Our children... their future.... why weight???

Survey Series & Literature Review on Childhood Obesity

Department of Public Health
Health Service Executive - Southern Area

January 2005
Our children…. their future…. why weight???

RESEARCH TEAM

Department of Public Health, Health Service Executive – Southern Area

Dr. Cliodhna Foley-Nolan  Specialist in Public Health Medicine  
Dr. Paul Kavanagh  Specialist Registrar in Public Health Medicine  
Ms. Joyce Kelly  Public Health Research Officer  
Ms. Noelle Millar  Public Health Research Officer  
Dr. Deirdre Murray  Specialist in Public Health Medicine  
Dr. Margaret B. O’ Sullivan  Specialist in Public Health Medicine  
Dr. Fiona Ryan  Specialist in Public Health Medicine  

Administrative Support:  

Ms. Avril Bradley  Administrative Officer  
Ms. Angela Murphy  Clerical Officer  

Acknowledgement

The co-operation of schools, parents and children in the undertaking of these studies is most gratefully acknowledged by the Research Team

Our children….their future….why weight???

January 2005
# Contents

<table>
<thead>
<tr>
<th>Summary</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>STUDY 1</td>
<td>Family Preferences &amp; Practices Relating to Children’s Diet and Physical Activity</td>
</tr>
<tr>
<td>STUDY 2</td>
<td>TV Food Advertising Directed at Children – What do Parents Think?</td>
</tr>
<tr>
<td>STUDY 3</td>
<td>Physical Activity in Primary Schools – Facilities and Practices</td>
</tr>
<tr>
<td>STUDY 4</td>
<td>Survey of Food and Drink Choice Availability in Post-Primary Schools in Cork &amp; Kerry</td>
</tr>
<tr>
<td>LITERATURE REVIEW</td>
<td>Childhood Obesity</td>
</tr>
<tr>
<td></td>
<td>Section 1: Childhood Obesity in Focus</td>
</tr>
<tr>
<td></td>
<td>Section 2: The Consequences of Childhood Obesity</td>
</tr>
<tr>
<td></td>
<td>Section 3: Determinants of Childhood Obesity</td>
</tr>
<tr>
<td></td>
<td>Section 4: Prevention &amp; Management of Childhood Obesity</td>
</tr>
</tbody>
</table>
SUMMARY

Ireland is in the throes of a global obesity pandemic. Obesity is threatening our children’s wellbeing, their development and their future health as adults. Over 155 million school aged children worldwide are now overweight or obese; in developed countries it is estimated that almost 1 in 10 children are either overweight or obese.¹ A national study of obesity in school aged children will shortly be launched which will define the exact prevalence in this country.²

With an obesogenic environment that is fuelling the issue, the crisis requires tackling on multiple fronts. The Department of Public Health, Health Service Executive – Southern Area has recently completed a series of studies and a literature review on the topic of childhood obesity. This compilation should serve to inform current debate and direction on the issue in a timely and practical way. In particular, the report’s findings are directed to the National Task Force on Obesity as it considers future strategies to address our nation’s obesity crisis. The key results of this local series of studies are summarised.

<table>
<thead>
<tr>
<th>STUDY 1</th>
<th>STUDY 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Family Preferences &amp; Practices Relating to Children’s Diet and Physical Activity</strong></td>
<td><strong>TV Food Advertising Directed at Children – What do Parents Think?</strong></td>
</tr>
<tr>
<td>• 71% of families overall eat breakfast together whereas 57% of families with overweight 8 year olds do</td>
<td>• One-third of 1st class children surveyed have a TV in their bedroom</td>
</tr>
<tr>
<td>• One third (36%) of families with an 8 year old eat weekday meals while watching television</td>
<td>• Satellite/cable channels are the TV channels watched most commonly by 1st class children – and are not covered by the Children’s Advertising Code</td>
</tr>
<tr>
<td>• Family preferences are for gentle/sedentary pastimes rather than moderately vigorous exercise as a family unit</td>
<td>• Most parents consider that child-directed TV food ads usually promote unhealthy foods</td>
</tr>
<tr>
<td>• The family as a key obesogenic environment needs further consideration when tackling childhood obesity in Ireland</td>
<td>• Many parents feel they have no say or influence over children’s TV food advertising</td>
</tr>
<tr>
<td></td>
<td>• The use of TV to promote positive promotional messages to children (healthier options) should be investigated by health and education agencies</td>
</tr>
</tbody>
</table>

---

Our children… their future… why weight?? 

January 2005
### STUDY 3
**Physical Activity in Primary Schools – Facilities and Practices**

- Almost one-quarter of primary schools are reported as lacking adequate indoor facilities for physical activity
- Most children have less than 40 minutes actual exercise in PE class during the school week
- 40% of primary schools have a “no running in the yard” policy
- Almost all the extra-curricular training is focused on ‘sporty’ children

### STUDY 4
**Survey of Food & Drink Choice Availability in Post-Primary Schools in Cork & Kerry**

- Most younger post-primary school students stay in school at lunch-time and are reliant on food choices provided in that environment
- Healthy food choices are not supported in our post-primary schools
- Fast foods or convenience foods are the most common options in school canteens
- Chocolate is by far the most common snack available
- Guidelines are required to assist post-primary schools in providing a healthy food environment

Study 1

FAMILY PREFERENCES AND PRACTICES RELATING TO CHILDREN’S DIET AND PHYSICAL ACTIVITY

Dr. Cliodhna Foley-Nolan
Ms. Noelle Millar

INTRODUCTION

The lifestyle surveys (SLÁN\(^1\) and HBSC\(^2\)) conducted initially in 1998 and repeated in 2002, are a landmark in the provision of information on lifestyle factors relating to diet and physical activity in older children and adults in Ireland. However, to date we do not have a clear national picture of the situation in relation to younger children (under 11 years) nor to allied family activities. There is clear evidence internationally that patterns of behaviour and of obesity are well established by the time a child reaches 11 years of age.\(^3\)

This study seeks to explore the dietary and exercise practices and preferences of younger children and most especially of their families. It surveys a group of parents of 8 year old children in a geographical area around Cork City.

The study enquires into the behaviours of Irish families *vis–a–vis* relevant issues that have been highlighted in the literature on childhood obesity.\(^4\) It focuses on the habits of eating breakfast, eating while watching television, eating as a family and preferences for physical activity and fun as family pastimes.

The role of the home environment in the development of childhood obesity has been recognised for a long period of time.\(^5\) This study documents features of the “micro” family environment of Irish 8 year olds that are known to have an influence on the risk of developing adult obesity. Family dynamics and activities are private and their details somewhat sacrosanct. However, this study attempts to act as a sensitive enquiry into some of these areas.

Historically, epidemics have been controlled only after environmental factors have been modified. Similarly, reductions in population levels of obesity seem unlikely until the environments which facilitate its development are modified. The study of family environmental influences on obesity in today’s Ireland is therefore valid.

AIM & OBJECTIVES

AIM:
To describe family preferences and practices relating to diet and physical activity of 8 year old children.
OBJECTIVES:
To document the following from a sample of parents of children in 2nd class in primary schools:

- Perceptions of parent and child health
- Child and family eating habits and preferences
- Family physical activity habits and preferences

METHODOLOGY

Ten primary schools from the Cork City and suburban area were selected for this study. The ten schools were chosen because they comprised an administrative unit and they reflected a mix of urban-rural populations with a diverse social class catchment. A letter was sent to each principal outlining our research proposal and requesting their participation. A visit was made to each school and a questionnaire was given to each pupil in second class. The questionnaire was to be filled out by the parent or guardian at home and returned to the class teacher within three days. All completed questionnaires were subsequently collected from each school.

The six page questionnaire for parents was devised using the Formic 3.4 data capture tool. All data was collected on pre-printed optically scannable forms. Formic is a PC package which carries out automatic data entry from forms or questionnaires that have been completed by hand. Returned and completed questionnaires were processed and subsequently analysed using an integral statistical package within Formic. Data was exported from Formic to Excel and subsequently analysed in SPSS 12.0.1. Data was graphically displayed using Microsoft Excel.

RESULTS

DEMOGRAPHIC PROFILE OF RESPONDENTS
A total of 388 of parents were surveyed and 349 responded. This represented a participation rate of 90%. The adult respondents all had a child in second class in primary school (average age 8 years) with 41% of the children being boys and 59% girls.

The vast majority of those who responded were mothers (89%), with 10% fathers and 3 guardians. A seventh of the households (14%) were single parent.

Over half (57%) the mothers were employed and paternal employment levels were high at 89%. Fig. 1.1 illustrates the social class distribution of the respondents compared to that of Census 2002 (for Cork City and County).
Fig 1.1 Social Class Distribution of Census 2002 (Cork City and County) and Sample

SC1 Professional Workers; SC2 Managerial and Technical; SC3 Non-Manual; SC4 Skilled Manual; SC5 Semi-Skilled; SC6 Unskilled; SC7 All others gainfully occupied and unknown

Fig 1.2 displays the educational status distribution of the sample beside that of the Census 2002 population for Cork City and County.

Fig 1.2 Educational Status Distribution of Census 2002 (Cork City and County) and Sample

ED1 No schooling, primary school and some secondary education
ED2 Complete secondary education
ED3 Some third level and complete third level at college, university, RTC/IT

Our children…their future….why weight???

January 2005
Private medical insurance is held by 67% of respondents, while 40% are currently eligible for GMS services.

Respondents were asked about their medical family history (Table 1.1). Parents who reported being overweight also reported a somewhat higher incidence of heart disease (60%) in their families. However, the levels of weight problems in their backgrounds (54%) were on a par with that of the total sample.

Table 1.1 Family Medical History

<table>
<thead>
<tr>
<th>Medical History</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Disease</td>
<td>52%</td>
</tr>
<tr>
<td>Kidney Disease</td>
<td>18%</td>
</tr>
<tr>
<td>Overweight</td>
<td>52%</td>
</tr>
<tr>
<td>Arthritis</td>
<td>33%</td>
</tr>
</tbody>
</table>

GENERAL PERCEPTIONS OF HEALTH
A very small proportion of those surveyed (5%) rated their own quality of life as poor or very poor. Similarly, only 6% of them rated their own health as unsatisfactory. The overwhelming majority of parents (96%) reported satisfaction with the health of their 8 year old child.

However, when asked to rate their own body size 43% of the parents surveyed considered themselves to be “fat” or “very fat”. One in seven of them (54 parents) described their 8 year old child’s body as being “fat” or “very fat”.

Two thirds of the overweight children had an overweight parent. The likelihood of a heavy parent having a “fat” or “very fat child” was highly statistically significant.

Two thirds of the overweight children had an overweight parent

Table 1.2 Comparison of 8 Year Old Child’s Reported Weight with that of Parent’s Reported Weight

<table>
<thead>
<tr>
<th>Parents Body Weight</th>
<th>Childs Body Weight (reported)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
<td>Overweight</td>
</tr>
<tr>
<td>Average</td>
<td>181 (61%)</td>
<td>17 (31%)</td>
</tr>
<tr>
<td>Overweight</td>
<td>114 (39%)</td>
<td>37 (69%)</td>
</tr>
<tr>
<td></td>
<td>295 (100%)</td>
<td>54 (100%)</td>
</tr>
</tbody>
</table>

$(\chi^2=16.596; P=0.000)$

In the families where the 8 year old was described as overweight there were greater health concerns, both for the parent’s own health (13% versus 6% in the total sample) and for the overweight child’s health (9% versus 4% in the total sample).
Parents were asked what they felt would improve the health of their 2nd class children (across 6 identified parameters). They prioritised a clean environment and better diet as key elements (Table 1.3).

<table>
<thead>
<tr>
<th>Issues</th>
<th>Parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment</td>
<td>69%</td>
</tr>
<tr>
<td>Diet</td>
<td>62%</td>
</tr>
<tr>
<td>Money</td>
<td>48%</td>
</tr>
<tr>
<td>Fun</td>
<td>45%</td>
</tr>
<tr>
<td>School stress</td>
<td>21%</td>
</tr>
<tr>
<td>Home stress</td>
<td>19%</td>
</tr>
</tbody>
</table>

However, the parents of overweight children placed a particular emphasis on a better diet (Table 1.4) and this association was marked and statistically significant.

<table>
<thead>
<tr>
<th>Influence of Better Diet</th>
<th>Child’s Body Weight (reported)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
<td>Overweight</td>
</tr>
<tr>
<td>Yes</td>
<td>175 (59%)</td>
<td>40 (74%)</td>
</tr>
<tr>
<td>No</td>
<td>120 (41%)</td>
<td>14 (26%)</td>
</tr>
</tbody>
</table>

\( \chi^2=4.2; P=0.040 \)

**EATING HABITS**

Respondents were questioned about the types of fruit and vegetables their 8 year old child enjoyed eating. Table 1.5 displays the Top 3 in each category.

<table>
<thead>
<tr>
<th>Preference</th>
<th>Fruit</th>
<th>Percentage</th>
<th>Vegetables</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Apple</td>
<td>94%</td>
<td>Carrots</td>
<td>84%</td>
</tr>
<tr>
<td>2</td>
<td>Banana</td>
<td>89%</td>
<td>Peas</td>
<td>75%</td>
</tr>
<tr>
<td>3</td>
<td>Orange</td>
<td>81%</td>
<td>Beans</td>
<td>72%</td>
</tr>
</tbody>
</table>

Consumption of a breakfast meal i.e. more than a glass of milk or fruit juice was reported as being very common for all children, both on weekdays (97%) and on weekend days (100%).

However, when asked as to whether the meal was eaten together as a family there was a lower frequency. Eating a weekday breakfast as a family was the norm (71%) for the total sample surveyed. The picture was different for children reported as being
overweight and in this group only 57% usually ate a family meal for breakfast during the week days (Table 1.6).

<table>
<thead>
<tr>
<th>Childs Body Weight (reported)</th>
<th>Family Breakfast on Weekdays</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
</tr>
<tr>
<td>Usually</td>
<td>216 (73%)</td>
</tr>
<tr>
<td>Rarely</td>
<td>79 (27%)</td>
</tr>
</tbody>
</table>
<pre><code>                                | 295 (100%) | 54 (100%)  | 349 (100%)        |
</code></pre>

\(\chi^2=5.518; P=0.019\)

The association between rarely eating a family breakfast and the 8 year old being overweight is marked and reaches statistical significance.

In contrast to the working week days, the weekends were reported as a time for family breakfasting both by 94% of the total sample and by 96% of the subset of families with an overweight 8 year old.

Evening meals (more than a drink or snack) were the norm both on weekdays (98%) and on weekends (97%) for the 8 year olds. The evening meals were also reported as being a family meal both during the working week (96%) and even more so at weekends (99%).

The experience of a routine family evening meal eaten together were also reported by the subset of families with an overweight 8 year old in almost all cases (93% on weekdays and 100% of the time at weekends).

Respondents were then asked about the practice of eating meals while watching television. A third (36%) of those surveyed reported this behaviour as a routine occurrence on weekdays while just under a half (45%) reported the practice as a frequent event at weekends.

Of the group of 54 families with an overweight 8 year old (16%) the practice of watching TV while eating was cited as being usual in 41% of cases on weekdays and 45% of cases at weekends.

Parents were asked about their 8 year olds consumption of fruit and the way in which they presented fruit to the child for eating. It can be seen from Table 1.7 below that the
overall levels of fruit consumption are reported as being high with similar fruit consumption patterns in overweight children and the total group.

<table>
<thead>
<tr>
<th>Child’s Body Weight (reported)</th>
<th>Average (n=295)</th>
<th>Overweight (n=54)</th>
<th>Total (n=349)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children Who Like Fruit</td>
<td>272 (92%)</td>
<td>48 (89%)</td>
<td>320 (92%)</td>
</tr>
<tr>
<td>Consume Fruit in Any Form</td>
<td>287 (97%)</td>
<td>52 (96%)</td>
<td>339 (97%)</td>
</tr>
<tr>
<td>Peeled</td>
<td>192 (65%)</td>
<td>34 (63%)</td>
<td>226 (65%)</td>
</tr>
<tr>
<td>Peeled &amp; Cut</td>
<td>171 (58%)</td>
<td>30 (56%)</td>
<td>201 (58%)</td>
</tr>
<tr>
<td>Peeled &amp; Whole</td>
<td>171 (58%)</td>
<td>34 (63%)</td>
<td>205 (59%)</td>
</tr>
</tbody>
</table>

Reports of liking vegetables were high (84% for total sample and 80% for overweight child sample) but almost 8% lower than the level for liking fruit.

Parents were asked about some inclusions in the school lunch box and the responses provided some interesting insights (Fig 1.3).

Fruit and a sweet treat figures prominently while parents reported rarely giving children a fizzy drink or crisps for school lunches. The parents of overweight 8 year olds were somewhat more likely to give a sugary treat and slightly less likely to provide fruit but there was no statistical association.

Parents were asked about some home food production practices. Overall 36% said they sometimes made fruit/vegetable juices and 68% reported doing some home baking.
There was no difference in these practices between the families with overweight 8 year olds and those with a child of average weight.

**FAMILY EXERCISE HABITS**

Over a quarter (28%) of the parents surveyed reported rarely going for a family walk and going for a swim or a cycle as a family were not frequent pursuits for the majority of families (Table 1.8).

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swim</td>
<td>Sometimes</td>
<td>49%</td>
</tr>
<tr>
<td></td>
<td>Rarely</td>
<td>51%</td>
</tr>
<tr>
<td>Cycle</td>
<td>Sometimes</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>Rarely</td>
<td>75%</td>
</tr>
<tr>
<td>Walk</td>
<td>Sometimes</td>
<td>72%</td>
</tr>
<tr>
<td></td>
<td>Rarely</td>
<td>28%</td>
</tr>
</tbody>
</table>

Respondents were asked to rate the family pastimes that they actually enjoyed (Table 1.9). Going to the cinema won the league, with going shopping or walking together being the least favoured options.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cinema</td>
<td>289</td>
<td>(83%)</td>
</tr>
<tr>
<td>Playground</td>
<td>243</td>
<td>(69%)</td>
</tr>
<tr>
<td>Bowling</td>
<td>241</td>
<td>(69%)</td>
</tr>
<tr>
<td>Meal</td>
<td>234</td>
<td>(67%)</td>
</tr>
<tr>
<td>Swimming</td>
<td>229</td>
<td>(65%)</td>
</tr>
<tr>
<td>TV/Video</td>
<td>213</td>
<td>(61%)</td>
</tr>
<tr>
<td>Walk</td>
<td>168</td>
<td>(48%)</td>
</tr>
<tr>
<td>Shopping</td>
<td>118</td>
<td>(34%)</td>
</tr>
</tbody>
</table>

Parents who reported their 8 year old as being overweight reported stronger preferences for watching TV and video at home and less preference for shopping and walking together but these differences were not statistically significant.

*Family preferences are for gentle/sedentary pastimes rather than moderately vigorous exercise as a family unit*
The childhood obesity epidemic has affected most ethnic groups and children of every socio-economic status, though sometimes in disproportionate ways. In the UK and the USA there is evidence of an association between deprivation and childhood obesity.\(^4\)

The sample surveyed in this study is somewhat more privileged (see Figs 1.1 and 1.2) and has a higher level of third level education than the general population of Cork City and County. This may relate to the relatively young age group of the parents involved, they would be at peak employable age and have had good educational opportunities commensurate with their age. The demographic representativeness of respondents needs to be borne in mind when considering the results.

Parental reporting of their 8 year old child being overweight (“fat” or “very fat”) was quite high at 16% and can be compared to Irish lifestyle data from the HBSC survey\(^2\) where 7% of 10-11 year olds were on a weight reducing diet and 17% of the 10-11 year olds reported that they should lose weight.

Perception of general health and wellbeing were remarkably high and these are in keeping with the 2002 SLÁN and HBSC surveys. Only 6% of the Cork parents surveyed and similarly 6% of the 18-54 year old adults in the SLÁN survey reported their own health as poor. Likewise good health was reported by 86% of 10-11 year olds in HBSC and 96% of the parents in this survey were satisfied with their 8 year old’s health.

However, when the 8 year old was described as “fat” or “very fat” the parents surveyed were more concerned with the child’s health. This parental concern undoubtedly relates to their awareness of the negative physical health consequences of childhood obesity. It may also be fuelled by worries about their child’s emotional and social wellbeing. This raises the important question as to what these well intentioned, concerned parents can and will do about this issue.

There is a direct relationship between maternal obesity, childhood obesity and obesity later in life. It is now recognised that shared genetics, intra-uterine factors and a shared obesogenic home environment all contribute.\(^6\) In this study the link between parental and offspring weight problems was again demonstrated.

Parental perceptions of the influences on health were explored in this study and a less polluted environment and a better diet came out on top - whereas in the SLÁN survey\(^1\) less stress and a change in weight ranked highest with pollution lying fifth. It is understandable that parents who described their 8 year old as overweight placed a particular emphasis on the influences of a good diet (see Table 1.4).

This study seeks to give an insight into certain aspects of how families eat and exercise as part of their routine lives. These activities were reported by the parents who took part but no validation or verification was undertaken. The qualitative nature of the data provides
unique insights which complement other studies, such as the IUNA study (currently underway) on dietary intake and portion size consumption amongst Irish children.\textsuperscript{7}

Eating a breakfast has been cited by many researchers as an indication of healthy eating habits. In agreement with the HBSC survey this study reports extremely high levels of breakfast eating in children in the pre-teenage groups. However, HBSC data indicates that missing breakfast increases with age and a fifth of 15-17 year olds never eat breakfast.

Eating family meals has been shown in several studies to be associated with healthy dietary intake patterns.\textsuperscript{5} When the circumstances of eating breakfast are reviewed this study shows that eating breakfast as a family on weekdays is not the norm for 30\% of families nor for 43\% of families with an overweight child. It could be argued that parental supervision and company would encourage the establishment of breakfast as a lifelong habit. Undoubtedly families experience early morning as a rush period and this must contribute to eating in relays at an unleisually pace.

Many studies have reported an association between obesity and high levels of TV viewing and between obesity and low cognitive stimulation.\textsuperscript{8} This study points to a worrying pattern of eating dinner while watching TV reported by a third of respondents. The reasons and circumstances of this habit require further study.

Reported liking of fruit and vegetables were high but levels of consumption were not recorded as part of the study. The study indicates that parents tend to prepare fruit (peel or portion) to make fruit a convenient option for children.

Parents reported that over a half of their children’s lunch boxes contained fruit and a sweet treat most school days, while provision of the much quoted culprits - salt laden crisps and carbonated drinks - were reported as being very low. There is potential for a qualitative survey of school lunch boxes to verify these reports; however, it is arguably quite a sensitive issue. Programmes targeted at increasing the proportion of school lunch boxes, usually containing fruit and relegating the sweet treat to a weekly rather than a daily occurrence are indicated. Support and strategies are needed so that parents can put into practice their reported good dietary intentions.

Physical activity is a key component of energy balance and can be promoted in children and adolescents as a lifelong positive health behaviour. Parents have a strong influence on their children’s physical activity behaviour both by direct mechanisms (practical support, equipment, transport etc.) and by indirect means such as modelling and family activity. The timing of parental influence seems to be a crucial factor in that there is a stronger association between parental and child activity behaviours than between parental and adolescent habits.\textsuperscript{4}

This study sheds some light on family activity preferences and pastimes. The HBSC\textsuperscript{2} survey reporting on the frequency and vigour of exercise informs us that 59\% of 10-11 year olds exercise four or more times weekly and less than 10\% don’t take any exercise at
all weekly. Indications from this current study are that family walks, swims or cycles are not very frequent pursuits, whereas gentle indoor pursuits such as bowling, visiting the cinema or playground or going for a meal are seen as enjoyable family outings. Whatever exercise today’s 8 year olds are taking, these findings do not indicate strong participation or enjoyment at a family level.

KEY POINTS

- Parents report that 15.5% of their 8 year olds are “fat” or “very fat”
- Parents identify environment and diet as major childhood health issues
- 71% of families overall eat breakfast together whereas 57% of families with overweight 8 year olds do
- A third (36%) of families with an 8 year old eat weekday meals while watching television
- Just over half (55%) of 8 year olds usually have fruit and a candy treat in their school lunch box
- Family preferences are for gentle/sedentary pastimes rather than moderately vigorous exercise as a family unit
- The family as a key obesogenic environment needs further consideration when tackling childhood obesity in Ireland

REFERENCES


INTRODUCTION

Halting the rising prevalence of childhood obesity is a public health priority. The ‘toxic environment’ which simultaneously restricts mobility and stimulates higher calorie intake is a target for change. It requires tackling from many angles. The issue of food advertising to children is an important aspect. Food advertising influences what children see, want and eat.

Children are targeted as consumers and are vulnerable to sophisticated marketing techniques and intense, repetitive advertising for the high calorie, energy-dense food and drinks which are significant contributory factors to the rise in obesity. Television is the principal channel used by food marketers to reach children. Advertising directly affects the food choices of children who now have far more disposable income than they had several decades ago and far greater influence on their parents’ buying habits. The type of food being advertised is of huge concern. US and British children are exposed to about ten food commercials per hour of television time (amounting to thousands per year), most for fast food, soft drinks, sweets and sugar-sweetened breakfast cereal.

There is much debate in Ireland and elsewhere about TV food advertising directed at children, and its effects. This study examines the views of parents on the subject.

AIM & OBJECTIVES

AIM:
To examine parents’ views on TV food advertising directed at children

OBJECTIVES:
1. To detail aspects of children’s exposure to TV (amount viewed, channels watched, parental supervision)
2. To ascertain parents’ views on the amount of exposure to, and content of, children’s TV ads
3. To examine parents’ views on the influence of TV food ads on their children
4. To investigate whether parents feel they have any say or influence on children’s TV food advertising
5. To make observations that would inform the National Task Force on Obesity
**METHODOLOGY**

This cross-sectional study utilised a confidential, self-administered (parental) questionnaire. Fieldwork was undertaken in June 2004.

The sampling frame constituted the population of 1st class children in Cork City and County (average age 7-8 years). All primary schools in Cork were identified (excluding special schools) from a Department of Education listing. Numbers of children in each 1st class were documented. Schools were stratified into boys / girls / mixed; whether urban / rural; areas of deprivation were also taken into account. A stratified convenience sample of schools was taken to obtain approximately 300 1st class participants. The process resulted in the selection of twelve schools.

The questionnaire was devised by the researchers and piloted (10 parents; 10-12 minutes completion time). Prior to the fieldwork, a sample questionnaire was sent to each school principal explaining the nature of the survey and requesting co-operation. All principals were phoned following receipt of the letter; further explanation was then given and any questions answered. Dates were agreed for a researcher to visit each school with the questionnaires. Principals and class teachers were met with. Questionnaires were distributed to 1st class children with an explanatory leaflet for parents in a sealed envelope. Completed questionnaires, returned in envelopes provided, were subsequently collected at an agreed date from each school.

Questionnaires were analysed using SPSS.

**RESULTS**

369 parents of 1st Class children were surveyed; 292 responded. The overall response rate was 79%.

**SOCIO-DEMOGRAPHIC**

The average family size among those surveyed was 2.8 children. The majority (84%) of families lived in an urban area. The parent respondents all had a child in 1st class in primary school - 52% girls and 48% boys.

**TV VIEWING (GENERAL)**

Asked if they had TV at home, 99% of responding parents indicated that they had. Most families had more than one TV: just 18% had one TV, 37% had two TVs and 28% had three TVs. One in ten (12%) had four TVs. One-third (32%) of 1st class children had a TV in their bedroom.

<table>
<thead>
<tr>
<th>One-third of 1st class children had a TV in their bedroom</th>
</tr>
</thead>
</table>

--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
With regard to time spent watching TV at home, 22% of first class children were said to watch 3 hours + each weekday, with 50% of children watching 3 hours + each weekend day (Fig 2.1).

**Fig 2.1 Time spent watching TV by 1st Class Children**

74% of parents reported that they had satellite / cable TV installed at home. The TV channels most commonly watched by their 1st class children (Fig 2.2) were satellite / cable channels (57%) followed by RTE 2 (30%).

**Fig 2.2 TV channels looked at most often by 1st class children**
Satellite/cable channels are the TV channels watched most commonly by 1st class children

PARENTAL SUPERVISION
While one-third (32%) of parents said they ‘always’ supervise their 1st class children’s TV viewing, 45% said they ‘usually’ do, while 23% ‘sometimes’ or ‘never’ do.

TV FOOD ADVERTISING
Two-thirds of parents (65%) said they were interested in TV ads directed at children; 13% were not while 22% of parents had never thought about it. Nearly three-quarters of parents (73%) felt that children had too much exposure to advertising.

A large majority of parents felt that children had too much exposure to advertising

Parents were asked what they considered to be the most common food or drink item promoted on children’s TV (Fig 2.3). Most answers fell into the category of fast food (28%), followed by soft drinks (18%).

Fig 2.3 What parents’ considered to be the most common food / drink items promoted on children’s TV ads

PARENTS’ VIEWS OF EFFECT OF TV FOOD ADS
Half (50%) of parents felt that their 1st class child puts pressure on them to buy certain foods or drinks as a result of TV ads (Fig 2.4).
Of those parents who felt their children put pressure on them 11% ‘always’ or ‘usually’, and 67% ‘sometimes’, felt that they have to give in to such pressure. Only one in five parents (20%) reported ‘never’ giving in. Three-quarters (75%) of parents considered that TV food advertising to children usually promotes ‘unhealthy’ foods (defined in the survey questionnaire as those foods with high fat, high salt, high sugar content).

Most parents considered that TV food advertising to children usually promotes ‘unhealthy’ foods

(‘unhealthy’ food = high fat, high salt, high sugar content)

Parents were asked about their views regarding the amount of food advertising their 1st class child may be exposed to. Overwhelmingly, parents were more likely to rate the amount of exposure to TV food advertising as being ‘too much’ compared with other options given (Fig 2.5).

**Fig: 2.5 Parents’ views on the amount of food advertising their 1st class child may be exposed to (i.e. TV ads compared to other options)**
Parents were also asked to rate certain listed influences on their 1st class child’s eating habits i.e. whether these options had a ‘high’, ‘medium’, ‘low’ or ‘no’ influence or if they were ‘not sure’. Responses in relation to ‘high’ influence are illustrated (Fig 2.6). Parental influence was most likely to be rated ‘high’, ahead of the next rated influences – school/teacher/friends. One-third rated TV ads as having a high influence on their child’s eating habits.

**Fig 2.6 What parents rated as ‘high’ influences on their 1st class children’s eating habits**

53% of parents viewed the effect of food advertising on children as generally negative (21% generally positive; 26% no view).

**One in four parents (25%) felt that TV food advertising either ‘always’ or ‘usually’ influenced what their 1st class child eats or drinks (56% sometimes;18% never)**

**THE PARENT’S VOICE IN TV FOOD ADVERTISING**
A majority (58%) of parents felt they had no say or influence over children’s TV food advertising, while 30% had never thought about it (Fig 2.7).

**Fig 2.7 Parents’ view regarding whether they have any say/influence over children’s TV food advertising**
Of the responses given where parents felt they had no say or influence, the most common reasons cited are outlined (Table 2.1).

<table>
<thead>
<tr>
<th>Reasons (n=127)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food companies ignore parents’ views / entice kids with rubbish</td>
<td>20</td>
</tr>
<tr>
<td>Food companies only want profits</td>
<td>19</td>
</tr>
<tr>
<td>Parents not in position to influence TV companies</td>
<td>16</td>
</tr>
<tr>
<td>No forum to do so</td>
<td>13</td>
</tr>
<tr>
<td>Other*</td>
<td>31</td>
</tr>
</tbody>
</table>

*Other reasons included – strength of pester power; parents would not know how to influence advertising; parents not asked to contribute; many TV ads come from outside of Ireland; advertising is everywhere.

Of the 12% of parents (33) who felt they had a say or influence, 28 commented with regard to how they had such influence. Most frequent comments were: ‘monitor TV/screen ads’ (36%); ‘don’t buy’ (21%) and ‘teach child’ (21%).

Just 2% of parents had ever made a comment/complaint about children’s food advertising on TV. They had contacted either a food/drink company (2), consumer’s association (1), Broadcasting Commission of Ireland website (1), supermarket (1) or other parents (1).

Parents were asked if, in the future, they had any comment or complaint to make about children’s TV food advertising, who or where would they be most likely to contact. Thirty-eight percent said they “didn’t know”. Of those who listed to whom they would complain, the most common contact points cited were the TV company, an advertising standards organisation or the advertiser (Table 2.2).
Table 2.2 Organisations parents would be most likely to contact regarding children’s food advertising

<table>
<thead>
<tr>
<th>Organisations</th>
<th>% of 217 responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Don’t know</td>
<td>38</td>
</tr>
<tr>
<td>Television company</td>
<td>19</td>
</tr>
<tr>
<td>Advertising Standards organisations</td>
<td>10</td>
</tr>
<tr>
<td>The Advertising company</td>
<td>9</td>
</tr>
<tr>
<td>Media/local radio</td>
<td>6</td>
</tr>
<tr>
<td>Health board</td>
<td>5</td>
</tr>
<tr>
<td>Health authorities</td>
<td>4</td>
</tr>
<tr>
<td>Consumers Association</td>
<td>4</td>
</tr>
<tr>
<td>Ombudsman</td>
<td>2</td>
</tr>
<tr>
<td>Citizens Advice Bureau</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
</tr>
</tbody>
</table>

87% of parents stated that they had never heard of the Broadcasting Commission of Ireland’s ‘Children’s Advertising Code’. (www.bci.ie).

DISCUSSION

This descriptive study presents the views of parents (of first class children) in relation to child-directed TV food advertising. The findings are timely and relevant in the context of Ireland’s obesity crisis. All facets of our obesogenic environment demand urgent consideration. The promotion of high-energy food via advertising is an issue.

Television is the principal channel used by food marketers to reach children. Televisions feature prominently in Irish homes, with ample exposure opportunity for children. Forty-six per cent of parents in this survey said they had three or more TVs at home. Just under one-third indicated that their 1st class child had a TV in his/her bedroom. One in five 1st class children were watching 3hours+ each weekday, with 50% watching 3hours+ each weekend day. The Broadcasting Commission of Ireland (BCI) recently undertook quantitative research in relation to children’s TV viewing in terms of what times, what programmes and how much they are watching. Children (4-14yrs) watched, on average, 2.72 hours of television per day in 2002, with the 7-10 year age group watching, on average, 2.56 hours per day. Anti-obesity measures need to address television watching - a major sedentary activity, as well as one that exposes viewers to countless commercials for high-calorie foods. Campaigns to reduce television watching should be considered.

With three-quarters of homes surveyed having satellite/cable TV, it is not surprising that viewing of satellite and cable channels by children featured so prominently. This is consistent with BCI Research findings. It documented that, in 2002, 51.7% of the channel share of viewing by children aged 4-14 years related to channels other than...
RTE1, Network 2, TG4 & TV3 (i.e. other than indigenous Irish channels). Most of the ‘other’ channels viewed were satellite / cable channels. This is significant, as the Children’s Advertising Code will only apply to broadcast services under this State’s jurisdiction. The Code is based on submissions received in response to extensive consultation processes. Among the key objectives of the Children’s Advertising Code are: to offer protection from inappropriate and harmful advertising, and to ensure that children’s key susceptibilities are not exploited.

A systematic review, commissioned by the UK Food Standards Agency, examined current research evidence on the extent, nature and effect of food promotion to children. Food products dominate children’s advertising. Television advertising dominates children’s food promotion, and most of this promotes the so-called ‘Big Four’ of pre-sugared breakfast cereals, soft drinks, confectionery and savoury snacks. In the last ten years advertising for fast food outlets has rapidly increased, turning the ‘Big Four’ into the ‘Big Five’. This present study suggests that the parents surveyed are aware of the types of food being promoted to children on TV adverts, identifying fast foods most commonly, followed by soft drinks and cereals.

Recent research indicates that the diet advertised to children contrasts strongly with the recommended healthy diet, with a relative absence of advertising in support of the latter. Parents in this survey do not need reminding of this, with 75% of respondents considering that TV food advertising to children usually promotes unhealthy foods. Comments from parents, proposing solutions, included: ‘there should be more emphasis on promoting healthy foods’ and ‘show the negative consequences of eating an unhealthy diet’. As has been recommended in the UK, industry needs to take a more responsible approach to the promotion of foods high in fat, salt and added sugars and to balance this with the promotion of healthier options, including salt and vegetables. The World Health Organisation advocates the development of co-operative rather than adversarial relationships with industry. Appropriate bodies, including health and education agencies, should investigate means of using TV to promote positive promotional messages to children.

There is ‘reasonably robust’ research evidence that food promotion influences children’s food preferences. One-quarter of parents surveyed felt that TV food adverts ‘always’ or ‘usually’ influenced their own child’s consumption patterns. Combating this onslaught requires sustained efforts and reinforcement from parents at home.

Purchase-related behaviour is behaviour intended to influence parents’ food purchasing selections. Exposure to food promotion has been found to increase such behaviour, as noted in the UK review. ‘Pester power’ was found to be alive and well in this survey, with half of the parents questioned feeling that their children exerted pressure on them to buy certain foods/drinks as a result of TV adverts. Only a minority of parents reported ‘never’ giving in to such pressure. Two related parental comments are worth noting: ‘go into any supermarket on a Saturday morning and see the battles’ and ‘you can only say no so many times’.

-----------------------------------------------------------------------------------------------------------------
Our children….their future….why weight???
-----------------------------------------------------------------------------------------------------------------
The majority of respondents regarded parents as having a high influence on their children’s eating habits. However, it is of interest that over half felt they had no say or influence over children’s TV advertising. Only a handful had ever made a complaint. Most parents surveyed had never heard of the Broadcasting Commission of Ireland’s ‘Children’s Advertising Code’. A considerable number of parents did not know who they would be likely to contact if they had a complaint to make. It is clear that an information gap exists that needs addressing. Parents need to be empowered to be agents for change.

KEY POINTS

- 1st class children are exposed to considerable amounts of television; one-third have a TV in their bedroom
- Much satellite/cable TV is viewed by children – and is not covered by the Broadcasting Commission of Ireland’s (BCI) Children’s Advertising Code
- Parents are generally aware of the types of foods being promoted to children on TV adverts
- Most parents consider that TV food advertising to children usually promotes unhealthy foods
- ‘Pester Power’ is perceived by parents to be common
- Many parents feel they have no say or influence over children’s TV food advertising
- Most parents never heard of the BCI’s Children’s Advertising Code
- Campaigns to reduce television watching require consideration
- The use of TV to promote positive promotional messages to children (healthier options) should be investigated by health and education agencies

REFERENCES


24
9. TV Dinners. What’s being served up by the advertisers? Sustain: The alliance for better food and farming. 2001.
11. WHO draft global strategy on diet, exercise and health 2003. www.who.int
Our children…their future…why weight??

January 2005
INTRODUCTION

Physical inactivity has been identified as a serious problem and major public health concern for people of all ages.\(^1\) In fact, physical activity has been called “today’s best buy in public health”\(^2\) as it is estimated that significant savings in health care expenditure could result from a mere 10% increase in physical activity in the population as a whole. Irish and international guidelines suggest that children should engage in 60 minutes or more of active play daily, alternating between activity and rest periods, as needed. Recent results from the HBSC survey show that 48% of children report participating in vigorous exercise four or more times per week and 12% exercise less than weekly.\(^3\) Boys participate more than girls and exercise participation decreases with age.

These figures are of concern because research has shown that physical activity patterns track from childhood into adulthood.\(^4,5\) Physical inactivity in adults is implicated in several chronic diseases such as cardiovascular disease, cancer and diabetes. Even in childhood, physical activity can modify risk factors for chronic diseases such as hypertension or raised blood lipids.\(^6\)

The available research suggests that the best primary strategy for improving the longterm health of children through exercise may be to create a lifestyle pattern of regular physical activity that will carry over to adulthood.\(^7\) The school setting is the ideal environment for population based physical activity interventions. It provides benefit to children from all risk groups,\(^8\) especially those with little access to play areas\(^9\) and avoids stigmatisation of at risk children.\(^10\)

AIM & OBJECTIVES

**AIM:**
To examine the facilities and practices in Cork primary schools with respect to physical activity.

**OBJECTIVES:**
To determine the following information for the selected primary schools:
- Access to indoor and outdoor exercise facilities
- Shared agreement for facilities with local organisations
- Number of physical activity classes per week and duration
• School policies in relation to physical activity e.g. supervised physical activity, no running in the yard policy etc.
• Alternative activities to competitive sport being offered
• Rating for schools interest in sports provision
• Profile of children’s activity levels in and out of school

METHODOLOGY

A random sample of fifty Cork primary schools located in the community care areas of North and South Lee was chosen. Each principal was then telephoned and interviewed using a structured questionnaire. In the selected schools, five parents of children in sixth class were also identified. At least three out of five parents were telephoned, using a structured questionnaire.

The following information on each school was also captured:
• Gender of Principal
• School size
• Mixed or single gender
• Deprivation Index

The Deprivation Index is derived by measuring a number of indicators (unemployment, low social class, no car, rented accommodation and overcrowding) in each District Electoral Division (smallest administrative unit for which complete, enumerated Census data is available). Utilising Census 1996 classification, each DED is then coded as being 1 (least deprived) to 5 (most deprived).

RESULTS

SCHOOLS PROFILE

Most of the schools were mixed (28, 56%), with 12 all boys and 10 all girls schools. Almost half the schools had fewer than 200 pupils and 26% of schools were situated in areas with a deprivation index of 4 or 5 (Table 3.1).

<table>
<thead>
<tr>
<th>School Size</th>
<th>Number (%)</th>
<th>Deprivation Indices of School Locations</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;100</td>
<td>9 (18)</td>
<td>1</td>
<td>12 (24)</td>
</tr>
<tr>
<td>100 – 199</td>
<td>14 (28)</td>
<td>2</td>
<td>8 (16)</td>
</tr>
<tr>
<td>200 – 299</td>
<td>15 (30)</td>
<td>3</td>
<td>17 (34)</td>
</tr>
<tr>
<td>300 – 499</td>
<td>7 (14)</td>
<td>4</td>
<td>5 (10)</td>
</tr>
<tr>
<td>500+</td>
<td>5 (10)</td>
<td>5</td>
<td>8 (16)</td>
</tr>
<tr>
<td>Total</td>
<td>50(100)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**SCHOOL FACILITIES**

**OUTDOOR FACILITIES**

All schools had some outdoor exercise facility (Table 3.2). Over one half of schools (26, 52%) had 3 or more such facilities. Eleven schools (22%) had only one outdoor facility. This was most commonly a paved area outside the school.

<table>
<thead>
<tr>
<th>School Outdoor Facilities</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playing field</td>
<td>33 (66)</td>
</tr>
<tr>
<td>Paved area</td>
<td>33 (66)</td>
</tr>
<tr>
<td>Basketball hoop</td>
<td>28 (56)</td>
</tr>
<tr>
<td>Running track</td>
<td>4 (8)</td>
</tr>
<tr>
<td>Playground area</td>
<td>24 (48)</td>
</tr>
<tr>
<td>Other outdoor facilities</td>
<td>2 (4)</td>
</tr>
</tbody>
</table>

Of those who didn’t have their own playing pitch, a further 10 schools had an agreement to use a local sporting field, bringing to 86% of schools having some access to a playing field. Over half (28, 56%) of schools had an agreement to use a local swimming pool and 8 (16%) had the use of a running track.

**INDOOR FACILITIES**

Ninety percent of schools had some indoor facility for exercise. However, 6 schools (12%) described their halls as “inadequate” and only 9 schools (18%) had access to a gymnasium. No significant differences were found between having access to a particular facility and school size, area deprivation index, or whether the school was mixed or single sex.

**SCHOOL PRACTICES**

**PHYSICAL EDUCATION**

Forty-four schools (88%) had one PE session in the school week, the remainder had two sessions per week. In 44% of schools, the children spent less than 31 minutes actually exercising in the PE class (Table 3.3). In most schools (94%) the class teacher also taught PE. In the other 3 schools, a combination of class and PE teachers took PE classes.
Table 3.3  Time spent exercising in PE class

<table>
<thead>
<tr>
<th>Time spent exercising in PE class (minutes)</th>
<th>Number of schools (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 10</td>
<td>0 (0)</td>
</tr>
<tr>
<td>10 – 20</td>
<td>9 (18)</td>
</tr>
<tr>
<td>21 - 30</td>
<td>13 (26)</td>
</tr>
<tr>
<td>31 – 40</td>
<td>15 (30)</td>
</tr>
<tr>
<td>41 - 50</td>
<td>4 (8)</td>
</tr>
<tr>
<td>51 – 60</td>
<td>8 (16)</td>
</tr>
<tr>
<td>&gt; 60 minutes</td>
<td>1 (2)</td>
</tr>
</tbody>
</table>

Three-quarters of school children had less than 40 minutes actual exercise in PE class during the school week

YARD RESTRICTIONS
Forty percent of schools had a “no running in the yard” policy. Bigger schools were more likely to have such a policy ($\chi^2 = 11.4, \text{df} = 5, p = 0.04$). Most schools (75%) of 300 pupils or more have such a policy compared to 29% of schools under 300 pupils. Over half of the city schools had such a policy compared to one third of the rural schools, though this difference was not statistically significant.

40% of schools had a “no running in the yard” policy

SUPERVISED PHYSICAL ACTIVITY
Although 84% of school principals stated that there was supervised physical activity in their school during the school breaktimes, in most cases, this meant that the teachers supervised the children at play, rather than an organised session. Thirty-five schools (70%) had after school team training sessions (Table 3.4).

Table 3.4  Supervised exercise during the day

<table>
<thead>
<tr>
<th>Session</th>
<th>Number of schools (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breaktime</td>
<td>2 (4)</td>
</tr>
<tr>
<td>Lunchtime</td>
<td>2 (4)</td>
</tr>
<tr>
<td>Afterschool</td>
<td>19 (38)</td>
</tr>
<tr>
<td>2 sessions during the day</td>
<td>7 (14)</td>
</tr>
<tr>
<td>3 sessions during the day</td>
<td>15 (30)</td>
</tr>
<tr>
<td>None</td>
<td>5 (10)</td>
</tr>
</tbody>
</table>

The majority of after school physical activity was focused on training the school teams

--------------------------------- 30 ---------------------------------
**SCHOOL AWARD SCHEMES**
Most schools (64%) gave awards to the children for participation in sport. Individual achievement was also recognized by 62% of schools. Most commonly, schools held a special meeting in the assembly hall to recognize the achievements or gave the children medals, trophies, certificates or sweets.

**“CARROT AND STICK” APPROACH**
Sixteen schools (32%) occasionally cancelled PE as a censure for bad behaviour. Two schools (4%) frequently offered an extra session of PE as a reward and 26 schools (52%) occasionally offered an extra session as a reward.

**SCHOOL PARTICIPATION**
Most schools participated in interschool competitions and 92% scheduled a school sports day. For some schools (especially the larger ones), this sports day was held for younger classes only (Table 3.5).

<table>
<thead>
<tr>
<th>Events</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation in interschool competitions</td>
<td>45 (90)</td>
</tr>
<tr>
<td>Participation in athletics competitions</td>
<td>29 (58)</td>
</tr>
<tr>
<td>School sports day</td>
<td>46 (92)</td>
</tr>
<tr>
<td>Participate in other sport events</td>
<td>2 (4)</td>
</tr>
</tbody>
</table>

**ALTERNATIVE ACTIVITIES**
Twenty-three schools (46%) had alternative activities going on in the schools. Most of these (17, 74%) were dance classes provided by outside teachers after school at an added cost. Other activities offered in schools included badminton, table tennis, karate and taekwondo.

**DISSEMINATION OF INFORMATION ON PHYSICAL ACTIVITY OPPORTUNITIES**
Almost all parents (92%) had received information about local activities and community clubs from the school. Most commonly, schools sent notes home with the children. Others put the information on the school notice board or newsletter.

**SCHOOL RATING**
Rating the school’s interest in physical activity, with 1 being little or no interest and 5 very interested, parents and principals rated quite similarly. Principals were more likely than parents to rate their school as a 5 (Table 3.6).
Table 3.6 Rating of school by principals and parents

<table>
<thead>
<tr>
<th>Rating</th>
<th>% of principals</th>
<th>% of parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>4</td>
<td>38</td>
<td>54</td>
</tr>
<tr>
<td>5</td>
<td>44</td>
<td>30</td>
</tr>
</tbody>
</table>

PROFILE OF CHILDREN
The parents of 78 boys and 60 girls were interviewed. The children’s ages ranged from 10 to 13 years with a median age of 12 years. No child had a medical condition that curtailed any form of physical exercise. Some 66% of children participated in at least 20 minutes strenuous exercise 3 or more times a week. Seventy percent of children had participated in light exercise 3 or more times a week. Boys were more likely than girls to have taken exercise (either strenuous or light) 3 or more days a week.

TIME SPENT IN SEDENTARY PURSUITS
Over half of the boys and 48% of the girls were spending 2 to 3 hours per day in front of a screen (i.e. TV, videos, computer games) during the school week. Almost 6% of children spent more than 3 hours a day at these activities.

TRAVEL TO SCHOOL
Just 20% of children walked to school and another 5% reported a combination of walking and being driven. Most children (64%) were driven to school. Of those who walked, 85% had a ten minute walk or less.

INvolVEMENT IN SPORTS
Most children (78%) were involved in organised sports outside school. There were no significant sex differences with 79% of boys and 76% of girls participating. Almost a quarter of parents were involved in training teams. Children of these parents were significantly more likely to be involved in sports themselves ($\chi^2 = 4.4$, df = 1, p < 0.03).

DISCUSSION
Over the last decade there has been an increasing body of evidence supporting active lifestyles as one of the best investments for individual and community health. Schools are important settings for national physical activity promotion both because of the population reach (they reach the population of young people aged 5 to 16 years) and the amount of time that students spend in school each day. Recent recommendations from the Department of Health & Children state that “children and young people should aim to participate in activity of at least moderate intensity for one hour every day”. Because children spend over half of their day in school, some experts have recommended that 30 minutes or half of the recommended physical activity time be accrued during the school day.\textsuperscript{11}
All schools in this survey adhered to the national curriculum in having one 60 minute PE session per week and very few had more than this. However, when the question was asked, the reality is that 74% of children spent less than 40 minutes actually exercising in class and almost a fifth of children spent less than 20 minutes. This compares poorly to other European countries such as Austria, Norway, Portugal and Spain, where an average of 3.5 hours per week are spent on school sport. Even in the UK, where the obesity epidemic is as well advanced as here, a survey by Sport England indicated that the percentage of children receiving two hours or more of PE a week increased from 33% in 1999 to 49% in 2002.

In a country like Ireland with a significant amount of rainfall, outdoor sports and physical activity in general can be weather dependent. All schools had some outdoor facility for physical activity but 10% of schools lacked any indoor facility and a further 12% described inadequate facilities. In the absence of adequate indoor facilities, poor weather conditions are significant barriers to the promotion of physical activity in those schools.

Physical education classes provide an opportunity for children to master fundamental movement skills such as running, vertical jumping, catching, striking, kicking etc. Mastery of such skills influences children’s attitudes towards physical activity and enable their future participation in physical activity. However, it is important to be realistic about the opportunity for physical education to have a major impact on physical activity amongst students. To enable children to accrue a significant amount of moderate to vigorous physical activity in the school day, all opportunities must be exploited to further physical activity. To this end, lunch and breaktimes should be as active as possible as well as encouraging safe cycling and walking to school. Forty percent of schools surveyed had a policy of “no running in the yard”. Such a policy must be deemed to be a significant barrier to promoting children’s physical activity.

Most of the schools rated themselves as being very interested in sports/physical activity. This perception was collaborated by the parents. However, apart from a couple of notable exceptions, this perception stemmed from the fact that the school participated very actively (and usually successfully) in interschool competitions. Almost all after school activities that were organised by the school itself were related to interschool competitions and training the school team. Such an approach targets the talented athletes in the school. To increase the physical activity levels of all students, particularly older girls, best practice for interventions recommends more curricular and extracurricular activity that direct more resources to programmes that target all students.

The primary schools were very aware of the facilities and clubs that were available in the local community. Almost all schools facilitated local clubs to advertise their activities through the school and 46% had alternative activities going on in the school. However, these activities are privately run at an additional cost to the family, which is a further barrier to access.

The children in this survey had similar exercise patterns to other Irish surveys. As they were a young cohort, relatively high levels of physical activity would be expected.
However, signals of future patterns are already clear, with boys being more likely than girls to have taken exercise. Both sexes had high levels of sedentary pursuits and a minority walked to school. School physical activity programmes are one important aspect of the multifaceted approach required to redress the active/sedentary imbalance and rewrite these children’s future.

KEY POINTS

- A significant percentage of primary schools were reported as lacking adequate indoor facilities for physical activity
- Most children had less than 40 minutes actual exercise in PE class during the school week
- Even in schools with a high rating for physical activity, almost all of the focus was on high athletic achievement and extracurricular training was targeted on those participating in interschool competitions
- To accrue a significant amount of physical activity in the school day, all opportunities (including lunch and breaktimes) must be exploited. The large number of schools with a “no running in the yard policy” is a considerable barrier to this
- Most of the alternatives to competitive sports (dance classes, karate, taekwondo) had an additional cost

REFERENCES


Our children… their future… \textit{why weight??} 

January 2005
INTRODUCTION

Adolescence is a critical period for the development of obesity. The risk of obesity persisting into adulthood is higher among obese adolescents than among younger obese children.\(^1\) While many factors contribute to obesity, poor food habits are a key cause. The Department of Health and Children acknowledges that, in Ireland, school children’s diet has a higher than desirable fat content – a significant proportion of which comes from high fat, energy dense snacks.\(^2\) Another contributing factor is the increased intake of sugar-sweetened, fizzy drinks.\(^3\) In the UK consumption of such drinks has doubled in the past 15 years and young adults now drink an average of six cans each week.\(^4\) There is evidence from the US that even children who had healthy eating habits when young, adopt poorer eating patterns in their teenage years.\(^5\)

In Ireland we have not had a history of providing “school dinner” to children in school, such as occurs in other countries. However, with the changes in Irish society, very few post-primary school students now return home for lunch and increasing numbers remain in school during their lunch break. As a result, schools are increasingly providing canteen and tuckshop facilities. There is very little recorded information in Ireland on the food choices provided to students in our post-primary schools. Are we providing an environment in our schools that supports the choice of healthy options, in order to promote healthy eating patterns in adolescents? This study aims to provide some information on the food choices provided to students in Cork and Kerry schools.

AIMS & OBJECTIVES

AIMS:

1. To gather information on the food and drink choices available to students in post-primary schools in Cork and Kerry.
2. To use this information to inform the current debate in Ireland on young people and healthy eating.

OBJECTIVES:

1. To document the following information for all post-primary schools in Cork and Kerry:
   - Number and percentage of post-primary schools providing a school canteen
   - Food and drink provided in these school canteens
• Number and percentage of post-primary schools providing a school tuckshop
• Food and drink provided in these school tuckshops
• Number and percentage of post-primary schools providing vending machines in school
• Food and drink provided in these vending machines

2. To disseminate the survey results to key health and education personnel to inform the debate on young people and healthy eating.

METHODOLOGY

A questionnaire was posted to all post-primary schools, with day students, in Cork and Kerry (117 in total), requesting that one transition year or fifth year student be asked to complete the questionnaire.

The questionnaire contained questions on:
• Presence of canteen, and food and drink choices
• Presence of tuck-shop, and food and drink choices
• Presence of vending machines, and food and drink choices
• Provision of drinking water

The student completing the questionnaire was also asked for their views on the food and drink choices available in their school.

RESULTS

Responses were obtained from 91 of 117 schools, a response rate of 78%. Day schools comprised 95% of respondents, the remaining were combined day/boarding schools. In a small number of cases the questionnaire was completed by a teacher. Over half of the responding schools (55%) were mixed schools with 19% boys only and the remaining 26% girls schools. Only 13% of schools which responded were participating in the Southern Health Board’s Health Promoting Schools Programme.
In the majority of schools younger students stay in school during lunchtime, older students tend to go “downtown” and can purchase food in local shops or cafés (Fig 4.1).

**The majority of younger students stay in school during lunchtime**

**FOOD AND DRINK FACILITIES IN SCHOOLS**

Just over half of schools (58%) provided vending machines for the students and 56% provided a school canteen or combined canteen/tuckshop (Table 4.1).

<table>
<thead>
<tr>
<th>School facilities</th>
<th>Number</th>
<th>% schools</th>
<th>Vending machine types</th>
<th>Number</th>
<th>% schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canteen/combined tuckshop</td>
<td>51</td>
<td>56%</td>
<td>Cold drinks</td>
<td>47</td>
<td>52%</td>
</tr>
<tr>
<td>Tuckshop</td>
<td>35</td>
<td>38%</td>
<td>Snacks</td>
<td>38</td>
<td>42%</td>
</tr>
<tr>
<td>Vending machines</td>
<td>53</td>
<td>58%</td>
<td>Hot drinks</td>
<td>14</td>
<td>15%</td>
</tr>
</tbody>
</table>

Fifty-four percent of schools reported providing a seated canteen area for students to eat their food, in 30% lunch was taken in classrooms. In the remaining schools, lunch was taken in various locations, e.g. locker rooms or school hall.

**58% of schools provide vending machines**
FOOD CHOICE IN SCHOOLS

HOT FOOD CHOICE
Fifty-six percent of schools have canteen or combined tuckshop/canteen facilities. Respondents were asked to indicate food choices available in the various facilities. The hot food options available are illustrated (Fig 4.2).

Fig 4.2 Hot food options in school canteens

The fast food or convenience foods options are the most common.

High fat, energy dense foods e.g. burgers, sausages, chips and wedges are commonly available in schools

COLD FOOD CHOICE
A total of 72 schools reported having cold foods available in their canteen or tuckshop. Filled rolls/sandwiches was the most common food available in both (Fig 4.3).

Fig 4.3 Cold food options in schools
**DRINK CHOICE**

Hot drinks were reported as available in 76% of school canteens and 15% of school vending machines. Tea and coffee were by far the most commonly available in canteens. Figure 4.4 represents the percentage of options available in either canteens or vending machines.

![Fig 4.4 Hot drink options in schools](image)

Cold drinks are sourced in 98% of school canteens and in every tuckshop. Fifty-two percent of schools had cold drink vending machines. Sugar-sweetened fizzy drinks were the most commonly available with water options second (i.e. still or sparkling water or flavoured waters), see figure 4.5. Vending machines were the most common source of fizzy drinks, while the healthier options of fruit and dairy based drinks were sourced in canteens. In general, fizzy drinks were available in 76% of canteens, 81% of tuckshops and 88% of vending machines. In order to compare the options available in canteens, tuckshops and vending machines, options available are combined to represent water, fizzy drinks, dairy and fruit drink categories.

![Fig 4.5 Cold drink options in schools](image)
Sugar-sweetened fizzy drinks are widely available in schools from canteens, tuckshops and vending machines

SNACKS IN SCHOOLS
Snacks are found in 86% of school canteens and all tuckshops. Forty-two percent of schools had snack vending machines. The most common snacks provided are illustrated (Fig 4.6).

![Fig 4.6 Snacks in schools](image)

Chocolate was by far the most common snack available. Fruit options were available in schools canteens but extremely limited in tuckshops and in only one school in their vending machines. Yoghurts were in canteens primarily.

Chocolate is by far the most common snack available
Fruit options are extremely limited in tuckshops

PROVISION OF DRINKING WATER
Seventy-eight percent of respondents indicated that drinking water was freely available in the school. This water was provided by water fonts (69%) or mains tap water (31%).

When asked to comment on facilities, the availability of clean water featured very strongly for students. More water fonts were requested in a large number of responses.

“There is one drinking fountain which no-one drinks from as water has a very unpleasant colour, sometimes as well as over-chlorinated taste”.

It was suggested that the lack of water fonts may be adding to the buying of unhealthy drinks.
“Not having free drinking water means people have to buy a drink and they will often opt for an unhealthy drink”.

COMMENTS ON SCHOOL CANTEENS AND TUCKSHOPS
When asked to comment on the school canteen or tuck shop, students tended to focus on the limited choice available, expense and on the lack of healthy options.

“More fruit should be available”

“It is extremely expensive for the amount we get”

“Very little healthy foods available. Students mainly eat high fat foods e.g. sausage rolls, pies, commercial pizza, sausages”

“The students and teachers looking for a healthy option cannot get it in the school”

Very few students indicated satisfaction with cost and choice. While there were many comments on the lack of healthier options many respondents acknowledged that the healthy choice is often not the preferred choice.

“A large choice of healthy and unhealthy food and snacks are available, but the high sugar, high salt, high fat foods are by far the most popular”.

Some schools are working on nutrition policies or healthy eating policies which work towards “the inclusion of fresh fruit, milk, yoghurt in the school tuckshop” but acknowledge that “more education and awareness is needed to change poor eating habits”.

Very few students commented on bringing their own lunches. Students placed more emphasis on having hot food available to them during school times, especially for those students who, due to school policy, cannot leave the school premises. A number of students commented that they would like to have fresh homemade soup available at lunch time... “Instead of packet soup, there should be homemade soup”.

School canteens are generally ‘contracted out’ to external catering agencies. These are independent profit making organisations and the schools do not necessarily benefit from profits.

“Our canteen is privately run, therefore the agenda of the owner is to earn more money rather than thinking about the health of the pupils”.

However, provision of canteen facilities by the school management also poses difficulties. One teacher noted that:

“Staffing a canteen is difficult (costs). When we did run a full canteen service the list choice of foods were not the ones chosen by the students.”

Tuckshops are generally run by the school and are a source of finance for the school.
“Having a tuckshop means most of the school buys sweets, chocolate every day. Sometimes this is all they eat for lunch”.
“The shop is a sweet shop and it is difficult to change this as the profit is so good”.

Some schools, especially those without full canteen service, facilitate the ordering in of sandwiches and rolls from the local supermarket for students.

**COMMENTS ON VENDING MACHINES**
Vending machines tend to provide more sugar-sweetened fizzy drinks and chocolate bars than healthy options. Some respondents suggested removing them.

“Remove the vending machines as once they are there, you will use them and mainly choose the chocolate bars/crisps over the cereal bars”.

Others suggested keeping them but stocking more healthy options.

“Revise policy on vending machines carrying coke etc. Exclude non-nutritional snacks from other vending machines”.

Some schools are already taking the initiative, as one teacher noted,

“We are reviewing next years contents with our suppliers, primarily for fruit juices, cereal bars etc”.

Another school is getting a drinks vending machine, which only stocks water or juices. Other schools don’t allow access to fizzy drinks or sweets at morning breaks.

**DISCUSSION**

The Department of Health and Children recognise that “creating supportive population-based environments through public health policies that promote the availability and accessibility of a variety of low-fat, high-fibre foods is a key element in the prevention of obesity”. Schools, both primary and post-primary, are the environments where our children spend a considerable amount of their time. This study confirms the impression of a changing society where teenagers are not going home for lunch, are not bringing in their own lunch or snack, but are buying their food either in the school or outside. The majority of younger post-primary school students stay in school over the lunch break and are, therefore, relying on the food choices provided for them in that environment. This study documents the fact that the food choices available in our schools do not support or encourage the choice of the healthy option.

The most common foods on offer in our schools’ canteens are high fat, energy dense foods such as burgers, sausages, chips and wedges. Many respondents commented on the limited choice for healthy options. The majority of schools now provide vending machines, with sugar sweetened fizzy drinks the most common drinks provided. While the Department of Health and Children has produced food and nutrition guidelines for primary schools, no such guidelines exist at present for post-primary schools. This is urgently needed. These guidelines must address not only the food choices available in
canteens and tuckshops but also food and drink provided in vending machines. The Food Standards Agency in the UK\(^6\) has recently published a guide for schools on the provision of vending machines. They recommend that cold drink vending machines should provide only waters, pure fruit juices, fresh milk and milk products. In their view these would provide a healthy product range which would be attractive and satisfying for students. Schools in Ireland need assistance in providing healthy choices to students and national guidelines would facilitate greatly.

Providing healthy options would be a first step but must be accompanied by programmes to support and encourage students to make the healthy choices. While nutritional information forms an important element in Social, Personal and Health Education and Home Economics curricula additional programmes are needed. These might include subsidising the provision of healthy foods and extending the health promoting schools programme. Parents need to be involved in this process. Many parents may be unaware of the food choices available in their child’s school. Increased awareness would allow parents to encourage the children in choosing the healthy options or in providing their own lunch/snacks.

The food choice available to students in our post-primary schools is but one small aspect of the complex causes of increasing obesity in our children. However, we all have a responsibility to ensure that the school environment assists teenagers in making healthy food choices. This study confirms that this is not the case at present. Co-ordination and co-operation between the Department of Health and Children and the Department of Education is urgently needed to provide a healthy food environment within our post-primary schools.

A combination of strategies is required. As one respondent indicated:

“Good eating habits should come from our surroundings and the school is part of it”.

**KEY POINTS**

- The majority of younger post-primary school students stay in school during lunch-time and are reliant on the food choices provided for them in that environment
- Healthy food choices are not supported in our post-primary schools
- Fast foods or convenience foods are the most common options in school canteens
- Sugar-sweetened fizzy drinks are available in 76% of canteens, 81% of tuckshops and 88% of vending machines
- Chocolate is by far the most common snack available
- Guidelines are required to assist post-primary schools in providing a healthy food environment
REFERENCES

2. Health Promotion Unit, Department of Health and Children, Ireland. www.healthpromotion.ie/topics/obesity
LITERATURE REVIEW

CHILDHOOD OBESITY

Dr. Paul Kavanagh

CONTENTS

SECTION 1: CHILDHOOD OBESITY IN FOCUS
1.1 “Globesity”: a global obesity epidemic
1.2 Obesity in Ireland
1.3 The public health importance of childhood obesity
1.4 The national response
1.5 The global response
   1.5.1 World Health Organisation
   1.5.2 United States
   1.5.3 United Kingdom

SECTION 2: THE CONSEQUENCES OF CHILDHOOD OBESITY
2.1 Psychosocial consequences
2.2 Obesity and physical health in childhood
2.3 Childhood obesity and health in adult life

SECTION 3: DETERMINANTS OF CHILDHOOD OBESITY
3.1 Host susceptibility
   3.1.1 Genetic influences
   3.1.2 Prenatal and early life influences
3.2 Vehicles
   3.2.1 Food
   3.2.2 Physical inactivity
3.3 Environment
   3.3.1 Family influences
   3.3.2 Living conditions
   3.3.3 Television and advertising
   3.3.4 The wider environment
   3.3.5 Global causes of a global problem

SECTION 4: PREVENTION & MANAGEMENT OF CHILDHOOD OBESITY
4.1 Prevention of childhood obesity
4.2 Treatment of childhood obesity
SECTION 1: CHILDHOOD OBESITY IN FOCUS

The increasing prevalence of obesity is a major issue for the population’s health. Children have also been affected by the problem, which threatens their wellbeing and development and their future health as adults. This section will review the literature detailing concern for this crisis at a global and national level, and the responses that are emerging.

1.1 “GLOBESITY”: A GLOBAL OBESITY EPIDEMIC

The World Health Organisation (WHO) has described obesity as a global epidemic – and has coined the term “globesity”. Globally, at least 1 billion adults are overweight, and 300 million of them are clinically obese; an estimated 17.6 million children under the age of five are overweight. Many developed market economies have experienced an increase in the prevalence of childhood obesity in the last 20-30 years. In these countries, overweight is estimated to be responsible for 7.4% of the Disability-adjusted Life Years (DALYs) experienced by people living in these areas (1 DALY is equivalent to the loss of 1 year of healthy life); it is thought to be responsible for up to one quarter of the burden of cerebro-vascular disease, and up to one half of the burden of ischemic heart disease.

1.2 OBESITY IN IRELAND

The global epidemic of obesity has reached Irish shores. In the 2002 phase of the nationally representative Survey of Lifestyles and Nutrition (SLÁN), 34% of Irish adults reported themselves as being overweight and 13% were obese. The prevalence of overweight and obesity rose by 2% and 3% respectively in the four-year period since the first phase of SLÁN. The North/South Ireland Food Consumption Survey was conducted by the Irish Universities Nutrition Alliance (IUNA) on a representative sample of adults across the island of Ireland in 1997-8 and found that 38% and 18% were overweight and obese respectively. When compared with a similar survey in 1990, IUNA report a 67% increase in the prevalence of obesity. Similar data is not currently available on a nationally representative sample of children, however the Irish Health Behaviour of School-Aged Children Survey contains some information on the subject. In 2002, 13% of children reported being on a weight reducing diet, and a further 22% reported that they needed to lose weight.

The Survey of Lifestyles and Nutrition (SLÁN) also provides information on the pattern and trend of obesity in the Southern (Cork/Kerry) region. Compared with the national average of 13%, in the Cork/Kerry region 14% of adults reported being obese. The National Survey of Children’s Dental Health 2001-2002 included weight and height measurement to calculate the prevalence of childhood obesity. A report is soon to be launched. However preliminary data on the prevalence of childhood overweight and
obesity in the Cork/Kerry region (based on international standards for body mass index) were provided with kind permission of the research team and are presented in Figures 1 and 2 below.

Fig 1. The prevalence of overweight in children in the Cork and Kerry area using international cut-offs

Fig 2. The prevalence of obesity in children in the Cork and Kerry area using international cut-offs
1.3 THE PUBLIC IMPORTANCE OF CHILDHOOD OBESITY

Issues of public health importance are those that affect many people, have significant resource implications and impact disproportionately on vulnerable groups. The increasing prevalence of obesity described above shows it to be a matter of global and national concern.

While no information on cost is available from an Irish setting, obesity and its complications will have a major economic impact. The cost of obesity can be characterised as direct (preventive, diagnostic and treatment services) and indirect (lost years of life, lost productivity, pain, suffering, lost leisure time), and is borne by the individual, their families, the health care services and society as a whole. In the UK it is estimated that the direct cost of obesity to the NHS is UK£ 0.5 billion, and the indirect costs to the economy is UK£ 2 billion. The US Surgeon General estimates that the total cost of obesity in the US in 2000 was US$ 117 million.

Health inequalities are “differences, variations and disparities in the health achievement of individuals and groups”; those inequalities “that are deemed to be unfair or stemming from some form of injustice” are referred to as health inequities. There is national evidence to suggest that the burden of obesity falls heaviest on the poorest groups. Analysis of the Survey of Lifestyles and Nutrition (SLÁN) from 1998 and 2002 has shown the prevalence of adult obesity to be highest in the lowest social class and in those with least education. Internationally, there is also evidence that, in developed countries, childhood obesity is more prevalent in deprived groups: analysis of a cross-sectional survey in the UK has shown that the likelihood of obesity was highest for children living in deprived neighbourhoods; analysis of the third National Health and Nutrition Examination in the US has shown a similar social pattern.

Childhood obesity is an immediate threat to the public’s health. However, future health is also at risk. Obese children are at an increased risk of becoming obese adults with its attending consequences.

1.4 THE NATIONAL RESPONSE

Actions on obesity, diet and physical activity have been a part of national strategies on health and health promotion. The National Health Strategy, “Quality and Fairness”, sets “better health for everyone” as one of its four national goals. Under this goal, Objective 2 lists Actions to intensify the promotion of health and well-being. Action on childhood obesity is in line with actions 8 and 14 that call for extension of initiatives to promote healthy lifestyles in children and initiatives to improve child health respectively.

The National Health Promotion Strategy sets a strategic framework of three interlinking approaches for health promotion: population groups, topics and settings. Initiatives to control childhood obesity fit well with this framework by offering the opportunity to link
children and young people (population groups) with eating well and being more active (topics) in groupings such as schools and colleges, the youth sector, the community and the health services.

However, the rising prevalence of obesity has also demanded a specific response, and Ireland’s National Taskforce on Obesity was launched in 2004. It will develop a strategy aimed at halting the rise and reversing the prevalence of obesity; its terms of reference are to report on:

- The current rates and trends of obesity in Ireland
- The determinants of obesity in Irish society
- The current and future impact on the health services and society as a whole from the growing trend in obesity
- Best practice in the prevention, detection and treatment of obesity
- How best to create the social and physical environments that make it easier for children and adults to eat more healthily and be more active on a regular basis.

The Taskforce plans to present the strategy document to the Minister for Health and Children.

1.5 THE GLOBAL RESPONSE RESULTS

1.5.1 World Health Organisation
The WHO has responded to the challenge of global obesity in a number of ways. In 1997 a consultation on obesity was held to review the extent of the problem, examine the consequences and make recommendations for policies on control and prevention. It has also consulted and produced recommendations on the wider contribution of diet to the development of obesity and chronic disease in general. Most recently, in 2004, it has issued the “Global Strategy on Diet, Physical Activity and Health” which has been adopted by WHO member states, including Ireland. This makes important recommendations on limiting energy and salt intake and increasing physical activity, with responsibility for action apportioned to the WHO, its member states, international partners (such as the Food and Agriculture Organisation), civil society and non-governmental organisations, and the private sector.

1.5.2 United States
The US has experienced a substantial rise in the prevalence of overweight and obesity across all population groups. In the period 1991-1998 the prevalence of obesity rose from 12.0% to 17.9% of adults. The prevalence of childhood overweight and obesity has also increased. Data from the National Health and Nutrition Examination Study for 1999-2002 showed that 31% of US children aged 6 to 19 years were at risk of overweight or obese, and 16% were overweight. Citing the epidemic proportions of overweight and obesity, the US Surgeon General issued a “Call to Action to Prevent and Decrease Overweight and Obesity”.

Our children….their future….why weight???

January 2005
1.5.3 United Kingdom
The prevalence of overweight and obesity has also risen in the UK: between the period 1980-1998 the prevalence of obesity increased from 8 to 21% and 6 to 17% for women and men respectively.\(^7\) Children have also been affected. Three independent cross sectional surveys of a nationally representative sample of British children between the period 1974-1994 found an increase from 3.6% to 5.4% in the prevalence of overweight in boys and an increase from 1.7% to 3.2% in the prevalence of obesity in girls of various ages across England and Scotland; larger increases in the prevalence of obesity were seen for older age groups.\(^22\) In response to this problem, the National Audit Office, which is charged with scrutinising public expenditure on behalf of UK Parliament, undertook a detailed study of the problem of obesity and how it may be best tackled.\(^7\) Obesity was also a focus of the 2002 report of the UK Chief Medical Officer,\(^23\) and has been the subject of a recent House of Commons Health Committee.\(^24\)

SECTION 2: THE CONSEQUENCES OF CHILDHOOD OBESITY

The rising prevalence of childhood obesity is a significant problem for those children affected, for their families, and for the wider community. The most widespread immediate consequences of obesity for children are psychosocial in nature.\(^25\) It can also have effects on children’s physical health, and affect their coping with other health problems. Lastly, the effects from obesity in childhood can persist into adulthood leading to adult obesity and other health problems. From the perspective of the wider community, childhood obesity is not just a consideration for the present, but should also be regarded as a threat to the population’s future health.

2.1 PSYCHOSOCIAL CONSEQUENCES RESULTS

Overweight and obese children are targets for stigmatisation and discrimination. Children often express preference for other children with a range of differences as friends over obese children, and even younger children stigmatize them as “unhealthy”, “academically unsuccessful”, “socially inept”, “unhygienic” and “lazy”.\(^25\) Overweight and obese school children have reduced social networks compared with peers of normal weight.\(^26\) They are more frequent victims and perpetrators of bullying behaviour.\(^27\)

Obesity is also associated with poor self-esteem, especially in older children and adolescents as they shift their locus for deriving self-image from their more accepting parents and family to less forgiving peers; this transition is associated with increased sadness, loneliness and nervousness.\(^28\) The socialisation of obese children can be affected by their earlier physical and sexual maturation, which may distance them from peers. However, they may fall short of the expectations, which interaction with older children may demand, and more often interact with younger children who have yet to learn the social meaning of the child’s obesity.\(^25\)
The relationship between obesity and social class has been extensively studied, and many studies have indicated that the increased prevalence of obesity in lower social classes may be both a cause and effect of the problem. Downward social mobility and social exclusion may be consequences of obesity for adolescents and young adults, especially for females. A cohort study in the US, for example, has shown that for women who were obese as adolescents and young adults, their education status, family income, and rates of marriage were lower than for their non-obese counterparts, even after the income and educational status of their families were taken into account.

2.2 OBESITY AND PHYSICAL HEALTH IN CHILDHOOD

A range of associations have been described between obesity and disease in childhood:

- Overweight and obese children tend to be taller, have more advanced bone age, and be more physically mature than similarly aged counterparts with normal weight.
- A raised, and unfavourable, lipid profile is associated with childhood obesity, as is elevated systolic blood pressure.
- Impaired glucose tolerance is also evident, and Type 2 Diabetes is now emerging as a problem in obese children. In the UK, for example, it has been estimated that the crude minimum prevalence of Type 2 diabetes in children under the age of 16 years is 0.21/100,000.
- Post-mortem studies have found overt atherosclerosis associated with obesity in children.
- Fatty liver disease and gallstones have been described in obese children.
- Pseudotumour cerebri is a rare condition, which may lead to visual impairment and blindness, and it has been attributed to childhood obesity.
- Pulmonary complications include sleep apnoea, hypoventilation syndrome and exercise intolerance. Sleep apnoea is an important association, since it can lead to drowsiness during the day and affect learning. The association between obesity and asthma is less certain.
- Orthopaedic complications include bowing of the femur and tibia, Blount’s disease, and Slipped Capital Femoral Epiphysis can coincide with obesity.
- Polycystic ovarian disease with accompanying hyperandrogenism may occur in obese girls after puberty.

2.3 CHILDHOOD OBESITY AND HEALTH IN ADULT LIFE

Obesity in childhood is not just a hazard for the child’s current health; it may have repercussions for their health and wellbeing later in adult life too. Obesity as a child is a risk factor for the development of adult obesity. A cohort study of American children has shown that the children who were obese or very obese at the age of 3-5 years were four times more likely to be obese as young adults compared with their non-obese
counterparts; older children aged 10-14 who were obese or very obese were almost 30 times more likely to be obese as young adults. This indicates that, as children grow older, obesity is an increasingly important risk for adult obesity. This finding is supported by similar studies on this question.

The health effects of adult obesity have been well studied. It doubles the risk of death from all causes, and in particular increases the risk of death from cardiovascular disease. Table 1 presents some of the estimates of increased risk for disease associated with adult obesity based on international studies calculated for the National Audit Office report on obesity.

<table>
<thead>
<tr>
<th>Disease</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 2 Diabetes</td>
<td>12.7</td>
<td>5.2</td>
</tr>
<tr>
<td>Hypertension</td>
<td>4.2</td>
<td>2.6</td>
</tr>
<tr>
<td>Myocardial Infarction</td>
<td>3.2</td>
<td>1.5</td>
</tr>
<tr>
<td>Cancer of the Colon</td>
<td>2.7</td>
<td>3.0</td>
</tr>
<tr>
<td>Angina</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
<td>Gall bladder diseases</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
<td>Ovarian Cancer</td>
<td>1.7</td>
<td>-</td>
</tr>
<tr>
<td>Osteoarthritis</td>
<td>1.4</td>
<td>1.9</td>
</tr>
<tr>
<td>Stroke</td>
<td>1.3</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Source: National Audit Office

Type 2 Diabetes is already a common disease in developed countries like Ireland, and most of the disease is preventable, even in those with a family history. Adult obesity is strongly linked with the development of the disease (see relative risks in Table 1). Because of its frequent persistence into adulthood, the burden of Type 2 likely to result from the rising prevalence of childhood obesity will have enormous implications for health and for health care services. This underscores the lack of room for complacency on the issue of childhood obesity.

Childhood obesity may also have direct effects on adult health. A cohort study of American adolescents found that, those who were obese were more likely to die from all causes, from cardiovascular disease, and to develop colon cancer, gout and arthritis than their counterparts with normal weight. Similarly, a 32-year follow-up of 227,000 Norwegian boys and girls showed that the risk of death rose with increasing weight in adolescence. Adolescent obesity has also been shown to increase the risk of death from cancer, the relationship being strongest for those cancers-sites unrelated to smoking.
SECTION 3: DETERMINANTS OF CHILDHOOD OBESITY

To best understand how the problem of childhood obesity might be controlled and prevented, it is necessary to examine its causes.

An “ecological model” for understanding the development of obesity has been described. It examines the development of obesity from three perspectives: an individual host with variable levels of susceptibility to obesity arising from their biology and behaviour; food and physical inactivity which are vehicles for obesity; a wider physical, economic, socio-cultural and political environment which is conducive to the development of obesity. The so-called “obesogenic” nature of the environment we live in (e.g. increased production of energy dense food, increased consumption of larger portions of food, poor access to recreational facilities) and the way which we lead our lives (increased used of mechanical transport and labour saving equipment, “faster lives” with less real and perceived opportunities for exercise) have become the focus of much debate in this area.

3.1 HOST SUSCEPTIBILITY

3.1.1 Genetic Influences
A number of candidate genes have been proposed which are thought to control obesity and related factors such as energy balance, feeding behaviour, satiety, and muscle growth. However, while there is no doubt that genetics bear some influence on the development of obesity in individual cases, the rise in prevalence of obesity in genetically stable populations suggests that the effects of environmental change are driving this epidemic.

3.1.2 Prenatal and Early Life Influences
It has been proposed that maternal obesity increases the transfer of nutrients across the placenta to the developing foetus, which may result in an increased lifelong risk of obesity. An important consequence of this finding is the possible role of maternal obesity in accelerating the obesity epidemic through generations. A cohort study of children from low-income families has shown that those born to mothers who were obese in the first trimester have twice the risk of developing obesity between the ages of 2 and 4. This analysis, however, does not account for the effect of shared genes and environment on the transmission of obesity between mother and child.

Breast-feeding is a safe and effective way of promoting child health, and is endorsed by national and international policy. Its role in protecting against the development of obesity in childhood and adult life has been the subject of a number of studies with mixed results. Studies from Germany and the US have supported a role for breastfeeding in protecting against the development of childhood obesity. However, the results of other studies from Brazil and the UK have shown no consistent protective effect. These conflicting results should not detract from the strong and certain public health message that breastfeeding is beneficial in many other ways for mother and child.
3.2 VEHICLES

3.2.1 Food
No particular foodstuff, in itself, causes obesity. Problems arise, however, when there is an imbalance between dietary components, and a “balanced diet” is not maintained. There is interest as to the relative contribution of certain components of diet to the excess energy intake that leads to obesity.

• **Dietary fat** is energy dense, but its role in the development of obesity from studies in this area remains uncertain. The type of fat consumed may be more important than the overall amount. Saturated fats and partially hydrogenated (trans) fat are both associated with the development of cardiovascular disease, while unsaturated fat from fish and vegetables are protective.

• **Carbohydrate** consumption is increasing in most western societies. It has been proposed that the high glycaemic content of food rich in refined carbohydrate may promote appetite and overeating through elevating blood glucose levels following meals. Sugar-sweetened soft drinks allow for the rapid consumption of energy, have a high glycaemic index, and, owing to their liquid form, may not exert the same effect on appetite as solid foodstuff. In a cohort study of US children followed for two years, consumption of sugar-sweetened soft drinks increased the risk of developing obesity, even when the influence of other demographic and lifestyle factors were taken into account.

• **Energy density** of foodstuffs affects satiety and consumption: foods which are low in energy density seem to promote satiety and reduce overeating compared with foods high in energy density. Dietary fibre, which has a relatively low energy density, may protect against obesity.

• **Portion size**: it has been suggested older children are less responsive to normal satiety mechanisms and that the offering of large portion sizes may promote overeating and lead to the development of obesity.

• **“Fast food”** has many of the obesity-promoting properties: a high fat content, an unfavourable fat profile, a high glycaemic index, a high energy density, and are served in large portion sizes, accompanied by sugar sweetened soft drinks. The consumption of “fast foods” has risen in developed countries and is suspected to be an important driver of the obesity epidemic.

3.2.2 Physical inactivity
There is strong evidence from cohort studies to show that, even after accounting for the effect of other factors, the development of obesity in children is associated with physical inactivity. Sedentary pursuits, in particular television viewing, have been associated with the development of childhood obesity in many studies. The role of television will be examined in more detail below.
3.3 ENVIRONMENT

The maintenance of optimum body weight and the prevention of obesity require individuals and populations to be situated in environments that support these ends. “Obesogenic” environments encourage weight gain by promoting unhealthy behaviour around food and physical activity, and creating barriers to healthier choices.

3.3.1 Family influences

Obesity tends to cluster in families: children of parents who report high-energy intake and physical inactivity are at increased risk of obesity. This may reflect a range of shared influences such as genes and environment, but it raises the question of the role parenting has in the development of behaviours that promote obesity.

While it is suspected that parents who impose “what, where, when and how much” a child eats may unwittingly promote unhealthy eating behaviour, the precise role of parental feeding style on the development of obesity in children is unclear due to conflicting results from studies in this complex area.

Eating family dinners together seems to promote healthy eating patterns, which may protect against the development of obesity. In a cross-sectional survey, eating dinner with the family increased the likelihood of eating fruit and vegetables, decreased the likelihood of eating fried foods away from home and drinking sugar-sweetened soft drinks, lowered glycaemic load intake, and lowered intake of saturated and trans fat.

The family may also have an influence on childhood physical activity. Parental activity has been shown to increase the likelihood of a child being physically active, and this effect appears strongest in early childhood.

3.3.2 Living Conditions

Living conditions can promote the development of childhood obesity. In a cohort study of US children it has been shown that, after taking other factors into account, a poor cognitive environment in the home (a complex measure of the level of cognitive stimulation for the child) and low family income increased the child’s risk of developing obesity.

There is a strong evidence base from a number of nationally representative health surveys supporting a link between low socio-economic status and obesity, especially for women. Factors thought to explain this effect include a higher prevalence of dieting, dietary restraint and physical activity in higher social classes. Some of the barriers to healthy eating and physical activity experienced by those in lower socio-economic classes are presented in Table 2. In the UK, a cross-sectional survey of children has shown that living in an area of material deprivation increased the likelihood of being obese; the effect was more pronounced in girls, especially those in older age categories.
### Table 2. Barriers to healthy eating and physical activity for those in lower socio-economic classes

<table>
<thead>
<tr>
<th>Barriers to healthy eating</th>
<th>Barriers to physical activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low income and debt</td>
<td>Lack of access to affordable facilities</td>
</tr>
<tr>
<td>Inaccessibility of affordable, healthy food</td>
<td>Poor urban environments</td>
</tr>
<tr>
<td>Lack of facilities/skills/time to cook</td>
<td>Lack of community safety for play and exercise</td>
</tr>
<tr>
<td>Lack of accessible nutrition information</td>
<td>Sedentary lifestyles</td>
</tr>
<tr>
<td>Poor literacy and numeracy, reducing understanding of food labelling and nutritional information</td>
<td>Limited encouragement of exercise at school</td>
</tr>
<tr>
<td></td>
<td>Limited play facilities</td>
</tr>
</tbody>
</table>

Source: Royal College of Physicians, London.

School is also an important source of environmental influence. School dinners, “tuck shops” and vending machines can shape children’s food environment and influence their choices. Educational curricula can shape children’s capacity to make healthy choices regarding food and physical activity.

#### 3.3.3 Television and advertising

Television viewing promotes the development of childhood obesity. A cohort study in New Zealand has shown that higher average weeknight television viewing was associated with obesity in young adults; an estimated 17% of overweight in young adults was attributed to viewing more than two hours of television per night during childhood and adolescence. Television viewing as a cause of childhood obesity is also supported by the effectiveness of interventions to reduce viewing as a preventive strategy.

A recent systematic review of the effects of food promotion to children commissioned by the Food Standards Agency in the UK found that, while there was a lot of food advertising to children, the advertised diet is less healthy than the recommended one. It concluded that children enjoy and engage with this food promotion, and that it has an effect on their preferences, purchase power and consumption independent of other factors. A similar conclusion has been drawn from a review on the role of media in childhood obesity conducted in the US.

#### 3.3.4 The wider environment

Television and advertising are part of a wider “obesogenic” environment that sustains and promotes the obesity epidemic. The contribution of portion size and fast food to the “obesogenic” food environment has been discussed above. Environmental factors may also promote physical inactivity. Access to facilities, equipment and opportunities for...
physical activity, such as timetabled physical education in school may promote physical activity, while perceived safety from issues such as road accidents and ‘stranger danger’ may create barriers.

3.3.5 Global causes of a global problem

Globalisation is leading to the creation of a world as a single entity. The result is that human affairs are no longer restricted by national boundaries, but can be subject to influences across the globe. The process of globalisation affects food policy, and this has important repercussions for the public’s health. Food marketing and branding can now change food culture at a rapid pace across huge areas of the globe. International policies can influence the production of foodstuff, beverages and tobacco, and their subsequent consumption across member states. For example, the EU Common Agricultural Policy drives fruit and vegetable withdrawal from the market to maintain prices, which may be a barrier to their consumption, particularly in low-income groups.

Some commentators have called for global strategies to target the large multinational companies that constitute the global food industry and control food culture, similar to those used against the tobacco industry. The World Health Organisation’s “Global strategy on diet, physical activity and health” provides a possible instrument. However, the food industry was allowed to comment during consultation on this document, and it does not carry the same legislative onus on member states as a Framework Convention, such as that used in the case of tobacco. Table 3 is a list of causes of obesity considered in the consultation.
**Table 3. Causes of obesity considered in the WHO/FAO Expert Consultation on Diet, Nutrition and the Prevention of Chronic Diseases**

**Summary of strength of evidence on factors that might promote or protect against weight gain and obesity**

<table>
<thead>
<tr>
<th>Evidence</th>
<th>Decreased Risk</th>
<th>No relationship</th>
<th>Increased Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convincing</td>
<td>Regular physical activity</td>
<td></td>
<td>Sedentary lifestyles</td>
</tr>
<tr>
<td></td>
<td>High dietary intake of NSP (dietary fibre)&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td>High intake of energy-dense micronutrient-poor foods&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Probable</td>
<td>Home and school environments that support health food choices for children&lt;sup&gt;d&lt;/sup&gt;</td>
<td></td>
<td>Heavy marketing of energy-dense foods&lt;sup&gt;d&lt;/sup&gt; and fast-food outlets&lt;sup&gt;d&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Breastfeeding</td>
<td></td>
<td>High intake of sugars-sweetened soft drinks and fruit juices</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Adverse socio-economic conditions&lt;sup&gt;d&lt;/sup&gt; (in developed countries, especially for women)</td>
</tr>
<tr>
<td>Possible</td>
<td>Low glycaemic index foods</td>
<td>Protein content of the diet</td>
<td>Large portion sizes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>High proportion of food prepared outside the home (developed countries)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“Rigid restraint/periodic disinhibition” eating patterns</td>
</tr>
<tr>
<td>Insufficient</td>
<td>Increased eating frequency</td>
<td></td>
<td>Alcohol</td>
</tr>
</tbody>
</table>

<sup>a</sup> Strength of evidence: the totality of the evidence was taken into account. The World Cancer Research Fund schema was taken as the starting point but was modified in the following manner: randomised controlled trials were given prominence as the highest ranking study design (randomised controlled trials were not a major source of cancer evidence); associated evidence and expert opinion was also taken into account in relation to environmental determinants (direct trials were usually not available).

<sup>b</sup> Specific amounts will depend on the analytical methodologies used to measure fibre.

<sup>c</sup> Energy-dense and micronutrient-poor foods tend to be processed foods that are high in fat and/or sugars. Low energy-dense (or energy-dilute) foods, such as fruit, legumes, vegetables and whole grain cereals, are high in dietary fibre and water.

<sup>d</sup> Associated evidence and expert opinion included.

*Source: World Health Organisation/Food and Agriculture Organisation*
SECTION 4: PREVENTION & MANAGEMENT OF CHILDHOOD OBESITY

Effective interventions are required to control and reduce the rising prevalence of childhood obesity. This section reviews available evidence for the effectiveness of preventative and therapeutic strategies.

Accessing and reviewing individual studies is an extensive task and there is potential to overlook important work. For this reason, the evidence presented here is primarily from systematic reviews, which use rigorous and standardized methods for selecting and assessing studies, and provide a critical appraisal and synthesis of their results. In particular, it draws on the work of the UK Health Development Agency (HDA), which has produced an “Evidence Briefing” on the subject.

4.1 PREVENTION OF CHILDHOOD OBESITY

In the area of prevention of childhood obesity, two systematic reviews were discussed by the HDA review: a 2003 Cochrane review by Campbell et al; and a 2002 bulletin on the effectiveness of health care service interventions from the NHS Centre for Reviews and Dissemination, updated from a previous bulletin in 1997. Conclusions were drawn on the evidence in five areas:

1. **School-based health promotion programmes**: there was limited evidence (based on one study) to support the effectiveness of school based programmes, which used classroom curriculum to reduce television, videotape and videogame use, for the prevention of childhood obesity.

2. **School-based physical activity programmes**: There was lack of evidence to support the effectiveness of school-based physical activity programmes, led by specialist staff or classroom teachers, for the prevention of obesity in children.

3. **School-based multi-faceted interventions**: There was evidence to support the use of school-based multi-faceted interventions for the prevention of childhood obesity. These typically included nutritional education, physical activity promotion, reduction in sedentary behaviour, behavioural therapy, teacher training, curricular activity, and modification of school meals and tuck shops. Girls seem to benefit particularly from this type of intervention.

4. **Family-based health promotion interventions**: These was a lack of evidence to support the effectiveness of family-based health promotion interventions, which focused on dietary and general health education, promotion of physical activity, and sustaining contact between parents and children, for the prevention of childhood obesity.

5. **Family-based behaviour modification programmes**: There was limited evidence (based on one study) that family-based behaviour modification programmes which provide family therapy in addition to diet education, regular trips to a paediatrician and encouragement to exercise are effective in preventing the progression to severe obesity in children who are already obese.
Since this review, a cluster randomised controlled trial in the UK examined the effectiveness of a nutrition education programme delivered over one school year in the classroom setting which encouraged children to reduce their consumption of all fizzy drinks. After one year, children who received the intervention had reduced their consumption of fizzy drinks. While these had only a modest reduction in the prevalence of obesity, the prevalence in children who had not received the intervention increased.

4.2 TREATMENT OF CHILDHOOD OBESITY

Two systematic reviews of treatment of childhood obesity were discussed by the HDA: a 2002 bulletin on the effectiveness of health care service interventions from the NHS Centre for Reviews and Dissemination, updated from a previous bulletin in 1997; and a journal article by LeMura et al. Five areas for intervention were reviewed:

1. **Targeting parents and children together (family-based intervention setting with physical activity and health promotion interventions):** There is evidence to support that involving at least one parent in physical activity and health promotion (centered on dietary education and exercise programmes) with the obese child is more effective at reducing the child’s weight than similar interventions that do not enrol parents. Most of the studies in this area have, however, been based in North America, and their successful implementation outside this cultural setting cannot be certain.

2. **Family-based programmes with parents as agents of change:** There is evidence to support that programmes involving diet, exercise, reducing sedentary activity, lifestyle counselling, and training in child management, parenting and communication skills, and which focus on parents taking primary responsibility for the behaviour change of their obese child are effective. Children’s age may have an influence on the effectiveness of these interventions, as older children may be less responsive to parental wishes.

3. **Family-based behaviour modification programmes:** There is a lack of evidence to support the effectiveness of family-based programmes which include behaviour modification, dietary and exercise education, and mix sessions between the child, their parents and the entire family for treating childhood obesity. The inclusion of behavioural therapies distinguish these interventions from those grouped in point one.

4. **Behaviour modification programmes with no parental support:** There is limited evidence from one study that behaviour modification programmes which include reduced calorie diet, exercise and either cognitive-behavioural “obesity-training” or muscle relaxation training, and which do not involve parents are effective in treating childhood obesity.

5. **Exercise training programmes (within a laboratory setting):** There is evidence to support that laboratory-based exercise programmes which include walking, jogging, cycling, high repetition resistance exercise and combinations of these are effective in treatment of childhood obesity.

Since the completion of the HDA review, the Cochrane Library has published a systematic review on the effectiveness of interventions to treat obesity in children.
Eighteen randomised trials were included which varied in terms of type of intervention, outcome measurement and comparison group. Since most studies had a small number of participants and took place in a hospital setting, the reviewers concluded that little high quality and generalisable evidence was available to recommend one programme type over another.

REFERENCES


