Table B.1.d. Cancer incidence: Association between physical activity and cancer incidence among adults (in alphabetical order by author)

See the Supplementary materials for description of evidence of US PAGAC by outcome

Systematic review evidence Review credibility	No. of studies/ Study design No. of participants	Quality Assessment					Description of evidence Summary of findings	Certainty
		Risk of bias	Inconsistency	Indirectness †	Imprecision	Other		
Baumeister 2019 (7) Moderate	14 prospective cohort studies N=2.39 million (2,738 cases)	No serious risk of bias	Serious inconsistency	No serious indirectness	No serious imprecision	None	Examination of the relationship between self-reported PA and liver cancer. Mean follow-up was 11.6 years (range 6-20 years); median age=45 years (range 20 to 93 years) at baseline. PA was significantly inversely associated with **liver cancer risk**, comparing high levels of PA to low levels of PA (HR = 075 [95% CI, 0.63 to 0.89]).	LOW[a]
Behrens 2019 (8) Moderate	3 prospective cohort studies (N=12,605 cases), 5 case-control studies (N=1,295 cases)	Serious risk of bias[b]	No serious inconsistency	No serious indirectness	No serious imprecision[c]	None	Studies examined the relationship between PA and melanoma risk. Most studies examined recreational PA. Cohort studies revealed a statistically significant positive association between high versus low physical activity and **melanoma risk** (RR= 1.27 [95% CI, 1.16 to 1.40]) whereas case-control studies yielded a statistically non-significant inverse risk estimate for physical activity and melanoma (RR = 0.85 [95% CI = 0.63–1.14]).	LOW[d]
Benke 2019 (9) Moderate	48 prospective cohort studies, 24 case-control studies (N=151,748 cases)	No serious risk of bias	Serious inconsistency	No serious indirectness	Serious imprecision	Possible publication bias	Evaluation of the association between physical activity and risk of prostate cancer. Mean age was 61 years and all studies used self-reported PA. There was no significant association between PA and **total prostate cancer incidence** when comparing the highest level of PA to the lowest (RR=0.99 [95% CI, 0.94 to 1.04], 50 studies). There was no difference in effects when stratifying by study design (cohort vs. case-control). The corresponding RRs for advanced and non-advanced **prostate cancer incidence** were 0.92 (95% CI, 0.80 to 1.06) and 0.95 (95% CI, 0.85 to 1.07), respectively.	VERY LOW[e]
Liu 2019 (39) Moderate	20 prospective cohort studies (N=31,807 cases)	No serious risk of bias	Serious inconsistency	No serious indirectness	No serious imprecision	Possible publication bias	There was a significant inverse relationship found between PA and **lung cancer** when comparing higher to lower levels of PA. Compared with low levels of PA, the pooled RR was 0.83 [95% CI, 0.77 to 0.90]). Smokers with a high level of PA were associated with a 10% lower risk for lung cancer (RR = 0.90 [95% CI: 0.84, 0.97], while the association was not significant among non-smokers (RR= 0.95 [95% CI: 0.88, 1.03].	VERY LOW[f]

Abbreviations: CI = confidence interval; HR = hazards ratio; MET = metabolic equivalents of task; PA = physical activity; RR = risk ratio

† Serious indirectness indicates measurement of intermediate/indirect outcomes or heterogeneity in exposures and comparisons assessed; certainty of evidence was not always downgraded for indirectness if it was not judged to impact the certainty in the findings for the outcome evaluated in the review

[a] Certainty of evidence not upgraded given serious inconsistency (direction and magnitude of effects of individual studies and I2>60%)
[b] With the exception of one case-control study, none of the studies controlled for sun sensitivity or sun exposure on an individual level, in addition to other sources of potential bias

[c] No serious imprecision evident for cohort studies; serious imprecision for estimate of effect among case-control studies
[d] Certainty of evidence not upgraded given serious risk of bias
[e] Certainty of evidence downgraded given serious inconsistency (direction and magnitude of effects and $I^2>70\%$), serious imprecision (upper and lower limits of the confidence intervals included both benefit and harm), and possible publication bias
[f] Certainty of evidence downgraded given serious inconsistency (direction and magnitude of effects and $I^2>70\%$) and possible publication bias