

Scuba Fitness:

Kickin' It

Power, Strength, and Endurance for the Lower Body

By Gretchen M. Ashton, CFT, NBFE

When shore diving, divers often have to overcome an obstacle course to get to their favorite dive spot. Beach access may be by stairs and always includes walking across grass, concrete, sand, or rocks. Entries and exits are in varying surf conditions and divers regularly kick out or "turtle" for extended distances on the surface to conserve air before dropping down to dive. Boat diving brings agility challenges requiring divers to maneuver on decks and ladders on constantly rolling seas. Divers do all this under the weight of 50 to 70 pounds of scuba gear while wearing bulky and somewhat restrictive protective clothing. The diverse physical demands of scuba diving, and most notably an efficient fin-kick, translate into power, strength, and endurance. Sports fitness regimes typically segment power, strength, and endurance into off-season, pre-season, and in-season programming. Scuba divers, however, will benefit greatly from kicking up training intensity by combining power, strength, and endurance into the same workout.



Gretchen M. Ashton, CFT, NBFE is an advanced diver, personal trainer, biomechanic strength trainer and fitness therapist. Specializing in lifestyle fitness she launched the concept of Scuba Fitness developing the FitDiver® program and ScubaFit®, which are dedicated to improving the health and fitness of all scuba divers. Gretchen has presented at the Scuba Show in Long Beach, teaches the physical fitness module for Los Angeles County Scuba Advanced Diver Program, and was recently recognized by the President's Council on Physical Fitness and Sports for inspired accomplishments and advancements in fitness. For more information or questions contact: www.scubafit.com, gretchen@scubafit.com.

TIME, TENSION & REST

TO DEVELOP LOWER BODY FITNESS IDEAL FOR SCUBA DIVING, EXERCISES THAT COMBINE THE MAJOR MUSCLES OF THE LEGS, HIPS, AND BUTTOCKS MUST BE PERFORMED WITH VARIATIONS OF TIME, TENSION, AND REST.

Striking the best balance of time, tension, and rest is accomplished with sets, repetitions, intervals, and resistance. By changing the amount of weight lifted and the duration of both the exercise and rest period, different combinations of muscle fibers are recruited and different training goals are achieved. A set performed with adequate (balanced) resistance and duration produces an oxygen deficit in the muscle cells, causing fatigue or failure within a predetermined number of repetitions. As the resistance (weight lifted) increases, fewer repetitions are usually performed, and rests between sets are longer. After a rest of thirty seconds for foundational fitness, to as much as three to five minutes for power athletes, oxygen has been restored and the muscles are able to perform again. The more sets performed, the greater the training demand.

POWER

To develop power, perform exercises with as much weight as possible for 4 to 10 repetitions in 3 to 5 sets, with a rest period of 1 to 3 minutes. To elicit an adaptive response the last 2 repetitions of each set should feel difficult to perform.

STRENGTH

To develop strength, perform exercises with as much weight as possible for 12 to 15 repetitions in 1 to 3 sets, with a rest period of 30 seconds to 1 minute. To elicit an adaptive response, the last 3 repetitions should feel difficult to perform.

ENDURANCE

To develop endurance, perform exercises for 15 repetitions or more, including intervals of 1 to 3 minutes, 1 to 3 times with as much weight as possible and no rest period between exercises. To elicit an adaptive response, the last 15 seconds should feel difficult to perform.

THE WORKOUT

1. Begin with a 10 to 20-minute warm-up of aerobic exercise to prevent injury. Divers with more lean muscle mass benefit from a longer warm-up.
2. Finish the workout with an additional 10 to 20 minutes of aerobic exercise to prevent soreness. For fat loss, continue an additional 10 to 20 minutes.
3. Combining power, strength, and endurance into the same exercise session may initially result in increased "delayed onset muscle soreness" (DOMS). DOMS, if it occurs, should peak and subside within 24 to 36 hours after the workout.
4. Work into the routine gradually and at an individual level.
5. Stay well hydrated before, during, and after the workout.
6. As with any exercise program, as the workout gets easier, continue to safely increase the resistance.

BEGINNER

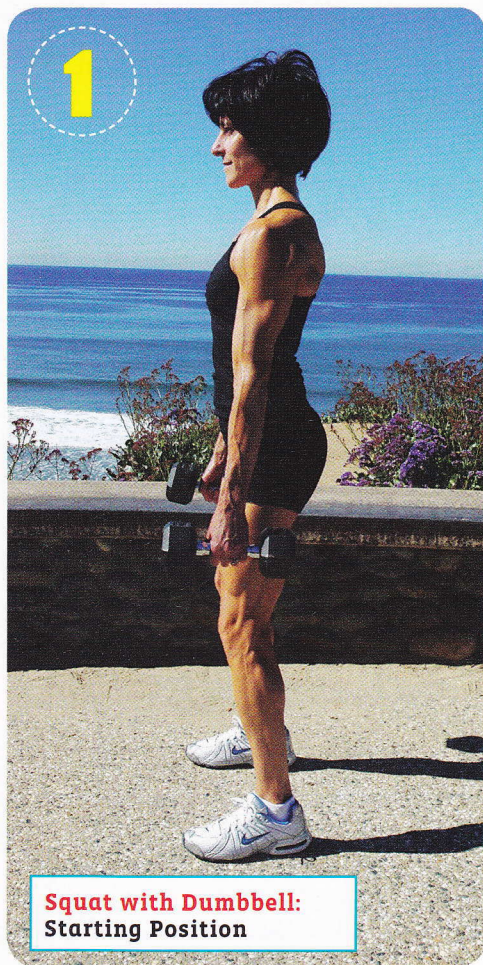
To begin, perform each exercise for POWER one set, for STRENGTH one set, and for ENDURANCE one set, then repeat one to three times.

ADVANCED

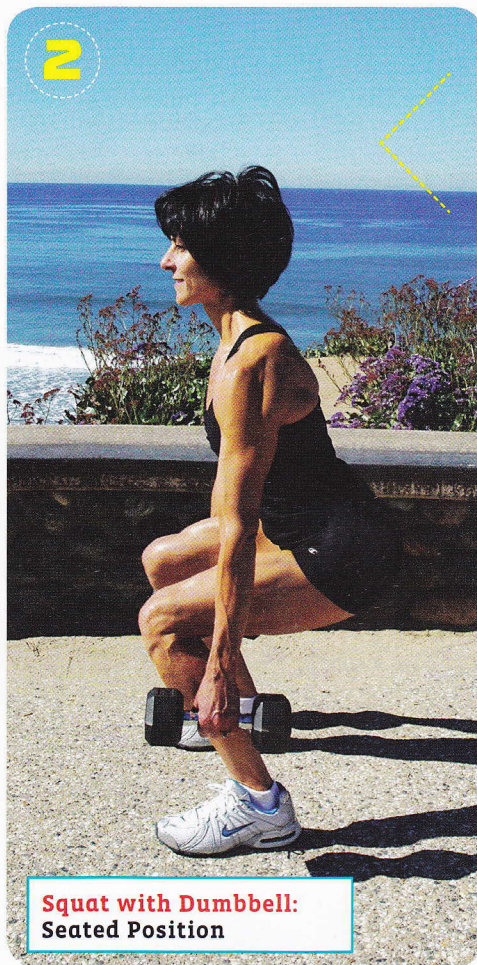
For an ultimate "kick butt" workout, perform each exercise for the entire POWER sequence (five sets), then for the entire STRENGTH sequence (three sets), then for the entire ENDURANCE sequence (three sets) before moving on to the next exercise. Select at least three to five exercises.

Options

- The featured exercises are presented with dumbbells but may also be performed with barbells and plates, or modular fitness machines.
- Additional lower body exercises include, but are not limited to, the Leg Press, Smith Machine, Wall Sit, Leg Extension, Leg Curl, Dead Lift, Adduction, Abduction, and Calf Raise.
- Equipment may be mixed and matched for additional variety. For example, a leg press is ideal for power exercises because greater weight can be used to perform the exercise. Cable stations may be well-suited to endurance sequences.
- Be creative and safe. Select and perform only those exercises well-tolerated by individual fitness and mobility (i.e., use caution with any knee, back or musculoskeletal conditions).



Squat with Dumbbell:
Starting Position



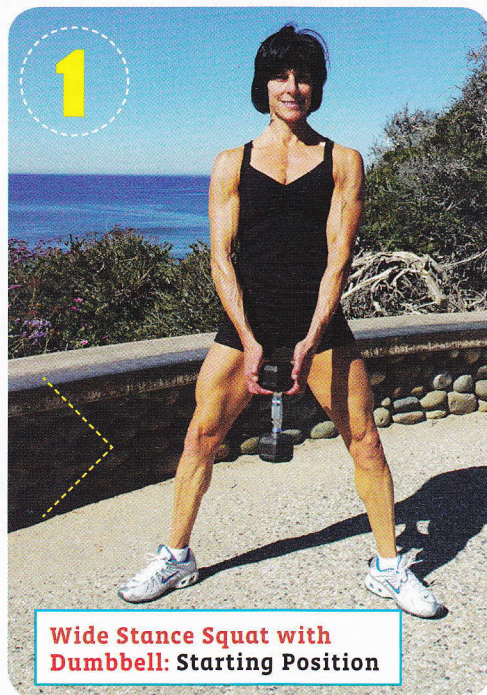
Squat with Dumbbell:
Seated Position

Squat

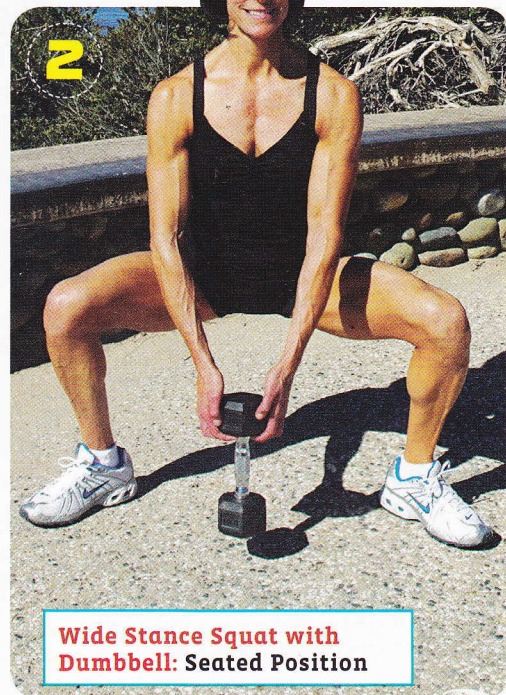
To perform the squat, hold dumbbells alongside the body, contract the abdominals, inhale deeply through the nose, and sit down and back as if reaching for a chair that is too far away. Bend the knee and hip joints until right angles are achieved at each joint and at the ankle. Knees should always be just above or behind the toes. The dumbbells may shift forward and the head may look up slightly to help maintain form. To reverse the exercise, exhale through the mouth, contract the glutes (buttocks) and extend the knee and hip joints returning to the starting position. Precaution: Do not lock-out the knees or look down.

Wide Stance Squat with Dumbbell

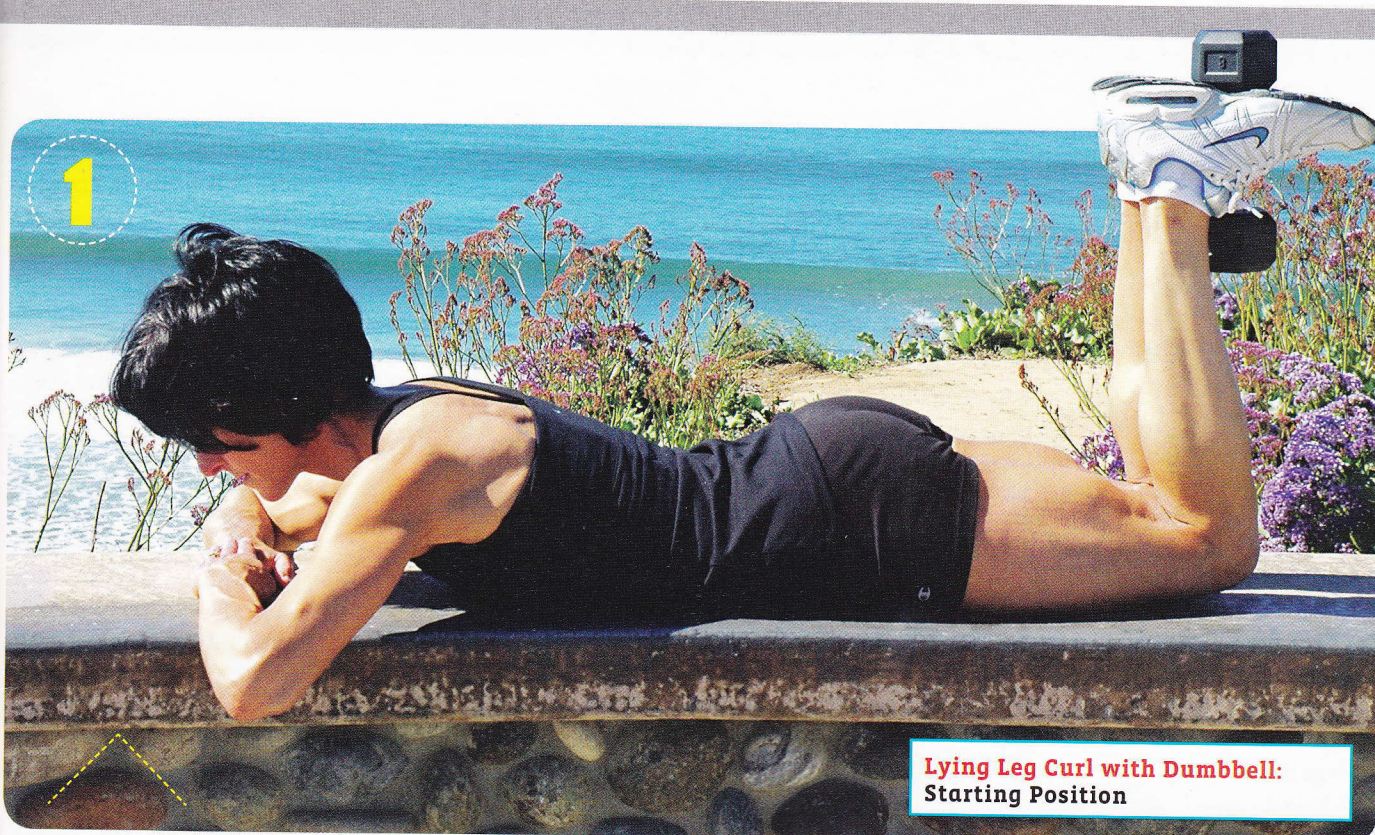
Set up a wide stance as shown with one dumbbell in front of the hips and contract the abdominals. Make sure the hip joints are slightly rotated away from center so that the knees and toes are aligned when viewed down the length of each leg. Use the same form as described for the Squat. Precaution: Keep knees behind the toes. Do not lock-out the knees or look down.



Wide Stance Squat with Dumbbell:
Starting Position



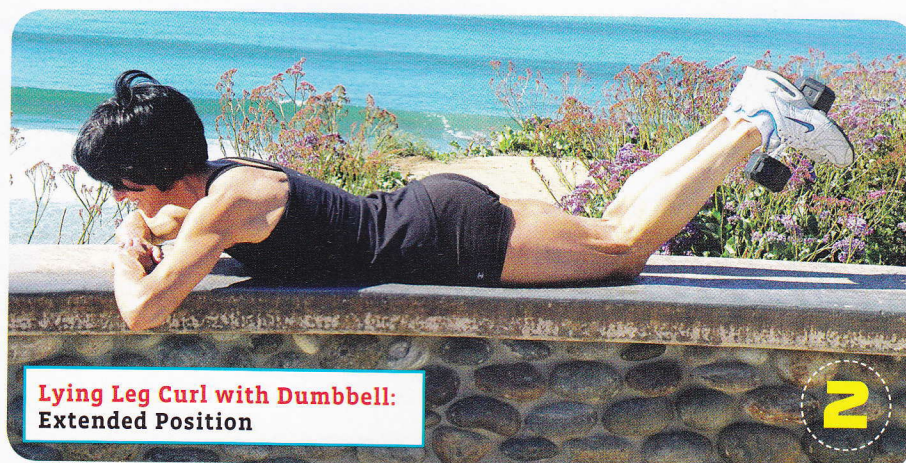
Wide Stance Squat with Dumbbell:
Seated Position



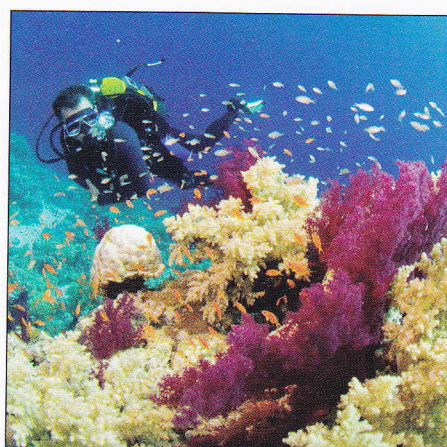
**Lying Leg Curl with Dumbbell:
Starting Position**

Lying Leg Curl with Dumbbell

The lying leg curl with a dumbbell is a challenging way to train the glutes and hamstrings. By squeezing the inner thighs together during the exercise divers will also purposefully work the adductors (inner) and abductors (outer) thighs. Stand the dumbbell on end on the floor or bench. Grasp it between the arches of the feet allowing the end of the dumbbell to rest on the bottom of the feet as shown. Contract the abdominals and glutes to protect the low back during this movement. Keep the head aligned in neutral spine as much as possible. Inhale and extend the knee joints while lowering the weight as close to the floor as possible without dropping the weight or putting pressure on the knees. Exhale while flexing the knee joints and raising the weight toward the buttocks. Precaution: Do not allow the front of the hips to lift off the bench or floor. If this happens, lower the weight until the exercise can be performed with safe and proper form.



**Lying Leg Curl with Dumbbell:
Extended Position**



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