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TITLE: Physical Activity Is Associated with Reduced Risk of Esophageal Cancer, Particularly Esophageal Adenocarcinoma: A Systematic Review and Meta-Analysis

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ABSTRACT STATUS: Sessioned

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ABSTRACT BODY:

Purpose: Esophageal cancer (EC) is the 6th most common cancer in men worldwide with a dismal 5-year survival rate. While the incidence of esophageal squamous cell cancer (ESCC) is declining worldwide, the incidence of esophageal adenocarcinoma (EAC) has been rapidly rising. This increase may be partly attributable to the obesity epidemic. Physical activity has been associated with a reduced incidence and mortality from certain cancers. We performed a systematic review and meta-analysis to evaluate the association between physical activity and risk of EC, EAC and ESCC.

Methods: We conducted a systematic search of multiple bibliographic databases and conference proceedings from inception through February 2013 for observational studies that examined associations between recreational and/or occupational physical activity and EC risk. Summary adjusted odds ratio (OR) estimates with 95% confidence intervals (CI) were estimated using the random-effects model.

Results: The analysis included ¬¬8 studies (4 studies in all EC combined, 1 study with data on EAC and ESCC separately, 3 studies restricted only to EAC, 1 study restricted only to ESCC). Meta-analysis demonstrated that the risk of EC was 19% lower among the most physically active people as compared with the least physically active people (5 studies, 1217 cases of EC; OR, 0.81; 95% CI, 0.67-0.99) with low heterogeneity among studies (I2=33%). Physical activity was associated with a reduced risk of EAC (4 studies, 506 cases of EAC; OR, 0.68; 95% CI, 0.55-0.85), but not ESCC (2 studies, 674 cases of ESCC; OR, 0.46; 95% CI, 0.08-2.73). Recreational physical activity, as compared to occupational physical activity, was associated with a reduced risk of EC (3 studies; OR, 0.83; 95% CI, 0.69-1.00). The results were consistent across study design and geographic location (Table). There was concern for reporting bias since some studies with negative results did not report a summary estimate.

Conclusion: Meta-analysis of published observational studies indicates that physical activity may be associated with reduced risk of EC, in particular EAC. Additional research between the association of physical activity and EAC risk are warranted. Lifestyle interventions focusing on increasing physical activity may decrease the global burden of EAC.

Table. Overall and sub-group analysis of studies reporting association between physical activity and risk of esophageal cancer

Groups	Categories	No. of Studies	Adjusted OR	95% CI	Pinteraction
Site-specific	EAC	4	0.68	0.55-0.85	0.67
.	ESCC	2	0.46	0.08-2.73	.
Study Design	Case-control	1	1.43	0.61-3.34	0.19
.	Cohort	4	0.80	0.67-0.95	.
Study Location	Asia	1	0.84	0.66-1.06	0.71

.	Europe	1	0.46	0.11-1.91	.
.	USA	3	0.80	0.53-1.22	.
Control population	Non-esophageal cancer	1	1.43	0.61-3.34	0.19
.	Cancer-free	4	0.80	0.67-0.95	.
Type of Physical Activity	Recreational	3	0.83	0.69-1.00	0.14
.	Occupational	1	1.43	0.61-3.34	.
.	Both	1	0.54	0.31-0.94	.

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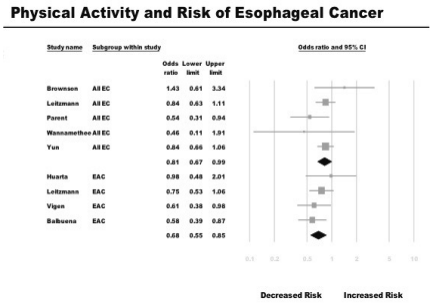

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