INTERNET NEWS

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MEDBRIEF

Coronary Artery Calcium Scoring May Refine Heart Risk Estimate and Statin Decisions

Edited by Archita Rai

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TOPLINE

Adding coronary artery calcium (CAC) scoring to risk estimates helped better identify adults at lower and higher risk for atherosclerotic cardiovascular disease (ASCVD) events. People with no detectable CAC had lower observed risk, while those with CAC had higher observed risk, especially when the decision about starting a statin was uncertain.

METHODOLOGY

Researchers analyzed data from a US community-based cohort (MESA) to evaluate how CAC relates to ASCVD event rates across risk categories and groups of statin eligibility.

The analysis included 5698 adults without clinical ASCVD at baseline (mean age, 61.5 years; 52.8% women).

All participants underwent cardiac CT CAC scoring at baseline, which was categorized as 0, 1-99, or ≥ 100. Participants were also grouped based on the presence or absence of CAC (CAC = 0 vs CAC > 0).

Researchers calculated 10-year PREVENT-ASCVD risk, defined four risk tiers (< 3%, 3% to < 5%, 5% to < 10%, ≥ 10%), and categorized statin eligibility as not recommended, considered, or recommended per the 2026 dyslipidemia guideline of the American College of Cardiology/American Heart Association.

The outcome was incident ASCVD captured over 10 years.

TAKEAWAY

Participants not recommended for statins had 10-year ASCVD event rates of 1.2 per 1000 person-years with CAC = 0 vs 4.5 per 1000 person-years with CAC > 0.

Participants in the statin-considered group had 10-year ASCVD event rates of 2.7 per 1000 person-years with CAC = 0 and 5.2 per 1000 person-years with CAC > 0; those in the statin-recommended group had rates of 5.8 and 16.6 per 1000 person-years, respectively.

In participants with low-density lipoprotein-cholesterol levels of 70-189 mg/dL and no diabetes, CAC > 0 was linked to about twofold or higher event rates across PREVENT risk tiers.

Addition of CAC to PREVENT-based risk categories resulted in a categorical net reclassification improvement of 0.124, driven by appropriate reclassification of events and nonevents.

Blood test detects signs of Alzheimer's disease in midlife

02 thg 6 2026

Kanas Chan
Associate Editor; MIMS

Blood test can identify signs of accumulation of highly accurate Alzheimer's Disease (AD)–associated biomarkers in the brains of middle-aged adults, a large community-based cohort study has shown.

"AD neuropathology, characterized by amyloid ß [Aß] and p-tau protein accumulation, has primarily been assessed with biomarkers in clinical samples of older adults," wrote the researchers. "Less is known about plasma biomarkers of AD neuropathology and their associations with cognitive outcomes in midlife in diverse community-based samples." [*Lancet* 2026;407:2208-2216]

To address these gaps, the researchers identified 2,248 participants from the CARDIIA study who attended the year 35 clinical visit. Among them, 1,500 participants were randomly selected for plasma biomarker measurement, but 150 were excluded due to lack of cognitive measures, poor assay quality, and probable dementia, resulting in a final cohort of 1,350 dementia-free adults (mean age, 61 years; female, 42 percent).

"This study is among the first to examine early AD neuropathology biomarkers and their associations with cognition in midlife," noted the researchers.

AD neuropathology present in midlife

AD neuropathology positivity was characterized by plasma p-tau217-to-Aβ42 ratio (p-tau217/Aβ42), Aβ42-to-Aβ40 ratio (Aβ42/40), and p-tau217.

AD neuropathology positivity was present in 86 participants (6 percent) based on p-tau217/Aβ42, 196 (15 percent) based on Aβ42/40, and 48 (4 percent) based on p-tau217.

"Compared with individuals who were negative for AD neuropathology, participants who tested positive were more likely to be *APOE ε4* carriers [$p<0.0001$]," pointed out the researchers.

Worse cognitive performance, accelerated cognitive decline

“As early as at the mean age of 61 years, individuals without dementia who tested positive for AD neuropathology showed worse cognitive performance and higher odds of accelerated decline compared with individuals who tested negative for AD neuropathology,” highlighted the researchers.

AD neuropathology positivity was associated with worse performance in both processing speed (Aß42/40: standardised cognitive difference [β], -0.25; p-tau217: β, -0.54; p-tau217/Aß42: β, -0.34; $p<0.05$ for all) and executive function (Aβ42/40: β, -0.19; p-tau217: β, -0.42; p-tau217/Aβ42: β, -0.27; $p<0.05$ for all) vs AD neuropathology negativity.

AD neuropathology positivity was also associated with higher odds of 5-year accelerated decline in both verbal memory (Aß42/40: odds ratio [OR], 4.31; 95 percent confidence interval [CI], 1.71–10.9; p-tau217/Aß42: OR, 2.44; 95 percent CI, 1.16–5.13) and processing speed (p-tau217: OR, 3.98; 95 percent CI, 1.71–9.3; p-tau217/Aß42: OR, 3.35; 95 percent CI, 1.77–6.35) vs AD neuropathology negativity. However, there was no association for global cognition or fluency.

“Our results extend previous work on AD biomarkers in older adults by showing that evidence of AD neuropathology is present in midlife, which, although infrequent, is already linked to measurable cognitive differences,” commented the researchers.

Clinical implications

These findings show the potential of detecting AD neuropathology among middle-aged adults with the use of highly accurate plasma biomarkers.

This could enable timely intervention targeting modifiable risk factors and pharmacological therapies for AD neuropathology in midlife, to potentially delay the onset of clinical symptoms and the development of clinical AD.

CLINICAL NEWS | INTERVENTIONAL

TACE plus thermal ablation improves survival in liver cancer

Will Morton
Jul 30, 2026

Combining transarterial chemoembolization (TACE) with subsequent thermal ablation improves survival in patients with unresectable hepatocellular carcinoma, according to findings published July 30 in *JAMA Oncology*.

In a phase III trial involving 241 participants, a group from Sun Yat-sen University Cancer Center in Guangzhou, China, evaluated whether sequential TACE and thermal ablation could improve clinical outcomes over TACE alone, with findings supporting the combination as a first-line treatment option for these patients.

"Despite its antitumor effects through localized chemotherapy delivery and embolization of tumor-feeding arteries, TACE alone yields modest survival outcomes, with a median progression-free survival (PFS) of approximately 7 to 8 months," wrote corresponding authors Ming Zhao, MD, and Min-Shan Chen, MD, and colleagues.

TACE delivers chemotherapy directly to liver tumors while cutting off their blood supply and is the standard of care for intermediate-stage hepatocellular carcinoma (HCC) that is not amenable to curative treatments such as resection or transplant, the authors explained. Despite its antitumor effects, TACE alone yields modest survival outcomes, and residual viable tumor after treatment remains a major driver of disease progression, they noted.

To evaluate whether adding thermal ablation to eliminate that residual disease could improve outcomes, the researchers recruited 241 patients with stage B HCC for a clinical trial conducted at two Chinese medical centers between May 2015 and August 2024. Patients were assigned 1:1 to receive either conventional TACE followed by CT-guided radiofrequency ablation or TACE alone.

According to the results, median progression-free survival (PFS) per Response Evaluation Criteria in Solid Tumors (RECIST) version 1.1 was 17.7 months with TACE-ablation versus 7.3 months with TACE alone (hazard ratio [HR], 0.47; p < .001). TACE-ablation also resulted in statistically significant prolonged untreatable PFS compared with TACE (35.1 months vs 12.3 months; HR, 0.40; p < 0.001).

Median overall survival (OS) was 88.6 months with TACE-ablation versus 35.1 months with TACE alone (HR, 0.50; p < 0.001). PFS and OS benefits were consistent across subgroups, with clinically meaningful improvements observed particularly in patients with low to moderate tumor burden scores.

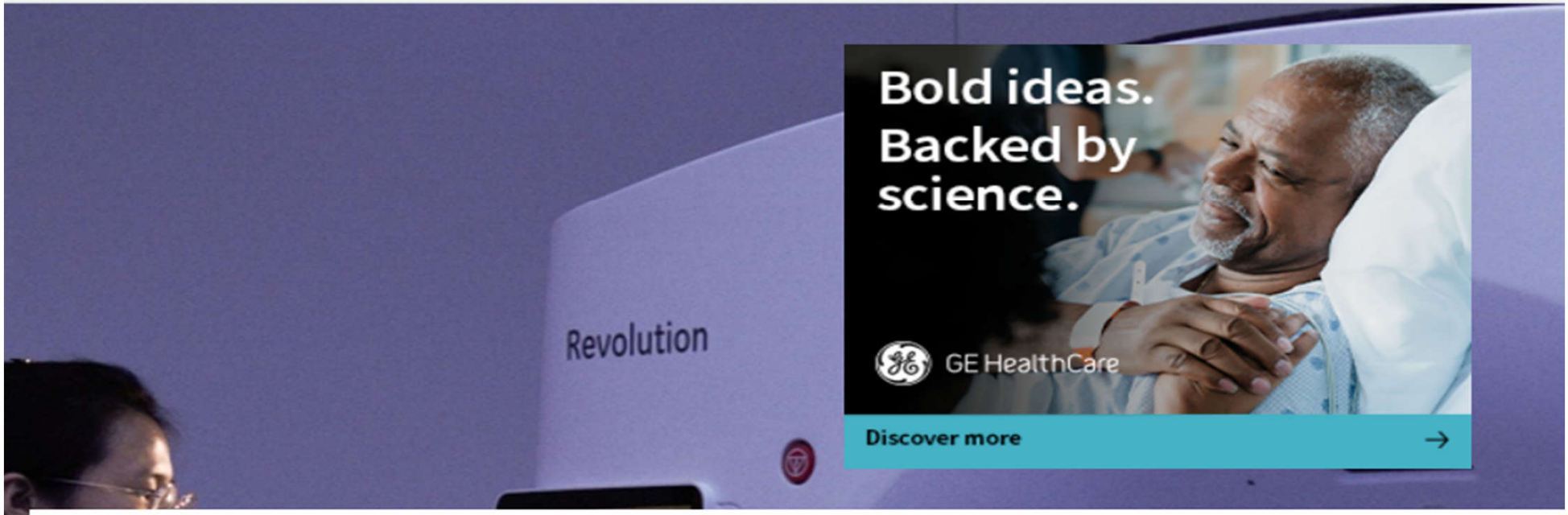
In secondary results, TACE-ablation also significantly prolonged untreatable PFS, defined as time to progression no longer suitable for further study treatment or death, at 35.1 months versus 12.3 months with TACE alone (HR, 0.40; p < 0.001). Confirmed objective responses per modified RECIST were observed in 84% of the TACE-ablation group versus 57% of the TACE-alone group, the researchers reported.

"These findings support TACE followed by subsequent ablation as a first-line treatment option for liver-confined unresectable HCC," the group wrote.

In an accompanying editorial, Cynthia Yeung, MD, of the University of Texas MD Anderson Cancer Center in Houston, and Howard Lim, MD, PhD, of the University of British Columbia in Vancouver, wrote that the study provides robust randomized evidence that the combined approach delivers substantial and durable survival benefit. TACE combined with ablation has been practiced across Asia for more than a decade, they added.

"Meanwhile, Western centers have shifted toward transarterial radioembolization with yttrium-90 (Y-90) or, more recently, TACE combined with immune checkpoint inhibitors (ICIs)," Yeung and Lim wrote.

Resolving the optimal sequencing question – and identifying which patient subgroups are best served by each approach – will require more data: a prospective head-to-head trial of TACE and selective ablation vs TACE plus ICI, ideally stratified by tumor burden and intent (downstaging vs durable local control), the pair suggested.



CLINICAL NEWS | DIGITAL X-RAY

AI predicts death risk from COPD

Will Morton
Oct 31, 2025

An open-source AI model for analyzing chest x-rays can identify individuals at risk of death from chronic obstructive pulmonary disease (COPD), according to a study published October 30 in *Radiology: Cardiothoracic Imaging*.

The finding is from an experiment that included 4,226 patients with mild to severe disease and suggests that the tool could complement standard clinical tests for guiding treatment, the authors noted.

“This study demonstrates that CXR-Lung-Risk is a valuable open-source AI tool for predicting respiratory mortality among patients with COPD,” wrote lead author Jong Hyuk Lee, MD, PhD, of Seoul National University Hospital in Korea, and colleagues, including a team at Harvard University in Boston who developed the model.

CXR-Lung-Risk was developed in 2023 and has previously been shown to identify individuals at risk of death from lung cancer on chest x-rays. The model was recently released in an open-source format to facilitate its use in clinical practice, yet its ability to predict mortality risk for patients with specific respiratory diseases such as COPD has not previously been established, the group wrote.

To bridge the gap, the researchers specifically assessed whether it has added prognostic value beyond pulmonary function tests and other clinical risk factors, such as the Global Initiative for Chronic Obstructive Lung Disease (GOLD) grading system.

The researchers culled x-rays from 4,226 patients (average age, 70) diagnosed with COPD at their hospital between January 2011 and December 2015. Based on the x-rays, the patients were classified into four categories based on the GOLD grading system: grade 1 (forced expiratory volume in 1 second [FEV1] > 80%), grade 2 (FEV1 of 50% to 79%), grade 3 (FEV1 of 30% to 49%), and grade 4 (FEV1 < 30%). During a median follow-up of 6.7 years, 831 (19.7%) had died from respiratory-related causes.

According to the results, after adjusting for lung function and clinical risk factors, CXR-Lung-Risk scores derived from the x-rays were a prognostic factor for respiratory mortality. Every five-year increase in CXR-Lung-Risk scores was associated with a 16% higher risk of respiratory mortality, the researchers reported.

RSNA

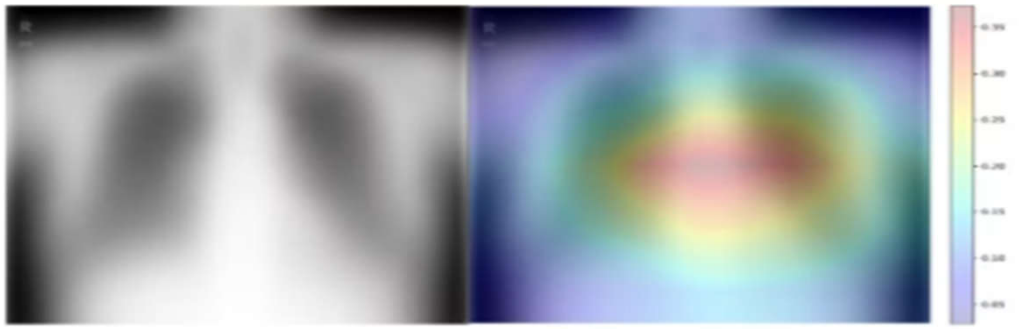
Open-Source AI Model for Predicting Respiratory Mortality in COPD from Chest Radiographs

Key Result
CXR-Lung-Risk AI scores from chest radiographs provided prognostic value beyond lung function measures and clinical risk factors for predicting respiratory mortality.

Patients:
- 4,226 patients with chronic obstructive pulmonary disease

Methods:
- CXR-Lung-Risk scores were derived from CXRs using an open-source AI algorithm, and their association with respiratory mortality was assessed, with analyses adjusted for age, BMI, smoking, comorbidities, and lung function.

Results:
- Each 5-year rise in CXR-Lung-Risk was associated with a 16% higher risk of respiratory mortality.
- CXR-Lung-Risk scores predicted 10-year mortality with an AUC of 0.76, outperforming GOLD grades (AUC 0.61; $P < .001$).



Lee JH and Lee CH et al. Published Online: October 30, 2025
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Radiology: Cardiothoracic Imaging

Source: RSNA

Additionally, CXR-Lung-Risk scores outperformed GOLD grades in predicting 10-year respiratory mortality, with an area under the receiver operating characteristic curve of 0.76 versus 0.61 ($p < 0.001$). Finally, pulmonary function decreased as CXR-Lung-Risk scores increased ($p < 0.001$).

“Our results demonstrate that deep learning can be used to extract relevant prognostic information from easily obtainable chest radiographs in patients with COPD,” the researchers wrote.

Importantly, the authors noted that originally, the CXR-Lung-Risk model was created to predict the risk of respiratory disease mortality in the general population. This study fulfilled several key criteria for external testing, including distinct differences in ethnicity (Asian versus white), geographic location (South Korea vs. the U.S.), and chronological period (2010s vs. 1990s), in contrast with the original model, they wrote.

“The CXR-Lung-Risk model can potentially complement GOLD grading using chest radiographs,” the researchers concluded.

CLINICAL NEWS | DIGITAL X-RAY

Are chest x-rays useful in children with recurrent wheezing?

Will Morton
ul 22, 2026

Abnormal chest x-rays are frequent in preschool children with recurrent wheezing, but rarel lead to changes in diagnosis or clinical management, according to a recent study.

The finding is from a retrospective analysis of 271 children under five years of age who presented with recurrent wheezing at a pediatric pulmonology outpatient clinic, and adds real-world evidence supporting selective rather than routine use of chest x-rays in preschoolers, according to the authors.

“Given the risks associated with radiation exposure in young children and procedural stress, it is crucial to better understand the true diagnostic value of [chest x-rays] in this population,” noted lead author Emma Lück, MD, of the University Hospital of Cologne in Germany, and colleagues.

Recurrent wheezing affects roughly half of all children under three years old, and although current clinical guidelines do not recommend routine chest radiography in the absence of atypical or severe features, clinicians still commonly order chest x-rays to rule out pulmonary abnormalities, the authors explained.

To investigate whether practice offers real diagnostic value, the researchers conducted a retrospective chart review of children under five years old who presented with recurrent wheezing to the outpatient clinic and had undergone a chest x-ray within four weeks of thei visit. Children with an acute respiratory infection at the time of imaging or pre-existing pulmonary or cardiac disease were excluded. The team recorded demographic and clinical characteristics, laboratory values including blood eosinophil counts, and whether chest x-ra findings led to further diagnostic workup, a change in therapy, or a revised diagnosis.

According to the analysis, chest x-rays were read as abnormal in 73% of cases, most often showing peribronchial cuffing (35%), followed by peribronchial opacities, parenchymal consolidation, and accentuated bronchial markings (13% each), and pulmonary hypertransparency (11%).

However, despite this high rate of abnormal findings, further diagnostic workup was triggered in just three cases (1%), and no chest x-ray result led to a change in therapy or diagnosis, the researchers reported.

In secondary results, children with elevated blood eosinophil counts (≥ 150 cells/μL) had significantly higher rates of abnormal chest x-rays than those with lower counts (92% versus 71%; odds ratio, 4.43; p = 0.023). Age, sex, prematurity, and personal or parental atopic history were not associated with abnormal findings, according to the findings.

Ultimately, the findings are consistent with current clinical guidelines on recurrent wheezing, which do not consider chest x-rays an essential diagnostic tool in this setting, the authors noted.

"Our findings are consistent with current recommendations advocating a clinically driven rather than routine use of chest radiography in preschool children with recurre wheezing," the researchers concluded.

CLINICAL NEWS | DIGITAL X-RAY

DEXA reveals tea consumption supports bone health

Will Morton
Aug 12, 2026

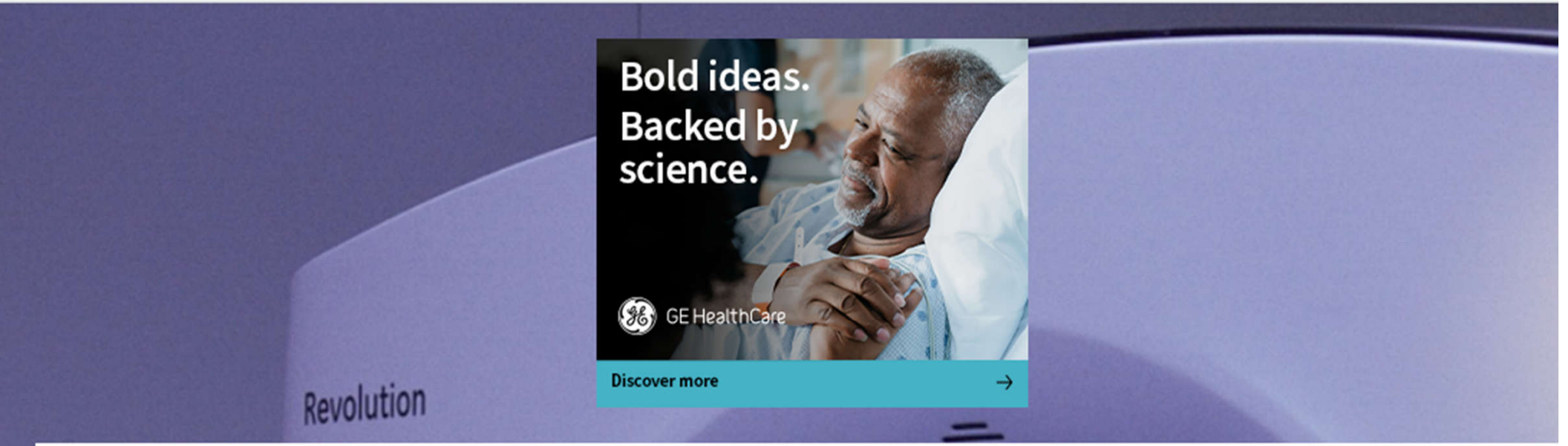
- Bone scans reveal that adults who drink tea at moderate frequency have more favorable bone mineral density (BMD) compared to those who do not, according to a group in China.
- The finding is from researchers from Southern Medical University and Sun Yat-sen University in Guangzhou, China, who examined the relationship between tea consumption frequency and longitudinal bone mineral changes over 13 years among a group of 1,708 community-dwelling adults.
- "Moderate-frequency tea consumption was associated with better bone mineral status and more favorable longitudinal changes," according to the group. The study was published August 10 in *The American Journal of Clinical Nutrition*.
- Tea is among the most widely consumed beverages globally, and prior research has suggested that its polyphenol content, particularly flavan-3-ols, may benefit bone health, the authors noted. However, most prior evidence has relied on cross-sectional designs without repeated bone mineral assessments or objective biomarker confirmation of tea intake, limiting conclusions about longitudinal effects, they added.

To bridge the gap, the group enrolled 1,708 community-dwelling adults in the Guangzhou Nutrition and Health Study (GNHS), a prospective cohort with four assessment visits using dual-energy x-ray absorptiometry (DEXA) over 13 years. Tea consumption frequency was categorized as non- (0 times/week), low- (1 to 6 times/week), moderate- (7 times/week), or high- (> 7 times/week). The primary outcomes were sex-specific bone mineral density (BMD) and bone mineral content (BMC) Z-scores.

The researchers found that bone mineral trajectories diverged significantly between tea consumption groups over the 13-year follow-up, with differences observed for whole-body, lumbar spine, and femoral neck BMD and whole-body BMC. Moderate-frequency tea drinkers had the highest visit-averaged adjusted marginal mean Z-scores across bone sites: 0.107 for whole-body BMD, 0.090 for lumbar spine BMD, and 0.108 for femoral neck BMD.

“These findings suggest that habitual tea consumption and circulating flavan-3-ol concentrations may be related to bone health,” the authors wrote.

The group noted that the study did not establish an optimal level of tea intake and that further studies incorporating repeated biomarker measurements and more detailed assessments of tea intake, dose, and preparation methods are warranted.



CLINICAL NEWS | INTERVENTIONAL

Most histotripsy procedures used for metastatic disease treatment

Amerigo Allegretto
Aug 5, 2026

Most histotripsy treatments are performed for metastatic disease despite limited evidence suggesting its effectiveness, suggest findings published August 5 in *JAMA Network Open*.

Since receiving regulatory clearance in 2023, histotripsy has been most performed in the outpatient setting and with low rates of laboratory toxic effects and procedural complications, wrote a team led by Allan Tsung, MD, from the University of Virginia in Charlottesville.

"Our findings highlight the importance of understanding which patients are most likely to benefit as this promising technology is incorporated into routine cancer care," Tsung told *AuntMinnie*.

Histotripsy, a focused ultrasound therapy, in 2023 received clearance by the U.S. Food and Drug Administration (FDA) for treating primary and metastatic liver tumors. This treatment option has a favorable safety profile and potential benefits in carefully selected patients.

Tsung and colleagues noted that practice patterns and early outcomes of histotripsy since the FDA clearance are "incompletely characterized." The researchers studied these patterns and outcomes, using data collected between 2023 and 2026 from 972 patients who underwent histotripsy for liver tumor treatment.

Most patients received treatment at urban centers (88.2%). And 47.3% of patients reported having commercial insurance while 32.3% had Medicare.

The team reported that 69.8% of patients (n = 678) had histotripsy performed for metastatic disease while the remaining 30.2% (n = 294) received treatment for primary liver malignant tumors. The researchers wrote that this finding raises concern that histotripsy "is being used in patients with disease biology poorly suited to liver-directed therapy."

Among metastatic tumors, the team reported colorectal cancer being the most frequent primary site (26.7%), followed by pancreatic cancer (12.4%). Among primary liver tumors, hepatocellular carcinoma (22.0%) and intrahepatic cholangiocarcinoma (8.2%) were most treated.

The team also found that "most" histotripsy procedures were performed in the outpatient setting, with 851 patients treated in a single session. And 859 patients (88.4%) were discharged the same da while 897 patients (92.3%) were discharged by the following day.

While procedural toxicity was, 30-day mortality was 11.1% and was overall similar among payer groups, the researchers found. Tsung said this finding "likely reflects the advanced cancer populatio receiving treatment rather than procedural complications."

Finally, 30-day readmission and emergency department visit rates were 0.9% and 0.4%, respectively.

Tsung told *AuntMinnie* the study does not question histotripsy's procedural safety but highlights the importance of defining evidence-based indications as adoption expands.

"Like any new cancer therapy, its greatest value will come from identifying the patients most likely to benefit through multidisciplinary evaluation and prospective comparative studies," he said. "We hope these findings stimulate additional research that helps define the optimal role of histotripsy within liver-directed cancer care."

The researchers are interested in defining best patient selection, understanding longer-term oncologi outcomes, and comparing histotripsy with established liver-directed therapies, Tsung said.

"Ultimately, our goal is to determine where histotripsy provides the greatest benefit within multidisciplinary cancer care," he added.

CLINICAL NEWS | CT

Nongated CT scans can predict heart disease risk

Will Morton
Jul 30, 2026

Coronary artery calcium scores derived from routine nongated chest CT scans predict cardiovascular events with accuracy comparable to dedicated cardiac CT scans, according to a study published July 27 in *Circulation*.

A group from Massachusetts General Hospital in Boston analyzed paired gated and nongated CT scans from a large, multiethnic U.S. cohort, with findings suggesting that nongated chest CT scans could serve to screen for cardiovascular disease in millions of patients every year.

"Given the large number of nongated scans performed annually, incorporating their quantification into clinical practice offers a scalable approach to personalized preventive care," noted lead author Dhiran Verghese, MD, and colleagues.

Coronary artery calcium (CAC) scoring is a well-validated predictor of atherosclerotic cardiovascular disease and is typically measured on dedicated electrocardiogram (ECG)-gated CT scans, yet CAC remains underused in clinical practice, largely because of lack of insurance coverage for ECG-gated CAC scans, the authors explained.

Conversely, CAC scores can be derived incidentally from nongated chest CT scans, of which 19 million are performed annually in the U.S. each year, often in healthy people, for example to screen for lung cancer. Nonetheless, CAC quantification is typically not undertaken on these scans due to limited data on the association of incidentally identified nongated CAC and cardiovascular outcomes, the group noted.

To bridge the gap , the researchers gathered data from 2,472 participants from a previous study who underwent same-day gated and nongated chest CT scans between April 2010 and December 2011. Scans were interpreted at a blinded core laboratory using the Agatston methodology, with CAC categorized as none (0), mild (1–99), moderate (100–299), or severe (≥300).

According to the findings, compared with participants with no CAC, those with moderate and severe CAC scores on nongated CT had significantly higher risk of coronary heart disease risk (hazard ratios [HR], 2.67 and 5.22) and cardiovascular disease risk (HR, 1.32 and 2.89). Also, nongated and gated log-standardized CAC scores were highly correlated (r = 0.961), and the area under the receiver operating characteristic curve, C-statistic, and Brier scores were statistically similar between the two scan types for all outcomes.

“Nongated CAC predicts cardiovascular events with performance comparable to gated CAC,” the researchers wrote.

The group noted that the findings are particularly relevant given the release of 2026 dyslipidemia guidelines by the American College of Cardiology/American Heart Association that recommend using incidental CAC from nongated CT scans to guide lipid-lowering therapy decisions.

In an accompanying editorial, Fatima Rodriguez, MD, and Curtis Langlotz, MD, PhD, both of Stanford University in Palo Alto, CA, noted that several AI algorithms are now U.S. Food and Drug Administration–approved and validated to complete the task.

“Systematically identifying CAC in millions of chest CTs performed each year for noncardiac purposes should be prioritized because of its potential for public health impact. This new method of CAC detection represents the promise of precision prevention at scale – leveraging existing data to identify high-risk individuals and offering tailored interventions to motivate sustained change,” they wrote.

The evidence is clear, the technology is ready, and the time for clinical implementation is now, Rodriguez and Langlotz concluded.