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What is the usual eating window for children and adolescents aged 6-20 years: a systematic review

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Time-limited eating is a dietary intervention whereby calorie intake is limited to a specific window of time during the day⁽¹⁾. The usual eating windows (EW) of adults, and how this can be manipulated for dietary interventions, is well documented⁽²⁾. However, there is a paucity of data on the usual EW of children and adolescents, which may be a useful intervention for reducing obesity.

The primary objective was to systematically review existing literature on the usual EW of children and adolescents. Secondary objectives were to identify average clock times of first and last food/drink intakes and also variations in EW and clock times by age, nationality or weight status subgroups, if available data allowed.

Two databases (Medline and Embase) were searched for eligible papers published between February 2013 and February 2023. Included papers were forward searched using the citation network on Web of Science. 6347 papers were identified, and after deduplication 4569 papers were screened by two independent reviewers. Methodological quality was assessed using a Joanna Briggs Institute checklist⁽³⁾.

Ten studies were included, with both observational and experimental designs. These studies had a total population of 4,589 participants, with individual study sample sizes ranging from 22 to 2195. Ages of participants ranged from 6 – 20 years, with six studies involving adolescents alone (≥ 10 years), and four involving children and adolescents. There were four studies from the USA, two from Germany and one each from Brazil, India, The Netherlands and pan-European.

Narrative synthesis showed large variations in average eating windows from 9.7 to 16.4 hours. Only four studies included clock times of intake, with large variations in both first and last intake times. Five studies were included in a random-effects meta-analysis, in which heterogeneity was considerable ($I^2 = 95.8\%$), and pooled duration of usual daily eating was 11.3 hours (95% confidence interval (CI) 10.95, 11.73). Sources of heterogeneity included differences in study design and populations, variation in dietary assessments methods and definition of eating windows. Narrative synthesis of an adolescent sub-group showed eating windows increased as children got older. Four studies were included in a random-effects sub-group meta-analysis, with a pooled EW of 11.2 hours (95% CI 10.27, 12.05; $I^2 = 96.6\%$) in adolescents. Insufficient data prevented further subgroup analysis.

In conclusion large variations in eating windows exist across different study populations, with limited data available on first and last intake times; however, the pooled data suggest it may be possible to design time-limited eating interventions in paediatric populations aimed at reducing eating windows. Further high-quality research, of eating windows and associations with health outcomes, is needed.

References

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