

# The MEND Study: Sustained improvements on health outcomes in obese children at one year

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## Background

- Despite the global increase in child obesity prevalence, there is a dearth of effective randomised controlled trials (RCT) to combat this issue<sup>1</sup>
- This RCT followed a pilot study<sup>2</sup> and was conducted to assess the effects of the MEND (Mind, Exercise, Nutrition... Do it!) child obesity intervention programme on relevant health outcomes

## Methods

- Children were self-referred or referred by health professionals

### Inclusion criteria

- ≥98th BMI centile
- 8-12 years
- Simple obesity
- Parental attendance compulsory

### Outcomes

- Primary:** waist circumference at 6 months
- Secondary:** BMI, cardiovascular fitness, physical activity & self-esteem

### Study design

- Groups:**  
**Intervention:** 9-week MEND Programme & 12 week free family swimming pass  
**Control:** delayed intervention (at 6 months)

### Measurements at:

- baseline
- 6 months (in the entire sample)
- 12 months (in half of participants)
- Study venues:** sports centres and schools (urban & rural)
- Delivery:** 5 separate multi-disciplinary teams (health, exercise & social care professionals)

## Results:

- 107 children were recruited, of which 104 completed the intervention (43% boys; mean age 10.1 SD 1.1 years; 52% Caucasian)
- Waist circumference at 6 months (primary outcome) was significantly reduced in the intervention group compared to the controls (n = 82, mean difference = -4.3 cm, 95% CI -7.8 to -0.08, p=0.02)
- Positive results were observed for other secondary outcomes including BMI (mean difference = -1.9 kg/m<sup>2</sup>, 95% CI -3.8 to -0.03, p=0.046)
- Longitudinal follow-up within subjects indicated that the positive benefits which were evident at 6 months were sustained at 12 months from baseline for both the primary and secondary outcomes (Table 1)

Table 1: Within-subject changes from baseline (0 months) to 6 & 12 months

Measure	0 - 6 months differences (n = 71)				0 - 12 months differences (n = 42)			
	Mean	95% CI	p-value	Mean	95% CI	p-value		
BMI z-score	-0.3	-0.36 -0.23	<0.001	-0.23	-0.33 -0.13	<0.001		
Waist circumference z-score	-0.48	-0.56 -0.41	<0.001	-0.47	-0.59 -0.36	<0.001		
Systolic blood pressure (mmHg)	-5	-7.9 -2.2	0.001	-6.5	-10.7 -2.3	0.004		
Recovery heart rate (beats per minute)	-18	-25 -11	<0.001	-12	-22 -3	0.01		
Global Self-Esteem score (out of 24)	1.5	0.4 2.5	0.007	1.8	0.2 3.3	0.03		
Physical activity (hours/week)	4.2	2.2 6.2	<0.001	4	1.9 6	<0.001		
Sedentary activities (hours/week)	-4.8	-6.8 -2.9	<0.001	-2	-4.3 0.4	0.1		

## Conclusion:

- The sustained benefits of the MEND intervention suggest that this is an effective and feasible community-based programme for childhood obesity

### References:

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- Sacher PM, Chadwick P, Wells JKW, Williams J, Cole TJ, Lawson M. Assessing the acceptability and feasibility of the MEND Programme in a small group of obese 7-11 year old children. *Journal of Human Nutrition and Dietetics*. 2005; 18: 3-5.

### Other MEND Publications:

- Sacher PM, Kolotourou M, Chadwick P, Singhal A, Cole TJ, Lawson MS. The MEND Programme: effects on waist circumference and BMI in moderately obese children. *Obesity Reviews* 2007; 8: 716.
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## The MEND Programme:

18 x 2-hour group sessions over 9 weeks:

- Introduction
- 8 Mind
- 8 Nutrition
- 18 Exercise
- Farewell

Focus on improving health & behaviour - not rapid weight loss

**Mind:** simple behaviour change techniques designed to help parents improve their children's overall diet and activity patterns

**Mind highlights:**

- SMART goals & rewards
- Group star chart
- Stimulus control
- Internal & external triggers
- Role modelling
- Positive parenting
- Self-esteem & confidence

**Exercise:** multi-skills activities – not only increase fitness but also improve balance, agility, coordination and self-esteem

**Exercise highlights:**

- Land- & water-based games
- Non-competitive
- Boosts self-esteem by using voice, dance & drama
- Fun!

**Nutrition:** healthy eating advice customised for obese children

**Nutrition highlights:**

- Not a diet – no forbidden foods!
- Nutrition targets
- MEND Food Tables: MEND-Friendly vs. MEND-Unfriendly
- Label reading
- Supermarket tour
- Cooking & tasting

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Developed at

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