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DENTAL HYGIENE | FLUORIDE

SDF may reduce radiation-induced caries progression

A study suggests silver diamine fluoride may reduce radiation-induced caries risk and help prevent cavities despite low saliva levels.

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Jul 30th, 2026

Silver diamine fluoride (SDF) may lower the risk of radiation-induced caries (RIC) in patients receiving head and neck radiotherapy, according to a study recently published in the *Journal of the American Dental Association*.

Furthermore, SDF may help protect against cavities regardless of salivary function, making it a promising

addition to oral care before and after radiotherapy, the authors wrote.

“Topical 38% SDF reduced RIC progression despite profound hyposalivation,” wrote the authors, led by Dr. Amal A.K. Noureldin, PhD, of the Texas A&M University College of Dentistry ([*JADA*](#), July 16, 2026).

In this randomized, placebo-controlled trial, 56 adults in Texas received either 38% SDF or a placebo before radiotherapy and again at one and three months after treatment. Participants underwent oral examinations at baseline and at one, three, and six months after radiotherapy to evaluate the development of new decayed, missing, or filled tooth surfaces, they wrote.

Additionally, the researchers assessed salivary flow, buffering capacity, gingival health, and oral health-related quality of life. A total of 36 participants completed at least one follow-up visit, with 18 in the SDF group and 18 in the placebo group. The average participant age was 61, and 78% of the study population were men.

Baseline rates of decayed, missing, and filled tooth surfaces were similar between the SDF and placebo groups (median, 25.5 vs. 25.4; $p = 0.622$). However, the SDF group experienced significantly fewer new carious lesions at both three months (median, one vs. two; $p = 0.027$) and six months (median, two vs. three; $p = 0.03$), with 47.1% of SDF participants remaining free of new lesions at three months compared with 5.9% in the placebo group ($p = 0.017$), they wrote.

Stimulated salivary flow declined significantly after radiotherapy in both groups, while gingival health remained stable and showed no significant differences between groups. Buffering capacity was similar overall, although the placebo group experienced significant reductions at one and three months. No treatment-related adverse events were reported, indicating that topical SDF was safe and well tolerated.

Nevertheless, the study had limitations. The findings may have been influenced by detection bias because the same clinician both administered the treatment and evaluated the outcomes, the authors added.

“Because SDF is quick to apply, professionally delivered, and does not rely on patient compliance, it represents a practical addition to pre- and postradiotherapy oral care protocols,” Noureldin and colleagues concluded.

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