



ABSTRACT

## The role of folate in the management of insulin resistance in adults : a systematic review

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**Background and objective :** Insulin resistance (IR) is one of the main risk factors for type 2 diabetes. IR employs a heavy economic burden, and the prevalence rate of IR in Indonesia is high. Homeostasis model of assessment-insulin resistance (HOMA-IR) is proven to be a great clinical tool to assess IR. Nutrition intervention should be the primary focus in treating IR. Folate is proven to be effective in lowering homocysteine concentrations, which is one of the risk factors for IR. This study aimed to summarize the role of folate in the management of IR in adults.

**Methods :** Literature searches were conducted in PubMed, Science Direct, and Cochrane from January 2013 to June 2023. The format of this systematic review and study relevance analysis refers to the PRISMA statement. Articles were adjusted according to the inclusion and exclusion criteria from the study. Eligibility assessment of titles and abstracts was performed based on PICO criteria.

**Results :** Twelve studies were included in this review (n=1376 subjects). Eight randomized control trials measured the effect of folate supplementation (1-15 mg/d), duration of intervention (3-24 weeks), to HOMA-IR. In four cross-sectional studies, the correlation between folate consumption and folate status to HOMA-IR was evaluated. Eight studies showed a significant decrease in HOMA-IR from folate administration (p <0.05, CI 95%).

**Conclusion :** Folate can play a pivotal role as an alternative nutrition therapy for lowering insulin resistance in adults.

**Keywords:** folate, insulin resistance, HOMA-IR

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