

## PHASE 1 OUTCOMES OF COMMUNITY-BASED ADOLESCENT OVERWEIGHT MANAGEMENT: THE LOOZIT® STUDY

Vanessa Shrewsbury<sup>1,2</sup>  
Research Dietitian & PhD Candidate  
vanesss2@chw.edu.au

Presenting on behalf of:  
J O'Connor<sup>1</sup>, KS Steinbeck<sup>3</sup>, MR Kohn<sup>2</sup>, S Shah<sup>4</sup>, AJ Hill<sup>5</sup>, A Lee<sup>1</sup>,  
B Nguyen<sup>1</sup>, S Torvaldsen<sup>2</sup>, LA Baur<sup>1,2</sup>

<sup>1</sup>The Children's Hospital at Westmead  
<sup>2</sup>University of Sydney  
<sup>3</sup>Royal Prince Alfred Hospital  
<sup>4</sup>Sydney West Area Health Service



## Adolescent overweight and obesity

- Affects approximately 1 in 4 Australian adolescents
- Lifestyle modification is the cornerstone of prevention and management
- 27 RCTs involving lifestyle interventions in adolescent obesity management but few studies:
  - are based in community settings
  - offer extended therapeutic contact and follow up to 24 months (Cochrane Review 2009)



## The Loozit® Study

### Aim of Phase 1:

To examine the short-term (0-2 month) outcomes of a modest intensity, community-based, lifestyle program for weight management in overweight and obese adolescents.

### Study design:

- Two arm randomised controlled trial
- 24 month lifestyle intervention with two phases
- Target sample size: 168
- Study Protocol Published (Shrewsbury et al, BMC Public Health 2009)



## Participant recruitment

### Inclusion criteria:

- overweight-moderately obese 13-17 year olds
- nil medications or significant medical problems
- available for group session times and can speak English
- landline telephone +/- home internet +/- mobile phone access

### Participants were recruited 2006-09 via:

- schools
- media
- health professionals
- area health services
- community venues



## The Intervention

Study arm	Phase 1 (0-2 months)	Phase 2 (2-24 months)	
Group program only	7 weekly group sessions for adolescents & parents	7 'booster' groups sessions for adolescents only	None
Group program + additional therapeutic contact			Adolescents receive support via telephone coaching ; SMS text messages or email ~once/fortnight

### Evidenced based content with a focus on:

- Improving dietary intake and eating patterns
- ↑ Physical activity
- ↓ Sedentary behaviour
- ↑ Self esteem



## Adolescent outcome measures

### Primary

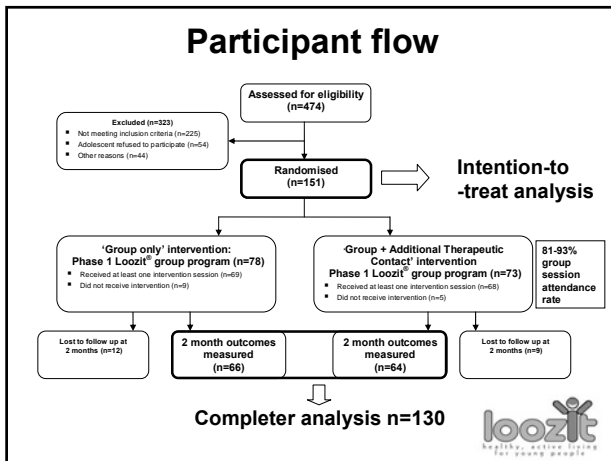
- ΔBMI z-score and Δwaist:height index

} blinded outcome assessor

### Secondary

- Δ metabolic indicators
  - dietary intake (Flood et al, 2005; Booth et al, 2005)
  - physical activity & sedentary behaviour (Telford et al, 2004)
- Δ psycho-social well-being
  - body shape satisfaction (Stunkard, 2000)
  - Mental Health Inventory (MHI-5) Score (Berwick et al, 1991)
  - MacArthur Scale of social status (Goodman et al, 2001)
  - Harter Self-Perception Profile (Harter, 1988)
- Program satisfaction (incl. parents) (Golley et al, 2007)





### Participant & Family Profile

Characteristics (n=151)	%	Median (IQR)
<b>Adolescent</b>		
Age (years)		13.9 (13.4, 14.8)
Female	52	
English is primary language spoken at home	68	
Distance from treatment centre (km)		13.3 (7.4, 19.4)
SEIFA*		1022.00 (995, 1138)
<b>Parental</b>		
Dual parent households	75	
<b>Australian born:</b>		
Mothers	59	
Fathers	49	
<b>University degree:</b>		
Mothers	38	
Fathers	31	

\* Socioeconomic Index for Areas - Index of relative socioeconomic advantage and disadvantage (Sydney mean: 1088)

### Baseline to 2 month changes...

### Anthropometry

Anthropometry	n	Baseline	2 months	Δ Mean (SD)	Δ Median (IQR <sup>a</sup> )	P value <sup>b</sup>
Weight (kg)	150	83.2 (14.4)	83.0 (14.5)	-0.16 (2.1)	0.0 (-1.2, 1.0)	0.409
Waist (cm)	151	96.5 (10.9)	94.4 (10.3)	-2.1 (8.3)	-0.4 (-6.3, 2.6)	0.006
Waist:height	151	0.59 (0.06)	0.57 (0.06)	-0.01 (0.05)	0.0 (-0.04, 0.01)	0.003
BMI (kg/m <sup>2</sup> )	150	30.8 (3.8)	30.6 (3.7)	-0.23 (0.76)	-0.02 (-0.64, 0.17)	<0.001
BMI z-score	150	2.02	1.98	-0.04	-0.03	<0.001

<sup>a</sup> Interquartile range  
<sup>b</sup> Wilcoxon Signed Ranks Test  
<sup>c</sup> Paired samples T Test

### Metabolic Profile

	n	Baseline	2 months	Δ B to 2	P	
		Median (IQR)	Median (IQR)	Mean (SD)	Median (IQR)	Value
Triglycerides (mmol/L)	125	1.1 (0.8, 1.4)	1.1 (0.8, 1.5)	0 (0.6)	0.0 (-0.2, +0.2)	0.581
<b>Cholesterol (mmol/L)</b>						
Total	125	4.3 (3.8, 5.0)	4.2 (3.7, 4.8)	-0.1 (0.4)	0.0 (-0.4, +0.1)	0.004
LDL	123	2.6 (2.1, 3.0)	2.4 (2.0, 3.0)	-0.1 (0.4)	0.0 (-0.3, +0.1)	0.005
HDL	125	1.2 (1.0, 1.4)	1.2 (1.0, 1.4)	0.0 (0.2)	0.0 (-0.1, +0.1)	0.083
Glucose (mmol/L)	125	4.8 (4.5, 5.1)	4.7 (4.4, 5.0)	-0.1 (0.5)	0.0 (-0.3, +0.1)	0.130
Insulin (mU/L)	125	18.0 (14.0, 25.0)	17.0 (12.0, 24.0)	-0.7 (8.6)	0.0 (-5.0, +3.5)	0.586

\*Mean (SD)

### Food intake & eating behaviours

	n	Serves	Baseline (%)	2 months (%)	P value*
<b>Core foods</b>					
<b>Vegetables</b>					
Eats lunch	123	≥ 4/day	26	38	0.040
Eats dinner	128	Everyday	79	88	0.458
Eats breakfast	128	Everyday	82	87	0.238
Eats dinner with most of family	124	≥ once weekly	32	51	0.001
Plays at least 1 hour of sport	122	≥ once weekly	73	74	0.881
Plays at least 1 hour of TV	128	Never or rarely	33	20	0.185
<b>Drinks</b>					
Water	123	≥ 6 cups/day	24	38	0.009
Diet drinks	117	Never or rarely	40	50	0.058
Fruit juice/drink	120	Never or rarely	28	43	0.002
Regular sweetened drinks	120	Never or rarely	46	63	0.001

## Psycho-social measures

	Explanation	Baseline	2 month	Change	P value
		Mean (SD)			
<b>Body shape satisfaction</b>	Difference between perceived and desired figure	2.5 (1.0)	2.1 (0.9)	0.4 (0.9)	<0.001
<b>Mental Health Inventory (MHI-5) Score</b>	5= most favourable health 20=least favourable health	13.2 (5.6)	12.2 (4.1)	-1.0 (3.5)	0.002
<b>MacArthur Scale of subjective social status</b>	1=extremely low 10=extremely high	6.4 (2.0)	6.7 (2.0)	0.2 (1.9)	0.159



## Conclusions

- The reduction in the level of overweight was clinically small but statistically significant.
- This was accompanied by improvements:
  - total and LDL cholesterol
  - body satisfaction
  - mental health
  - adherence to various dietary recommendations
- Future follow-up at 12 and 24 months post-baseline will confirm if these changes are sustained



## Acknowledgments

### Funding

University of Sydney Research and Development Grants Scheme  
 Macquarie Bank Foundation  
 Estate of the Late R.T. Hall  
 Foundation for Children (Australian Financial Markets)  
 National Heart Foundation of Australia

### Participants and their families

### CHW Staff

Previous research assistants:  
 Kate Stevenson, Kristy McGregor, Helen Parish  
 CHW PR department: Nikkie Beltran, Natalie Peck



## Predictors of BMI change

Bivariate results

### Baseline:

- Demographic characteristics
- Anthropometry
- Psycho-social measures
- Cohort number

### Baseline to 2 month:

- Adolescent and parent attendance at group sessions
- Change in dietary intake
- Change in levels of physical activity and sedentary behaviour
- Change in psycho-social measures



## Results: participant flow

