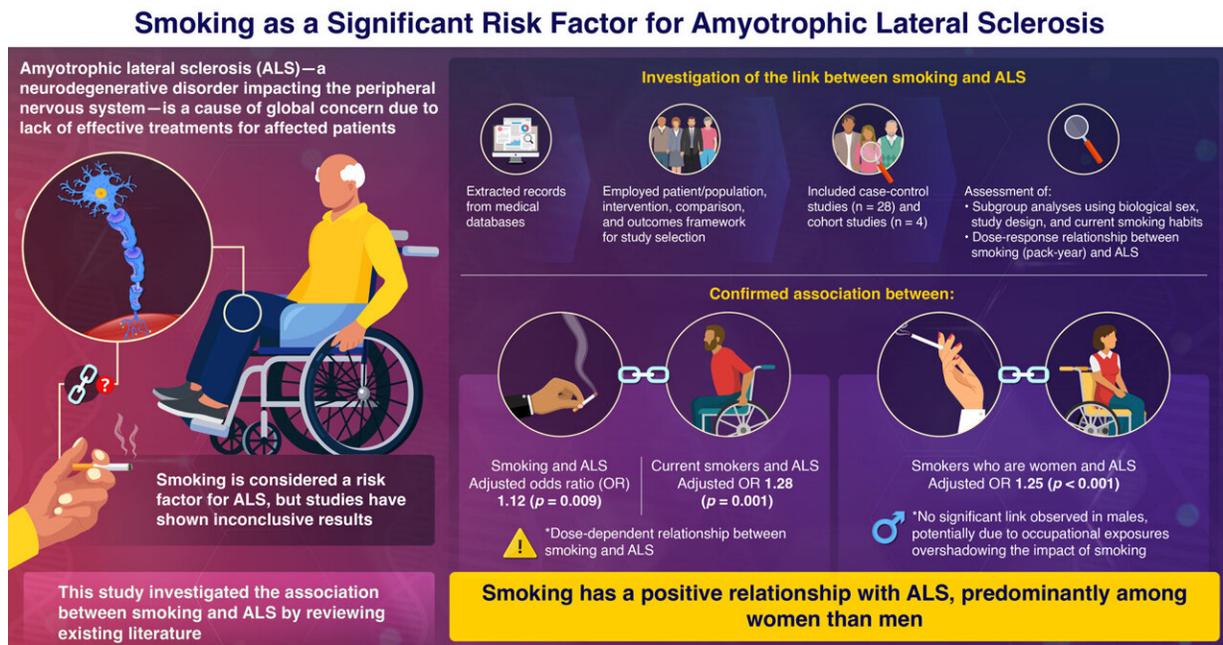


Researchers decode the link between smoking and amyotrophic lateral sclerosis risk

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Association of Smoking with Amyotrophic Lateral Sclerosis: A Systematic Review, and Meta-Analysis, Including Dose-Response Analysis
Kim et al. (2023)

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A new study from Pusan National University shows that smoking is positively associated with the risk of developing amyotrophic lateral sclerosis, predominantly affecting women. Discontinuing smoking can potentially reduce the ALS risk. Credit: Dr. Yun Hak Kim / Pusan National University

Amyotrophic lateral sclerosis (ALS), a neurodegenerative disorder, is a significant global health issue, affecting the voluntary motor nervous

system in affected individuals. It is further compounded by a lack of effective treatment options. This treatment gap highlights the need to identify risk factors, particularly modifiable ones, that could potentially prevent the onset of ALS.

While smoking has been considered a significant risk, studies have yielded inconclusive results, failing to pinpoint the exact association. Investigating this link is crucial to understanding preventive strategies and advancing our understanding of ALS etiology.

To shed light on this association, a team of researchers from Korea, led Assistant Professor Yun Hak Kim, from the Department of Anatomy and the Department of Biomedical Informatics at Pusan National University, conducted a meticulous study.

Employing a systematic literature search within the patients/population, intervention, control, and outcomes or PICO framework, they identified case-control and [cohort studies](#) delving into the relationship between smoking and the onset of ALS. The team determined the dose-response relationship between smoking and ALS by analyzing the number of packs smoked per year by patients.

In their study, the findings of which were [published in the journal *Tobacco Induced Diseases*](#), the in-depth analysis of 32 studies revealed a notable association between smoking and an increased risk of ALS. The research team analyzed the adjusted odds ratios (OR) to provide a quantitative measure of the association between smoking and ALS.

The adjusted odds ratio calculations showed that smokers are 1.12 times at odds to exhibit a risk of developing ALS. Further analysis showed that this association is stronger for current smokers.

"One of our most pivotal findings was the dose-response analysis,

revealing an inverted U-shaped curve," says Dr. Kim. "This curve highlights that the risk associated with smoking isn't a linear progression. Instead, it peaks and then starts to decrease or plateau, suggesting that the risk of ALS is influenced by the intensity of smoking."

The non-linear nature of the curve challenges conventional beliefs and highlights the need for personalized public health interventions tailored to specific smoking behaviors.

The study also unveiled a noteworthy association between smoking and the risk of ALS, predominantly among women than men. Dr. Kim observes, "In our investigation, the unadjusted OR stood at 1.20, signifying a substantial correlation between smoking and ALS among females. The adjusted OR remained significant at 1.25, reinforcing the elevated risk for ALS among female smokers. In contrast, no significant link was observed in males, potentially due to occupational exposures overshadowing the impact of smoking."

These findings not only contribute valuable insights into the risk profile for women but also emphasize the significance of public health programs aimed at mitigating the impact of smoking on ALS within this specific demographic.

In summary, this study provides compelling evidence of a positive relationship between smoking and the risk of ALS. Identifying smoking as a modifiable risk factor highlights the potential for mitigating the risk of developing ALS through smoking cessation. Encouraging individuals to discontinue [smoking](#) is crucial, given its tangible impact on reducing the likelihood of ALS onset.

More information: Kihun Kim et al, Association of smoking with amyotrophic lateral sclerosis: A systematic review, and meta-analysis, including dose-response analysis, *Tobacco Induced Diseases* (2024). [DOI:](#)

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