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Early life antimicrobial use and the effects on the saliva microbiome

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Abstract

The composition of the human microbiome has significant impacts on our health and changes in it have been associated with diseases like metabolic syndrome, atherosclerosis, and cirrhosis. Antimicrobial use profoundly affects intestinal microbiota composition. but little is known about the long-term effects of antimicrobial use on the saliva microbiome. A new study used data from the Finnish National Registry to examine the saliva microbiomes of preadolescents and compared groups with different histories of antimicrobial use. They found that antimicrobials' effects varied by gender and drug regimen. For boys, antimicrobial use was associated with a decrease in microbial diversity in individuals while for girls, only azithromycin use was associated with reduced diversity. The community composition was altered in boys when all antimicrobials were analyzed. but when each antimicrobial was analyzed individually, only azithromycin use had a significant effect. Heavy antimicrobial use was also associated with changes in the relative abundance of different types of bacteria. Although further studies examining the clinical implications of these findings are needed these results suggest that lifetime antimicrobial use – particularly azithromycin – can alter the saliva microbiota affecting microbiome resilience and potentially resulting in poor health outcomes.