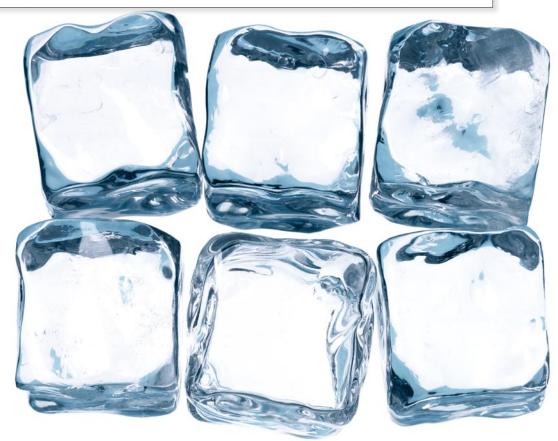
# **EWAITING ROOM**



THIS WAY IN

## A COOL IDEA

It speaks to the power of medicine when in six weeks a person can go from being paralyzed from the shoulders down to taking small steps.

The recovery of Buffalo Bills' tight end Kevin Everett, who fractured his cervical spinal cord in a Sept. 9 season opener with the Denver Broncos, is being closely watched by football

fans and medical experts alike. His story not only offers hope for people with spinal cord injuries but also highlights a unique therapy that cools the body: hypothermia.

Everett, 25, fell to the ground after attempting a headfirst tackle of Broncos' Domenik Hixon. After lying motionless on the field for about 15 minutes, Everett was transferred to an ambulance, where orthopedic surgeon Andrew Cappuccino, M.D., lowered his body temperature by infusing him with ice-cold saline.

Within eight days of his injury, Everett showed increased strength in his legs and some move-

ment in both hands, according to a Sept. 17 statement from Bills' team medical director John Marzo, M.D. On Oct. 17, Everett announced that with the assistance of a walker, he'd taken his first steps. His progress could be partially explained by the fact that he didn't snap his spinal cord and therefore preserved some sensation below the area of injury. About 40 percent of people with this type of fracture improve somewhat, consulting neurosurgeon Kevin Gibbons, M.D., told the media on Sept. 12.

"Did hypothermia have any effect on [Everett's] improved outcome? We don't know, because it's just one patient," says W. Dalton Dietrich, Ph.D., scientific director of the Miami Project to Cure Paralysis, which is a leader in hypothermia research. "It's still an

experimental treatment; it's not a standard of care."

Cooling the body prevents many of the inflammatory cascades that lead to cell death immediately after a stroke, brain injury, or spinal cord injury, Dr. Dietrich says. Existing drugs usually target only one of these damaging mechanisms. "We now know that those [drugs] might not work in very complicated brain and spinal cord injuries," he says.

Hypothermia, according to Dr. Dietrich, works against four processes that are usually triggered after a spinal cord injury: an increase of water in the spinal cord that causes swelling of tissue and com-

Cooling the body can prevent cell death after a stroke, brain injury, or spinal cord injury.

pression of the cord (edema); inflammatory responses that lead to the death of spinal cord cells; the formation of free radicals, which damage cells; and apoptosis, a mechanism by which cells generate proteins that lead to their own death.

"Hypothermia blunts these processes and sometimes inhibits them completely," Dr. Dietrich says.

Researchers in Miami are studying the use of hypothermia in people with brain or spinal cord injuries. A cooling catheter is inserted into patients' large blood vessels to lower their body temperatures to 33 degrees Celsius. (Normal body temperature is about 37 degrees Celsius). Cooling is maintained for 48 hours followed by a re-warming of one degree every eight hours.

Hypothermia has been around since at least the 1960s, says Dr. Dietrich, but it is not widely used, and most of the studies have been done in animals. This is because until recently. doctors have had trouble inducing and maintaining people at a cool temperature. New devices, such as cooling vests, helmets, and catheters, have made the process easier, he says.

The treatment does have risks. Eugene Fu, M.D., associate professor of clinical anesthesiology at the Uni-

versity of Miami, says that since cooling the body lowers its immune defense, hypothermia can expose people to infections. In addition, it can disrupt the process of blood clotting, which can increase the amount of blood lost during surgery, and in some people hypothermia can worsen ischemic heart disease, he says.

Stephan A. Mayer, M.D., director of the Neuro-ICU at New York Presbyterian Hospital-Columbia University Medical Center, has been using hypothermia for stroke, cardiac arrest, and brain injury since 1996. Dr. Mayer, a consultant for Medivance, a company that makes a cooling device, says hypothermia reduces elevated intracranial pressure (which can cause brain damage) in people with these injuries. The benefits are clear, he says: "I know that in facing almost certainly a lifetime of paralysis, if there's even a chance that it will protect my spinal cord and get me better, I'd want it." —Stephanie Cajigal



Six weeks after injuring his spinal cord Buffalo Bill **Kevin Everett** announced that he had taken his first steps.

#### **OUICK TIPS**

### **Exercising With Epilepsy**

ost people—including those with epilepsy—find exercise beneficial. And according to Joseph I. Sirven, M.D., associate professor of neurology at the College of Medicine, Mayo Clinic, Phoenix, AZ, "Seizures during sports activity are rare, and exercise may have anti-epileptic effects."

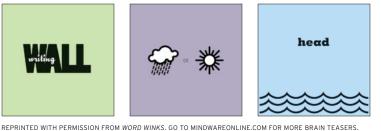
If patients are in "good control," then almost any type of exercise is fine, says Barbara Scherokman, M.D., a neurologist at the Mid-Atlantic Permanente Medical Group in Fairfax, VA. If not, they should stick to milder exercise such as walking. "By 'good control," we mean no seizures for a specified period of time," Dr. Scherokman says. Here are tips for exercising safely:

- **✓** EAT AND SLEEP: Sleep deprivation and hypoglycemia are both associated with increased seizure risk.
- ✓ STAY COOL: Take frequent breaks, hydrate, and save your greatest exertion for the coolest part of the day.
- **☑** BE WARY IN WATER: Wear a life vest when you are on, in, or around water.
- PROTECT YOUR HEAD: Wear protection when playing contact sports or when there is an added risk of falling or head injuries, or avoid contact sports altogether.
- **☑** USE THE BUDDY SYSTEM: If you ski or hike, go with a buddy in case you have a seizure in a remote area; and swim with a buddy who is a strong swimmer. Even walking is safest when done with a friend.

#### **NEUROBICS** Can you figure out the common expression represented by each picture?











SEE ANSWERS ON P 12

## **WAITING ROOM**

**NEUROLOGY NEWS** 

## Childhood **Abuse May Lead** to Migraine

omen with a childhood history of abuse may be at increased risk for depression and migraine, a new study reports.

Researchers surveyed 949 women who had 15 or more headaches a month: 38 percent reported physical or sexual abuse, and about 12 percent said they had experienced both physical and sexual abuse in the past.

Women with migraine and major depression were four times more likely to have a history of childhood maltreatment, while those with migraine and less severe depression were twice as likely, according to the Sept. 4 study in the journal Neurology.

"The extreme stress that can occur in that kind of situation actually changes the brain," says lead researcher Gretchen Tietjen, M.D., professor and chair of neurology at the University of Toledo College of Medicine in Ohio. "It can change future responses to stress,

> and probably makes a person more vulnerable later in life to pain syndromes, depression, and mood disorders."

> Similarly, a survey of 225 men and women by Dr. Tietjen and colleagues published in June in the journal Headache found that those with migraine as well as fibromyalgia, depression, anxiety, and irritable bowel syndrome were more likely to report a history of physical or sexual abuse.

Fred Sheftell, M.D., director of the New England Center for Headaches in Stamford, CT, says abuse may sensitize parts of the brains involved in pain and emotional expression, which in turn may trigger migraines.

"I don't think that everyone who has bad migraines has been abused," Dr. Tietjien says. However, she does encourage people with headaches to tell their doctors if they have experienced abuse so that they can refer them to counselors or psychiatrists for therapy. "I think doing those things leads to a better playing field for treating the headache," she says. — Stephanie Cajigal



#### SCREENING ROOM

## The Diving Bell and the Butterfly

(Focus Features, 2007; in French, with subtitles)

trokes can cause varying degrees of disability. However, you probably won't be prepared for the level of confinement meticulously described in The Diving Bell and the Butterfly. The film tells the true story of Jean-Dominique Bauby, a fashion magazine editor in Paris who, after his stroke and subsequent coma at the age of 43, was totally paralyzed except for the muscles in his left eye.

Directed by Julian Schnabel (whose work here netted him the top director award at Cannes), the film is shot from the point of view and through the eyes of Bauby, portrayed by Mathieu Amalric. Bauby hears everything—including the horrifyingly dire prognosis of his doctors about his fate to live in this "locked-in" syndrome indefinitely while his intellect and imagination remain indelibly sharp. His awareness that the life he once knew is over is represented by the recurring image running through his head of being trapped in a diving bell, an old-fashion underwater suit, sinking to the bottom of the ocean.

What the film also conveys—magnificently—is Bauby's triumph in achieving communication. One caregiver creates a system that involves speaking the letters of the alphabet, which allows Bauby to blink when the sound he wants is spoken. Stringing those sound-representations together, although time consuming, allows him to create sentences. The miracle is that Bauby dictated an entire book, The Diving Bell and the Butterfly (on which the film is based) using this blink system. The symbolic butterfly of the title is the unfettered, sky-bound antithesis of the leaden diving gear. Bauby died days after his book was published in 1996, but The Diving Bell and the Butterfly is a testament to the power of the imagination to transcend the confines of illness.

Although much of the film's content is somber, with Amalric giving an unselfconscious and deglamorized portrayal of an extreme invalid state, we see the relentless spirit of several women, including the mother of his children, a former lover, and various therapists at the facility in Normandy where he was cared for. Those who are caregivers to loved ones who have suffered strokes will draw strength from watching what one man accomplished because people refused to give up on him, which allowed Bauby not to give up on himself.—Coeli Carr

NEUROBIC ANSWERS FROM P. 11: WRITING ON THE WALL; RAIN OR SHINE; HEAD ABOVE WATER; FOR CRYING OUT LOUD; STRAIGHT FROM THE HORSES MOUTH. GO TO MINDWAREONLINE.COM FOR MORE WORD WINKS.