

# Association between an Individual's Physical Activity Level and Periodontal Health

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## INTRODUCTION

- Regular physical activity may offer a behavioral strategy to limit inflammation.
- The inflammatory oral disease, periodontal disease, may be influenced by physical activity.
- Few studies have explored the association between an individual's physical activity level and their periodontal health.

## METHODS

**Study design:** Cross-sectional. Data source: National Health and Nutrition Examination Survey (NHANES 2011-2014 cycles). N= 6923

**Inclusion Criteria:** Participants aged 30 years and above, with 1+ tooth remaining (excluding 3<sup>rd</sup> molars).

**Primary exposure:** Total and vigorous physical activities from Physical Activity Questionnaire. Intensity rated using METs (<10, 10-20, >20 MET hrs/week).

Vigorous activities defined as vigorous-intensity sports, fitness, or recreational activities that cause large increases in breathing or heart rate like running or basketball for at least 10 minutes continuously

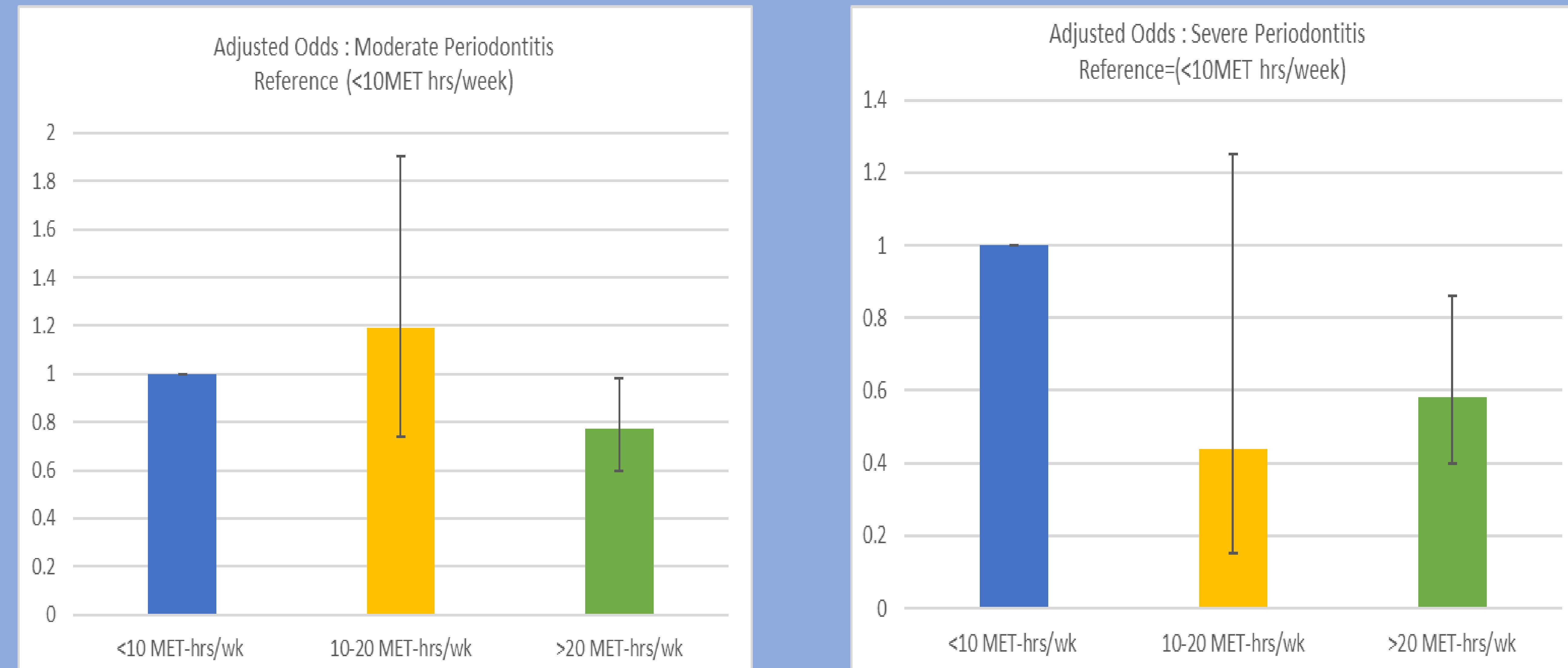
**Primary outcome:** Moderate or severe periodontal disease based on Eke classification (Reference: None/mild periodontitis).

Multinomial regression analysis performed using SAS V9.4. NHANES complex sampling taken into account.

## RESULTS

- Vigorous physical activity (>20 MET hrs/wk): 23% lower risk of moderate periodontitis 42% lower risk of severe periodontitis
- No statistically significant association between total physical activity and periodontal health after adjusting for covariates.

# Vigorous physical activity lowers the odds of both moderate and severe periodontitis



\*Odds of moderate and severe periodontitis after adjusting for age, sex, smoking, education, income and race

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**Table 1: Multinomial Logistic Regression Model comparing moderate or severe periodontitis to those with none/mild periodontitis: Vigorous activity only analysis. \*P <0.05.**

Variables	Mod. Periodontitis		Severe Periodontitis	
	OR	p-Value	OR	P-Value
Smoker				
Former		Reference Category		
Never	0.71	0.001*	0.68	0.03*
Current	1.58	<0.001*	2.25	<0.001*
Age				
Young		Reference Category		
Middle	1.90	<0.001*	3.08	0.001*
Elderly	2.58	<0.001*	2.33	0.001*
Sex				
Male		Reference Category		
Female	0.56	<0.001*	0.27	<0.001*
Education				
High school or less		Reference Category		
Some college	0.88	0.121	0.64	0.013*
College graduate or higher	0.682	0.004*	0.28	<0.001*
Income				
\$0 - \$ 44,999		Reference Category		
\$45k - \$74,999	0.77	0.003*	0.97	0.912
\$75k and higher	0.53	<0.001*	0.43	0.037*
Race				
Mexican American		Reference Category		
Other Hispanic	0.64	0.007*	0.57	0.011*
Non-Hispanic White	0.35	<0.001*	0.31	<0.001*
Non-Hispanic Black	0.69	0.007*	1.02	0.883
Non-Hispanic Asian	0.87	0.442	1.07	0.706
Other race	0.41	0.010*	0.23	0.008

## Discussion/Public Health Implications:

First study to report that vigorous physical activity shows a protective effect for both moderate and severe periodontitis.

Dental professionals should highlight

- the importance of staying physically active for overall health and periodontal health.
- follow HHS recommendations of minimum physical activity (150 minutes of physical activity or more per week).