

Injured gymnast treated with cold recovering from spinal cord damage

21 February 2011, By Howard Cohen

A double flip gone wrong two weeks ago sent a 20-year-old Miami state champion gymnast to Jackson Memorial Hospital with a bilateral dislocation of two vertebrae. Jorge Valdez had attempted the double flip at a gym near The Falls in South Miami-Dade, Fla., while practicing for tryouts for a Las Vegas Cirque du Soleil production. During his routine, he landed squarely on his head.

The resulting spinal cord injury led to near complete motor and sensory failure, doctors said - no movement in his legs or hands, minimal arm movement. Valdez was airlifted to Ryder Trauma Center at Jackson Memorial Hospital in Miami and the prognosis wasn't great. Initially, doctors were not sure if he would walk again, let alone return to gymnastics.

Thursday, Valdez walked out of the hospital, ready to resume practice. Also remarkable, he won't need rehabilitation, his doctors say.

Valdez's unusual outcome is credited to hypothermic treatment, a relatively new procedure that uses cold for victims of severe trauma to reduce swelling and inflammation. [Neurosurgeon](#) Dr. Steven Vanni, from the Department of [Neurological Surgery](#) at the University of Miami Miller School of Medicine, performed the procedure.

"He was the perfect storm for this type of injury to happen here," Vanni said Thursday.

"We were able to immediately take him to the operating room and get his neck decompressed and fix the dislocation. Number two, we immediately started him on a hypothermia protocol to cool his body down to 33.5 degrees centigrade."

That's 92.3 degrees Fahrenheit. The normal temperature of the human body is 98.7 degrees Fahrenheit.

That cooling process reduces the amount of swelling and inflammation on the spinal cord to help prevent further damage. That's important because the spinal cord exists in a closed environment. Unlike a facial injury like a black eye, where there is room to swell, the tight quarters combined with swelling cause more damage to the spinal cord and can lead to paralysis.

Valdez's bilateral dislocation, in which the arms and legs are impacted, are usually complete injuries, Vanni said.

"Most patients don't make a functional recovery, and he just walked out of the hospital," he said.

The surgery took about two hours. But Valdez was kept cooled for 48 hours after the injury and slowly warmed before surgery.

The chilling is not unlike cases in which people who suffer near drowning revive even after long periods of time under water. The cold slows the body's metabolism which, in turn, slows the damaging inflammatory process.

The use of hypothermia to treat patients who suffered severe injuries to the heart, brain or spinal cord gained traction about five years ago when the American Heart Association recommended inducing hypothermia in some patients who had cardiac arrest. Doctors at Jackson Memorial soon adopted the recommendations.

Manny Gomez, a Miami police officer thrown from his horse during a Three King's Day parade, was the first South Florida spinal cord trauma patient to be treated with hypothermia by Vanni at Jackson in 2006. As with Valdez, doctors lowered Gomez's body temperature by several degrees for two days following his injury.

"He had a great recovery," Vanni said.

But Vanni adds that hypothermia treatment is not a cure for everybody with a spinal injury and there are risks involved.

"If you sever or cut the spinal cord, hypothermia is not going to fix it - nothing, yet, is going to fix it. If you bruise it badly, it can help," Vanni said.

In addition, the procedure's risk factors include pneumonia and blood clots.

Despite the severity of his injury, Valdez was a prime candidate for the hypothermia protocol because he didn't have any other injuries that would have complicated the procedure. Vanni was able to isolate the spinal cord and the treatment worked: "He was a perfect candidate."

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