CALIFORNIA DIVER

Sea Star Inspiration: Exercise Aids Regeneration for Dive Fitness

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Sea stars fascinate us with their ability to regenerate. Some sea stars need the entire core of their body to regrow arms, but others can wholly develop a new body from just a piece of an arm and small portion of their core. It takes about a year to grow a new arm. There are about 2,000 species of sea stars living in our oceans, from tropical waters to the deep cold seas. The ones with five-arms are the most common, but species with 10, 20, and even 40 arms are known to exist.

Words and photos by Gretchen M. Ashton, CFT, SFT, SFN, CSS, NBFE

Did you know that humans also regenerate? Scientists use a similar method to estimate the rates of tissue renewal in the human body as they do to understand other aspects of life, like how long sea stars live and how coral reefs began.

Amazingly, cell renewal in humans is enduring and occurs at different rates throughout the body. Red blood cells live about four months and are regenerating at about 100 million cells per minute. The stomach cells change approximately every two to nine days, skin cells every 10 to 30 days, and the taste buds on our tongue are renewed about every 10 days. Not surprisingly, fat cells only change about every eight years.

The cells of the aveoli of the lungs become a complete new set approximately every eight days? The aveoli are the tiny sacs in the lungs where air exchange – the exchange of oxygen and carbon dioxide – takes place. It has been observed that the cells of the heart muscle also regenerate. Regeneration rates of the heart are wide ranging between 5% and 30% per year.

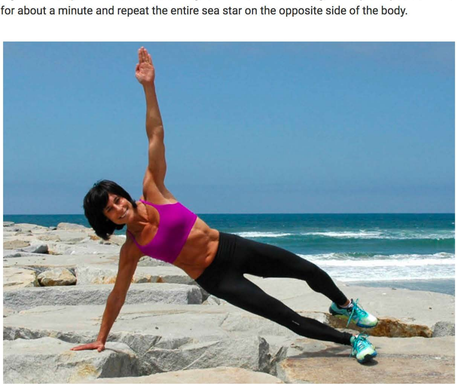
The best news yet is that exercise seems to help the body regenerate more efficiently. There is a biological basis for consistent and regular aerobic exercise to maintain the heart and lungs; and evidence that we can purposefully change the overall condition of the body and improve performance through exercise and healthy nutrition. This includes preventing, managing and reversing illness, injury and disease.

If diving isn't already enough motivation for a fitness lifestyle, knowledge of regeneration is profoundly inspiring. Regular exercise provides greater potential for a healthier body, better quality of life and added longevity…so we can dive more…of course.

Sea Star Exercise

The sea star exercise strengthens the entire core (torso) relative to arm and leg strength. It helps divers support the body on dry land and improve control of movements underwater. Begin in a straight arm plank position. Keep the core of the body tight by pulling in the abdominal muscles, aligning the low back into a natural (not overly arched up or down) position and with controlled breathing – regulating air gradually in and out of the diaphragm, not just the chest.

Carefully shift body weight to one side making sure the lower hand and foot are well planted. Pivot from the toe to the side of the foot. Briefly maintain a straight side plank with the arm and leg on the high side aligned along the body until well-balanced. The legs and arms are straight and strong but the knees and elbows are not locked out – keep them slightly relaxed at the joint to avoid strain. The muscles of the body should do the work rather than relying on the joints. The same protection is to be regarded for the shoulder joint – avoid sinking into the shoulder to support the upper body – use your muscles. Finish the sea star by raising the high side arm and then the leg as high as possible while maintaining proper form. Hold for one to three seconds, lower first the leg and then the arm. As the exercise becomes easier, the arm and leg may be raised at the same time. As strength progresses, repeat the arm and leg raise multiple times before returning to the two-handed straight arm plank position. Rest for about a minute and repeat the entire sea star on the opposite side of the body.



Sea star – starting position

Sea star – end position

Words and photos by Gretchen M. Ashton, CFT, SFT, SFN, CSS, NBFE

Gretchen M. Ashton, CFT, SFT, SFN, NBFE, is registered with the National Board of Fitness Examiners, and is an International Sports Sciences Association Elite Trainer; personal trainer, specialist in fitness therapy, specialist in fitness nutrition, and a world champion athlete. Gretchen is founder of ScubaFit LLC, developed the Comprehensive FitDiver®program, is an advanced scuba diver, nitrox diver, and co-author of the ScubaFit® Diver Course. She is an Expert Speaker for Los Angeles County Scuba Advanced Diver Program and Underwater Instructor Certification Course.