

Dr. Grayson Sellers

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Maxillofacial prosthetic technology and dental implants might give hope to a one-flippered Atlantic Green Sea Turtle.

Sea Turtle, Inc. calls on Dr. Sellers for advice.

Read more below.

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Our very own Dr. Sellers— *To the Rescue!*

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Dr. Grayson Sellers

Sea Turtle, Inc. contacted our very own, Dr. Grayson Sellers for advice on how to help an injured sea turtle that was missing 3 flippers. Here's how it happened.

A young girl named Allison, visiting South Padre Island with her family, found the turtle on June 16, 2005. Stranded on the beach, apparently the turtle had been attacked by a small shark because she had exposed bone and a series of bite marks. The turtle was taken to Sea Turtle Inc., a sea turtle rescue center on the island.

Named after the girl who found her, Allison healed from her wounds. The next step in learning to adapt to her disability was learning to swim with just one flipper. She now spends most of her days swimming in shallow water at Sea Turtle, Inc.

Since Dr. Sellers is well-known for his successful dental implants, it was thought that perhaps he could fabricate a flipper implant. Dr. Sellers recalls, "At first, I thought hummmm... treating turtles would be a little different than treating humans, but I'll do what I can to help." **(continued on back page)**



Left to right: Sea Turtle Inc. Curator Jeff George with Drs. Sellers & Cozad

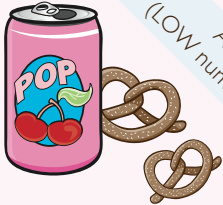


Comparing Sports & Energy Drinks, Soda Pop and Battery Acid

Sports drinks (Gatorade), designed to replace electrolytes after strenuous exercise, and energy drinks (Red Bull, Rock Star), marketed to boost energy levels, are increasingly popular. Diet drinks (Diet Pepsi) propose to keep you slim. But the fact is all of them are loaded with empty calories, sugar or High Fructose Corn Syrup (HFCS—the sugar that doesn't let you know you're overdoing it) and acid!

Unless you exercise strenuously for at least an hour, so-called sports drinks are of no value—unless you value adding pounds of weight and jeopardizing your teeth.

Sugar/Acid/Sodium Comparisons:

	ACID AMOUNT (LOW number is worst)	SUGAR AMOUNT (per 12 oz.)
 Battery Acid	1.00	0.0
(FOR COMPARISON ONLY. DO NOT DRINK BATTERY ACID!!!)		
Coca-Cola	2.53	9.3 tsp
Red Bull Energy Drink	70%*	39 g**
Rock Star Energy Drink	60 mg†	31 g
Full Throttle Energy Drink	160 mg†	37 g**
Hawaiian Fruit Punch	2.82	10.2 tsp
Squirt	2.85	9.5 tsp
Dr Pepper	2.92	9.5 tsp
Gatorade	2.95	3.3 tsp
Surge	3.02	10.0 tsp
DIET Pepsi	3.05	0.0
Orange Slice	3.12	11.9 tsp
Diet Fresca	3.20	0.0
Sprite	3.42	9.0 tsp
Barq's Root Beer	4.61	10.7 tsp
Minute Maid Orange Soda	3.29	11.9 tsp
PURE WATER	7.00	0.0

* Pantothenic Acid, ** HFCS, † Sodium

To the Rescue! (continued)

He then contacted his good friend, veterinarian John Cozad of the Port Isabel Animal Hospital, to assist him with this challenging, yet fascinating project. Dr. Sellers continues, "I knew dental materials were definitely a possibility, so I contacted the University of Texas Dental Branch. I needed someone who would take me seriously because I was asking for help building a prosthetic flipper, so I contacted Dr. Stephen Schwartz."



Drs. Cozad & Sellers at Sea Turtle Rescue Center

Schwartz, former president of the Texas Dental Association, and Catherine M. Flaitz, DDS, dean of the UT Dental Branch at Houston, arranged for Dr. Kiat-Amnuay's involvement.

Maxillofacial prosthetic technology and dental materials and techniques might give hope to a one-flipped Atlantic Green Sea Turtle named Allison, thanks to Drs. Grayson Sellers, John Cozad, Kiat-Amnuay, Thomas deMaar, & Sea Turtle, Inc!

The goal was to design a silicone flipper for Allison using a mold made from a frozen flipper from a turtle similar to Allison.

The group is testing three different types of silicones with varying weights and hardness to fabricate the prosthetic flipper. They will

select the one that has the closest properties to the real flipper. "Once the non-implant retained flipper is made and tested, we'll consider using a dental implant



Dr. Thomas W. deMaar

to attach it to her femur, which is about 12 mm in diameter. Using an implant is certainly within the realm of possibility, but there is an element of practicality that must be discussed and a group consensus must be reached," says Dr. Sellers.

Together, over the next several months, Doctors Cozad, Sellers and Kiat-Amnuay will be taking impressions of what is left of Allison's bone area where the prosthetic flipper will go. Sellers and Cozad, will work with Dr. Thomas deMaar of Gladys' Porter Zoo when anesthesia is necessary and group brainstorming is required.

To the best of Dr. Sellers' knowledge no one has ever attempted such a procedure, so trial and error is part of the plan as the doctors attempt to fit Allison's prosthetic flipper.

Similar prosthetics have been tried on dolphins; however, they have larger bones and different swimming movements.

EDITOR'S NOTE: According to the U.S. Fish and Wildlife Service, the green turtle is listed as endangered by the International Union for the Conservation of Nature.

It is very refreshing to work with medical colleagues who are thinking outside of the box. They are adapting high tech materials from humans to sea turtles, from facial implants to limb replacement, from fresh water to salt water applications. There are so many questions. For a wildlife and zoo veterinarian this is my bread and butter.

—Thomas W. deMaar, DVM