



STRENGTH & CONDITIONING FOR WRESTLERS ATHLETE HANDBOOK

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INTRODUCTION

"In order to become a wrestler one should have the strength of a weight- lifter, the agility of an acrobat, the endurance of a runner and the tactical mind of a chess master."

~ Alexandre Medved

Wrestling is a dynamic, high-intensity combative sport that requires complex skills and tactical excellence for success. To be successful on the world stage wrestlers need very high levels of physical fitness. Wrestling demands all qualities of fitness: Maximal strength, aerobic endurance, anaerobic power and anaerobic capacity. To be effective, wrestling techniques must also be executed with high velocity. Enhancing the functional ability of each of these physiological qualities is the primary aim of the Wrestling S&C Coach (Zi-Hong et al, 2013).

The most important aspect of strength and conditioning for Wrestling is to train optimally, NOT maximally. Every program you follow should underpin the physical components needed for your sport. As you mature and grow, your body will change and so will the program. A program for a Cadet does not look the same as a program for an Olympian.

There are many, many solutions out there and some are much better than others. The better ones are based on sound scientific enquiry and have produced measurable results in world-class wrestlers. Experienced coaches choose the best possible solution for the athlete.

This handbook is meant to be a resource and practical guide for effective strength and conditioning practices. The guidelines outlined here, are the base which all of the strength and conditioning programs are built. Every phase and level of the programs are designed to specifically to help you achieve performance gains, specific to wrestling in a very systematic and safe manner. Please read this handbook very carefully and preview the visual support links: Tutorials and videos on The Wrestler's Edge YouTube channel before you begin.

I expect you to be successful because I expect your commitment, effort level and lifestyle to match your goals and that you come prepared (mindset, equipment and work ethic) to get the most of each training session.

You wouldn't be here if you weren't serious, so... Let's get started.

Strength & Conditioning for Wrestling – MYTHS

There are many misconceptions regarding training practices for the wrestler. When witnessing new exercises or modes of training in the gym, you must think very critically in order to understand whether or not it is beneficial for you to utilize in your training. Similarly, articles on blogs and YouTube videos do not require properly certified or experienced strength and conditioning coaches to write for them. Because of this, there are many myths that have been created that need to be addressed.

Lifting weights will make me slow, tight and bulky: Many people believe that they will bulk up with too much muscle if they perform weight training. In order to bulk up, you must have the following ingredients: the optimal hormonal/nutritional balance, massive caloric intake, no cardiovascular training, huge amounts of strength training volume and some genetic potential. Strength training correctly, with the appropriate dose and will lead to gains in strength and power, and a loss of body fat, NOT unnecessary bulk. Strength training through a full range of motion will improve flexibility. Strength training with appropriate exercise and loads will improve your speed.

Am I too young to train? Under proper supervision children & teens can learn the proper movement patterns and postures, and can start to include weight training before puberty hits. The programming should focus on developing movement skills, strength and short-duration speed.

Variety is important right? : In order for the body to adapt to training, you actually need to repeat many of the same exercises over and over. The body cannot adapt to an ever-changing program. This is especially important for beginners, who need to master the primary lifts (squats, deadlifts, versions of the Olympic lifts, lunges, pushes and pulls) in order for progress in strength to be made. Variation for the sake of variation is not an appropriate rule to follow during your training. The variation that is needed is that of your training variables (sets and reps), as well as within certain primary lifts: For example, variations of squats – speed squats, front squats, back squats, pause squats.

No pain, no gain: It is not true that you need to feel really sore after a training session to get stronger. Also, training to exhaustion and muscle failure can compromise training gains and put you at risk for injury; form tends to break down as you go to fatigue. Work hard, within reason. There is no substitute for using your judgment.

Olympic lifts, Squats and Deadlifts are Dangerous: Actually, these lifts are the cornerstones of strength development. We hate to be the bearer of bad news, but if squatting hurts your knees; YOU are not squatting correctly and if deadlifts hurt your back, YOU are not deadlifting correctly. Seek a qualified strength and conditioning coach to make sure you are performing these key lifts correctly. Ensure your coach has taken a weightlifting certification, or has become a 'master' of these lifts themselves. They should not be taken lightly. Once you are proficient and have sound technique, you have just laid the foundation for optimal strength and power development, as well as body composition change.

Creating Your Training Environment

FRAME OF MIND

Part of a successful training session is arriving in the right frame of mind. This means showing up to the gym ready to work hard and give it your all. Shut out whatever has happened earlier that day and mentally prepare yourself for the session to come. If you find yourself rushed or out of sorts, try sitting quietly alone, with headphones on and breathe deep for 5-10 minutes. These will allow you to focus, be in the moment (process-oriented) and prepare you for when you need to properly lift heavy weights. Music may also help you get in the right frame of mind and block out distraction.

SPACE

If you are performing any kind of full body lift such as a clean, squat or deadlift, make sure that you have the appropriate space to perform the lift. Do not try to fit yourself into a tiny space because it is busy in the gym. Organize your training when the gym is less busy or let others near you know you need space. It is for everyone's safety.

MIRRORS

Using mirrors can both help and hinder your lifting technique. Mirrors can help you see joint positioning and biomechanics from different angles, and allow you to make any corrections in your form. However, the problem with this is that you are reacting to the mirror and not actually "feeling" the lift intrinsically. Try looking at your form both in a head-on mirror and side mirror with light weight. When you feel as though you have the correct lines, look or turn away from the mirror and think about how that lift feels. NEVER turn to look at your form when you are half way through a lift.

SHOES

Proper lifting shoes make a huge difference in performance in the gym. Typical running shoes are not the best shoes for lifting because they have you positioned very anteriorly (forward leaning) and the cushioned soles make for a very soft push off the ground. An ideal lifting shoe has a flat, hard sole that is quite low to the ground.

CHALK

Chalk will allow the bar to stick to your hands better in order to complete the desired reps. Stay away from gloves as they do not allow you to develop the grip strength necessary to lift appropriate weight, plus they deaden the sensitivity of the receptors in your palms which help you produce full body tension. Part of successful weightlifting is developing grip strength and tough hands.

TRAINING LOG

Keeping a training log is a great way to monitor your progress in the gym. Every time you have a training session, keep track of the type & number of exercises, total reps/sets, training load, energy state, mood, and prior night's sleep. This will allow you to look back on your progress as well as allow you to monitor indicators of overtraining.

CLOCK / TIMER

Make sure that you are near a clock or have a timer that beeps so that you can keep track of your work intervals and your rest periods. Make sure you stick to it precisely as it will dictate the adaptations you make.

WATER and CELL PHONES

To be fully prepared for a session, you need to bring water. This allows you to take quick water breaks in between sets without having to go to the washroom each time. It also tells the coach that you are ready to work during the session. Cell phones are typically a distraction. In between sets, take time to visualize or mentally rehearse wrestling techniques. Or, spend time relaxing between hard efforts. Be disciplined and leave your phone in your gym bag.

EQUIPMENT YOU WILL NEED

To start training	As you get more serious
Barbells and Olympic Bars	Weightlifting Shoes
Kettlebells and Dumbbells	Lifting straps
Lifting Platforms	Neck harness
Cables / Pulleys or Bands	Weighted pull-up belt
Landmine	GPS Watch
Glute-Ham and Back Extension machines	
Basic Heart Rate Monitor (Polar)	

Overview of the Training Plan/Program

GENERAL WARM-UP

Begin each training session with some form of light, movement-based, aerobic exercise for 5-10 minutes. Examples include calisthenics, cycling, jogging or skipping. A longer warm-up is not necessary, as it will also be built into your training plan. This general warm-up will help lubricate your joints and increase blood flow to the muscles. Warm muscles respond better to the training stimulus.

SPECIFIC DYNAMIC WARM-UP

The second part of your warm-up should be dynamic. Mobility exercises, a variety of movement patterns and activation drills are all part of preparing the brain and body to work together. Each training program will include a comprehensive dynamic warm-up that is SPECIFIC to what lies ahead. For example, the way you warm-up for lifting may differ from the way you warm-up to do a speed session.

THE TRAINING SESSION

After the warm-up is complete, it is time to start the main strength or conditioning session. Make sure you follow the program very carefully, and pay special attention to the following variables:

Tempo of Lifts: Tempo is the **speed of the drill or exercise** performed. It is important to follow the tempo given in your program, as it dictates the adaptation that you are looking to achieve.

Rest Intervals: Rest intervals refer to the time of rest between reps, sets and exercises. Rest periods between sets and exercises determine the magnitude of energy source restoration in your muscles. The length of rest period affects your body's response to resistance exercise as well as the performance in successive sets. It is also important to consider the time of rest **between** your training sessions. If you are training at near maximum intensities, it is important that you give your body 48-72 hours of recovery, to allow your muscles and connective tissue to repair and regenerate itself. It isn't to say that you should abstain from doing any training. Rather, you would want to work at decreasing intensities.

THE ACTIVE COOL-DOWN

Just like the warm-up, the cool-down is a vital component of your training session. It is the beginning of the recovery process, bringing your body back to its resting state. After high intensity training sessions like interval training or wrestling practice, completing 10-20 minutes of general, light aerobic exercise will restore your body and help you recover faster. Riding the bike is a good option here. You should be able to talk during recovery – this ensures you are working at a low intensity.

One of the dangers of abruptly stopping exercise is 'blood pooling' in the extremities. This leads to dizziness, and possibly fainting. Partaking in an active cool-down will prevent this from occurring by ensuring blood return to the heart, thus distributing it to the rest of your body.

After the active cool-down, flexibility training, in the form of static stretching, should be conducted. Please bear in mind that stretching will NOT reduce the chance of muscle soreness, it will however reduce the chance of muscle *tightness*.

RECOVERY STRATEGIES

When following a training program, recovery after training is just as important as the training itself. Recovery IS restoration. Without recovery you will not adapt to the training stimulus.

Methods such as stretching, massage, hot/cold tubs, meditation, visualization, nutrition, and active recovery allow you to regenerate your body in order to produce the intensity needed for the next training session or performance.

Adequate sleep (8-10 hours per night) and proper nutrition are the foundations of recovery. Adding other modalities without these important basics, will not be helpful for you.

Technical Elements of Strength Training

CREATING TENSION AND MAINTAINING FORM

For the purpose of this handbook, the muscles of **the trunk include** those that move AND support your spine. Another way to think of it is everything except your legs and arms. You do not need to know any anatomy to train these muscles properly. These trunk muscles serve 3 key functions:

1. They are a means of **transferring energy** throughout the body.

If there is little to no trunk involvement in a movement, there will be little to no power attained during that movement.

2. The trunk muscles play a major role in **protecting the spine**.

If, you perform a lift and you let your trunk core muscles relax it is very dangerous. Your spine will bend and create multiple forces that will negatively impact the vertebrae, ligaments and discs. By improving trunk stabilization and more important, the timing of stabilization, you create a stiffness that surrounds and protects the spine.

***You must learn how to “brace” your trunk.** How do you do this? Imagine someone is about to punch you in the stomach. What would you do? Hopefully, you would “set” or “brace” for the punch – neither sucking in nor pushing out your stomach, but rather widening your trunk. It is also important to use your breath as a means of creating tension and bracing. At specific points during a lift, where stabilization is critical, we coach a breath hold. It is important to learn this technique from a qualified professional.*

3. The trunk muscles **move and resist movement of the torso** in all different directions.

Flexion, extension, rotation, and side flexion are the movements that are produced by the torso. However, just as important are the functions of those same muscles to resist those movements – or at least slow them down (decelerate).

Once breathing and trunk stiffening is established, form and technique should be the next focus for you. Technique determines your result. Never forget that.

When lifting, you must never sacrifice proper form for increased weight or increased speed of movement. If you cannot lift with proper form, you may very likely injure yourself in the process. If the weight is heavy, a spotter is necessary for your safety. Spotting is a skill and should be performed by a qualified professional.

In the real/ sporting world there is no coach looking over you, no bands around your knees, and no mirrors to watch your form. You must internalize the “feel” of the movement. Our goal is to help you achieve a higher level of body awareness.

Analogies To Help You Perform The Exercises Correctly:

Spread the floor: During a squat or deadlift, imagine that you are trying to spread or pull the floor apart with the outsides of your feet. You are trying to engage the outer hip stabilizing muscles (i.e. gluteus medius), so that the knees do not collapse and the hips produce a powerful, efficient movement.

Corkscrew the arms: While in a push-up position, imagine that there is a corkscrew running from your shoulders all the way into your hands. You want the upper arms to rotate outwardly (externally) while the hands stay straight ahead. This will allow the scapula (shoulder blades) to pack down into the humerus (upper arm) so that the shoulder joint is maximally stable.

Break the bar: During a deadlift, imagine that you are trying to literally break the bar against your body. This will again allow the upper arm to rotate externally and your scapula to align neutrally for optimum stability.

Pull yourself down to the floor: Instead of allowing yourself to just “fall” down to the floor during a deadlift, squat, lunge, chin-up or push-up, try to engage your muscles to “pull” yourself down so that there is tension being created. Fight gravity every step of the way to optimize your strength gains.

Drive your heels in the floor /push the floor away: During the ‘up’ phase of a squat or deadlift, think about pushing or driving your heels into the ground as opposed to extending your knees back. This will allow you to activate your glutes to drive your hips forward. Similarly, in a lunge, think about trying to push the floor away from you on the way back up to a stance.

Pull the bar apart: Similar to spreading the floor, imagine that you are trying to pull the bar apart during a back squat. This will allow you to create maximal tension in your upper body so that there are no “energy leaks.”

Toes to your nose: When performing any kind of step-up, stair climb or lateral movement exercise like a side lunge, you want to make sure that you dorsiflex (foot is pulled upward and not sagging) your foot. This allows your ankle joint to be fully stabilized and helps to drive through the heel, activating your posterior chain.

Key Training Terminology

Endurance: The ability to sustain on specific type of activity. Imagine being able to hold a furious pace for the entire match and for multiple matches in a day.

Flexibility: The maximum range of motion achieved under static (motionless) or dynamic (moving) conditions. This includes all joints.

Strength: The ability to produce a large amount of force. Keep in mind; it is specific to the task or exercise and specific to the speed of the movement (velocity). Wrestlers need to be strong in very extreme ranges of motion.

Speed: Rapid movement of limbs in a specific pattern. Think: Changing elevation, shooting, sprawling and scrambling.

Power/Explosive strength: The ability to produce large force as fast as possible. Jumps, med ball throws and Olympic lifts build Power. Power is speed x strength.

Method: Think of the word method like a recipe that is very detailed. Each ingredient in the recipe (method) is a training variable. Those training variables are listed next:

Set: The number of times each group of exercises are performed for a specific number of repetitions. For example, 3 x 6 means you do 6 repetitions, 3 times through with a rest period between.

Rep (Repetition): The number of times each exercise is performed within a set.

Series: Often sets and reps grouped together = a series. Some workouts involve several series. This will be explained further in the programming.

Round or Interval: The is the length of the working segment. It is usually expressed in SECONDS or MINUTES.

Rest: The amount of time you rest between sets and between exercises. Rest could be active or passive. It is an important variable that must never be overlooked. Rest also includes the number of hours between training sessions (practice and training session) or the number of days between training sessions. (Lifting weights on Mondays and Thursdays = 72 hours rest).

Active Rest: During your rest interval you keep moving your whole body as recommended by your S&C Coach.

Passive Rest: During your rest interval, you sit or stand quietly for the time period recommended by your S&C Coach.

Tempo: This is the speed of the drill or exercise. The first number is the “lowering or down” (eccentric) phase and the second number indicates a “hold at that position.” The third number represents the lifting or “up” phase. If there are only two numbers, such as 3:3, there is no pause/hold in the movement and is read: 3 counts down and 3 counts up. This would be considered a slow, even tempo.

Intensity: The level of effort or difficulty. It is an estimate of how HARD you are working. In the weight room it could be a percentage of your maximum load or a level of effort and with conditioning, intensity is expressed as a percentage of maximal heart rate, velocity or a specific wattage if you are on the bike or rower.

Volume: This is an estimate of how MUCH work you are doing. Total training volume is quantifiable. It can be the number of total reps in an entire lifting session. Or, even the length of a conditioning session (30 minute run).

Training Load: This expresses the product of *Intensity* x *Volume*.

MEASURING INTENSITY IN THE WEIGHTROOM

As mentioned earlier, intensity is the level of effort you put in. It is an estimate of how HARD you are working. Intensity is an important measure to see results and maximize your benefits. There are several ways you can measure intensity while in the weight room:

Load/ %1RM The maximum amount of weight you can lift, successfully, is your 1-repetition maximum (1RM). You can measure intensity as a percentage of your 1RM. Depending on your goals the intensity varies. This method of %1RM ONLY applies to the PRIMARY LIFTS: Olympic Style Lifts, Squats, Deadlifts, Bench Press, Military Press. All other exercises are considered specialized assistance lifts and recommendations will be given in each program.

Type of Effort - An effort can also be categorized based on how many reps the athlete has left in the ‘tank’ after a given set. **This is a common method of rating intensity in downloadable strength training programs where an athlete’s maximum is not tested.

- **NM = NEAR MAXIMUM effort means 1 rep left in the tank**
- **H = HARD effort means 2-4 left in the tank**
- **M = MEDIUM effort means 5+ left in the tank**

The more experience you get at lifting weights, the more clear this becomes. Keep training. The majority training will be done at submaximal levels. This is how you will get stronger.

Intensity Scale	M = Medium Effort	H = Hard Effort	NM = Near Maximum Effort
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RPE - Rating of Perceived Exertion (RPE) is the simplest method of measuring intensity. With this method, you would subjectively rate how hard you feel like you are working. Here is an example of a Modified RPE scale:

Rating	Intensity of Sensation (of Exercise)
0	
.5	
1	
2	
3	
4	
5	Warm-up weights
6	Bar moves quickly with moderate force
7 (medium effort)	Speed weight – bar moves fast when maximal force is applied to it. 5+ reps left in the tank
8 (hard effort)	Weight is heavy and slows down your ability to move the bar fast. 2-4 reps left.
9 (near maximal effort)	Last rep is very hard, but still one left in the tank
10 (maximal effort)	Maximal; no reps left in the tank

The higher the number, the harder the set. Each wrestler is different because of differences in training history, genetic muscle properties, high energy and low energy days, and general ability to recover from tough wrestling practices.

The RPE Intensity Scale will allow you to regulate training based on how hard a weight feels. By using an RPE, you can regulate training more effectively and do so in a way that automatically takes into account all of the individual differences mentioned above.

An easy way to gauge the RPE of a set is to ask yourself how many more reps you could've done with a particular weight.

Reference:  <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3761544/>

Measuring Intensity During Conditioning

Percentage of Maximum Heart Rate (%HR)

Your max HR is the maximum amount of times your heart can beat in one minute. Although several factors effect an individual's max HR, it is very dependent on age. The **simplest** method of figuring out your max HR is to subtract your age from 220.

$$220 - \text{Your age} = \text{maximum heart rate}$$

For example: if you are 20 years old your max HR would be 200 ($220 - 20 = 200$). Once you've calculated your max HR you can figure out your training zone as a % of your max HR.

During exercise, in order to figure out if you are working within your training zone, find your pulse and take a 10 second count. Multiply the number you get by 6, to calculate the number of heart beats per minute. Compare your results to your training zone on your prescribed program. Alternately, if you have a heart rate monitor, it makes it much easier to follow each training zone.

Percentage of Maximal Speed/Velocity

At times, your strength & conditioning coach might prescribe a conditioning protocol that does not require you to track your heart rate, but is, instead based on speed. A common example is running on a treadmill, where the speed is tracked for you.

Wattage

Wattage is a gauge of intensity found on ergometers – bikes, rowing machines, versaclimbers, ski ergs etc. At times, your strength and conditioning coach might prescribe a conditioning session based on this.

RPE

Rating of Perceived Exertion (RPE) is the simplest method of measuring intensity. With this method, you would subjectively rate how hard you feel like you are working. Here is an example of the Modified RPE scale for Conditioning or Wrestling Practice.:

Rating	Intensity of Sensation (of Exercise)
0	No sensation
.5	Very, very slight sensation
1	Very slight
2	Slight
3	Moderate
4	Somewhat severe
5	Severe
6	
7	Very severe
8	
9	Very, very severe
10	Maximal

Table 2: Modified Borg Scale from Borg G: Psychophysical bases of perceived exertion. Med Sci Sports Exerc 1982;14:377-381.

STRENGTH TRAINING LEGEND

Ex:	Exercise
Rx:	Prescription
S x R:	Sets times reps
RI:	Rest Interval
BB:	Barbell
DB:	Dumbbell
KB:	Kettlebell
MB:	Medicine Ball
BW:	Bodyweight
ROM:	Range of Motion
AMAP:	As many as possible
EA:	Each
SA:	Single Arm
SL:	Single Leg
Si:	Side
Dir:	Direction
SS:	Superset (pair 2 exercises together)
2:1:2:	This is an example of lifting TEMPO, 2 seconds down, 2 seconds up, with a pause for one second
Exp:	Explosive
Con:	Controlled
Day 1, Day 2 etc:	Days of the week in chrono order

CONDITIONING LEGEND

RPE:	Rating of Perceived Exertion
HR:	Heart Rate
Sp:	Velocity or Speed (m/s, mph, kmph, rpm)
MHR:	Maximum heart rate
Max:	Maximum
Min:	Minimum
AVG:	Average
W: R:	Work to Rest ratio (usually expressed in minutes)
WU:	Warm-up
CD:	Cool-down
Max:	Maximum effort
% max Sp/effort:	A percentage of your maximum speed or effort
AR:	Active recovery
PR:	Passive Recovery
SS:	Steady State
TE:	Tempo
AP:	Aerobic Power
ME:	Muscular Endurance
AeT:	Aerobic Threshold
LT:	Lactate Threshold
Wk:	Week
Fx:	Frequency (number of training sessions per week)
Sec:	Seconds Min: Minutes