

# Obesity may be risky for your hearing and brain

January 29 2014, by Cindy Starr

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Supporting evidence of a possible link between obesity and the spontaneous leakage of cerebrospinal fluid through the ear has been presented by researchers at the University of Cincinnati Neuroscience Institute (UCNI).

The study, led by Ravi Samy, MD, director of the Cochlear Implant Program at the UC Neurosensory Disorders Center, was published online last month in *The Laryngoscope*.

The Neurosensory Disorders Center is one of 13 centers or programs of UCNI, a partnership of the UC College of Medicine and UC Health.

"Spontaneous [cerebrospinal fluid](#) leaks are on the rise," says Samy, professor of otolaryngology–Head and neck [surgery](#) at UC.

"Traditionally, leaks were caused by infection, surgery or trauma, and were rarely spontaneous. Now spontaneous cases occur more often. Why that is happening, we don't completely understand. But it is likely another reason why obesity is bad."

The rate of spontaneous CSF leak has increased from about 3 percent of all CSF leaks in the 1980s to between 25 and 59 percent of all leaks in recent years, according to studies published in 2009 and 2011.

Cerebrospinal fluid, or CSF, is a clear, colorless, constantly circulating fluid that bathes and cushions the brain and [spinal cord](#).

How does CSF escape from the brain and spinal cord to leak out of the ear? Sometimes a sac-like protrusion of the brain can swell through the openings in the skull. When that happens, CSF can leak out of the nose or ear as clear fluid or pool underneath the ear drum.

Complications can include [hearing loss](#) or meningitis (infection of the lining of the brain). The leak must be repaired surgically to stop further damage.

When the authors looked back at the medical records, they found 55 [patients](#) who had surgery to repair a CSF leak from the ear. They asked, "Why had these leaks sprung and did they affect hearing?"

Surprisingly, the leaks were spontaneous in three-quarters of these patients. After surgery, 10 percent of patients had hearing loss.

The patients had one striking feature in common: they were obese, with a body mass index (BMI) of 30 or more.

"This study is evidence of yet another health risk of obesity," Samy says. "Obese patients face a higher risk of complications not only during surgery to repair the leak, but also for another leak erupting after repair as well as for meningitis and hearing loss."

Hearing loss is compounded by the strain of [obesity](#) itself, the CSF leak and potential risks of the surgery.

Controversy continues about how CSF leaks might develop. Experts agree that encephaloceles can be the result of a birth defect or chronic ear infection or trauma. Obesity may also play a role because it often occurs with intracranial hypertension. The increased pressures may cause a wear-and-tear affect, thinning the inside of the skull, which then creates an opening for the CSF to effuse into the ear.

Samy reaffirms the importance of maintaining a healthy weight. CSF leaks can be repaired, but the surgery can be complicated and leakage can recur. Given the spike in the rate of spontaneous CSF leaks, he adds, doctors should be alert for symptoms in their overweight patients.

**More information:** Son, H. J., Karkas, A., Buchanan, P., Giurintano, J. P., Theodosopoulos, P., Pensak, M. L. and Samy, R. N. (2013), Spontaneous Cerebrospinal fluid effusion of the temporal bone: Repair, audiological outcomes, and obesity. *The Laryngoscope*. [DOI: 10.1002/lary.24484](https://doi.org/10.1002/lary.24484)

Provided by University of Cincinnati Academic Health Center

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