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Research Casts Doubt on Value of Daily Aspirin for Healthy Adults

by [Name] Croft
August 28, 2023



Recommendations

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Use of low-dose [aspirin](#) offers no significant protection against stroke and was linked to a higher rate of bleeding, according to new research published in [JAMA](#).

The research matches other evidence advising that healthy older adults without a history of heart conditions or other signs of stroke should not take low-dose aspirin.

The findings also support the recommendation from the U.S. Preventive Services Task Force that low-dose aspirin not be prescribed for preventing a first heart attack or stroke in healthy older adults, [The New York Times](#) reported.

"I can be very emphatic that healthy people who are not on aspirin and do not have multiple risk factors should not start taking it now," said Randall Stafford, MD, of Stanford University, who was not involved in the study, in [The New York Times](#). "It was clear for others, he said.

The longer you've been on aspirin and the more risk factors you have for heart attacks and strokes, the more likely you are to have a heart attack or stroke, he said.

Cardiac and stroke experts say daily aspirin should remain part of the regimen for people who have had a heart attack or stroke.

The [JAMA](#) report was based on data from a randomized control trial of 19,000 people from Australia and America. The participants were over the age of 70 and did not have heart disease.

The study covered an average of almost 4.7 years and revealed that aspirin lowered the rate of [ischemic stroke](#) by 10%. An ischemic stroke happens when a clot forms in a blood vessel that sends blood to the brain.

There was also a 38% higher rate of brain bleeds for people who took aspirin daily compared to those who took a placebo.

The authors wrote, "In the past, some doctors regarded aspirin as something of a wonder drug, capable of protecting patients against a future heart attack or stroke. But recent studies have shown that the powerful drug

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Vegetarian Diets Can Improve High-Risk Cardiovascular Disease

Lancy A. Melville
July 25, 2023

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People with or at a high risk of cardiovascular disease who maintain a

People with or at a high risk of cardiovascular disease who maintain a vegetarian diet for 6 months or longer show significant improvements in key risk factors, including cholesterol, glycemic control and body weight, a meta-analysis of randomized controlled trials shows.

To the best of our knowledge, this meta-analysis is the first that generates evidence from randomized controlled trials to assess the association of vegetarian diets with outcomes in people affected by cardiovascular diseases," report the authors. The study was [published online](#) July 25 in *JAMA Network Open*.

The greatest improvements in [hemoglobin A1c](#) and [low-density lipoprotein cholesterol](#) (LDL-C) were observed in individuals with [type 2 diabetes](#) and people at high risk of cardiovascular disease, highlighting the potential protective and synergistic effects of vegetarian diets for the primary prevention of cardiovascular disease," they say.

A vegetarian diet is well-established as increasing the morbidity and mortality associated with cardiovascular disease; however, although data has linked vegetarian diets to cardiovascular disease prevention in the general population, research on the effectiveness of such diets in people at high risk of cardiovascular disease is limited.

To the best of our knowledge, no meta-analysis of randomized controlled trials has been conducted to investigate the association of vegetarian diets with outcomes in people with CVD — indeed, research here has primarily focused on observational studies," writes Tian Wang, RD, and colleagues at the University of Sydney, New South Wales, Australia.

Water Decreases in LDL-C, A1c, and Body Weight With Vegetarian Diet

In the meta-analysis, researchers identified 20 randomized controlled trials involving vegetarian diets that included 1878 adults with or at a high risk of cardiovascular disease and included measurements of LDL-C, A1c, or systolic blood pressure.

The studies were conducted in the United States, Asia, Europe, and New Zealand between 1990 and 2021. Sample sizes ranged from 12 to 291 participants.

The mean range age of participants was 28 to 64 years. Studies included participants with cardiovascular disease (four studies), diabetes (seven studies), and those with at least two [cardiovascular risk factors](#) (nine studies).

The mean duration of the dietary intervention was 25.4 weeks (range 2 to 52 weeks). The most commonly prescribed diets were vegan (plant-based foods only), lacto-ovo-vegetarian (excluded meat, poultry and seafood but allowing dairy products and eggs), and lacto-vegetarian (excluding meat, poultry, seafood and eggs but allowing dairy products such as cheese).

Overall, those who consumed a vegetarian diet for an average of 6 months versus comparison diets, had significantly greater decreases in LDL-C (6.1 mg/dL beyond the reduction achieved with standard therapy); A1c (0.24%); and body weight (3.4 kg), but the reduction in systolic blood pressure (0.5 mmHg) was not significantly greater.

Assessment of the overall certainty of evidence evaluated using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) tool showed a moderate level of evidence for reductions in LDL-C and A1c with the vegetarian diet.

Non-ovo vegetarian diets were associated with the greatest reduction in LDL-C (1.1 mg/dL); however, four out of the five trials restricted energy intake.

Importantly, vegetarian diets were most effective for achieving glycemic control among people with type 2 diabetes and leading to improvements in weight among those at high risk of cardiovascular disease as well as those with type 2 diabetes.

The authors note that the effects "suggest that vegetarian diets might have a synergistic [or at least antagonistic] use in potentiating the effects of optimal drug therapy in the prevention and treatment of a range of cardiometabolic diseases," the authors write.

Although previous studies have shown similar improvements associated with a vegetarian diet, most studies did not stratify populations based on disease status. "In the absence of a vegetarian diet, or comparison diet, the authors note.

The lack of improvement in systolic blood pressure is consistent with previous meta-analyses of vegetarian diets in general and suggests that salt intake may be the most important factor for those measures.

The authors note that the meta-analysis suggests that diet quality plays a major role in lowering blood pressure, independent of animal food consumption, as the DASH [Dietary Approaches to Stop Hypertension]...trial demonstrated," the authors note.

Changes in Medication Dose With Vegetarian Diet

In most patients were taking medications to manage [hypertension](#), hyperglycemia, and/or dyslipidemia. In as many as eight of the studies, the vegetarian diet intervention resulted in a decrease in medication dose.

Medication use could obscure the favorable effects of vegetarian diets, which could have a larger effect, the authors speculate.

The hypothesis is supported by two randomized controlled trials in our meta-analysis that required patients to take medication that could influence cardiometabolic outcomes, [and] these studies significantly improved systolic blood pressure and LDL-C," they write.

Vegetarian Diets Are Healthy

Although there are numerous variations in vegetarian diets, ranging from vegan diets that eliminate all animal products to lacto-ovo vegetarian diets that allow fish or seafood, most that are well-balanced can provide health benefits, including lower saturated fat, L-carnitine, and choline (precursors of the atherogenic TMAO), and other benefits that might explain the improvements seen in the meta-analysis.

Vegetarian diets may also be high in dietary fiber, mono- and polyunsaturated fatty acids, potassium, magnesium, and antioxidants, and have lower glycemic index scores.

In 12 studies in the meta-analysis emphasized low-fat content, which the authors speculate may have contributed to the improvements observed in LDL-C.

Specifically, lacto-ovo vegetarian diets were associated with the greatest reduction in LDL-C (-14.1 mg/dL); however, four out of five of the trials restricted energy intake, which could have also played a role in improvements.

Importantly, not all vegetarian diets are healthy, and the authors caution about some that allow, for instance, foods rich in trans-fatty acids and salt, such as tempura vegetables, potentially increasing the risk of type 2 diabetes and [coronary heart disease](#).

The authors note that "more than one third of the studies included in our meta-analysis did not emphasize the importance of consuming minimally processed plant-based whole foods."

However, the fact that the greatest improvements in A1c and LDL-C were seen in patients with type 2 diabetes and those at high risk of CVD "highlight[s] the potential protective and synergistic effects of vegetarian diets for the primary prevention of CVD."



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🔍 Artificial Intelligence



Medical students concerned about AI's impact on radiology

By Kate Madden Yee, AuntMinnie.com staff writer

June 22, 2023 -- AI's impact on radiology is prompting concern, especially among medical students, according to research published June 20 in *Academic Radiology*.

The study, led by Amir Hassankhani, MD, of the University of Southern California in Los Angeles, conducted a literature review and found that more than a third of medical students expressed anxiety about the effect of AI on radiology -- a statistic that prompts a number of important questions.

"As AI continues to advance and gain traction in the field of radiology, there is a need to understand how medical students and radiology trainees will perceive and respond to these changes," the group noted. "Are they still attracted to radiology as a specialty in the era of AI? Do they view AI as an opportunity or a threat to the field of radiology? What are their expectations and concerns regarding the integration of AI in radiology practice?"

To address these questions, the authors conducted a literature review, searching PubMed, Scopus, and Web of Science for research on AI and medical student, resident, and attending perceptions of it on March 5, 2023. In the end, the review consisted of 21 studies.

Overall, pooled participant cohort across the 21 studies, 22.4% of respondents stated they were less likely to choose radiology as a career because of AI concerns. Medical students reported higher levels of concern about AI and radiology compared with residents and attendings. Yet the review also found that 79% of the pooled participant cohort believed that "AI will revolutionize radiology in the future," the group noted.

Medical student and radiology resident/attending radiologist perceptions about AI

Factor	Medical students	Radiology residents and attendings
Level of concern about AI	32%	9%
Level of basic knowledge of AI	35%	72%
Belief that AI threatens the job market	43%	6%
Belief that AI training should be included in medical curricula	70%	82%

ossible that the higher levels of concern among medical students regarding technology could be due to a lack of knowledge about it, the team wrote.

Heightened concerns expressed by medical students compared to radiology residents and radiologists regarding the impact of AI on their decision to choose radiology as a medical specialty could be attributed to their limited exposure and experience in the field," the group noted. "Medical students are still in the early stages of their medical education and may lack a comprehensive understanding of the clinical applications and limitations of AI in radiology. As a result, they may perceive AI as a disruptive force that could potentially threaten their future career prospects, leading to higher levels of concerns."

How can these concerns be addressed? Hassankhani and colleagues suggested several strategies:

- Integrate AI education for medical students, making it thorough and accessible.

- Provide direct AI experience through using the technology in clinical workflows.

- Educate students about AI's limitations and test them with clinical trials.

- Discuss with students on possible medico-legal issues prompted by AI.

By implementing these recommendations, the field of radiology may better prepare for the integration of AI, ensuring that radiologists and other practitioners have a positive outlook and a realistic understanding of its impact," the group concluded.



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MRI shows how social isolation can lead to cognitive decline

Kate Madden Yee, AuntMinnie.com staff writer

26, 2023 -- MRI shows that social isolation can lead to cognitive decline, a study by German researchers published June 20 in the journal *eLife* has found.

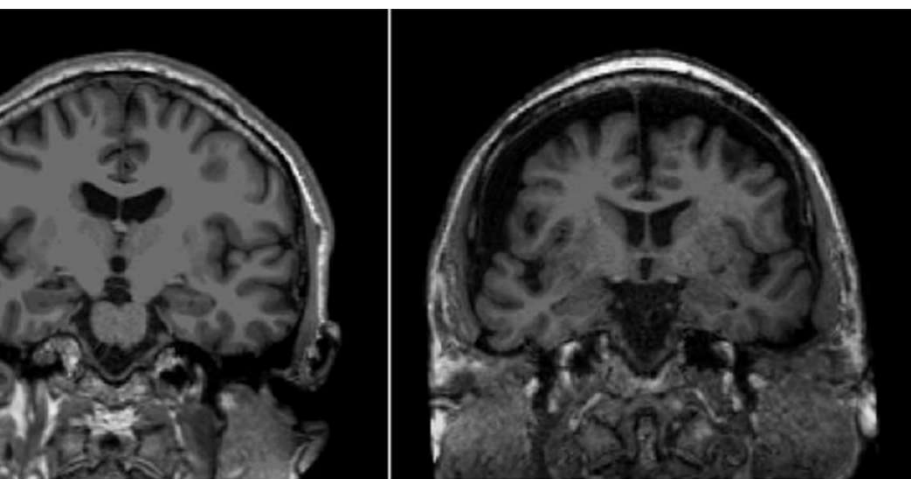
The results underscore how important it is for people to stay connected to others as they age -- and how MRI can help identify those at risk of cognitive decline, wrote the study led by Laurenz Lammer of the Max Planck Institute for Human Cognitive and Developmental Sciences, Leipzig, Germany.

"Functional magnetic resonance imaging (MRI) can be a potent dementia-risk indicator that might offer pivotal guidance to identify patients for intensive dementia prevention and serve as secondary outcome for intervention trials," they wrote.

Previous research has suggested that social isolation -- which tends to manifest as a lack of social contact or support and/or loneliness -- increases a person's risk of cognitive decline, but understanding of the neurobiological reasons for this is limited, the group noted.

"The high rates of social isolation and its impact on cognitive health and many other outcomes indicate that successful preventative action would be of great importance for public health and all affected individuals," Lammer told *AuntMinnie.com*.

Lammer's team sought to investigate the impact of social isolation on brain and cognitive aging using MRI via a study that included 1,992 cognitively healthy adults at baseline and 1,409 participants at a six-year follow-up timepoint; it used the Lubben Social Network Scale to assess participants' levels of social isolation.



General age-related loss of brain matter aggravated by social isolation on T1-weighted coronal MRI of a 50-year-old (left) and 85-year-old (right).

Authors reported that, at six-year follow-up, patients reporting social isolation via the Lubben scale had smaller hippocampus volumes and reduced cortical thickness on MR imaging. They also found that the higher level of social isolation participants reported, the poorer their cognitive functions such as memory, processing speed, and executive capability.

Analyses showed that individual participants' changes in social isolation over the follow-up period had a greater impact as differences between participants at baseline," Lammer said. "This raises hopes for effective preventative action as it suggests that maintaining a good social network and expanding one's social ties could have a beneficial effect on brain health in older age."

What is the solution to mitigating social isolation and its effects on cognitive health? Supporting older adults to remain connected with others, Lammer told *AuntMinnie.com*.

Healthcare providers who notice that patients are socially isolated can do 'social prescribing,'" he said. "This means encouraging socially isolated patients to find opportunities for fostering interaction and engagement. Depending on local opportunities, this could mean joining a group for physical activity, engaging in collaborative learning, or participating in a befriending effort. This important work is often done by social workers, so good multi-professional cooperation is key to supporting socially isolated patients."



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 **CT** *Sponsored by Canon Medical Systems*



Updated ACP colorectal screening guidance recommends against CTC

Kate Madden Yee, AuntMinnie.com staff writer

st 1, 2023 -- CT colonography (CTC) is not recommended for colorectal cancer screening, according to new guidelines published by the American College of Physicians (ACP) on July 31 in the *Annals of Internal Medicine*.

And, the ACP now recommends fecal immunochemical or high-sensitivity fecal occult blood tests, colonoscopy, or flexible sigmoidoscopy.

"Evidence review identified no eligible studies evaluating the effectiveness of CTC for [colorectal cancer] screening," wrote a team led by Amir Qaseer, MD, of the ACP in Philadelphia, PA, in the guidance.

The new recommendation also suggests that average-risk, asymptomatic adults should start colorectal cancer screening at age 50 -- counsel that differs from the [American Cancer Society's guidance](#) of starting colorectal cancer screening at age 45.

Colorectal cancer has the fourth highest incidence and second highest mortality among cancers in the U.S., the ACP said in a July 25 statement. The updated guidance is for average-risk adults who do not have a family history of colorectal cancer, a history of inflammatory bowel disease, genetic syndromes such as familial cancerous polyps, or personal history of previous colorectal cancer or benign polyps, the college said.

ew recommendation includes the following:

Asymptomatic average-risk adults between the ages of 45 and 49 should not necessarily be screened. "The net benefit of colorectal cancer screening is much less favorable in average-risk adults between ages 45 and 49 years than 50 to 75 years," the ACP wrote.

Colorectal cancer screening should be discontinued in asymptomatic average-risk adults older than 75 years or in asymptomatic average-risk adults with a life expectancy of 10 years or less.

Physicians should select a screening test for colorectal cancer in consultation with patients "based on a discussion of benefits, harms, costs, availability, frequency, and patient values and preferences," the ACP said. Available screening tests include fecal immunochemical or high-sensitivity guaiac fecal occult blood test every two years, colonoscopy every 10 years, or flexible sigmoidoscopy every 10 years plus a fecal immunochemical test every two years.

Physicians should not use CT colonography, stool DNA, capsule endoscopy, or serum screening tests to screen for colorectal cancer, according to the ACP.

accompanying editorial written by Michael Bretthauer, MD, PhD, of the University of Oslo in Norway, and Yu-Xiao Yang, MD, of the University of Pennsylvania in Philadelphia -- both editors of *Annals of Internal Medicine* -- acknowledged that the new guidance is "at odds with [U.S. Preventive Services Task Force] and American Cancer Society guidance in important ways and sparks debate in the U.S.," but that it is "more in line with international guidelines."

The American College of Radiology (ACR) was quick to release a critique of the new guidance, in a July 31 statement that CT colonography is "an accurate, safe, and minimally invasive test that does not require sedation, allows people to go back to their daily activities, and is a preferred option for many who otherwise may not be screened."

The college warned that recommending against the use of CTC "may negate effective screening benefits and disproportionately affect racial minorities, especially since death rates from the disease are 50% higher in Black men and 34% higher in Black women compared to their white counterparts. 90% of racial disparity in colorectal cancer deaths is due to less screening."

The American College of Physicians (ACP) guidance against CT colonography use to screen for colorectal cancer represents a step backward -- particularly in underserved communities where screening rates are lower and [colorectal cancer] death rates are much higher," the ACR said in its statement. "ACP's guidance to start routine screening at age 50 rather than 45 as the American Cancer Society recommends may also hinder recent gains against the nation's third leading cancer. About a third of those who should be screened for CRC can't or won't get a colonoscopy. We need more testing options, not fewer."



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Doesn't improve breast cancer screening in dense breasts

Merigo Allegretto, AuntMinnie.com staff writer

2023 -- When it comes to screening of women with dense breasts, AI doesn't yield a significant improvement in performance over the combination of mammography and ultrasound without AI, according to research published July 26 in the *American Journal of Roentgenology*.

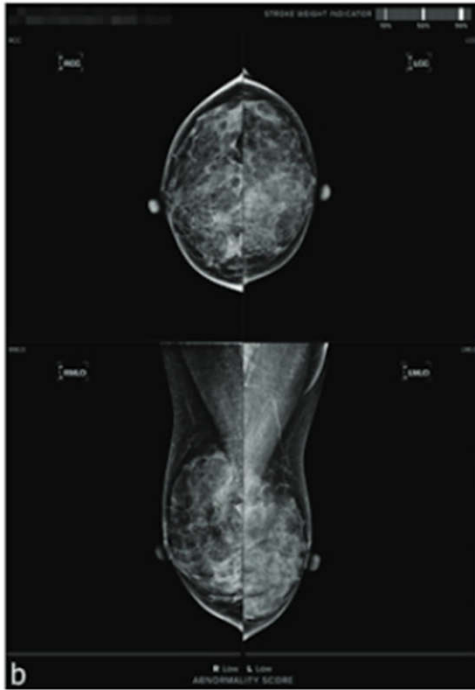
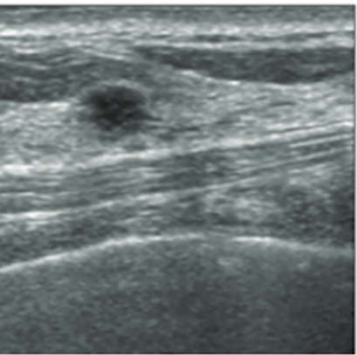
Lead researcher, led by Si Eun Lee, MD, from Yonsei University in Yongin-si, South Korea, found that mammography with supplementary breast ultrasound had higher accuracy and specificity than mammography with AI and mammography with both ultrasound and AI.

"Our findings fail to show a benefit of AI when performed in addition to supplementary ultrasound in patients with dense breasts undergoing screening mammography," Lee and his colleagues wrote.

"Mammography alone is not enough to definitively find breast cancer in women with dense breasts. For these women, supplementary imaging methods are used following mammography, with ultrasound being the most commonly used modality.

"This research suggests that in the breast imaging setting, AI can aid radiologists in an advisory role by helping with diagnosis. However, the researchers noted that results vary significantly depending on the AI platform used.

"For the current study, Lee and colleagues wanted to compare the performances of screening mammography, AI, and supplementary ultrasound by themselves as well as in combination with each other. It included retrospective data from 1,325 women with an average age of 53 years who have dense breasts. The women underwent both mammography and ultrasound at a one-month interval in 2017. The team also used a commercially available AI tool (version 1.1.0.0, Lunit) to assess the mammography exams.



Images show results for a 57-year-old woman with dense breasts. Screening mammography (not shown) was assessed as BI-RADS category 2. (A) Supplementary screening breast ultrasound performed on same day as the mammogram shows a 4-mm round hypoechoic mass with angular margins in the right upper medial breast. (B) A screenshot shows the output of an AI tool, which assigned an abnormality score of "low" in each breast. Ultrasound-guided core biopsy and surgery showed an invasive ductal carcinoma, not otherwise specified (Luminal A, histologic grade I). This case represents a false-negative AI result. Image courtesy of ARRS.

The researchers reported that 12 cancers were diagnosed, including six invasive ductal carcinomas and six ductal carcinomas in situ (DCIS).

On standalone performance among the three methods, mammography demonstrated the highest accuracy (95.9%), specificity (96.2%), and sensitivity (96.2%). It also had the lowest false-positive rate at 4.4%. While AI had the highest cancer detection rate at 6.8 per 1,000 women, it also had the highest recall rate among the three methods at 11.9%.

When evaluating different combinations of the three methods, the researchers found that mammography with ultrasound outperformed other combinations.

Performance comparisons for combinations of mammography, ultrasound, and AI

	Mammography with AI and ultrasound	Mammography with AI	Mammography with ultrasound
detection rate	9.1	7.5	9.1
Recall rate	21.4	14.9	11.7
Sensitivity	100%	83.3%	100%
Specificity	79.4%	85.8%	89.1%
Accuracy	79.5%	85.7%	89.2%

did not achieve statistical significance, except for recall rate and sensitivity (both $p > 0.05$).

Researchers also reported that while ultrasound showed significantly improved measures over AI alone in women aged 50 and older, these results were not significantly different in women under the age of 50. Additionally, mammography with AI and mammography with ultrasound showed no significant differences in recall rate, specificity, or accuracy in women under 50 years old.

The study authors wrote that this may be because younger women have denser breasts than older women, which changes the breast echotexture on ultrasound and adds to the challenge of interpreting breast images in younger women.

However, AI did have its wins in the study. Although overall sensitivity between mammography and AI was not significantly different, AI detected one invasive ductal carcinoma and one DCIS that were missed on mammography. Researchers reported that one of these missed cancers was visible on mammography in a retrospective review. However, the AI also missed three cancers, including one DCIS that showed grouped microcalcifications on mammography and two cancers deemed to be occult retrospective mammographic review but visible as masses on ultrasound.

The study authors suggested that based on their findings, the inclusion of AI is not an added benefit for breast cancer detection for women with dense breasts.

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AI Model Detects Diabetes Using Chest X-Rays

By MedImaging International staff writers

Posted on 04 Aug 2023



Current guidelines recommend screening individuals aged between 35 and 70 years who are overweight to obese, as indicated by their Body Mass Index (BMI), for type 2 diabetes. Nonetheless, numerous studies indicate that this approach fails to identify a significant number of cases, especially among racial and ethnic minorities for whom BMI is a less reliable indicator of diabetes risk. Undiagnosed diabetes patients are at a much higher risk of developing complications, including irreversible organ damage and even death. Now, a new artificial intelligence (AI) model has demonstrated that X-ray images taken during routine medical exams can reveal signs of diabetes in individuals who do not meet the criteria for increased risk. This could aid doctors in detecting the disease earlier, preventing complications.



Image: Chest X-rays could provide an 'opportunistic' alternative to universal diabetes testing (Photo courtesy of Freepik)

deep learning on images and electronic health record data, a multi-institutional team developed a model that successfully flagged heightened diabetes risk in a retrospective analysis before the disease was diagnosed. The AI model was trained on over 270,000 X-ray images around 160,000 patients, with deep learning identifying the image features that best predicted diabetes diagnosis. As chest X-rays are not typically used for diabetes detection, researchers utilized explainable AI techniques to understand the reasoning behind the predictions. The methods identified the location of fatty tissue as crucial in determining risk, consistent with recent medical research linking visceral fat in the upper body and abdomen to obesity, insulin resistance, hypertension, and other conditions.

Due to the groundbreaking nature of the approach and its remarkable results, the initial team of researchers from Emory University (Atlanta, GA, USA) to externally validate the model. When tested on an independent group of nearly 10,000 patients, the model outperformed a basic model based on demographic clinical data in predicting diabetes risk. In certain cases, the chest X-ray flagged high-risk patients up to three years before an eventual diagnosis. The model also provides a numerical risk score that could potentially aid clinicians in personalizing treatment plans for patients.

Annually, millions of chest X-rays are taken due to chest pain, difficulty breathing, injury, or as a routine procedure. While radiologists are not specifically looking for diabetes when examining these images, such images become part of a patient's medical history and could be analyzed later for diabetes or other conditions. The researchers now plan to validate the model further and integrate it with electronic health record systems to alert physicians to conduct traditional diabetes screening on patients identified as high-risk based on X-ray findings. Their next focus will be to investigate the generalizability of chest X-rays in diagnosing other conditions, such as vascular disease, congestive heart failure, and chronic obstructive pulmonary disease.

"Chest X-rays provide an 'opportunistic' alternative to universal diabetes testing," said Judy H. Hwang, MD, assistant professor of radiology and imaging sciences, and the lead researcher. "This is an exciting potential application of AI to pull out data from tests used for other purposes that could positively impact patient care."

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AI Enhances Detection of Acute Respiratory Distress Syndrome in Chest X-Rays

Continued from page 4

Physicians with expertise in chest X-ray interpretation for ARDS detection work side-by-side. They evaluated overall performance for ARDS detection, accuracy based on X-ray interpretation difficulty, and the level of AI/physician certainty in their interpretations. The AI model demonstrated a higher overall performance in detecting ARDS findings than physicians. However, the researchers discovered that while the AI model outperformed physicians in interpreting less challenging chest X-rays, physicians were better at interpreting more difficult ones. In rating their confidence in the chest X-ray interpretation, physicians were found to be less confident, the AI performed better.

The team's analysis suggests that AI and

physician expertise could complement each other, potentially reducing ARDS misdiagnosis rates. They tested several strategies in which an AI and physician could collaborate to achieve the best performance. One effective method involved having the AI system review the chest X-ray first and then deferring to physicians if it was uncertain. This approach allowed physicians to review a smaller subset of chest X-rays, reducing workload and allowing them to focus on more challenging cases. Such an approach could ultimately transform care delivery to ARDS patients in the intensive care unit (ICU).

"Understanding how to effectively operationalize AI systems in the ICU is really important," said study senior author Dr. Michael Sjöding, Associate Director of the Weil Institute and



Associate Professor of Pulmonary and Critical Care Medicine. "These syndromes are more common, but there has been a lot of work done so far to understand how to get them to the bedside to help patients get the best care. This work offers a glimpse of the future where AI systems can work together to provide care to all patients."

"Because medical decisions are high-stakes, we know that patients are unlikely won't accept complete physician expertise with AI. Dr. Negar Farzaneh, a research Investigator and physician, as well as lead author on the study, said that strategies where the model assists the physician's diagnosis, rather than replacing it, might be a more reasonable approach. Her work suggests that these models, if optimized, can result in improved diagnostic accuracy and enable patients to receive consistent care."

Image: Collaboration of AI with physician to improve ARDS diagnostic accuracy (Freepik)

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