

Assessment of the Effectiveness of a Community Weight Management Programme for Overweight and Obese Children.

Pool Hayes

September – December 2006

Overview of the Programme.

Childhood obesity has been recognised as a global public health crisis (Lobstein et al., 2004), and has consequently become an increasingly important issue on the public health agenda. Reports suggest that the prevalence of obesity among children of all ages in the UK is increasing (Reilly et al, 1999; Rudolf et al., 2001, Jotangia et al., 2005). Obesity is known to have a significant impact on the health and well being of children and is recognised as an independent risk factor for adult obesity (Parsons, 1999).

In 2006, during the months of September through to December the Sport and Leisure Development Services at Walsall Council, Walsall Teaching Primary Care Trust and Carnegie Weight Management worked in collaboration to deliver the Carnegie Club programme at Pool Hayes Community School.

Carnegie Weight Management, a department of Leeds Metropolitan University, is recognised as one of the leading research and training organisations for childhood obesity interventions in the UK. With over 15 years experience in working with overweight and obese children, they set up Europe's first residential weight loss camp for children in 1999, Carnegie International Camp, and in recent years have worked on the development and delivery of community based treatment programmes.

Community Staff Training

To ensure that the Carnegie Club programme was sustainable in the local community, Walsall Council staff completed a Vocational Certificate in Weight Management, accredited by Leeds Metropolitan University. This provided staff with the skills, confidence and understanding of the real issues faced by overweight or obese children and their families.

Carnegie Club Programme

Carnegie Clubs is a 12 week evidence based weight management programme for overweight and obese children and their families, based on current guidelines that combine physical activity, education and behaviour modification in a fun and supportive environment. The programme consisted of a 12 week intervention followed by a 12 week follow on programme.

Typical Programme Structure & Components

	Children's Programme	Parents Programme
9:00	Monitoring	Tea & Coffee
9:30	Physical Activity 1	Parent Lifestyles Session
10:30	Lifestyles Session	Parent Physical Activity
11:30	Physical Activity 2	
12:30	End of programme	

Physical Activity

The main aims of the physical activity sessions were for children to have fun. The programme provided age and developmentally appropriate activities in an inclusive environment. Signposting of physical activity opportunities outside of the club were also key, so that children and families could continue their new found interests independently.

Lifestyles

The lifestyles curriculum aimed to provide children with an understanding of a range of healthy behaviours that they could try to implement throughout the programme. Children were encouraged to problem solve, set goals that are specific to them, and monitor these goals under the support and guidance of club staff. Lifestyle behaviours such as when and where they eat, how much television they watch, and how they can include more lifestyle activity into their daily routine were also covered.

Parent/Guardian Lifestyles

Throughout the Carnegie Club programme, children were encouraged to practice new behaviours that would take place throughout the normal week at home. Therefore it is deemed important for parents to obtain an understanding of the activities their children are performing so that they can aim to facilitate change, and support their child. In addition parents were encouraged to use the opportunity to make changes to their own lifestyles and be a positive role model for their child and the rest of the family.

Monitoring

Monitoring every child's progress was an essential part of the Carnegie Club programme, as it provided children with feedback, which reinforces the healthy behaviours they would have adopted and encouraged continued lifestyle change. Monitoring procedures were also available to parents. All monitoring was performed by Carnegie Club trained staff. The monitoring procedures carried out in Pool Hayes Community School were as follows:

- Stature
- Weight
- % Body Fat
- Waist Circumference
- Aerobic Fitness
- Sedentary Behaviour
- Self Esteem
- Body Dissatisfaction

Participants

Ten children and at least one parent/carer were recruited to the 12-week community based physical activity and healthy lifestyle awareness programme. Two of the participants of the club were within the normal weight range based on their BMI SD, and have therefore been discounted from the analyses.

Statistical Analysis.

In the following results section all participants in attendance of the first week were analysed on an intention to treat bases. Additionally, using SPSS statistics package, a paired samples t-test was performed to draw comparison between pre and post monitoring. All data is presented as means \pm standard deviations and significance was established at the <0.05 level of confidence.

RESULTS

Children.

Eight children (5 girls and 3 boys, aged 11.41 ± 1.88 years) enrolled onto the Carnegie Club at the start of the 12-week intervention.

Table One –Intention to treat analysis.

	Pre Monitoring	Post Monitoring	Change
Stature (cm)	1.48 \pm 0.13	1.50 \pm 0.13	0.02 \pm 0.01*
Weight (kg)	57.23 \pm 11.04	56.93 \pm 11.28	-0.30 \pm 1.57
BMI	25.85 \pm 2.18	25.19 \pm 2.18	-0.67 \pm 0.85*
BMI SDS (units)	2.31 \pm 0.48	2.18 \pm 0.49	-0.12 \pm 0.19*
% Body Fat	35.61 \pm 5.97	34.84 \pm 4.78	-1.77 \pm 4.60
Waist			
Circumference (cm)	80.67 \pm 6.31	80.17 \pm 7.41	-0.50 \pm 2.77
Self Esteem	3.40 \pm 0.52	3.96 \pm 0.58	0.56 \pm 0.60*
Body Dissatisfaction	3.99 \pm 3.86	3.33 \pm 2.23	-0.66 \pm 4.02
Sedentary Activity	6.91 \pm 1.17	5.35 \pm 1.09	1.56 \pm 1.88

* = significance ($p < 0.05$)

Table one highlights the outcome variables and any change that occurred during pre and post monitoring for children during a 12-week community based physical activity and healthy lifestyle awareness programme.

Standardized Body Mass Index (BMI)

BMI SD was used as the main outcome measure for the programme (Figure one). This accounts for children’s age and gender and is therefore a more accurate measure of change than BMI.

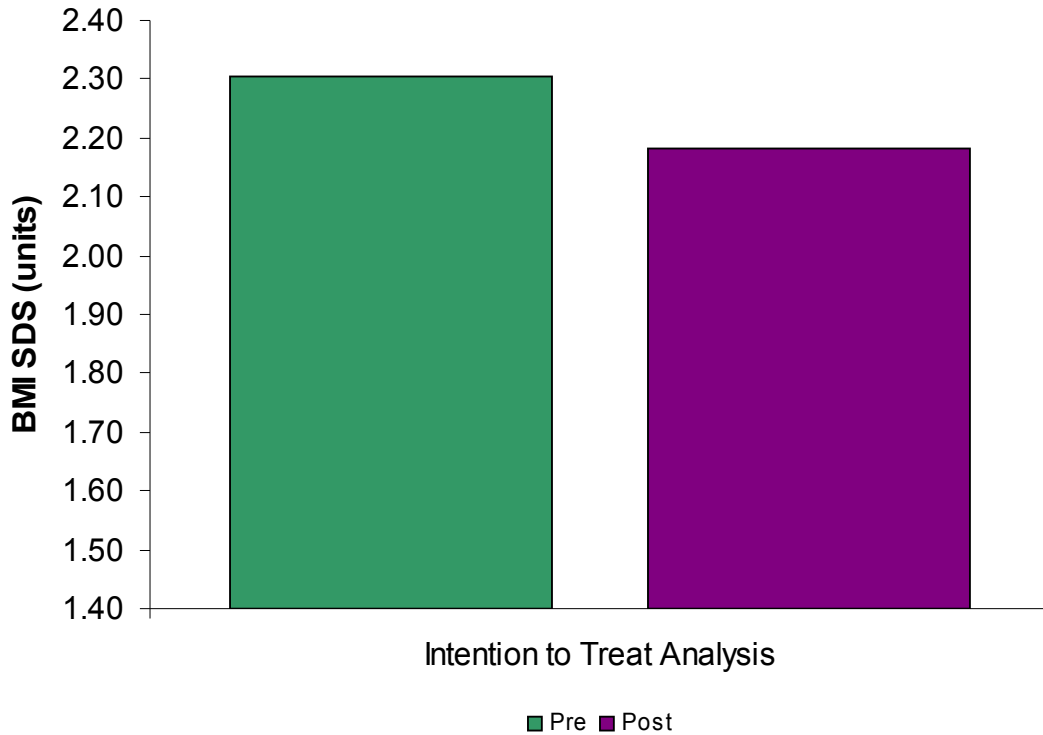


Figure One – Pre and post standardised BMI for the intention to treat analysis.

Figure one highlight’s the reductions in standardized BMI made by all participants who enrolled at the start of the 12-week intervention.

Waist Circumference

When assessing levels of overweight and obesity, waist circumference as a criteria method is considered to be a more specific measure of adiposity, and therefore an appropriate method to track any induced change.

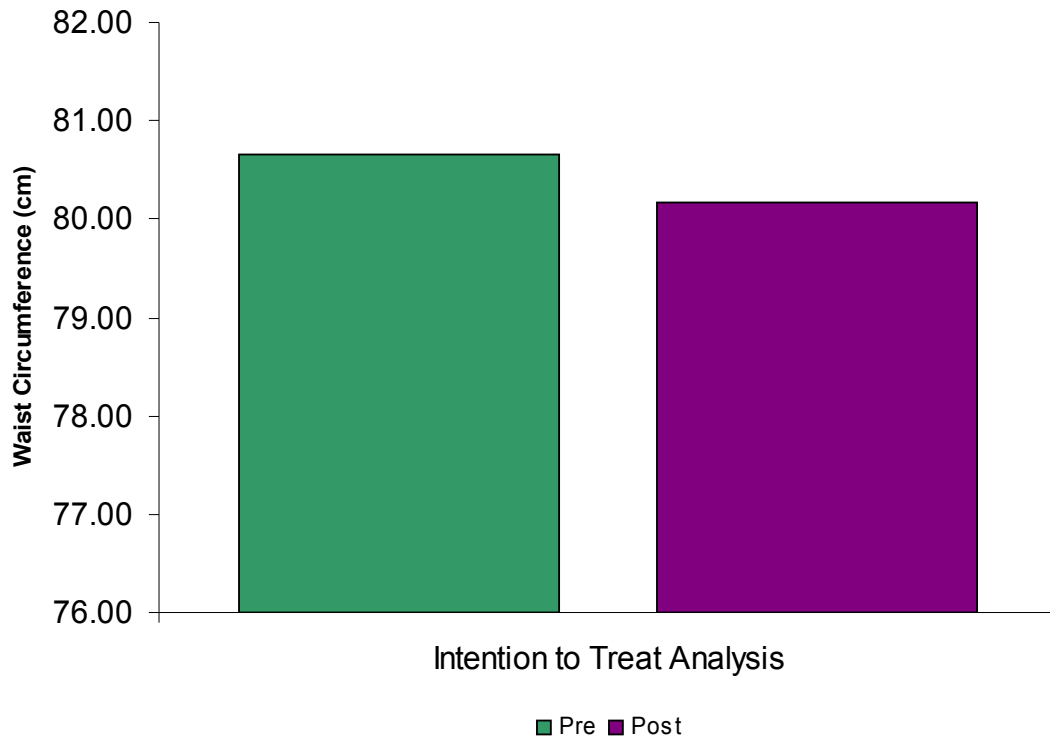


Figure Two – Pre and post waist circumference for the intention to treat analysis.

Figure two highlight’s reductions in waist circumference made by all participants who enrolled at the start of the 12-week intervention.

The Self-Perception Profile for Children (SPPC)

The SPPC was used to assess self esteem, and provides both a measure of global self-worth, and perceived competence in five specific domains: scholastic competence, social acceptance, athletic competence, physical appearance, and behavioural conduct. Harter, (1999) states that self esteem, also referred to as self worth, is the focus on the overall evaluation of one’s worth or value as a person.

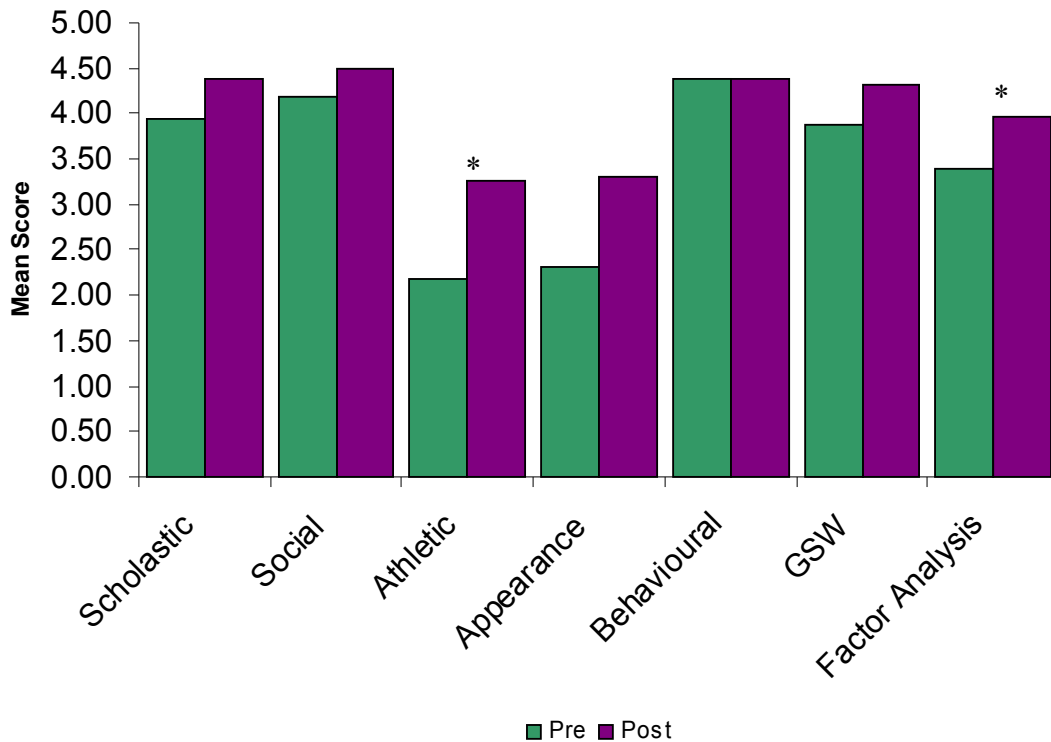


Figure Three – Pre and post values of self esteem measured with Global Self worth (GSW), perceived competence in five specific domains and their summed factor analysis. * = significance (p<0.05)

Figure three highlight’s the improvements in self esteem by all participants who enrolled at the start of the 12-week intervention. While the factor analysis of the perceived competence in five specific domains revealed significant improvements in self esteem, specifically significant improvements were attained in the specific domain of physical appearance.

Body Dissatisfaction

Body dissatisfaction can be defined as a person’s negative thoughts and feelings about his or her body, the degree and direction of which can be quantified using silhouette questionnaires. Using this technique silhouettes ranging from very thin to very fat are presented to the participant, who is asked to choose the silhouette closest to their own body size and that representing their ideal size. The discrepancy between the two figures is seen as an indication of dissatisfaction.

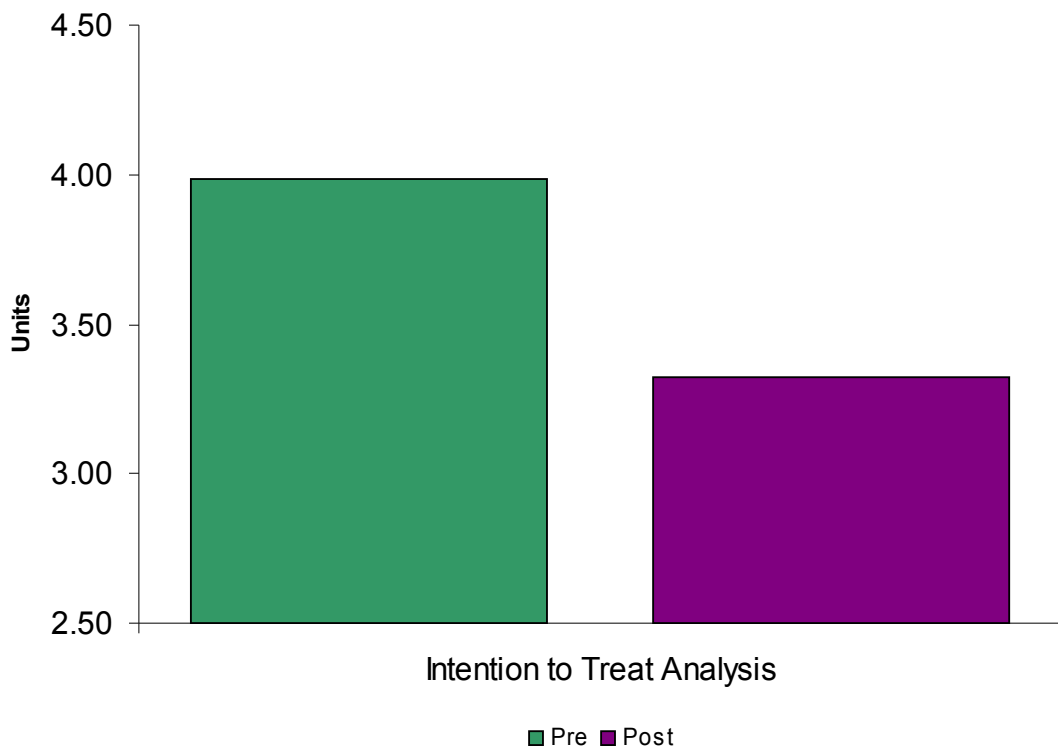


Figure four – Pre and post values of body dissatisfaction for the intention to treat analysis.

Figure four highlights the reductions in body dissatisfaction made by all participants who enrolled at the start of the 12-week intervention. These results indicate that the discrepancy between the silhouettes chosen to represent the groups self perceived body size and that representing their ideal body size decreased. Simply, the group’s negative thoughts and feelings about their body have improved.

Sedentary Activity

The sedentary activity questionnaire calculates an individual’s screen time by a means of quantifying the amount of time spent watching TV, playing computer games and watching movies.



Figure five – Pre and post values of subjectively measured sedentary activity for the intention to treat analysis.

Figure five highlights the reductions in sedentary activity made by participants of the club. This sedentary activity measure represents the average daily number of hours a child watched TV, played video/computer games and/or watched video’s/DVD’s. Although the average hours of sedentary activity is still higher than the recommended 2 hours per day and the change is not statistically significant it does highlight an important trend in a behaviour that has been strongly related to childhood obesity.

Due to issues relating to the completion of the sedentary activity questionnaire, one subject was discounted from the above analysis.

Reported Changes

The children filled in a questionnaire which asked various questions on what changes they had experienced as a result of Fun 4 Life.

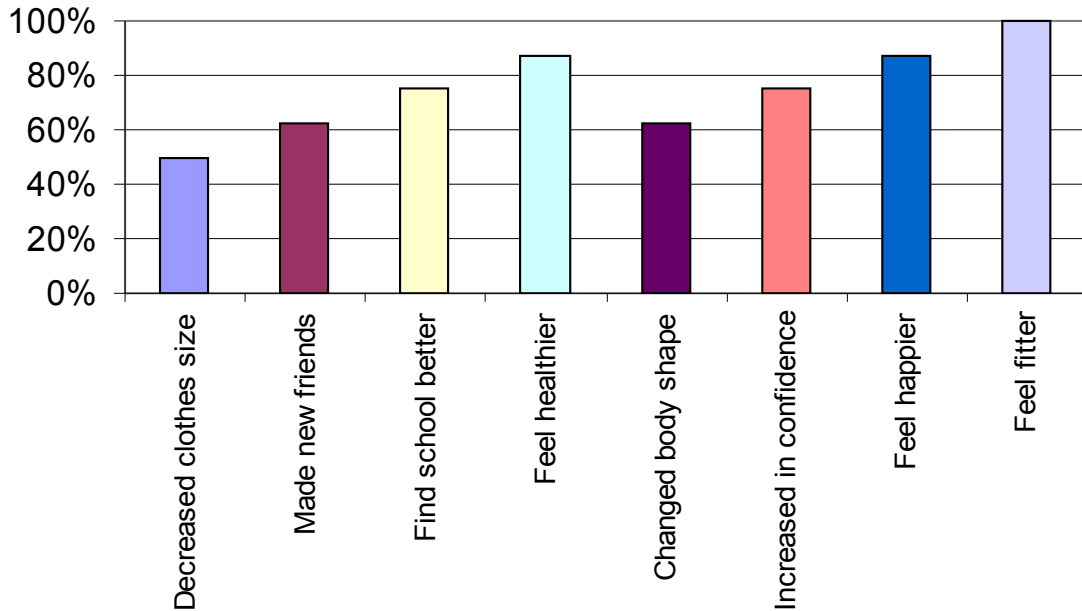


Figure six – Post reported changes

Figure six highlights the reported changes experienced as a result of the Fun 4 Life clinic. Three-quarters now find school better, and all of them feel fitter. Some have experienced some physical changes such as decrease in clothes size and changes in body shape.

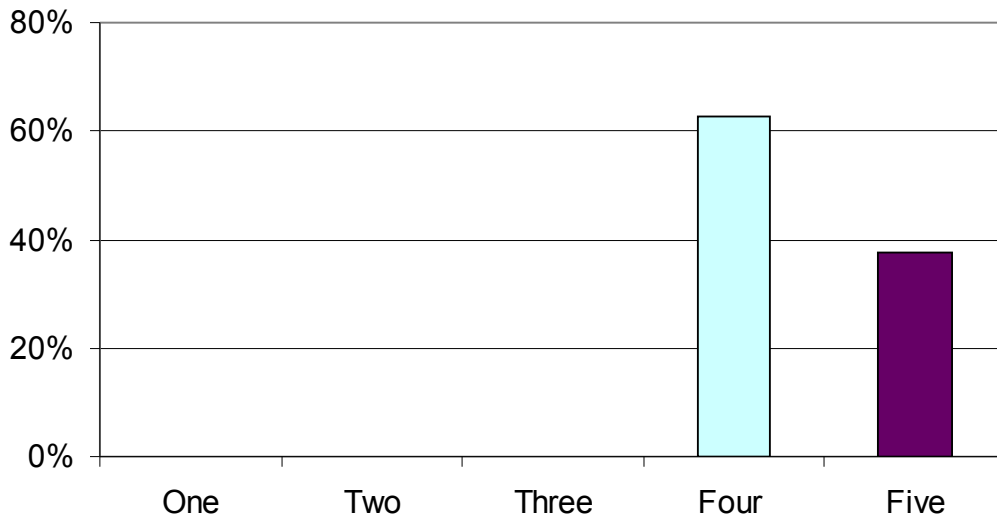


Figure Seven- Post reported rating on ability to manage weight as result of the Fun 4 Life lessons (1-not confident, 5 = confident).

Figure seven highlights the confidence the children now have in their ability to manage their weight.

Summary

The results of the Carnegie Club run in collaboration with Sport and Leisure Development Services at Walsall Council, Walsall Teaching Primary Care Trust and Carnegie Weight Management produced significant improvements in a range of risk factors associated with obesity, demonstrating the effectiveness of a weight management programme delivered within the community.

The quantitative results are comparable with other recent studies (Sacher et al., 2005; Rudolf et al., 2006) which advocate the use of community weight management programmes. With a population of 10 participants, implementing a programme twice weekly for 3-months Sacher et al., (2005) reported significant reductions in BMI (-0.9 ± 0.8) and waist circumference (-2.2 ± 2.6) similar to those reported in the present report. However, the analysis by Sacher and colleagues was not performed on an intention to treat basis, as one child dropped out of the programme and was excluded from the analysis. Similarly, with a population of 94 participants, and implementing a longer programme of 6 months Rudolf et al., (2006) reported a significant reduction in standardised BMI scores (-0.07 ± 0.16).

Psycho-social data collected suggests that the programme may act to improve self-esteem, which is a risk factor for the development of childhood depression, and may reduce body dissatisfaction scores. In addition the lifestyle behaviour measure of sedentary activity is encouraging as strong links have been demonstrated between such behaviour and obesity levels in children.

References

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