

An exploratory literature review of DNA methylation related to a rapid eating rate

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Background: Obesity rates are rising worldwide and with it an increased risk for other conditions like cardiovascular disease and diabetes. One factor linked to obesity is the eating rate, defined as how fast an individual finishes a meal. However, little information is available about whether a rapid eating rate may epigenetically modify DNA or if there is an epigenetic predisposition in individuals with a rapid eating rate. We conducted an exploratory review to understand whether prior research identified a connection between eating rate and methylated DNA regions.

Methods: A keywords list was generated for both eating rate and methylation. An exploratory review of the literature in English was conducted through the PubMed database.

Results: The keyword list generated 97 possible publications tied to eating rate and methylation. Through the exploratory review, only 14 were identified as relevant. Of the 14 publications, 5 were human studies, 6 were animal experiments and the remaining 3 were reviews. A variety of DNA regions were epigenetically modified in subjects with a rapid eating rate, including hypomethylated genes related to binge eating disorder in adolescents. However, there was little overlap of DNA regions among the publications.

Conclusion: The relation of eating rate to methylation was investigated in previous studies, justifying a more thorough scoping review of the literature to identify DNA regions for future work.