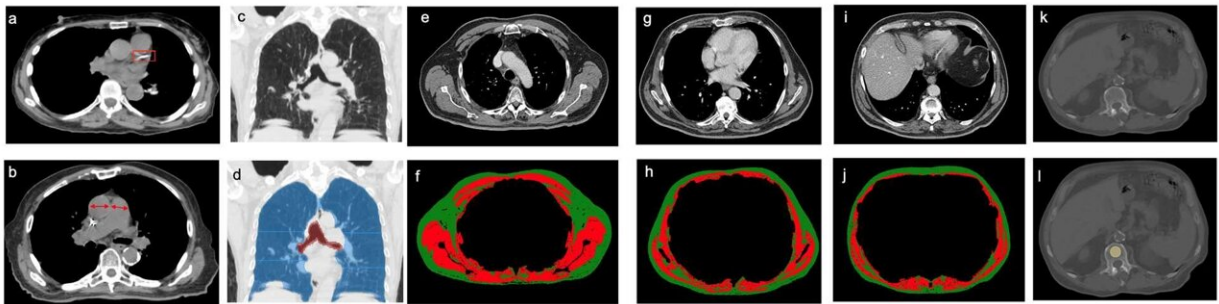


# Noncancerous chest CT features for predicting survival in stage I lung cancer

April 13 2022



(A) Axial CT image shows coronary artery calcium (red square). (B) Axial CT image shows pulmonary artery and ascending aorta diameter at level of main pulmonary artery (red arrows). Coronal CT images (C) without and (D) with segmentation label map for lung densitometry to assess emphysema; label map shows lung parenchyma in blue and major airways in red. Axial CT images (E) without and (F) segmentation label map at level of fifth thoracic vertebral body, (G) without and (H) with segmentation label map at level of eighth thoracic vertebral body, and (I) without and (J) with segmentation label map at level of tenth vertebral body, for body composition analysis. Skeletal muscle in red; adipose tissue in green. Axial CT images (K) without and (L) with bone mineral density measurement, depicted by yellow ROI at first lumbar vertebral body. Credit: American Roentgen Ray Society (ARRS), *American Journal of Roentgenology*

According to ARRS' *American Journal of Roentgenology* (AJR), noncancerous imaging markers on chest CT performed before

stereotactic body radiation therapy (SBRT) improve survival prediction, compared with clinical features alone.

"In patients undergoing SBRT for stage I lung cancer," explained corresponding author and 2019 ARRS Scholar Florian J. Fintelmann, "higher [coronary artery calcium](#) (CAC) score, higher pulmonary artery (PA)-to-aorta ratio, and lower thoracic skeletal muscle index independently predicted worse overall survival."

Fintelmann and team's retrospective study included 282 patients (168 female, 114 male; [median age](#), 75 years) with stage I lung [cancer](#) treated with SBRT between January 2009 and June 2017. To quantify CAC score and PA-to-aorta ratio, as well as emphysema and body composition, pretreatment chest CT was used. Associations of clinical and imaging features with overall were quantified using a multivariable Cox proportional hazards (PH) model.

For stage I lung [cancer patients](#) treated with SBRT, CAC score, PA-to-aorta ratio, and skeletal muscle index showed significant independent associations with overall survival. (p

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