Strang Cancer Prevention Institute
Dedicated to Promoting Cure by Early Detection and Research to Prevent Cancer since 1933

Prevention
Lung Cancer Awareness Month November 2025

LUNG CANCER: INNOVATION IN PREVENTION AND DETECTION

Note to readers: Innovation is essential for cancer prevention. New analytic, diagnostic, and treatment methods, including precision medicine and artificial intelligence, continue to transform early detection and risk reduction. The Strang Cancer Prevention Institute, whose mission since 1933 has been to promote the cure of cancer through early detection and research, will continue to highlight important advances that improve patient outcomes and expand access to life-saving care.

SUMMARY: Lung cancer remains the leading cause of cancer death, but new advances are improving detection and prevention. Lung cancer screening remains highly underutilized, and artificial intelligence and better risk models are helping identify high-risk individuals more accurately. Prevention research is progressing through new evidence linking ultra-processed food intake with higher lung cancer risk, and the development of anti-lung cancer vaccines is on the horizon.

LUNG CANCER: RECENT INNOVATION IN DETECTION

1. Lung cancer screening remains the most underused lifesaving tool in the United States

A new major national study published in JAMA[1] shows that lung cancer screening could prevent about sixty-two thousand deaths over five years if every eligible person received yearly low-dose CT scans. Lung cancer still kills about 125,000 Americans each year, more than breast, colorectal, and cervical cancers combined, yet only eighteen percent of eligible adults are screened. Early detection matters because the five-year survival rate is about sixty percent when the cancer is found early, but falls below ten percent once it is advanced. Low screening rates are caused by poor public awareness, access barriers among lower-income smokers, and the complexity of determining who qualifies based on detailed smoking history. The study also argues that current criteria miss about half of the people who later develop lung cancer. Expanding eligibility and simplifying the rules could prevent an additional 30,000 deaths, saving more lives.

2. Artificial intelligence in lung cancer imaging

Evidence from more than 300 imaging studies shows that artificial intelligence can assist radiologists by improving the accuracy and consistency of CT interpretation.[2] Across studies, pooled sensitivity was about 86 percent, and AI tools often matched or exceeded traditional reading performance. The strongest contributions include reducing variability among readers and supporting screening programs that lack subspecialty expertise.

3. Better models to identify who should be screened

Risk prediction models that incorporate additional factors beyond age and smoking history can better identify people who are most likely to benefit from lung cancer screening.[3] These models account for elements such as family history, chronic obstructive pulmonary disease, low spirometry values, radon exposure, air pollution, and specific patterns seen in non-smokers, particularly in some Asian populations. Machine learning approaches that combine these variables more accurately select high-risk individuals and may help expand screening to those who need it most.

LUNG CANCER: RECENT INNOVATION IN PREVENTION

4. Ultra-processed foods linked to higher lung cancer risk

A large population-based cohort study reported in *Thorax* found that people who consumed the highest levels of ultra-processed foods had a significantly higher risk of developing lung cancer, even after adjusting for smoking and other health factors.[4] Ultra-processed items include packaged snacks, sugary drinks, instant noodles, and many convenience foods. While the study does not prove cause and effect, it highlights a potentially modifiable lifestyle factor and supports growing evidence that diet quality influences cancer risk. These findings open the door to nutritional approaches in lung cancer prevention.

5. Vaccines for lung cancer prevention take shape

Researchers are developing the first vaccines aimed at preventing lung cancer in high-risk individuals.[5] One project, "LungVax," uses technology similar to a COVID-19 vaccine to train the immune system to recognise lung cancer cells. Early clinical trials are underway for people aged 55–74 who are current or former smokers. These vaccines are not yet in clinical practice but represent a major shift in prevention thinking, moving from detection to **blocking cancer before it starts.**

Editor Michael P. Osborne MD, MSurg, FRCS, FACS President **Strang** Cancer Prevention Institute

REFERENCES
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[2] Yuan X, et al. Systematic Review and Meta‑Analysis of Artificial Intelligence in Lung Cancer Imaging Based Diagnosis and Prognostic Prediction. *npj Precision Oncology*. 2025.
[3] Khalife G, et al. A Systematic Review and Meta-Analysis of Lung Cancer Risk Prediction Models. *Acta Oncologica*. 2025.
[4] Wang K, et al. Association between ultra processed food consumption and lung cancer risk: a population‑based cohort study. *Thorax*. 2025;80(11):810‑817. doi:10.1136/thorax‑2024‑222100.
[5] Oxford University / Francis Crick Institute / University College London. LungVax vaccine programme: using neoantigens to prevent lung cancer. 2014, https://publicpolicyprojects.com/lung-cancer-hope-1-7m-funding-world-first-vaccine/

The Strang Cancer Prevention Cookbook

Reduce your Risk for Cancer by Eating a Healthy Diet!

Citrus Cranberry Sauce * 10 Servings

3/4 pound fresh cranberries, 1/2 cup packed brown sugar,
1 cup fresh orange juice, grated zest of 1 orange and 1 lime

In a medium saucepan combine all the ingredients. Bring to a boil, then lower the heat to simmer. Cover and cook until the cranberries burst open, about 10 minutes. Let the sauce cool and refrigerate.

Calories 70, Protein 1g, Carbohydrates 17g, Fat 0g, Cholesterol 0 mg, Dietary fiber 2g Saturated fat 1g
Major sources of Potential Cancer fighters:

Phytochemicals: plant polyphenols (flavonoids, phenolic acids) plant sterols, terpenes (carotenoids, limonene).

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THIS NEWSLETTER IS DEDICATED TO MARLENA GERSHOWITZ

November is Lung Cancer Awareness Month