



# Handling Vertigo

New evidence supports the benefit of the Epley maneuver for a common type of vertigo.

BY TOM VALEO

**R**obert Eisenhardt was sleeping on his right side when the alarm went off. As he rolled over to shut it off, his eyes started twitching rapidly from side to side. Eisenhardt became so dizzy, he thought he would vomit. He remained still for a few minutes until he felt able to get out of bed and into a chair, where he remained for nearly three hours until he recovered enough to stand up.

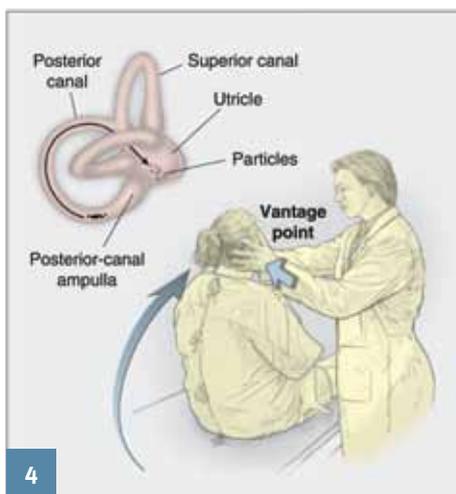
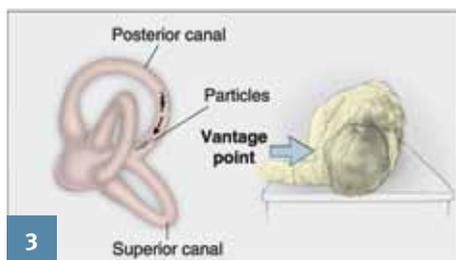
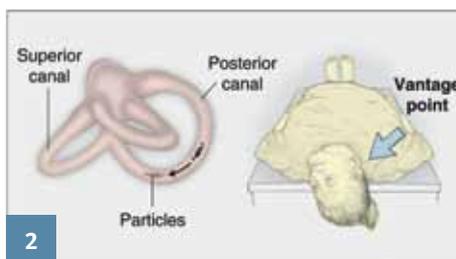
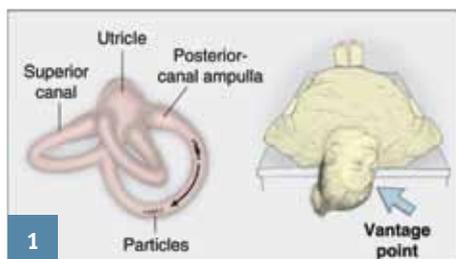
The next night he rolled over in his sleep and was awakened by the same overwhelming vertigo.

"I really thought I was going to roll out of bed," says Eisenhardt, 68, who lives in Richmond, MI. "I actually hit my arm on the wall trying to straighten myself out."

Eisenhardt made an appointment to see Kevin Kerber, M.D., a member of the American Academy of Neurology (AAN) and an expert on dizziness at the University of Michigan Health Systems in Ann Arbor, 80 miles away. Dr. Kerber quickly diagnosed the problem as benign paroxysmal positional vertigo (BPPV).

Vertigo, which is the illusory feeling that you or the environment is moving or spinning, can have a number of causes, ranging from an inner ear infection to a brain tumor. But if the vertigo comes in brief episodes triggered by head movements, it's probably BPPV. And Dr. Kerber knew exactly what to do: the Epley maneuver.

He had Eisenhardt sit on the examining table. Then, holding Eisenhardt's head, Dr. Kerber turned it about 45 degrees to the right and swiftly tipped Eisenhardt backwards until he was flat on his back with his head hanging slightly over the table's edge. Dr. Kerber observed Eisenhardt's eyes move side to side, a sign of BPPV known as nystagmus. When the nystagmus stopped, he had Eisenhardt



## ROLLING WITH IT

**Canalith repositioning procedure (Epley maneuver) for benign paroxysmal positional vertigo, which occurs when tiny particles called otoliths leave the utricle and settle into one of the ear canals. The procedure moves the particles back to the utricle.**

roll onto his left side while cradling his head until it was facing downward toward the floor. Dr. Kerber held his head in that position for about a minute. (For a video demonstration of the maneuver from the AAN, go to <http://bit.ly/xQdXe1>.)

By the time Dr. Kerber returned Eisenhardt to a sitting position, the vertigo had all but disappeared. A disorder that had disrupted his ability to eat, sleep, and work yielded to a strange but simple procedure that took less than 5 minutes to perform.

"You studied to be a doctor for this?" Eisenhardt joked.

## BETTER EVIDENCE FOR REPOSITIONING MANEUVERS

Although doctors have known for years that the Epley and similar maneuvers can effectively treat BPPV in the vast majority of cases—usually 80 percent

or more in most studies—good evidence has been lacking. In 2008, the AAN issued a guideline that reviewed evidence for the various "repositioning maneuvers" used to treat the condition. Evidence for the effectiveness of some of these maneuvers, such as a version of the Epley called canalith repositioning, was strong. Evidence for the effectiveness of others, such as the Gufoni maneuver—in which the doctor tips patients onto their side rather than onto their back—was weak. (Go to <http://bit.ly/jext80> to read the guideline and <http://bit.ly/aoknbo> for an explanation of levels of evidence.)

Just recently, however, Korean researchers published a study in the AAN's journal *Neurology* that compared the Gufoni maneuver—and another maneuver that the authors called therapeutic head shaking—to a sham treatment that would provide

no known benefit. The patients were randomly put into one of the three groups. In addition, none of them knew which group they were in (they were “blinded” to which group they were in to lessen the possibility that their expectations would affect the outcome, known as the “placebo effect”). During the initial visit, 73.1 percent of the patients who received the Gufoni maneuver reported that their vertigo had disappeared, compared to 62.3 percent of those who received the other maneuver. Only 34.7 percent of those who received the sham treatment (the “control group”) reported similar improvement.

Timothy Hain, M.D., one of the authors of the 2008 guideline who found the evidence supporting the Epley and similar maneuvers for BPPV to be weak, was gratified to see that the Korean researchers compared the treatment group to a control group.

“That’s a big step forward,” says Dr. Hain, a member of the AAN and a professor at Northwestern University Medical School in Chicago whose license plate reads, “DIZZY DR.”

“All the previous studies showed quite good results for almost any maneuver, but they were not controlled. This paper, while it has a number of factual and study design errors, did include a control group. I’m happy that a blinded study shows that these maneuvers work for BPPV.”

#### **GET THOSE OTOLITHS OUT OF MY CANAL!**

The simplicity of treating BPPV by manipulating the position of the patient’s head contrasts sharply with the complexity of the vestibular system in the inner ear, where the vertigo originates.

A little pouch called a utricle located within each ear has three loops (“canals”) extending from it at right angles to each other. The utricle and the canals are filled with fluid. The utricle contains about 1,000 tiny pebbles known as otoliths

made out of calcium carbonate, a mineral found in eggshells and clam shells. These tiny “rocks,” as doctors often call them, press against hair-like nerves that extend into the utricle. The pressure increases in response to gravity and head motion. In response to such pressure, the nerves send messages about the position of the head to the cerebellum at the back of the brain.

BPPV begins when a few of these tiny otoliths wander from the utricle and settle into one of the canals. As the rocks roll around in the canal, they produce signals that tell the brain that the head is moving much more than it really is, which produces a powerful sense of vertigo.

“BPPV is called ‘benign’ because it’s not going to kill you, ‘paroxysmal’ because it’s recurrent, and ‘positional’ because it’s triggered by changes in the head’s position,” Dr. Kerber explains. “The typical triggers involve lying down, rolling over in bed, and tilting the head.”

Although descriptions of dizziness go back to ancient Egypt, an understanding of the problem didn’t begin to emerge until the late 19th century. The condition was described in 1921 by Robert Bárány, an Austrian physician who won the Nobel Prize in 1914 for his work on the physiology and pathology of the vestibular system. In 1962 Harold F. Schuknecht, M.D., a professor of otology and laryngology at Harvard Medical School, attributed the vertigo to detached otoliths that entered the canals that loop from the utricle like the handles on a coffee mug. This hypothesis inspired a variety of positional manipulations intended to move the otoliths, including one, introduced in 1980 by Portland ear surgeon John M. Epley, M.D., that has become the maneuver most widely used today to treat BPPV.

“A patient with benign paroxysmal positional vertigo is **more likely to be radiated** than rolled over.”

—KEVIN KERBER, M.D.

“When we look at clinical care today, we see a lot of people with BPPV who are not being treated correctly,” says Dr. Kerber, whose research includes identifying ways to disseminate

and implement simple treatments for vertigo. “They often get CT scans, MRIs, and other unnecessary tests, but frequently they don’t get repositioning treatment. This is really a shame, because it is a simple, quick, and proven intervention that helps people.”

In a recent editorial written for *Neurology*, Dr. Kerber wrote that “Despite more than 20 years of literature on the Epley maneuver, a patient who presents with BPPV in routine care is more likely to be radiated (i.e., undergo a head CT) than to be rolled over (i.e., cured with the repositioning maneuver).”

“The maneuvers for posterior canal BPPV are simple, straightforward, and highly effective,” Dr. Hain says.

So simple, in fact, that patients may be tempted to perform the maneuver on themselves. However, most experts recommend seeing a doctor instead. One major reason: the dizziness could be caused by a stroke or some other, less-common but far more serious condition.

“Last week I had a patient who thought he had positional vertigo, but he had a brain tumor,” Dr. Hain says.

“Another danger is that people who try to treat their own BPPV could make themselves worse. If you’re treating yourself for posterior BPPV, which is relatively innocuous, you could roll the rocks from the posterior canal to the lateral canal, and that’s a much worse condition. With lateral canal BPPV people are dizzy not only when lying down, but also when sitting up and walking. The best thing to do is see someone who can diagnose you properly, and then treat you.”