

(atherogenic diet-fed *Wt*) by reducing adipose inflammation and improving adipose morphometry, and this corrects fatty livers. Diabetic mice with metabolic obesity (atherogenic diet-fed *foz/foz*) were reluctant to use the wheel, perhaps secondary to excessive weight gain, and resultant mild exercise failed to confer benefits on the metabolic phenotype.

## Reference

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<https://doi.org/10.1016/j.orcp.2016.10.233>

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### Parent-focused childhood overweight and obesity eHealth interventions: A systematic review and meta-analysis



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**Introduction:** eHealth interventions have shown promise in assisting with lifestyle behaviour change and offer the advantage of broad-reach access. Many previous eHealth studies in children and adolescents have demonstrated positive results in relation to weight, physical activity or diet. However, there have been no previous reviews which have specifically investigated the effectiveness of parent-focused eHealth obesity interventions.

**Methods:** Seven databases were searched from 1995–2015. Randomised controlled trials which reported BMI/BMI z-score were included. Secondary outcomes included diet, physical activity and screen time.

**Results:** Eight articles on seven eHealth interventions, using the mediums of internet, interactive voice response and telemedicine were included. Participant age ranged from 5–15 years and study size ranged from 35–1013 dyads. One study reported a significant improvement in weight/adiposity (waist-to-hip ratio). Three studies demonstrated significant improvements in at least one dietary measurement and three studies showed significant improvements in at least one physical activity measurement. A meta-analysis demonstrated no significant difference in the effects

of parent-focused eHealth obesity interventions compared to a control on BMI/BMI z-score (SMD  $-0.15$ , 95% CI  $-0.45$  to  $0.16$ ,  $Z=0.94$ ,  $P=0.35$ ).

**Conclusion:** While over half of the studies demonstrated significant improvements in diet or physical activity, only one found a significant change in weight/adiposity. As many studies were small, they may have been inadequately powered. There were no studies on children under the age of five. It is recommended that larger studies be conducted, particularly those which target younger age groups.

<https://doi.org/10.1016/j.orcp.2016.10.234>

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### Treatment seeking people with obesity still in need of nutrition education



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**Objective:** A better understanding of the general nutrition knowledge among obese patients (OP) will inform the design of effective weight management education programs. This study assessed general nutrition knowledge in OP seeking treatment and compared this to a community sample (CM) with participants from the healthy weight (HW), overweight (OW) and obese (OB) range.

**Methods:** Participants were a convenience sample of OP attending a tertiary weight loss clinic and the general community (CM) (aged > 34 years). BMI was measured in OP and self-reported in CM. Nutrition knowledge was measured using a validated, General Nutrition Knowledge Questionnaire (GNKQ) assessing four domains: dietary recommendations, sources of nutrients, choosing everyday foods and the diet–disease relationships. The influence of demographic characteristics (age, gender, education) on general nutrition knowledge was also assessed.

**Results:** A total of 472 participants (OP: 211; CM: 261) were recruited. OP were older (OP:  $53.0 \pm 9.8$ ; CM  $49.1 \pm 10.0$  y;  $p < 0.0005$ ) and had a higher BMI (OP:  $45.0 \pm 9.2$ ; CM:  $26.8 \pm 6.1$  kg m<sup>-2</sup>;  $p < 0.0005$ )

than CM. BMI distribution in CM was 47.5% HW, 32.2% OW and 20.3% OB. Total GNKQ scores were significantly higher in CM (OP:  $65.0 \pm 16.9$ ; CM:  $79.4 \pm 12.7$ ;  $p < 0.005$ ) even after adjustment for demographic characteristics. OP scored significantly lower than CM across all four knowledge domains.

**Conclusions and implications:** General nutrition knowledge was lower in OP compared with CM and remained lower after adjustment for demographic characteristics. Nutrition miss-information disseminated via the wider weight loss industry or lower health literacy may explain these findings however, factors influencing general nutrition knowledge in OP warrants further investigation.

<https://doi.org/10.1016/j.orcp.2016.10.235>

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### Feeding Thing 1 and Thing 2: A discordant twin analysis of toddler's fussy eating and maternal feeding practices



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**Background:** Early "fussy" eating behaviours are associated with reduced dietary variety, particularly for nutrient-dense foods. Previous research has assumed that parental feeding practices shape a child's fussy eating; however, a child-responsive model suggests that feeding practices may develop in response to a child's fussiness. We used a novel twin study design to test whether mothers vary their feeding practices for twin children who differ in their 'food fussiness', in support of a child-responsive model.

**Methods:** Participants were mothers and their 16 month old twin children ( $n = 2026$ ) from Gemini, a British twin birth cohort of children born in 2007. Standardized psychometric measures of maternal 'pressure to eat', 'restriction' and 'instrumental feeding', as well as child 'food fussiness', were completed by mothers. Within-family analyses examined if twin-pair differences in 'food fussiness'

were associated with differences in feeding practices using linear regression models. In a subset of twins ( $n = 247$  pairs) who were the most discordant (highest quartile) on 'food fussiness' (difference score  $\geq .50$ ), Paired Samples T-test were used to explore the magnitude of differences in feeding practices between twins. Between-family analyses used Complex Samples General Linear Models to examine associations between feeding practices and 'food fussiness'.

**Results:** Within-pair differences in 'food fussiness' were associated with differential 'pressure to eat' and 'instrumental feeding' ( $ps < .001$ ), but not with 'restriction'. In the subset of twins most discordant on 'food fussiness', mothers used more pressure ( $p < .001$ ) and food rewards ( $p < .05$ ) with the fussier twin. Between-family analyses indicated that 'pressure to eat' and 'instrumental feeding' were positively associated with 'food fussiness', while 'restriction' was negatively associated with 'food fussiness' ( $ps < .001$ ).

**Conclusions:** Mothers appear to adjust their feeding practices according to their perceptions of their toddler's emerging fussy eating behaviour. Specifically, the fussier toddler is pressured and more likely to be offered food rewards than their less fussy co-twin.

<https://doi.org/10.1016/j.orcp.2016.10.236>

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### Targeting and recruiting socioeconomically disadvantaged families for participation in child nutrition research



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**Background:** Parents, both through food choices and parenting behaviours, play a significant role in shaping their child's eating habits. Children from socioeconomically disadvantaged families are at particular risk of poor nutrition and obesity. The majority of studies in child feeding research consist of homogenous samples of mothers generally derived from privileged communities, while recruitment of fathers and low-income families has been challenging. The aim of the study was to explore