

ED.— ALWAYS CONSULT A PHYSICIAN FIRST BEFORE BEGINNING ANY EXERCISE OR FITNESS PROGRAM.

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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 separate power, strength and endurance into off-season, pre-season and in-season programming. Scuba divers, however,

can develop their sea legs by combining power, strength and endurance into the same workout.

Time, tension and rest

To develop lower body fitness ideal for 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



Sea Legs

Power, Strength & Endurance for Diving



muscle fibers are recruited and different training goals are achieved. A set performed with the 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 from 30 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 four to ten repetitions for three to five sets with a rest period of one to three minutes. To elicit an adaptive response the last two repetitions should feel difficult to perform.

Strength

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

Endurance

To develop endurance, perform exercises for 15 repetitions or more including intervals of one to three minutes one to three 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

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.

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.

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.

Work into the routine gradually and at an individual level. Stay well hydrated before, during and after the workout. As with any exercise program, as the workout gets easier continue to safely increase the resistance.

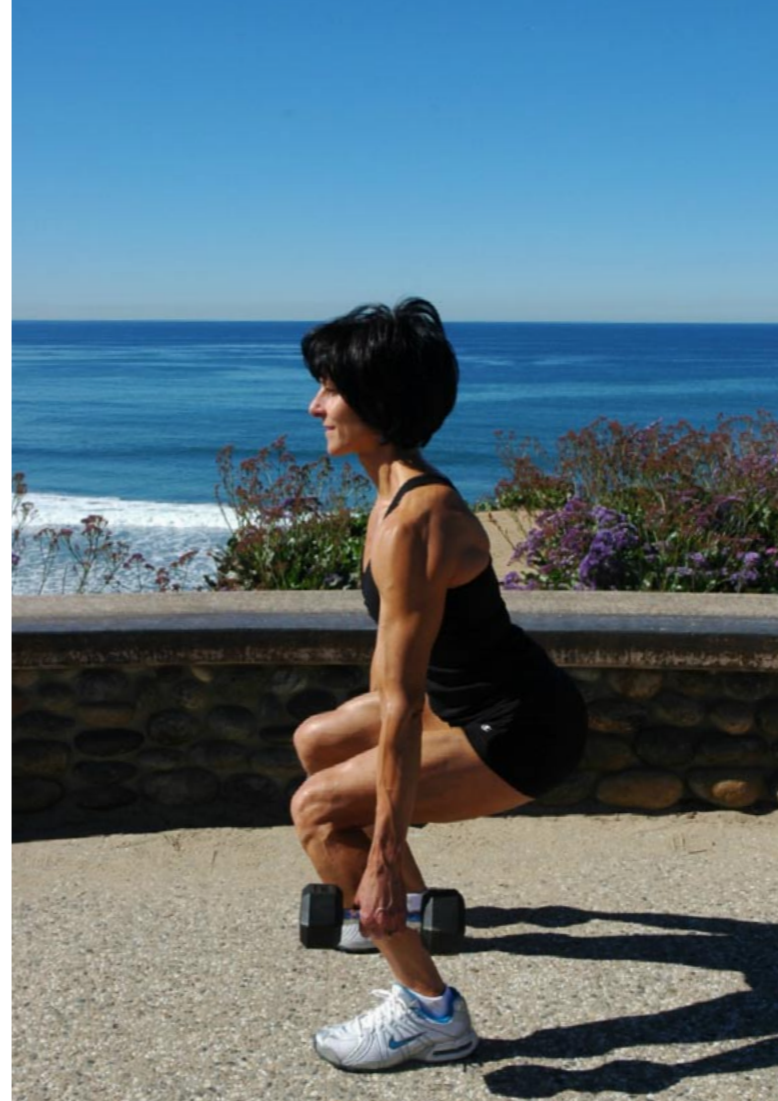
Beginner

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 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 three to five exercises.

Squat with dumbbells—starting position



Squat with dumbbells—seated position

Sea Legs

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

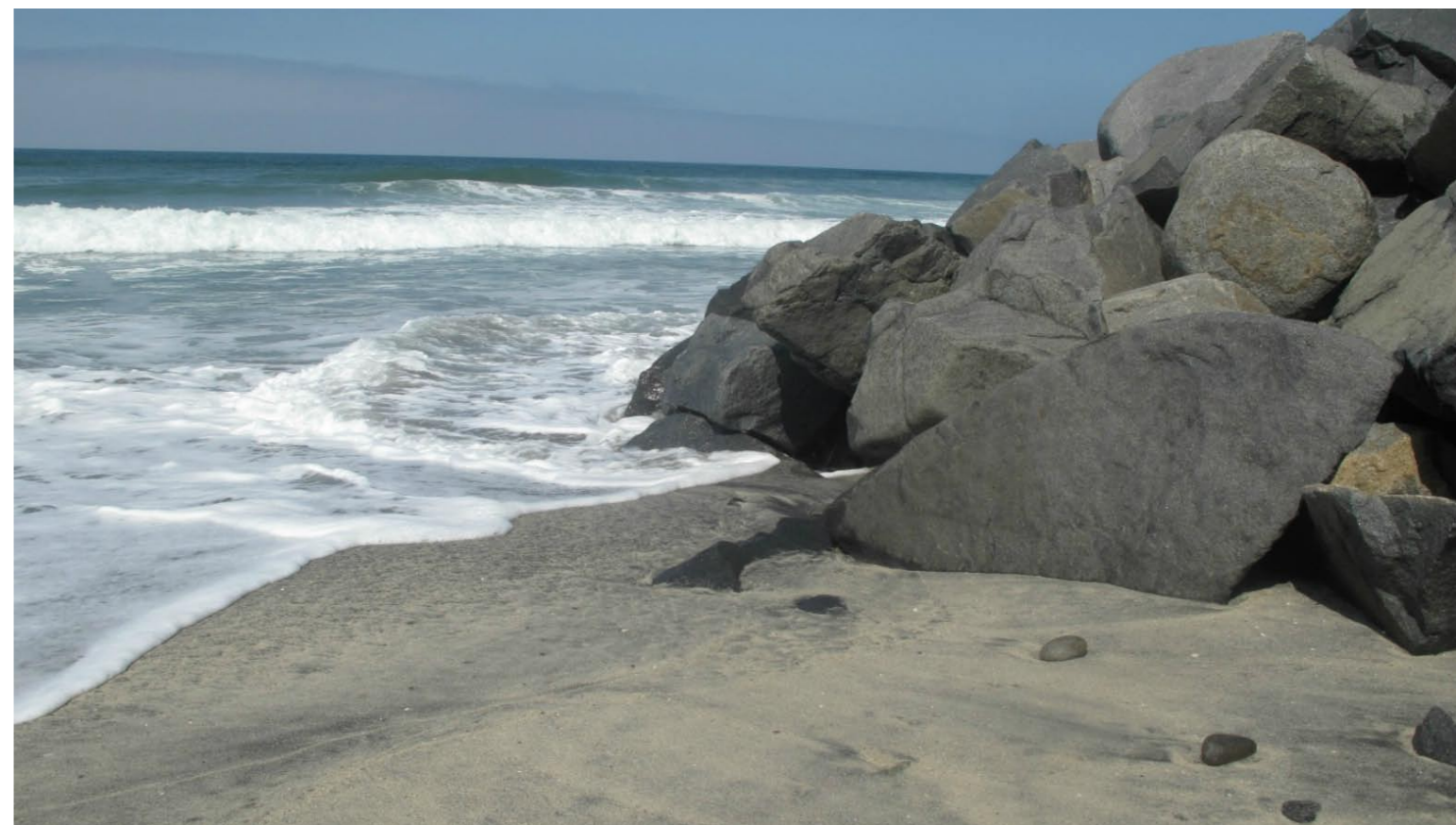
To perform the squat, hold dumbbells alongside the body, contract the abdominals, inhale deeply through the nose, and sit down and back as if reaching for a chair that is too far away. Bend the knee and hip joints until right angles are achieved at each joint and at the ankle. Knees should always be just above or behind the toes. The dumbbells may shift forward and the head may look

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.



Divers often have to navigate a beach entry while schlepping 50 to 70 pounds of dive gear on their backs



Wide stance squat with dumb bell—seated position

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 Dumb Bell

Set up a wide stance as shown with one dumb bell 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.

Lying Leg Curl with Dumb Bell

The lying leg curl with a dumb bell 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 dumb bell on end on the floor or bench. Grasp it between the arches of the feet allowing the end of the dumb bell 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. ■

Gretchen M. Ashton is registered with the Na-

tional Board of Fitness Examiners. An advanced diver, International Sports Sciences Association Elite Trainer, and world champion athlete, Ashton developed the ScubaFit® program and the comprehensive FitDiver® program, which includes the first mobile app for scuba diver fitness. Ashton is the co-author of the PADI ScubaFit Diver Distinctive Specialty course. For more information, visit: Scubafit.com

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Lying leg curl with dumb bell—starting position



Lying leg curl with dumb bell—extended position



Wide stance squat with dumb bell—starting position

