

Teaching Surf Instructors to Teach



National Surf Schools and Instructors Association Instructors and Coaches Training Manual



Surf Conditioning, Warm-ups, Muscle Building Part 10

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Conditioning and Training for Surf Instructors, Competitors, and Coaches

The NSSIA continually strives to train instructors and coaches on the best techniques for helping students, competitive athletes, and themselves keep fit and ready for any demanding surf conditions. This module is divided into several parts with Nutrition covered in Part B.

- Injury prevention through proper warm ups and sport specific stretching
- Muscle strengthening
- Conditioning
- Top conditioning for serious professionals
- Nutrition

Warm-ups for Pre-Instruction and for Team Coaching

As an instructor and coach, ask yourself: “What students have the hardest time ensuring they are flexible and are conditioned to surf? It's not younger kids with soft bones and bodies that can take lots of punishment during a first time lesson. Not even the moms and older ladies have the problem. The group with the serious need is the over 40 crowd with desk jobs that always wanted to surf, seldom workout on a regular basis, and don't want to hurt themselves or anyone else when they do get in the water. Surfing should be for everyone and a competent instructor must be able to accomplish their objective of teaching anyone how to surf. Those who can still have fun on a board as they grow older are a complement to the sport. Not only does this section describes several warm-up and regular training drills that will ensure flexibility and prevent injury when students get ready to surf, but also presents serious soreness prevention drills when the “old guy or girl” finally tries go out there and do it. Note that while there is no definite connection between warming up and injuries such as Surfer's Myelopathy, NSSIA supports the best efforts of instructors to ensure injury free lessons for their students.



Warming up

The need for warming up is important. Before any athlete performs in their sport, the muscles, ligaments, tendons, blood supply, and core body temperature are some basic areas that need to prepare for the body to respond appropriately. Warming up also prepares the athlete mentally for their performance to be at its peak and injury-free.

Warming up can have the following positive effects on performance:

- Faster muscles movement
- Bigger force development and reaction time
- Improvements in strength and power
- Lowered feelings of stiffness
- Improved oxygen delivery to the tissues
- Improved blood flow to active muscles
- Enhanced metabolic reactions

Components of a Warm up

A total program includes two components. A general warm up and a sport specific warm up. Static stretching will also be mentioned, particularly in regard to Myelopathy.

-A general warm up should consist of 5 minutes of slow to moderate full body movements. This would include jogging up and down the beach, moving the arms in big circles forward and reverse, squatting, skipping, jumping jacks, lateral movements, and body twists. The aim of this period is to increase heart rate, blood flow, deep muscle temperature, respiration rate, perspiration and to decrease the viscosity of joint fluids. This time is very important to prevent injuries and prepare the body for the next component; sport specific phase. General warm ups are a must prior to all surf classes and are required by law for all coaching activities in most states.

-The sport specific phase incorporates the movements of surfing. It involves about 10 minutes of dynamic stretching similar to surfing movements. This would include push ups, squat thrusts, burpees, standing long jumps, lunges with body twists. These closely simulate surfing movements in a dynamic sense. It develops muscle memory, activates and readies neural pathways, and provides confidence for the athlete. This dry land surfing rehearsal prepares the athlete for similar movements in the water and has been shown to be of great benefit.

Recent reviews of the current literature questions the practice of static stretching. Very little evidence exists that stretching before or after a sport prevents injury. Also, studies have shown stretching reduces muscle performance, force production, speed, reaction time, and endurance. Some sports show benefit from static stretching; gymnastics or competitive diving. While surfing does require some flexibility, it does require a large amount of power and endurance. Full range of motion around various joints in the body, is rarely required for most surfing movements.

Unfortunately, there exists a condition called Surfers Myelopathy that stretching might help reduce the chances of contracting it. As such, the NSSIA recommends a few

stretching exercises always be performed prior to the regular warm-up. The first activity regarding the warm-up will be a trunk rotation for at least 1 minute. Have the student put their hands on their hips and then rotate around their waist bending down as far as they can. Next, have them try to touch their toes for about 1 minute. After that, dynamic stretching as the second phase of the warm up period will help address surfing demands upon the body.

Flexibility for Older Surfers/Instructors

As a person ages they start to suffer from joint stiffness and less muscle tone. By the late 40s to early 50s, nearly everyone will begin to have problems just doing the routine physical things they have always done. For surfers, their back and shoulders will hurt after paddling for waves, sitting on a board, or even being in cold water for just a short time. Arms will start to feel like jelly a lot sooner. Injuries are more likely to occur in this condition.

Because of the potential for injury, older students need to go through a thorough stretching first before they start their warm-up. This is particularly important if the water is cold and the older student is going to be wearing a wetsuit. The primary areas to loosen up are groins, shoulders, and back, yes back. Virtually any type of back rotation will work. Just the process of reaching down to pick up a board can be troublesome for an older student if they haven't loosened their back first.

Common Stretching Drills

After the 5 minute warm up as previously mentioned, have the students perform the following stretches to prevent injury/soreness and maximize their time in the water. These are suggestions only; others can be incorporated and tailored to the individual. They can also be quickly and easily performed right on the beach for a few minutes before going out.

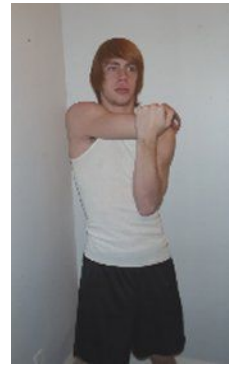
Shoulder and Lower Body Stretches

Pectoral Stretches
3 times
hold for 20 seconds

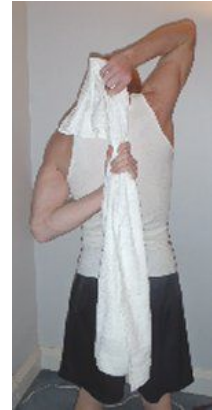
Groin Stretch
Push down with elbows
hold for 20 seconds



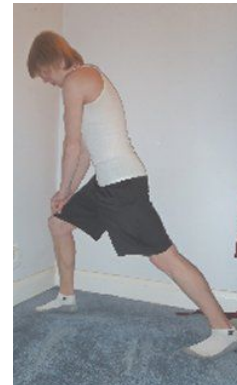
Shoulder Deltoid Stretches
3 times each side
hold for 20 seconds



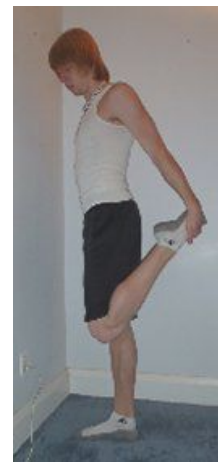
Towel Tugs
3 times each way
hold for 20 seconds



Thigh stretches
3 times each leg
hold for 20 seconds



Calf Stretches
3 times each leg
hold for 20 seconds



Sport Specific Exercises

These exercises are done after the combined 10 minute warm up and stretching. They are designed to get the muscles, ligaments, tendons, and most importantly, the neural system prepared for the physical demands of surfing actions. These movements mimic surfing moves and body positions commonly found in surfing. They create the explosive strength required in surfing and facilitate the neural system pathways used in surfing. These exercises promote the muscle memory so important in balance and reaction to proprioceptive challenges commonly found in surfing.

Yoga for Balance

Yoga is an ancient practice that brings together mind and body. It incorporates breathing exercises, meditation and poses designed to encourage relaxation and reduce stress. Prior to any weight training or workout program, it is important to also combine a balance program. Great balance is something that all surfers need to excel. Below are a few of the several positions that improve balance.

The key is to find a focal point to help you balance, and then breathe here for three to five breaths.

Repeat 3-4 times.



Explosive Muscle Building for Surfing

In addition to helping build “surfing” muscle, exercised muscles recover faster plus are less prone to injury. By surfing muscle, we mean muscles that aren’t necessarily big and super strong, but muscles that are strong enough to get your board up to speed immediately as the wave approaches, stably push you to your feet even when you are tired, plus not get fatigued after a short time of paddling in the surf. Some people call this type of strength “explosive” strength.

Explosive strength is something common to most high performance athletes, not just surfers. This is the immediate strength needed to overcome difficult conditions that only last a moment. This type of strength is applied with flexibility and focused on an immediate goal. In the case of surfers, this strength is primarily generated in the shoulder and arm muscles immediately on paddling and takeoff, then in the legs and hips as the surfer gets to their feet.

Explosive Exercises

Burpees

Sit into a squat

Kick your feet behind you into a push up position

Lower your chest to the ground

Press back up to complete the push up

Pull your feet back in so you are in a squat position

Jump up in the air while throwing your hands overhead

Medicine-Ball Coil Jump

Stand with your feet shoulder-width apart and hold a medicine ball in both hands. Extend your arms so the ball is straight overhead. Bend your knees slightly, then explode upward, bringing your knees up toward your chest as you jump. Try to land softly and spring back up as fast as you can. Build to three sets of 15 repetitions

Medicine Ball Squat with Rotation

Squat down with a medicine ball in hands in front of body

Quickly twist left and then right

Then quickly come back to the medicine ball in front of the body and lift overhead quickly

Barrier Lateral Jumps

Jump from side to side over a small barrier, land, and quickly jump back.

Work up to 20 seconds

Use a progressively higher barrier up to 20 inches high maximum

Power Push Ups

Start in a push up position

Lower quickly to a point just above the floor

Push up quickly and clap hands under chest

Then catch yourself as you lower again

Workout Program Design

Well constructed strength and conditioning programs are based on the application of sound principles during each stage of a process called “program design”. There are three content areas:

- Resistance training
- Plyometric training
- Speed, agility, and speed-endurance development

Regardless of the type of training program (resistance, plyometric, speed, etc.) there are three foundational principles that always apply: specificity, overload, and progression. Lack of attention to any of these principles often produces less than optimum results and sometimes injury.

Specificity

This means the athlete is trained in a specific manner to produce a specific adaptation or training outcome. For example, to design a resistance training program that is specific to strengthening the chest paddling muscles, the classic bench press should be used. The underlying principle is that the type of demand placed on the body dictates the type of adaptation that will occur. Incorporate resistance training exercises that mimic the movement patterns of surfing which will increase the likelihood that muscles involved in surfing will be recruited.

Overload

The concept of overload refers to assigning a workout or training regime of greater intensity than the surfer is accustomed to. Increase the loads, progressively, as the athlete improves and finds the weight to be easier to lift. Other changes would include increasing the number of sessions per week, adding exercises or sets, emphasizing complex over simple exercises, decreasing the length of the rest periods between sets and exercises, or any combination.

Progression

This refers to the intensity of the training. It will promote long-term training benefits. The easiest method to this is to increase the number of workout sessions per week, adding more drills, changing the type or difficulty of the drills, or increasing the training stimulus. The important idea here is to add more when the athlete's training status improves and thus must be introduced systematically and gradually.

Resistance Training

The follow exercises are sports specific gym exercises that have been shown to be effective for surf conditioning. There are many other exercises that can be performed, but, these mimic, recruit, and stimulate the body similar to surfing demands. The more similar the training activity is to the actual sport movement, the greater the likelihood that there will be a positive transfer to that sport. This means the exercise will impose a demand upon the muscles and connective tissue used during surfing to affect the most benefit. This is the specificity concept, also called the specific adaptation to imposed demands (SAID) principle.

SAID Examples:

- Bench press
- Latisimus pulldowns
- Lateral shoulder raises
- Upright row
- Barbell pullover
- Bent over dumbbell row
- Pull ups
- Forward step lunges with dumbbells

Design

First, assess the fitness status of the surfer before any exercise program is initiated.

Clearance from their doctor should indicate no restrictions from participated in an organized workout program. Have the athlete sign a release of liability and produce written documentation from their doctor for clearance.

Beginning surfers should only workout 2-3 times per week, intermediate surfers can workout 3-4 times per week, and advanced surfers 4-7 times per week. This includes any and all workouts, including weight room, aerobic, and cross-training activities. Workout days can coincide with surf sessions.

Secondly, design the length of time spent during each workout will vary based upon the activity. For example: weight-lifting should take 40-45 minutes, aerobic conditioning (swimming) 20 minutes, or cross-training with jump ropes will be approximately 15 minutes. These activities can be combined with a surf session without any conflicts or detriment to the athlete.

Thirdly, the other influence on training frequency is the sport season. Practice the sport skills during the on-season which necessitates a decrease in the time spent in the weight room. Concentrate on time in the water surfing than time spent conditioning in the weight room during the on-season period. Then practice the resistance training in the off-season, with longer workouts and more intensity. This allows periodization and recovery for the athlete. Also keep in mind any physical demands of their work environment. Athletes, who work in manual labor jobs, instruct or assist others in physical activities, or are on their feet all day may not be able to withstand the same training frequency as athletes who are less active outside of their sport related pursuits.

Plyometric Training

Plyometric exercise refers to those activities that enable a muscle to reach maximal force in the shortest possible time. “Plyometric” literally means to increase measurement (plio=more; metric=measure). It is an exercise that is quick, powerful movement using a pre-stretch, or counter movement, that involves the “stretch-shortening cycle”. The purpose is to increase the power of subsequent movements by using both the natural elastic components of muscle and tendon and the stretch reflex. Use the same specificity, overload, and progression as you would with the aforementioned resistance training.

These jumping drills are appropriate for any athlete, including surfers. A maximal amount of muscular force in a short amount of time is required; as during a bottom turn, or quick cut back.

The lower body plyometric drills will consist of:

- Jumps in place (emphasizes the vertical component of jumping)
- Standing jumps (emphasizes either horizontal/vertical components, as in box jumps)
- Multiple hops and jumps (side to side, or zig zag pattern)
- Bounds (can incorporate a course or set distance)
- Box drills (can be jumped up to or down)
- Depth jumps (step off and quickly jump back to top of box, one leg or both)

There are many variations of these drills to include, jump and reach, double leg tuck jump, split squat jump, pike jump, single leg jumps, lateral barrier jumps, simple

skipping, forwards and backwards; which can be very challenging. The variations allowed with boxes for plyometric training are nearly unlimited; single leg, alternate leg, lateral push-offs, side-to-side, jump up to or jump down to, depth jumps, and depth jumps with lateral movement are very appropriate for surf skill development.

Speed, Agility, and Speed Endurance

When athletes are performing their sport specific maneuvers, including its speed of execution, it is a very skillful expression of their abilities. Skills and abilities are tightly related; inseparable.

This functional movement speed is a total expression of an athlete's abilities.

Agility is commonly understood as changing movement velocity and performing locomotion other than linear movements straight ahead. Variable, rather than constant, movement velocities and modes are the rule rather than the exception in surfing. As such, multidirectional skills are needed in training.

Speed endurance provides the metabolic conditioning needed to support the maintenance of speed and agility over an extended period or to achieve maximum acceleration or speed during repetitive movements. These movements are commonly experienced as the wave changes in front of the surfer-athlete. It consists of ongoing sub-maximal activity with intense, intermittent bursts in effort. This requires the metabolic power to execute specific technique at the targeted effort level, and the metabolic capacity to do so repetitively.

These demands (speed, agility, and speed endurance) are incorporated in the resistance training, plyometric training previously mentioned, and cross-training methods listed below.

Cross Training Activities

There are many benefits of cross training workouts. Here are some of them.

- Cross training is an excellent way to reduce the risk of injuries, because you won't be daily performing the same physical activity which puts stress on the same muscles, bones and joints.
- As cross training will be adding variety to your workout schedule, your workout will remain interesting, and it will be easier for you to stick to it.
- For athletes, cross training techniques provide a good break from the rigorous and stressful same sport training.
- Cross training is especially beneficial for senior people and pregnant women, and it helps to regain their physical fitness fast, with the reduced possibility of injury.
- Cross training will help improve your overall physical fitness, for an extended time period.
- With cross training exercises you will gain more benefits as compared to a single workout routine exercise, and your physical performance will also be enhanced.

Jumping Rope

Besides lots of time paddling in the water jump roping seem to be an effective conditioning drill. Jump roping builds both endurance and quick responses. You absolutely need very quick responses if you are going to be able to react to the quick

changing conditions of a high performance wave. Jump roping didn't really catch on with world-class athletes in all sports until Olympian Buddy Lee came along. He developed a series of jump rope drills that have now been incorporated into the majority of Olympic team training programs for all sports. This is an exercise that can be performed for 5 minutes everyday.

Swimming

Swimming is a great exercise to do to improve surfing fitness levels. Being able to paddle through the wave quickly, without tiring, is essential for all surfers, so is off season swimming practice. Concentrate on front crawls. This builds a stronger upper body to enable paddling through the impact zone and still have the energy to get to your feet. A good paddler will only need to dig their arms in a few times to catch the wave, whereas weaker paddlers will need to paddle much longer to get their board speed up.

Rowing Machine

Warm up, ideally on a rower for 3-5 minutes, using moderate intensity. This is to just warm up the muscles, ligaments, and tendons to prepare the body for more intensity. Then, after warm up, increase to interval sprints consisting of 20 seconds of all out effort followed by 10 seconds of complete rest (complete stoppage of rowing). Repeat this cycle 6-7 times. This entire sequence should only take 10 minutes. This is called the Tabata Protocol.

Swiss Ball

The Swiss ball is the main dry fitness exercise for surfers – a combination of core strength and balance with upper body weight lifting, aim at endurance rather than muscle growth.

- Shoulder press: sit on ball and raise dumbbells up above your head. Do 2 sets of 15. Use a weight that is heavier enough to challenge you on the final 2 reps.
- Chest press: sit on ball and roll out so your head and shoulder's are resting on it, keep your back straight and raise weights above your head. 2 sets of 15.
- Lat raises: lie with your chest on the ball and arms in front of your, wrists together, raise arms so they are parallel with your head. 2 sets of 15.
- Side-ball roll out: kneel on a mat with your knees together, have one of the balls to your side and rest your arm on it, then roll it away from you and back again. Works the side and back where most surfers get injuries. 3 sets of 15 on both sides.
- Back extension: lie on the ball on your chest and do small raises. 3 sets of 15.
- Toes to floor: roll over the ball so only your feet are on it, like when you do a wheel barrow race. Roll the ball using you legs till your feet almost touch the floor. Helps build balance and strength. 3 sets 10 on each side
- Superman: Lie on the ball on your stomach and then raise your left leg and right arm, then your right leg and left arm. Builds balance and strength. 3 sets of 15.

Kettlebell Training

- Training with a kettlebell is often recommended to develop explosive arm and shoulder strength, as well as hip strength. According to Wikipedia, the kettlebell or girya is a cast iron weight looking somewhat like a cannonball with a handle. Kettlebells are available in sizes from 5 lbs to 175 lbs, the traditional Russian kettlebell is usually one which weighs roughly 35lbs.
- Unlike traditional dumbbells, the kettlebell's center of mass is extended beyond the hands allowing for swing movements. This motion promotes the development of the explosive micro-muscles needed to balance a kettlebell, and also needed to quickly push up on a board in motion. Below are a series of kettlebell exercises specific to surfing, copied here with permission from Mike Mahler, a kettlebell instructor in Marina Del Rey, CA. The pictures are of Mike courtesy of Michael Neveux.

Swing

- Place a dumbbell or kettlebell in front of your feet. Bend your knees slightly and push your butt back as if you are trying to sit in a chair behind you. Keep your eyes forward at all times. Grab the dumbbell with one hand and swing it quickly between your legs as if you are trying to pass a football to someone behind you.



- Reverse the direction quickly and swing the dumbbell to chest level with a straight arm. As you do so, drive through forcefully with your hamstrings and

hips and make sure that you lock out your legs as you project the weight in front of you. As your glutes lock out, tilt your pelvis up. This will protect your lower back and keep the emphasis on your glutes and hamstrings.

- Breathe in as you swing the bells between your legs and out as you swing it in front of you. Do three to five sets of five reps with each arm, three times per week. Take one-minute breaks in between each set. Focus on moving the weight as quickly as possible and driving through explosively.

Clean & Push Press

- This is a full-body exercise that works just about every muscle in the body. In addition to developing explosive strength and core strength, you will develop full body synergy and you will love the carry over to surfing.
- Place a dumbbell or kettlebell between your feet. Get in the same position that you were in for swings. Grab the bell and take it your shoulder in one swift movement. This is not a curl, do no attempt to muscle up the weight. Use your legs to drive the weight to your shoulder.



One-Arm Kettlebell Clean & Push Press

- All of the power comes from the lower body and the arm is just going along for the ride. Once you have the dumbbell at shoulder level, squat down a few inches and then quickly reverse the motion. While doing so, drive the dumbbell overhead. Lower the dumbbell back to your shoulder and then take it back to the starting position.
- Breathe in as you clean the bell to your shoulder. Then breathe out as you take the bell overhead. Do three to five sets of five, three times a week, with one-minute breaks between each set. Again, focus on moving the weights as fast as possible with proper form.

Deck Squat

- The deck squat is a fun bodyweight exercise developed by Coach Pavel Tsatsouline, author of “Power To The People”. Squat all the way down and then roll onto your back. Let your feet touch the floor behind your head and then quickly reverse the direction.



Deck Squat

- Slam your feet into the floor and get back to the bottom position of a squat. Stand up, and then repeat. Try doing two to three sets of 25-30 to develop tremendous muscular endurance. To make the exercise even more effective, add a pushup to the squat.
- Following the repetition, squat back down and get into the pushup position. After doing a pushup, bring your legs back in, roll on your back and then get back into the squat position.

Squat-Thrust

This exercise helps you develop explosive hamstrings and leg strength. Basically you squat down and then jump up thrusting your arms over your head and into the air. Usually, 3 sets of 7-8 jumps at a time, going back immediately to a squat and repeat, is enough for an effective workout.

Running

Preferably the only running done should be hill sprints up and jogging down. The best surface is a grassy hill to absorb the down hill impact. Long distance running on asphalt

can produce repetitive over use injuries and injure the lower body musculature. Hill sprints are one of the best conditioning exercises available.

Back Pain

Unfortunately, many surfers develop a sore lower back as they grow older. In the case of those who sit a lot at work, this condition could be the result of bending over while working or walking with a bad posture. However, the usual problem with surfers is the constant paddling with the back arching up. There are a couple of things you can do to reduce back pain.

One exercise that helps build back muscles and reduce pain can be performed in a gym or at home in a doorway. Hang from your knees, head down. Take a light weight, maybe 5-10 lbs, hold it behind your head, then arch back up and down for three sets.

The ERGO made by PaddleAir is a vest-type device that works well to relieve back pressure. It basically puts your body in an elevated prone position using an adjustable inflation chamber that is integrated into a wind-shirt, rash-guard type garment. The result is a comfortable and highly functional paddle-wear designed to relieve the everyday body stress of prone paddling and put your body in a position to make stronger paddling strokes.



If you sit a lot, when not surfing of course, experts suggest several things you can do to relieve pain.

