jumping in the horizontal jumps of track and field. Many times, coaches won't let their athletes know how far they jump on the short approach jumps so that they don't think of "how far". Rather, the aim is for the athletes to think: "how relaxed" and "how technically precise". This will lead to better results down the road.

#8. Pick the exercises which will yield the greatest result and don't jump around so much

When it comes to high performance in athletics, you need to select a small amount of lifts to focus on, maybe 2-3 at the most when you are getting ready for big competitions. You can perform a lot more in the early months of training. For the majority of athletes, the exercises which form the backbone of the strength program are the Power lifts and Olympic lifts. The squat and deadlift are going to be the #1 lifts to emphasize in a program (different authors will argue for each lift, but I think they are equally important for most athletes, and it depends on your sport/event which you should emphasize more). Step-ups on a bench are up there with the power lifts if you are a jumper, especially in track and field. The Olympic lifts are great for both camps, but their use is more one of learning and maintaining explosive hip extension. Learning how to squat correctly comes before learning how to clean correctly in any scenario.

It is important to pick the lifts that will benefit you the most in your particular activity and then don't really deviate from those lifts throughout the season. You can start out with more lifts, but as you move towards big competitions, you will want to drop those lifts that are less specific to what you are trying to do. You will want to change the sets, reps, and intensity, as well as switching variations of the lifts from time to time, but the problem with too many programs is that they don't stick with the lifts that are going to provide the biggest benefits to the athlete.

Pick the lifts that will give you the biggest boost for your sport and stick with them. Perhaps the most common example of deviating from a lift is athletes deviating from the full back squat. The full back squat is a staple of athletic strength. Many athletes will hit sticking points in this lift however and run away from it to other lifts in hopes that they will come back and find their squat improved. Does it?... the answer is a resounding no.

If you "burn out" practicing a lift, it is probably because you spent too much time "withdrawing" from the lift rather than depositing in it. Switching around all the time isn't going to help a whole lot. Find the big lifts you need and stick with them. The following are a lifts that I consider important for various sports:

Track and field jumpers: Squat, Barbell Step-up and Snatch

Track and field sprinters: Hip thrust, Deficit Deadlift, and

Clean Trick dunkers (two feet): Squat, Deadlift, Pullups

Trick dunkers (one foot): Same as track and field jumpers

Team sports: It is going to depend on a few things here. Typically you are not going to go wrong with: Squat, Bench or Overhead Press, Pullups, Deadlift and Clean.

#9. There are some things you should be doing every day

Some wise trainers have mentioned that, if something is important, you will want to do it every day. Dan John is the prominent figure in this training statement. Each day, an athlete should work on two main things: 1. Movements for general well being and movement efficiency and, 2. Movements pertaining to their specific sport.

#1, the movements related to general well being don't have to be cycled from day to day in terms of their intensity as they are oftentimes general strength related movements and easy on the central nervous system. For almost every athlete, the things I would recommend doing every day would be:

Static core strength: Planks and plank variations.

Hip strength and mobility: Quadruped hip strength and hurdle type mobility

movements Hip flexor flexibility: To optimize gluteal strength and mobility

Light squatting movements through full range: Overhead or goblet squats work well here.

Light elastic work: Jump rope, line hops, cone hops, anything that works the ankle joint elastically.

Feet strengthening: Some sort of barefoot work or calf raise. We typically cool down with a barefoot jog.

It can be useful to make yourself a checklist of these things for each workout so that you don't forget!

#2, This was touched on in the first law of this Report

Law #10. Fine tune your athletic machine

As an athlete, you need to take care of yourself. Every athlete should have their own set of "therapy tools". These tools include a foam or PVC roller, a softball, and a lacrosse ball. In order to keep the athletic body tuned up, some sort of daily soft-tissue work should be done. Oftentimes, stretching is not enough to optimize athletic mobility (and you do need to be mobile to be a great athlete and stay healthy). Soft tissue work with various tools readily available to athletes will easily allow anyone to reduce their

injuries, move smoothly and feel better.

The difference between soft tissue work and standard stretching in regards to their use in mobility can be summed up in the following example: Imagine a rope with a knot tied in the middle of it. No matter how hard you pull at the ends of the rope or try to stretch the rope out (static stretching), you will not remove the knot. When athletes complain about how "tight" they are in certain muscle groups, their first move tends to be to the athletic trainer to get stretched out. This is not the right idea. Knowing how to use a ball or roller on the correct muscle groups will really help any athlete's mobility and performance.

For ground based sports, athletes will want to cover the main muscle groups of the hamstrings, quads, calves, spinal erectors, and hip flexor/psoas. When using the harder balls to break up adhesions, an athlete will want to roll the ball in many angles and circles to hit the adhesion in as many directions as possible for maximal effectiveness.

Oftentimes, issues in running or jumping form can be narrowed down to a inhibited muscle group that is causing problems in the kinetic chain. Although there are a myriad of texts that can be written about this, it is important to spend an amount of training time performing recovery and health based modalities such as soft tissue work in their training regimen.

Aside from soft tissue, athletes should be striving to be athletes 24 hours a day, which includes getting enough sleep and getting proper nutrition. Taking contrast showers is also a big booster to facilitating some more recovery in between training sessions. Recover better and train harder!

Conclusion:

Becoming the best athlete you can be is actually a simple process, but not an easy one! By keeping these ten laws in mind, I can assure you that you will be one step closer to your athletic goals. Best of luck!