

# Less lung tissue removal needed for early-stage cancer, study finds

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Radiologist examining a chest X-ray of a patient. Credit: Shutterstock

Surgery that removes only a portion of one of the five lobes that comprise a lung is as effective as the traditional surgery that removes an entire lobe for certain patients with early-stage lung cancer, according to

results of a phase 3 multicenter clinical trial. The trial team was led by Dr. Nasser Altorki, chief of the Division of Thoracic Surgery at Weill Cornell Medicine and NewYork-Presbyterian/Weill Cornell Medical Center, and co-investigators from Duke University as well as investigators from 83 hospitals across the United States, Canada and Australia.

In the trial, reported today in the *New England Journal of Medicine*, the investigators compared outcomes for nearly 700 patients with early-stage [lung cancer](#), about half of whom were randomly assigned to "lobectomy" surgery, which removes the whole lobe, while the other half had "sublobar resection" surgery, which removes part of the affected lobe. Over a median follow-up period of seven years after surgery, the two groups did not differ significantly in terms of disease-free or overall survival, and the sublobar group had modestly better lung function.

Lobectomy has been the standard approach for early-stage lung cancer surgery for almost 30 years, but the study's results indicate that a subset of early-stage lung cancer patients would be better off, or at least no worse, with the more tissue-conserving sublobar surgery.

"This is a practice-changing study," said study chair and lead author Dr. Altorki, who is also the David B. Skinner, M.D. Professor of Thoracic Surgery at Weill Cornell Medicine and a cardiothoracic surgeon at NewYork-Presbyterian/Weill Cornell Medical Center.

Worldwide, [lung cancers are diagnosed in more than two million people, and nearly as many die of the disease, each year](#). The vast majority of cases fall into the category known as [non-small cell lung cancer](#) (NSCLC), which in its earliest stage—small and localized—is often treated with surgery alone.

An influential 1995 [clinical study](#) compared lobectomy to sublobar

surgery in patients with early-stage lung cancer and found much worse outcomes in the sublobar group—triple the rate of tumor recurrence and 50 percent higher mortality. That established lobectomy as the standard surgical approach for the disease.

However, since the 1990s, major improvements in imaging and determining the stage of the cancer have led to increased detection of smaller, early-stage lung tumors, prompting some clinicians to question whether lobectomy is best for such cases. A trial in early-stage lung cancer patients in Japan, published last year, found that a sublobar technique called segmentectomy had comparable outcomes to standard lobectomy, and even brought a modestly better chance of overall survival.

The new study was conducted in 83 clinical centers in the United States, Canada and Australia from 2007 to 2017. The researchers randomized 697 NSCLC patients to receive either sublobar surgery or standard lobectomy. Eligible patients were those with NSCLC tumors 2cm or smaller, with confirmed lack of lymph node involvement and negative scans for metastases—in other words, the lung cancer stage T1aN0. Additionally, eligible patients' tumors had to be "peripheral," in the outer third of the lungs, where the risk of tumor spread is lower.

The researchers found no statistically significant or clinically meaningful difference between the groups for any cancer-related outcome, including overall survival, disease-free survival and tumor recurrence.

In addition, as expected given the differences in the volume of tissue removed, the sublobar group scored modestly better on a standard measure of lung function six months after [surgery](#). That, and the fact that there may be other benefits to removing less tissue, should make sublobar resection the new standard for early-stage lung cancer cases of the type seen in the study.

"We're pretty confident that these results are real, and they tell us that [patients](#) don't always have to have a full lobe of their lungs removed to cure their cancer," said Dr. Altorki, who is also leader of the Experimental Therapeutics Program in the Sandra and Edward Meyer Cancer Center at Weill Cornell Medicine.

**More information:** Nasser Altorki et al, Lobar or Sublobar Resection for Peripheral Stage IA Non–Small-Cell Lung Cancer, *New England Journal of Medicine* (2023). [DOI: 10.1056/NEJMoa2212083](https://doi.org/10.1056/NEJMoa2212083).  
[www.nejm.org/doi/full/10.1056/NEJMoa2212083](http://www.nejm.org/doi/full/10.1056/NEJMoa2212083)

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