SAMPLE 03 | RESEARCH INTERPRETATION

Can Preventing Cavities Start Before a Baby Is Born?

What a 2025 systematic review tells us — and what it doesn't

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Key points

• Only five randomized controlled trials met the review's inclusion criteria.
• Streptococcus mutans levels were lower in intervention groups, but this is a surrogate outcome — not the same as showing fewer cavities.
• Findings for actual caries were contradictory, so the evidence does not support a specific prenatal intervention for preventing caries in children.

Pregnancy may seem like an unusually early time to think about a child's cavities. The baby does not have teeth yet. So could improving a mother's oral health during pregnancy actually affect her child's future risk of tooth decay?

A 2025 systematic review published in the European Archives of Paediatric Dentistry looked at exactly that question. The answer is interesting, but it is not as simple as saying that treating the mother prevents cavities in the child.

What Did the Researchers Study?

The researchers searched seven scientific databases for randomized controlled trials involving healthy pregnant women who received clinical interventions intended to prevent dental caries. The review excluded studies that looked only at oral health education or behavioral interventions.

Outcomes in the children included actual dental caries as well as Streptococcus mutans levels. S. mutans is associated with caries development, but bacterial levels are not the same outcome as having cavities. That distinction matters.

What Did They Find?

The researchers initially identified 2,149 records. Only five randomized controlled trials ultimately met the inclusion criteria. Two were assessed as having a low risk of bias, while the other three raised some concerns.

Children in intervention groups had significantly lower S. mutans levels than controls. Findings for actual caries were less consistent: one calcium-supplementation trial reported reductions, while vitamin D supplementation and a topical NaF–iodine solution intervention did not show statistically significant reductions in caries.

Why Can't We Draw a Stronger Conclusion?

Five randomized controlled trials are not much evidence on which to base a broad clinical recommendation, and the interventions differed substantially. They included calcium and vitamin D supplementation as well as xylitol-, fluoride-, chlorhexidine- and iodine-containing approaches.

There is also an important difference between reducing S. mutans and reducing dental caries. Caries is multifactorial. A change in one microbiological marker should not automatically be interpreted as proof that a child will develop fewer cavities.

Evidence limitations

A small, heterogeneous evidence base and contradictory direct caries outcomes mean that the review supports caution rather than a specific prenatal caries-prevention recommendation.

So What Does the Evidence Support?

The review does not provide enough evidence to recommend a particular supplement or prenatal dental intervention specifically to prevent cavities in children. The authors concluded that clinical caries-preventive interventions during pregnancy might reduce S. mutans levels in offspring, but findings for actual caries were contradictory and further research is needed.

What This Means for Readers

These findings should not be interpreted as a reason to postpone routine dental care during pregnancy. Current HRSA guidance recommends maintaining oral health during pregnancy, scheduling dental care when needed, and addressing necessary dental treatment rather than delaying care.[1]

The review also does not establish calcium, vitamin D, or another supplement as a proven strategy for preventing cavities in a future child. Decisions about supplements during pregnancy should therefore be made for appropriate maternal or obstetric indications with the relevant health professional, not on the assumption that they will prevent childhood caries.

Reference

1. Health Resources and Services Administration. Oral Health and Pregnancy. U.S. Department of Health and Human Services. Last reviewed July 2024. Accessed October 3, 2026. https://www.hrsa.gov/oral-health/pregnancy

Source systematic review

Abdunabi F, Kowash M, Makrygiannakis MA, Kaklamanos EG. Do clinical caries-preventive interventions applied to expectant mothers affect caries-related parameters in their children? A systematic review. Eur Arch Paediatr Dent. 2025;26(4):633–644. doi:10.1007/s40368-025-01025-6.

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