

Can major surgeries cause a long-term 'brain drain'?

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(HealthDay)—Before any surgery, you typically hear warnings about

risks like bleeding and infection, but new research suggests that problems with thinking or memory can often follow a major procedure.

The study found that people who had [surgery](#) had an increased risk of a small, long-term decline in cognitive function years later. Cognitive function is your ability to think, reason and remember.

After surgery, folks had nearly twice the risk of developing "substantial" cognitive decline during the two decades of the study.

But there's no need to panic, the researchers added.

"Our data suggest that, on average, [major surgery](#) is associated with only a small cognitive 'hit,' and while there was a doubling in the risk of substantial cognitive decline, this only affected a small number of patients," said senior study author Dr. Robert Sanders. He's an assistant professor in the department of anesthesiology at the University of Wisconsin, in Madison.

The researchers also noted that people admitted to the hospital and treated with medications ("medical admissions") rather than surgery had an even greater decline in their thinking skills.

Because the findings were based on repeated testing that measured a wide range of thinking abilities, the scientists can't say if these findings would be noticed by most people, though Sanders suspects they would not be obvious.

The study authors said the changes they noticed over time in thinking, memory and reasoning probably translated to about five months of [brain](#) aging.

Sanders said the researchers don't know how surgery might affect brain

function, and this study wasn't designed to tease out a cause-and-effect relationship. But inflammation, strokes, mini-strokes and medications around the time of surgery may be factors, he added. Anesthesia has also been suspected, but Sanders said other recent studies haven't found a connection.

The study was published online Aug. 7 in the *BMJ*.

Dr. Carol Brayne, who co-wrote an accompanying editorial and hails from the University of Cambridge in England, said there are probably multiple factors involved. "Some of these relate to who and why surgery is taking place, and some to the nature of the process right through anesthesia and surgery itself, and then post-op aspects. These will all be inter-related, too," she explained.

Both experts said the link between surgery and later brain aging is something that should be considered before surgery, though the benefits of a procedure will probably outweigh any risk of thinking changes in the future.

The study looked at data from more than 7,500 British civil servants. The participants were initially enrolled in the study in 1985 when they were between 35 and 55 years old. From 1997 to 2016, they were given up to five tests to measure their thinking skills, such as memory, reasoning and verbal fluency.

During the follow-up period, there were more than 4,500 operations and just over 4,300 medical admissions to the hospital. In addition, 151 people had a stroke.

The researchers controlled the data to account for the expected age-related decline in brain function. In addition to discovering that surgery was linked to a faster decline in brain function, the investigators found

that a medical admission to the hospital was tied to an additional 1.4 years of brain aging. Stroke led to an additional 13 years of brain aging.

Substantial thinking declines occurred in just 2.5% of people who weren't admitted to the hospital, but it happened for 5.5% of those who had surgery and nearly 13% of those who had been hospitalized for medical reasons.

Sanders said the researchers looked at many types of surgeries, and most had similar risks of thinking declines. However, emergency surgeries were associated with greater thinking declines than non-emergency procedures.

Both Sanders and Brayne said more research is needed to get a better understanding of this problem, which could ultimately help make having surgery safer.

More information: Read about the general risks of having surgery from [Stanford Health Care](#).

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