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## Dietary carbohydrates, glycemic index, glycemic load and endometrial cancer risk: a systematic review and meta-analysis of prospective studies

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Endometrial cancer is the 5<sup>th</sup> most common cancer among women worldwide with 287 000 new cases diagnosed in 2008, accounting for 4.8% of all female cancer cases<sup>(1)</sup>. Insulin resistance may play a role in the etiology of endometrial cancer based on the observation that several risk factors for endometrial cancer including adiposity<sup>(2)</sup>, low physical activity<sup>(2)</sup>, elevated levels of blood glucose<sup>(3)</sup> and C-peptide<sup>(4)</sup>, and diabetes<sup>(5)</sup> are linked to insulin resistance. Carbohydrates are the main dietary component affecting an individual's insulin secretion, therefore glycemic response is also relevant in this topic<sup>(6)</sup>. Both glycemic index (GI) and glycemic load (GL) are used to rank foods according to their effects on blood glucose concentration. High GI and GL have been associated with increased risk of type 2 diabetes, obesity, and metabolic syndrome in several studies<sup>(6)</sup>. The objective of this study was to review and quantitatively summarize in a meta-analysis the evidence for an association between GI, GL and carbohydrates intake with the incidence of endometrial cancer in prospective cohort studies.

PubMed database was searched for prospective studies of carbohydrates intake, GI, and GL and endometrial cancer risk, up to December 2011. A pre-specified protocol, which includes details of the search terms used, for the review was followed ([http://www.dietandcancerreport.org/cancer\\_resource\\_center/cup\\_protocols.php](http://www.dietandcancerreport.org/cancer_resource_center/cup_protocols.php)). We computed 95% Confidence Intervals (CIs) from the natural logs of the Relative Risks (RRs) and CIs across categories of carbohydrate, and GI and GL intake. Overall RRs were estimated by use of a random effects model.

Six cohort studies met the eligibility criteria for inclusion in the meta-analysis of carbohydrates, GI, GL and endometrial cancer risk. The summary RR for high vs. low intake was 1.17 (95% CI: 1.03–1.34) for carbohydrate intake, 1.00 (95% CI: 0.87–1.14) for GI, and 1.22 (95% CI: 1.09–1.37) for GL. In the dose-response analysis the summary RR was 1.18 (95% CI: 1.02–1.37) per 100 grams of carbohydrates per day and 1.15 (95% CI: 1.06–1.25) per 50 GL units. The summary RR was 1.21 (95% CI: 1.05–1.38) for high vs. low total sugar intake and 1.07 (95% CI: 1.01–1.13) per 25 g/d.

In this meta-analysis of prospective studies we found that a higher intake of carbohydrates, as well as a high GL were predictors of an increased risk of endometrial cancer. There was no evidence of an association between endometrial cancer and GI. Our results provide further support for the hypothesis that dietary carbohydrate, glycemic load and total sugars may increase the risk of endometrial cancer.

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6. Brand-Miller JC *et al.* (2004) *Am J Clin Nutr* **80**, 243–4.