



Warming-Up to a Great Workout A five-stage event!

by Charles Staley

Charles Staley is a strength coach, but he doesn't really fit the stereotype. I mean, if you called central casting and asked them to send you down an actor to play the lead role in "The Perfect Form" story of a strength coach whose boat is lost at sea, and they sent Charles down, you might scratch your head.

Well, this ain't the movies. This is real life, homey, and forget your preconceived notions. Charles isn't a bruiser, but he came by whatever size and strength he does have through sheer guts and high-octane brainpower. The athletes under his tutelage certainly recognize this.



He currently coaches several national and World-Class athletes in a number of sports, including weightlifting, powerlifting, track and field, jiu jitsu, and judo. Charles also developed the course content of the certification program known as the International Sports Sciences Association (ISSA), which is one of the very few programs that we here at *Testosterone* endorse.

As such, we're proud to present his first article for *Testosterone*. It's about warming up, and although the first part of it (since it concerns stretching) might not thrill all of you and cause you to go bang on your neighbor's door and exclaim, "You gotta see this," I urge you to keep reading, because he presents some really cool ideas in the second half that should get everybody excited.

It's been said that from a good beginning, all things are possible, and training is certainly no exception. A shame then, that so few understand the fundamentals (not to mention the finer points) of warming up in the most efficient way.

A perfect warm-up virtually ensures a perfect workout, but a poor one will almost certainly ruin what COULD have been a great training experience. Ever wake up dreading the idea of going to the gym, but after getting there, you end up having a great workout? You can thank your warm-up for that.

Think of a warm-up as a transition between a low level of activity and a high level of activity. George Carlin once joked that "no one jumps out of bed in the morning and starts vacuuming," but the way that most people warm-up is the equivalent of doing just that!

As with most training-related subjects, there are various approaches to warming up that *can* and *do* work. This is my approach, and it's yielded great results for hundreds of clients over the years. If you've never paid particular attention to your warm-up routine, let me remind you that the elements you tend to ignore, once addressed, usually have the most potential for improving your overall rate of progress!

Does Warming up Work?

Both research and anecdotal evidence on the benefits of warming up is extensive and almost universally supportive, so I won't spend a lot of time elaborating on the merits of the warm-up procedure. I think we all understand the importance, even if only on a gut level.

Let me just briefly say that it's well known that warming-up increases central nervous system function (improving such qualities as coordination and reaction speed to name just a few), makes muscles more pliable, and facilitates joint lubrication. A proper warm-up also reduces the perception of effort when performing difficult physical tasks such as weight training.

I'd like to add another potential benefit that's rarely addressed: the warm-up allows you to assess your health status and make corrections before you hurt yourself. If, for example, you have chronic, "off-and-on" problems with a particular muscle or joint (where sometimes you can train with it or around it and other times you can't), you can monitor your status as the warm-up proceeds, and make a substitution before the workout commences. The longer you've trained, the more you'll appreciate this importance of this.

The basic idea of a good warm-up is to walk that fine line between preparing yourself adequately for the intense work to come, without fatiguing yourself in the process. From my observations, however, few people seem to manage this, either performing far too little work, or doing so much that their warm-up becomes a workout in itself. I conceptualize the perfect warm-up as a 5- stage event, as follows:

Part I -Engage Brain Before Putting Body in Gear ***The Mental Warm-up***

The experienced athlete has been thinking about the impending workout all week. He's rehearsed the workout dozens of times in his mind, and is already aware of the possible problems he might encounter (such as dealing with rush hour in the gym or a nagging hamstring pull that might kick up during the workout).

A novice trainee, on the other hand, can be identified by the fact that he doesn't even know what he will do until he gets to the gym (and maybe not even then!). Since novices typically get novice-level results, I urge you to explore visualization and autogenic training, both of which are established methods of maximizing physical performance both in training and in competition. Some people learn these techniques on their own, whereas others need instruction. Either way, USE them!

Part II -Thermo-Kinetics

Increase Your Core Temperature

Begin the *physical* warm-up sequence with low intensity cardiovascular activity for 3-5 minutes, or until you break a sweat. Although almost anything will do, my preferred mode of activity for this stage of the warm-up is skipping rope, for several reasons:

? A jump rope is inexpensive and portable ?can be done anywhere.

? Skipping rope gives my clients the opportunity to develop reactive strength in the lower limbs, which creates a good foundation for jumping and plyometric drills.

? As I watch my client skip rope, I can get a rough idea of his or her nervous system status by the level or timing and coordination that he or she displays during the skipping session. If my athlete is tripping all over him/herself, then we need a more extensive warm-up than what may have been originally planned.

Part III - Lube Those Joints

Active-Dynamic Range of Motion Drills

These range of motion drills not only help to increase your flexibility and lube up your joints, they also provide valuable feedback regarding your functional status (including whether or not you have equal muscle length on both sides).

By using the term "active," I'm referring to the fact that you'll be moving your own limbs (rather than having a partner do it). On each exercise, you'll slowly and deliberately flex, extend, or rotate a joint 10 times on each side.

I use the term "dynamic," to denote that we are increasing ROM by moving our limbs in a relatively slow, deliberate fashion ?se drills are neither static nor ballistic.

On each drill, only go to the point where you begin to feel stretch tension on the targeted muscle ?more. The entire stretching sequence should take about 5 minutes for both upper and lower body.

Lower body active stretches (Perform prior to lower body workout)

1) Supine hip flexion (straight leg): Lying on your back, slowly lift your right leg straight up until you feel a slight stretch tension, then lower and repeat with left leg (one rep). Perform 10 repetitions each side.



2) Prone hip extension (knee flexed): In a face-down position with knees bent 90 degrees, slowly lift your right knee a few inches off the floor, then return and repeat with left leg (one rep). Perform 10 repetitions each side.



3) Supine hip external and internal rotations (knee and hip at 90 degrees of flexion): Lying on your back, lift your right leg and assume a "90-90" position (hip and knee are both at 90 degrees of flexion). First internally rotate your thigh until you feel a slight stretch tension, then reverse the movement and externally rotate until you feel a slight stretch tension. Repeat for 10 reps in both directions and repeat with other leg.



4) Side-lying hip abductions: Lying on your right side, slowly abduct your right leg until you feel a slight stretch tension, and return to starting position. Perform 10 repetitions each side.



5) Ankle flexion/extension: From a seated position, alternate between plantarflexion and dorsiflexion. Perform 10 repetitions in each direction.



Upper body active stretches (Perform prior to upper body workout)

1) Shoulder flexion/extension: Slowly raise both arms toward the ceiling (flexion), and then back down and behind your torso (extension). Repeat 10 times.



2) Shoulder internal/external rotation: Extend both arms out to the sides, and bend your elbows to 90-degree angles. Then rotate externally (hands will go up, palms facing forward) until you feel a slight stretch tension, and reverse direction (hands go down, palms facing behind you), internally rotating until you feel a slight stretch tension in the opposite direction. Perform 10 repetitions in both directions.



3) Elbow flexion/extension: Extend both arms to the ceiling and alternatively flex and extend your elbows for 10 repetitions in each direction.



4) Wrist circles: Extend both arms in front of you and circle in both directions for 10 rotations in each direction.



5) Neck extension/flexion: Alternate between looking straight up and straight down, moving 10 times in both directions. No need to be aggressive ?t work toward a slight feeling of tension as you approach the end point in both directions.



6) Neck, side flexion: Slowly side-bend your head to the right and left, moving 10 times in both directions. Don't twist or rotate ?t bend to the side.



I believe in trying to learn something from every rep I perform, so as you proceed through these drills, try to notice if there is any significant difference between the range of motion on your right versus left side, and also whether or not your ROM is improving over the long term. In other words, develop a keener awareness of your body as you train.

(Note: if you know that you have a particularly tight muscle group(s), I'd also advise performing more aggressive, "contract-relax" type stretching for those muscles prior to and also after your resistance training session).

Part IV -The Physical Transition

Warm-up Sets

I generally advise 2-3 warm-up sets per 100 pounds of weight that you'll use during your work sets for the first exercise planned in your workout. So, by way of example, if you plan to deadlift 315 for 5 sets of 8 repetitions as the first exercise of the workout, you'll need between 6 and 9 warm-up sets on your ascent to 315. The lower number would apply more to younger, healthy athletes training in warm conditions later in the day, whereas the higher number would apply more to older athletes training early in the day and/or in a colder environment (please see "Tips & Tricks" for the rationale behind this approach).

Start with 50% of your planned working weight (approximately 160 pounds in this case) and perform 2 sets of 3 repetitions. Then increase to 70% (220 pounds) for 2 more triples. Next, move up to 80% for 2x2, and finally, one or two singles with 90% (283) of your planned working weight.

(Note: on subsequent exercises, you'll generally only need one, or at the most, two warm up sets per exercise, assuming that you're working the same muscle groups. For example, if you have lunges scheduled after the deadlifts, you'll certainly be using smaller weightloads and will only need one set per leg to assess your working weight for the exercise).

This scenario may seem like a lot of sets to some, however, keep in mind that the reps are quite low and will result in minimal fatigue. Compare this approach to the "traditional" approach:

Two Warm-up Progressions for Proposed Working Weight of 315 (5x8)

Optimal Warm-up			
Set #1	160x3	Set #6	252x2
Set #2	160x3	Set #7	252x2
Set #3	160x3	Set #8	283x1
Set #4	220x3	Set #9	283x1
Set #5	220x3	(volume =	4334 lbs)

Traditional Warm-up	
Set #1	135x12
Set #2	185x10
Set #3	225x8
Set #4	275x8
(volume =	7494 lbs)

Notice that the "optimal" warm-up has more than twice as many sets (and therefore, more than twice as many opportunities to get your technique feeling perfect and to assess your state of readiness), but yet, is much less fatiguing (check out the huge difference in volume) than the "traditional" approach. Also note that the last warm-up set *shouldn't* consist of the same number of reps as your work sets! This strategy typically generates far too much fatigue.

Fine Tuning

Borrowing from an old trick used in the throwing events in track and field, I've developed a useful method to determine the optimal number of warm-ups sets, and how long to stay at one weight before moving up. Shot putters can easily determine how many warm-up throws to take in competition, simply by recording their training results during the work out. So for example, if the workout looks like this?

Throw 1- 39'2"
 Throw 2- 40'6"
 Throw 3- 41'1"
 Throw 4- 42'11"
 Throw 5- 41'5"
 Throw 6- 39'8"
 Throw 7- 38'4"
 Throw 8- 38'1"
 Throw 9- 37'8"
 Throw 10- 37'5"

Thrower now knows that he needs to take 3 warm-up throws, since his best result occurred on his fourth throw (as another observation, he also should have stopped and moved on to the next training component after his 5th or 6th throw, because the quality of his efforts began to decline significantly after that).

Here's how we can apply that scenario to our warm-up sets:

Using the example provided earlier in the article, your first warm-up set is with 160 pounds for 3 reps. Take that set and note the perceived level of difficulty and also, joint comfort. Rest 60 seconds (no need to rest 5 minutes after 3 reps with 60%!), and take the 160 pounds for another triple. Did it feel better than the last set? If so, great ?t a minute and take it again. *As soon as the next set at that weight doesn't feel any easier, increase to the next weight, and continue the process.* Use this procedure to determine

how many sets to take at each level of the warm-up process, and I assure you that you'll be working at the highest possible level of efficiency (Note: as your warm-up weights increase, gradually extend the rests between sets from 60 seconds to 2-3 minutes).

Part V -Almost There

The "Prep Set"

Your last warm-up set is called the "prep set," a term I first learned from California-based physician Mark Breehl. The idea is that your last warm-up set has one over-riding purpose: *to help you identify the proper weight for your work-sets for that exercise.* After all, you may have planned 315 for 5x8, but if a prep set of 283 (90% of 315) felt brutal, you'd be well-advised to adjust your planned weight and/or rep brackets downward. And, needless to say, if 283 felt like a hot knife through butter, then go ahead and adjust upward.

Tips & Tricks

? If you'll be training early in the morning, and/or if it's cold out, beef up the warm-up process commensurately.

? Training in dry climates requires a more thorough warm-up than training in humid surroundings.

? Older trainees generally profit from more extensive warm-ups.

? If you're otherwise healthy but have "creaky" joints, err on the side of being too extensive with your warm-up. After all, the goal of being able to train takes precedence over the fact that you might fatigue yourself slightly with an extensive warm-up.

? The closer you venture toward 1RM in your workout, the more extensive your warm-up should be. In other words, do a more thorough warm-up for 5x5 than you would for 3x12.

? You can accelerate your warm-up through passive means, such as a hot bath or shower. Although active means are superior to passive, often, a combination of the two leads to great results.

? On exercises where your own bodyweight is the minimal load possible (chins, dips, etc.), first warm up with similar exercises that allow lesser loads (e.g., lat pulldowns and decline bench presses), and then proceed to the target exercise, using multiple sets of 1 rep. As soon as the next set of 1 doesn't feel any easier than the set before it, you're ready to proceed to your work sets.

? If you're executing exercises for antagonistic muscle groups "back to back" (such as training seated rows with triceps extensions), do your warm-up sets for these exercises in the same pattern that you'll use for the work sets.

? If you've done it right, *your middle work set(s) will feel the easiest*. For example, when performing 5x8, the 3rd set should feel the best, and sets 4 and 5 should feel progressively more difficult. If your last set feels the best, it indicates that your warm-up wasn't thorough enough. If your first work sets are easiest, you may have warmed-up too much.