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## Dietary Patterns and Hearing Loss in Older People

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Hearing loss is highly prevalent in older people and can reduce quality of life substantially. Emerging research suggests that potentially modifiable risk factors, including risk factors previously related to cardiovascular disease risk<sup>(1,2)</sup>, may be associated with a decreased or increased risk of hearing loss. This has prompted investigation into the possibility that certain nutrients, foods or dietary patterns may also be associated with incidence of hearing loss. We prospectively investigated the association between dietary patterns and hearing loss in men enrolled in the Caerphilly study.

The Caerphilly study began in 1979–1983 with recruitment of 2512 men aged 45–59 years. Dietary data was collected using a self-administered, semi-quantitative, 56-item food-frequency questionnaire at baseline (first phase; 1979–1983) and pure-tone unaided audiometric threshold was assessed at 0.5, 1, 2 and 4kHz during phase two (1984–1988)<sup>(3)</sup>. Factor (principal component) analysis was carried out to determine *a posteriori* dietary patterns and multivariate linear regression models were used to examine associations with hearing loss (assessed as pure tone average, dB).

Three dietary patterns were determined using factor analysis- Traditional, Healthy, High sugar/Alcohol avoider. Unadjusted univariate analysis showed a significant and inverse association between the Healthy pattern and hearing loss ( $\beta = -1.24$ ; 95 % CI =  $-1.60, -0.88$ ; P value < 0.001) and a significant association between the High sugar/Alcohol avoider pattern and hearing loss ( $\beta = 0.82$ ; 95 % CI =  $0.45, 1.18$ ; P value < 0.001). Moreover, once the regression model was adjusted for potential confounding factors, the inverse association between the Healthy pattern and hearing loss remained significant (P = 0.001) as shown in the table below.

	Dietary pattern		
	Traditional Mean difference (95 %CI)	Healthy Mean difference (95 %CI)	High sugar/Alcohol avoider Mean difference (95 %CI)
Q 1	ref	ref	ref
Q 2	-0.24 (-1.89, 1.41)	0.23 (-1.47, 1.93)	-1.15 (-2.77, 0.47)
Q 3	0.20 (-1.42, 1.82)	-1.04 (-2.73, 0.64)	0.21 (-1.41, 1.83)
Q 4	-0.23 (-1.88, 1.42)	-1.28 (-2.98, 0.42)	1.56 (-0.10, 3.22)
Q 5	0.86 (-0.84, 2.55)	-2.66 (-4.41, 0.91)	0.31 (-1.44, 2.06)
Adjusted model*	0.37	0.001	0.07
P value for trend			

\* Adjusted for age, height, weight, body mass index, systolic blood pressure, smoking, alcohol consumption, physical activity level score, social class, occupation, diabetes, high density lipoprotein cholesterol and total cholesterol; CI, confidence interval; Q, quintile of factor scores of dietary patterns; ref, reference group.

A healthy dietary pattern was found to be significantly inversely associated with hearing loss in middle aged men in the Caerphilly study. The role of dietary factors in hearing loss remains to be fully established and warrants further investigation.

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