TOXIC PLAYGROUND:

Understanding the Environmental Influences That Increase the Risk of Childhood Weight Disturbance & Recommendations for Prevention

A Discussion Paper

Prepared for the Public Health Nutrition Program by:

Jacqui Gingras, MSc, RD
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EXECUTIVE SUMMARY

(We) concluded that global epidemic projections of childhood obesity for the next decade are so serious that public health action is urgently required. It is thus essential to develop new preventive public health strategies, which affect the entire society.

- World Health Organization

Canadian children are gaining weight at rates faster than ever before. Undoubtedly, when accompanied by inactivity, increasing weight among children is a major public health concern. The focus to date has been on programs to “treat” the individual child and encourage weight loss through reduced caloric intake and increased physical activity. This simplistic approach of imposing restrictive eating regimes on children is futile over the long-term and may actually induce weight gain through the disruption of internal cues (hunger and satiety) of energy regulation, as well as contribute to the problem of disordered eating. Prevention of childhood obesity has become the most salient recommendation from academics conducting obesity research because current treatment strategies have been proven ineffectual. Clearly, health promotion and prevention initiatives that aim to raise healthy, happy children, as opposed to treatment programs that aim to “fix” obese children, have the greatest potential for success.

This project was undertaken to set the direction in the South Fraser Health Region regarding the prevention of childhood obesity. This paper addresses the increasing prevalence of fatness among children, the poor outcomes associated with current treatment approaches, and suggestions for the prevention of childhood obesity in an increasingly complex social environment. While the prevalence of childhood obesity is alarming, equally disturbing is the percentage of children who express discontent with their bodies and have tried to lose weight. For the purposes of this paper, prevention of childhood obesity may be better understood as prevention of childhood weight disturbance, with a focus on the promotion of normal growth and development for each child.

Summary of Findings

The nature of the problem

♦ Childhood obesity is a complex issue, the product of many interrelated factors that generally fall within one of two categories: environment and genetics.

♦ The rapid rate of increase in obesity suggests it is changes in the environment that have exerted the greatest impact on childhood obesity.

♦ Families represent a combining of both environmental and genetic factors and exert tremendous influence over the eating and physical activity habits of children. The greatest predictor of childhood overweight is maternal overweight. Children with physically active parents are nearly six times as likely to be active.

♦ National data does not indicate an increase in caloric intake among children and adolescents, however Canadian children typically have diets that are lower in fruits and vegetables and higher in fat than is recommended. Daily consumption of soft drinks has been shown to increase both energy intake and body mass index in children.
Role modeling can promote positive and negative behavior. Preschoolers who modeled vegetable intake had a positive influence on children who disliked the same vegetable, while dieting daughters tend to have dieting mothers.

Television viewing has been shown to affect the food preferences, food selection and physical activity patterns of child viewers.

Current increases in body weight are closely related to reduced physical activity. As children age, they become less active, this being especially true for girls.

**What are the determinants of childhood weight disturbances?**

- Children live in a complex society and are subject to many influences that may contribute to their likelihood for developing weight disturbances.
- Children have fewer opportunities for activity and play. Families are experiencing varying degrees of a “poverty of time”, which impacts on their ability to provide opportunities for physical activity. Physical education programs in schools continue to be reduced and existing curriculums need to be more inclusive and respective of diversity.
- Children have fewer opportunities to enjoy healthy food in environments that promote a healthy relationship with food. Families have less time to provide and share in nutritious meals, and the food/weight issues of parents influence children’s eating habits. Time to eat lunch at school is often inadequate, and there are limited healthy choices offered in cafeterias and vending machines.
- Food insecurity, or lack of access to sufficient, safe, nutritious and acceptable food, is associated with an increased incidence of overweight. Food deprivation produces a tendency to gain weight through overeating during times when food becomes available.
- Children come in all shapes and sizes. Discrimination, bullying, or teasing can lead to social isolation, which can have a devastating effect on whether or not children participate in healthful lifestyle behaviors such as physical activity.
- Children spend more time than ever in front of the television and computer. These routines promote inactivity and influence food selection and food preferences.

**Key Messages**

- Childhood weight disturbance is a highly complex issue for which treatment has not shown to be effective. Restricting children’s eating is not successful and in fact may contribute to increased incidence of obesity.
- Creating safe environments where children have increased opportunities for activity and play is critical.
- The development of a healthy relationship with food and eating begins early in life. Promoting healthy feeding practices, as well as healthy food choices, to all caregivers of children is important.
- Health promotion strategies that involve family, school, community and government have the greatest chance of success.
- Children and youth need to be involved in designing and implementing prevention efforts.
- Respecting size diversity is a vital component of creating healthy environments for children.
- The media has a strong influence on children. Social marketing and media literacy campaigns are potentially powerful health promotion tools in preventing weight disturbance.
INTRODUCTION

Childhood is the world of miracle and wonder, as if creation rose, bathed in the light, out of darkness, utterly new, fresh, astonishing. The end of childhood is when things cease to astonish us.
- Eugene Ianesco, Romanian poet

In February 2001, I was contracted by the South Fraser Health Region Nutrition Program to write a discussion paper on preventing childhood obesity. Barb Seed, a Community Nutritionist with the Region, created the project, and was later joined by Andrea Ottem, Community Nutritionist.

Barb’s vision for this project was to document best practice options that could be provided to those making funding decisions at a time in the future when childhood obesity became a priority in the South Fraser Health Region. She wanted to consider options for the prevention of childhood obesity, where healthy, dignified children arising from healthy communities are the outcome, rather than a program where ‘fat’ kids become the ‘victims’ when they are targeted individually for change. The literature suggests that high levels of dietary restraint coupled with disinhibited eating (bingeing is a typical response to dietary restraint) may contribute to the development of excess body fat in children. This association may be mediated by direct parental role modeling of unhealthy eating behaviors, or through other indirect, and probably subconscious, behavioral consequences such as the suppression of the child's innate regulation of dietary intake (Hood, et al, 2000).

In our original discussions about this paper, it was clear Barb wanted this paper to represent and communicate the ideas of those working closely with children and youth. Much quantitative research is available in the area of childhood obesity, but few qualitative projects exist that incorporate the voice of educators, policy makers, mothers, public health employees, and childcare workers among others. Barb wanted this discussion paper grounded in both research and community dialects. In essence, aspects of this research are situated ‘on the margins’ as relatively few university researchers have largely shaped our knowledge about the subject of childhood obesity and the voices of those who relate to children in their ‘natural’ settings have gone relatively unheard. In what may be considered atypical by academic standards, the contributions of these caregivers, parents, educators, and nutritionists are used to shape the recommendations provided at the end of this paper. By inviting the perspective from others who may see the issue differently, we will contribute to a broader understanding of what many have termed the epidemic of childhood obesity.

Central Research Question

The central research question for the purposes of this discussion paper is: given the increasing prevalence of fatness among children and the poor outcomes associated with current treatment approaches, what can be done to prevent childhood weight disturbances while acknowledging an...
increasingly complex social environment? This question is the touchstone from which this discussion paper evolves and the starting point from which my dialogue with all of the respondents unfolds. Recommendations arising from this discussion paper will reflect responses to the central research question – practical guidelines for families, schools, communities, and governments to enact change without delay.

### Understanding Obesity Prevention

Prevention initiatives are delivered to populations in which the undesirable behaviours have not yet developed (primary prevention). Prevention of eating disorders (anorexia nervosa, bulimia nervosa, and compulsive overeating) is somewhat different than prevention of obesity.\(^1\) The term ‘eating disorder’ describes a set of coping behaviours; whereas obesity denotes a particular body composition i.e. fatness that may be the result of certain coping behaviours. Obesity is a medical term used to assess increased risk for premature death as indicated by amount and location of adiposity (body fatness). The association between obesity and mortality/morbidity has been refuted. Obesity **may** be a reflection of lifestyle behaviours such as inactivity and intake of energy-dense foods and it is those behaviours that may place an individual at increased risk, not necessarily the fatness itself (McGinnis, Foege, 1993). As Kassirer and Angell similarly noted, “we should remember that the cure for obesity may be worse than the condition (1998).” It is also important to consider that research has shown being fat doesn’t necessarily mean being unhealthy except when this adiposity is accompanied by physical inactivity (Blair, et al, 1996) and genetically, children come in all shapes and sizes possessing varying degrees of body fat. As such, prevention of childhood obesity may be better understood as prevention of childhood weight disturbance with a focus on normal growth, healthy eating, physical activity and positive self-image for each individual child in the absence of controlling food intake.

Throughout the writing of this paper diversity in body shape and size is respected by using phrase ‘childhood weight disturbances’ instead of childhood obesity. The term ‘weight disturbance’ is meant to reflect the relative nature of body weight; what might be seen as weight disturbances in some children could be viewed as natural growth in others depending on their own unique, genetically determined body types. Prevention of childhood weight disturbances is really about promoting and sustaining health in the developmental and social context of children’s lives. Prevention efforts help to raise awareness of risk factors, possibly eliminating them all together, to promote development of protective factors, and to sustain these efforts over time (McGinnis, 2001). Prevention initiatives involve not only the individuals at risk, but also their families, schools, communities, and governments. There are many forces acting on children to disconnect them from their natural growth patterns. These influences will remain the focus of this discussion paper, but first, let us examine the current scientific community’s understanding of childhood weight disturbances.

\(^1\) Some of the practical skills and strategies for preventing eating disorders are also appropriate for use in preventing childhood weight disturbances. For a comprehensive overview and strategic approach to eating disorder prevention, read “Nurturing Girlpower” by Sandra Friedman (2000).
The prevalence of childhood weight disturbance is increasing at rates faster than ever before. Current research indicates that Canadian children aged 7-13 years are becoming progressively overweight and obese as defined medically by a BMI over the 85th and 95th age- and gender-specific percentiles, respectively (Tremblay, Willms, 2000). Over a period of 15 years, from 1981 to 1996, BMI has increased at a rate of almost 0.1 kg/m² per year for both genders over nearly all ages (Tremblay, Willms, 2000). This trend is similar to those observed in the United States (Troiano, Flegal, 1998; Gortmaker, et al, 1987), Britain (Prentice, Jebb, 1995), and Europe (Seidell, et al, 1995), however Canadian data indicate the extent of the increase is greater and has occurred over a much shorter period of time (Figures 1 & 2).

**Figure 1:** Prevalence of overweight Canadian children (Tremblay, Willms, 2000)

**Figure 2:** Prevalence of obese Canadian children (Tremblay, Willms, 2000)
Assessment of Childhood Weight Disturbance

There are several methods with which to assess body composition, energy expenditure, physical activity, and food intake. The purpose of this paper is not to expand upon or critique these methods as they have been comprehensively documented elsewhere (Goran, 1998). Regardless of the measures used to quantify changes in body composition, energy expenditure, physical activity, and food intake, trends in childhood weight disturbance remain constant.²

Consistent with other studies that have determined biases inherent in self-reported weights and heights (Strauss, 1999), Canadian researchers conclude that the study results illustrated in Figures 1 and 2 indicate the prevalence of childhood weight disturbance to be underestimated (Tremblay, Willms, 2000). Assuming the process of weight gain occurs gradually over time and that this weight change represents an energy imbalance of 2% of daily energy flux (Goran, et al, 1998), existing methods may not possess adequate precision to demonstrate meaningful causative determinants.

Health Risks of Childhood Weight Disturbance

It has been suggested that fat children may be at increased risk for several psychosocial and physical consequences (Dietz, 1998; Gidding, et al, 1996). These consequences are summarized in Table 1.

<table>
<thead>
<tr>
<th>Consequences of Obesity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychosocial</td>
</tr>
<tr>
<td>Age-inappropriate responsibilities/expectations, teasing, discrimination, social isolation, disordered eating, and weight preoccupation</td>
</tr>
<tr>
<td>Physical</td>
</tr>
<tr>
<td>Early maturation/growth, hyperlipidemia, glucose intolerance, hepatic steatosis, cholelithiasis, and hypertension</td>
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Table 1: The psychosocial and physical consequences of obesity (Dietz, 1998)

One may suppose that poor self-esteem or self-image would be a psychosocial correlate of fatness considering the strong societal bias and pressure towards a perceived ideal body size, but research has demonstrated quite the opposite in children (Kaplan, Wadden, 1986). However, fat adolescents tend to develop a negative self-image that typically persists into adulthood (Stunkard, Burt, 1967). One explanation is that self-esteem is derived from parental messages in young children and

² BMI is not as reliable a measure of adiposity (obesity) for children as they have not attained their peak height (Daniels, et al, 1997) however, BMI is routinely used due to it's reasonable precision in a wide variety of settings such as field studies, clinical practice, and research (Troiano, Flegal, 1998; Cole, 1991).

“Paradoxically, adverse conditions associated with overweight (raised serum cholesterol and blood pressure) have declined in the population despite the increase in overweight prevalence.”
- Troiano & Klegal, 1998
progressively from outside cultural forces as children become adolescents, but effects of increased fatness on self-esteem have not been distinguished from the effects of early maturation (Dietz, 1998).

However, it can be challenging to establish an association between fatness and health risks in children because of the time necessary to observe the negative outcomes of such disease, the existence of confounding variables, and the paucity of long-term studies using adequate sample sizes. Regardless, longitudinal studies indicate that fat children may become fat adults, especially if obesity is present in adolescence (Guo, et al. 1994; Serdula, et al, 1993). Interestingly, a similar increase in overweight prevalence for adults seen over the same time period suggests that adults may be transmitting behaviours that contribute to the increase in overweight seen among their children (Troiano, Klegal, 1998).

Although current prevalence of childhood weight disturbance is alarming, equally alarming is a cross-sectional study of 7- to 13-year old children that demonstrated 50% were concerned about their weight, more than 30% had tried to lose weight, and almost 10% manifested responses consistent with anorexia nervosa (Maloney, et al, 1989). Taking into consideration that not all of these children are fat, as verified by recent secular trends (Figures 1 & 2) (Tremblay, Wills, 2000), children and adolescents of a variety of shapes and sizes are expressing discontent with their weight.

### Etiology of Childhood Weight Disturbance

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**“There is extensive evidence that children’s food intake is shaped by early experience with food and eating, and these findings suggest ways in which parenting practices and the family environment may be promoting obesity.”**

- Birch & Fisher, 1998

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Childhood weight disturbance has a complex etiology. Many interrelated factors act in concert, falling within one of two areas: environment and genetics. Because of the swiftness at which increases in body weight have occurred, many concur that changes in our environment have exerted the greatest impact on childhood weight disturbances (Gortmaker, et al, 1987). According to Birch and Fisher (1998) there have been relatively few prospective studies of childhood fatness, and these have not tended to focus on the role of environmental factors and how they interact with genetic predispositions that affect intake and expenditure. Families represent a combining of both environmental and genetic influences. Parents provide genetic predispositions, but they also provide the environment in which these predispositions are expressed. Evidence indicates that eating environments in families in which parents are fat may differ from families in which neither parent is fat (Birch, Fisher, 1998).

### Energy Balance

Generally, the increase in overweight reflects a population shift towards positive energy balance whereby dietary intake and physical activity represent the behavioural, and therefore, key modifiable aspects of the balance equation (Troiano, Klegal, 1998). Interestingly, national data do not indicate an increase in caloric intake among children and adolescents (Kennedy, Goldberg, 1995), with percentage of calories from fat continuing a downward trend since the
mid-1960s (FASEB, 1995). Still, according to recent data, only ~15% of 6- to 19-year-olds have diets with the recommended levels of 30% of energy from fat (USDA, 1995), consistent with the American Academy of Pediatrics Guidelines (AAP, 1992). Children typically have very low levels of fruit and vegetable intake and there exists a negative association between fruit and vegetable intake and dietary fat intake (Wolfe, Campbell, 1993). Children’s food preferences are important determinants of intake, so understanding how children’s preferences are shaped during early development is fundamental to identifying those aspects of family environment that are potentially unfavorable for genetically susceptible children.

**Breastfeeding**

One of the earliest feeding choices that parents make for their child is whether to breastfeed or formula-feed. Breastfed infants have exposure to a variety of flavors depending on the food intake of the mother. Despite all children being relatively neophobic, breastfed infants demonstrate a more ready acceptance of new foods during the introduction of solids (Mennella, et al, 2001; Capretta, et al, 1975).

> “... the varied flavour experience of breastfed infants can facilitate acceptance of solid foods during the weaning period, with breastfed infants showing greater acceptance of new foods than formula-fed infants.”

- Sullivan & Birch, 1994

**Breastfeeding and Overweight**

Whether breastfed infants are at lower risk for childhood weight disturbance is a topic of recent scientific debate. Research suggests no association between breastfeeding and risk of overweight (Hediger, et al, 2001). However, breastfed babies tend to gain less weight than formula-fed babies, with these differences disappearing after infancy. It is not clear if this finding is simply due to the fact that the baby stops nursing when it is full and bottle-fed babies, with maternal encouragement, generally empty whatever amount is provided. One researcher speculates that differences in intake are related to maternal control during formula feeding as opposed to infant control during breastfeeding (Fomon, 1993). If the mother can see how much formula remains in the bottle, she may be inclined to encourage the infant to finish the remainder of formula. The breastfed infant ‘decides’ how much breast milk to consume because information about the amount of breast milk remaining is not available to the mother. Even after children go off the breast, they are capable of regulating their intake based on feedback arising from the energy content of foods just consumed (Kern, et al, 1993). However, children’s responsiveness to energy density diminishes when adults use control strategies that focus children on external cues (amount of food remaining on plate) versus internal cues (hunger and satiety) to encourage consumption (Birch, et al, 1990). Klesges and colleagues (1983) observed that prompts to eat from parents were preceded by food refusals and were positively associated with degree of fatness in children.

Breastfeeding remains an important choice in a child’s early development. What continues to remain the most significant predictor of childhood overweight is maternal weight with the rate of children being overweight nearly tripling with maternal overweight (BMI, 25.0-29.9 kg/m^2) and more than quadrupling with maternal obesity (Hediger, et al, 2001). This finding raises questions as to the parental influence and context of feeding.
Parental Influence

Again, the importance of environment is emphasized when children come to like and eat what is familiar and what is familiar tends to be available in the child’s environment. The eating style of the parents tends to be adopted by their children (Oliveria, et al, 1992) as parents tend to have foods available in the home that they like and young children learn to include many of the same foods in their own diet. The food environment the parents provide dictates the children’s preferences and food acceptance patterns, which in turn are linked to children’s weight disturbances (Fisher, Birch 1995; Nguyen, et al, 1996). Birch and Fisher (1998) speculate that the early exposure children have to fruits and vegetables and to foods high in energy, sugar, and fat may play an important role in establishing a hierarchy of food preferences and selection. Children do not exhibit an innate, unlearned preference for high-fat or high-energy foods (Birch, 1992) i.e. they are not born preferring high-fat foods. The conditioning that occurs between flavour and satiation cues when high-fat or high-energy foods are eaten enhances a child’s preference for such foods (Kern, et al, 1993). This learning is reinforced when the foods that are high in fat and energy are more readily available and accessible.

Feeding practices that control what and how much children eat also affect their food preferences such that strategies encouraging children to consume a particular food paradoxically increases children’s dislike for that food (Birch, et al, 1984; Newman, Taylor, 1992). Hertzler (1983) noted that parents’ feedback to children about eating vegetables was associated with children’s preferences for fewer vegetables. These “good food intentions” tend to have quite the opposite effect of what the parents expect with the same holding true for “bad” foods. Parents predicted that their restricting or forbidding of “bad” foods (those typically high in energy, sugar, and fat) would decrease their child’s intake. This restriction actually enhanced liking and increased intake of “bad foods” (Casey, Rozin, 1989). Furthermore, using “bad” foods as reward for accomplishing non-food related tasks and limiting the availability of the reward food, promoted the liking of those foods (Birch, et al, 1980). Maternal restriction of children’s access to snack foods was related to girls’ (but not to boys’) consumption of those same foods in an unrestricted setting (Fisher, Birch, 1995).
Gender
Johnson and Birch (1994) further explored the area of parental control and its relationship to gender. They found that parents reported using higher degrees of control over what and how much their girls ate, but not their boys. Additionally, parental control was linked to girls’ adiposity with parents using more control with heavier girls. Parents who reported using a high degree of control over what and how much their children ate had children who showed relatively little evidence of energy regulation i.e. a high degree of parental control was associated with fewer self-regulating behaviours in their children. Mothers who were more restrained used more control and had daughters who showed little evidence of internal energy regulation. The same was not true for mothers with sons. These findings may explain some of the gender differences among adolescents experiencing weight disturbances. Furthermore, girls’ weight acted as a predictor for maternal restriction of that child’s snack foods (Fisher, Birch, 1996).

Eating Style
Observational studies by several research groups have demonstrated faster eating styles among fat preschoolers and school children (Drabman, et al, 1979; Marston, et al, 1976). Additionally, these children took more bites of food and chewed each bite fewer times. Further research is needed to explain the association between eating styles and propensity for fatness among children.

Social Context
Understanding the social context in which eating occurs is essential to understanding how childhood weight disturbances begin because the eating behaviour of other people in that environment serves as a model for the growing child. Role models can have significant influence especially when the role model is similar in age to the child observer. Birch (1980) observed preschoolers modeling vegetable intake had a positive influence on children who disliked the same vegetables whereby the child observers actually increased their intake. Role modeling can also serve to promote negative behaviours such as dieting and disinhibition. Dieting daughters are likely to have dieting mothers and parents reporting difficulty with weight control (disinhibition) are likely to have daughters who show similar patterns (Fisher, Birch, 1996; Pike, Rodin, 1991).

Television
Television viewing can affect the food preferences, food selection, and physical activity patterns of child viewers. Incessant exposure to food advertising correlates to an increase in children’s requests for these foods (Goldberg, et al, 1978; Taras, et al, 1989), which are typically high in sugar and fat (Cotugna, 1988). It appears that television, specifically television advertising, represents one of the most powerful reinforcers of children’s preferences for high-fat or high-energy foods.

Physical Activity
As the other factor in the energy expenditure equation, physical activity (or lack thereof) remains a strong predictor of childhood weight disturbances. Current increases in body weight are related to reduced physical activity and, not surprisingly, research indicates that most North Americans have adopted a sedentary lifestyle (McGinnis, 1992). According to Canadian surveys (Ross,
Pate, 1987; Shephard, 1986), as children age, they become less active with this being especially true for girls.

Physical activity has been demonstrated to lower the risk of chronic disease and premature mortality (USHHS, 1996). According to the definitions presented by Caspersen (1985), physical activity is different from exercise. Physical activity is any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above the basal level. Exercise is a more structured, planned, and repetitive bodily movement done specifically to improve or maintain one or more components of physical fitness. Therefore, exercise is considered a subset of physical activity.

As with understanding the etiology of childhood weight disturbances in general, the decreases in physical activity among children may be explained by complex interrelationships between physiology, environment, and psychosociology/socio-demography (Kohl, Hobbs, 1998). Interventions targeting environmental and psychosocial factors may have a greater chance of increasing physical activity levels, as most physiological factors such as gender, genetics, and biological maturation are not modifiable.

**Environmental Factors**

As children spend a great deal of their time at school, this environment can largely shape the amount of physical activity available to children. According to the National Children and Youth Fitness Survey (Ross, Pate, 1987), as children move up from grades one to 12, the rates of enrollment in physical education decline, with the lowest levels of participation exhibited by grade 11 and 12 girls. For first through fourth graders, the amount of time with which schools conduct physical education classes is inversely related to time spent for recess, which suggests recess is serving as a substitute for physical education classes. Surprisingly, 76% of children do not have a classroom teacher for physical education. Increasingly, schools are eliminating physical education programs instead of developing or improving them. Most children’s physical activity is now taking place outside of school during organized sports programs (Ross, et al, 1985). Unfortunately, these programs tend to cater to the elite athletes among the student population reducing their effectiveness at engaging the majority of students in some form of physical activity.

Television and video games reduce the opportunity for children to be physically active. For each hourly increment in television viewing, an associated 2% increase in adolescent fatness has been observed (Dietz, Gortmaker, 1985). Klesges (1993) reported that television viewing actually decreased resting energy expenditure among normal weight and obese children. Additionally, physical activity is directly related to the amount of time spent outdoors (Baranowski, et al, 1993) and because television viewing reduces the opportunities for being outdoors, it also follows that it reduces the opportunity for physical activity.

Seasonal and geographical factors also contribute to determining levels of physical activity among children. Activity levels are highest in the warm summer months (Ross, et al, 1985), in warmer climates (Pate, et al, 1990), and during the weekends (Shepherd, et al, 1980).

Safety is an important consideration when discussing barriers to physical activity. In a recent American survey (Kann, et al, 1995), children expressed feeling unsafe either at school or
traveling to and from school, children had been in a physical fight within the last 12 months and received medical attention from the school nurse for injuries sustained during the fight, or children had property stolen or damaged deliberately. Evidently, safety concerns can act to prevent or reduce daily physical activity.

**Psychological, Social, and Demographic Factors**
Self-efficacy (Reynolds, et al, 1990), perceived barriers (Kohl, Hobbs, 1998), and personal attitudes (Theodorakis, et al, 1991) all predict physical activity levels among children and adolescents. Parents have an influence on shaping behaviour through providing a supportive, nurturing environment and/or through role modeling physical activity. Children who have parents that are physically active are nearly six times as likely to be active (Moore, et al, 1991). This pattern is most evident among parents of children as opposed to parents of adolescents (Godin, Shepherd, 1986) and parental activity is more highly correlated with frequency of activity among girls than among boys (Gottlieb, Chen, 1985).

Peers also exert a significant social influence on physical activity behaviours. This is especially true for adolescents as parental influence ceases to be as important compared to the influence of similar aged peers and professional athletes (Anderssen, Wold, 1992). Peer influence encourages participation in organized sports and is seen more often among boys than girls (Greendorfer, Lewko, 1978). This gender difference may help to explain the decreased participation in physical activity among girls as they approach adolescence. Other contributors to this physical activity gender divide include differences in development of motor skills (Thomas, French, 1985), differences in body composition (Shvartz, Reibold, 1990), and greater socialization towards sports for boys than for girls (Herkowitz, 1980).

### Current Treatment Options

Long-term treatment outcomes are not promising, especially after the course of treatment ends. Even in the case of family-based interventions, 70% of participants experience weight relapse after 10 years (Epstein, et al, 1995). Treatment options typically take the form of dietary restriction, exercise regimes, surgery, pharmacology, and/or behaviour change therapy. These approaches have been reviewed extensively elsewhere (Epstein, et al, 1998). Ironically, attempts to restrict and control children’s eating and weight in order to prevent weight disturbances may be iatrogenic, producing the very problem they are intended to prevent – weight gain (Birch, Fisher, 1998). A number of studies have found caloric restriction to precede binge-eating behaviours (Lacey, et al, 1986; Thompson, et al, 1995; Patton, et al, 1990). Satter (1996) provides an alternative to the traditional control paradigm based on her clinical experience whereby the parents supply a wide variety of healthful foods and create an environment conducive to eating while the children decide how much or even whether or not to eat.

*“Largely because of the inertia of tradition, research investigating determinants of physical activity behavior has occurred largely without a concomitant study of the determinants of dietary intake behaviors and vice versa.”*  
- Kohl & Hobbs, 1998

*“… the dangers of interference with growth and eating that may result from excessive attention to body weight and food restriction ...remind us that dealing with overweight among children and adolescents is a sensitive area.”*  
- Troiano & Klegal, 1998
Summary

“I’m guessing social issues play a big role in childhood obesity, but which ones do you target? It’s hard to know where to start without talking to real people living in the real world. I keep hearing that it’s too much junk food, too many Big Gulps, not enough gym classes in school, inactivity, too much TV and computer. But there are reasons that extend beyond the outcome we’re seeing – which is fat kids – and its those reasons that we need to be clear on before creating new programs.”
- Sandi, community nutritionist

We’ve heard from the scientific community as represented from the literature search above. Now it is time to invite the voices of those working directly with children and parents. This paper permits a view from outside the positivistic notion that efforts for change should be charged to the child by simply reducing caloric intake and increasing physical activity. Throughout this research, I support a community call-to-action using the words and voices of those working and living closely with children; those individuals whose own way of life is one that is fundamentally inseparable from the children under their care. If current trends in the childhood obesity epidemic are to be reversed, considering broader social issues such as family, school, community, and governmental influence is essential.

METHODOLOGY

The primary methodological approaches included surveys, interviewing, and secondary analysis. Initially, a survey was sent out to community nutritionists working in British Columbia asking about programs that they were aware of with childhood obesity prevention as a feature (Appendix A). Interviews were conducted either in person or over the phone with physical educators, mothers, childcare workers, nutrition students/interns, and youth where I asked about their understanding of the problem of childhood weight disturbances and what they would do to address this issue. Creativity was encouraged in responding to the second part of this question as I hoped innovative ways to address the issue of childhood weight disturbance would come from those most intimately connected to the lives of children. To remain consistent, all survey and interview respondents were provided with pseudonyms. Secondary analysis was employed through the examination of suggestions from adolescents (Neumark-Sztainer, et al, 2000) and data gathered from Canadian studies previously conducted with childhood health as a feature (Kidder, et al, 2000). Additionally, I asked a nutrition intern spending time with me during the course of this research to conceptualize the interrelated influences being exerted on children through the use of visual art. Along with this abstract form, she narrated her interpretations of what the art was meant to depict (Wray, 2001) and I’ve used that manuscript to inform my conceptualization and categorization of a child’s environment that organizes the remainder of this paper.

Ethnographic Adequacy

In an effort to maintain the integrity of the research domain while ensuring the findings remain suitable for scholarly contribution, Stoddart recommends special attention be given to the
adequacy of ethnographic research methods (1986). There are four properties of adequacy including:

1. The research domain being explored should be represented in the same form as when the researcher is absent.
2. The research domain should be described in the same way that its occupants would perceive it.
3. The methods should not generate the data; rather the domain should present the data to the researcher.
4. The data that is gathered should be from those who are familiar with the domain. Those with a ‘differential distribution of competence’ will possess a different subjective understanding of their environment and, consequently, the research domain.

In order to establish ethnographic adequacy, it is important for the researcher to seek invisibility, to be unobtrusive. The ways in which I sought to attain this invisibility was to use my professional designation as a dietitian to minimize the differences between the research respondents and myself. With others whom I found a perceived power imbalance associated with differing years of university education, I emphasized that the interview was not about sourcing university knowledge per se, more about valuing experientially-based insight and understanding. In most cases, open-ended questions were put forth and opinions from a variety of people were requested towards the goal of ensuring saturation of information i.e. when added information does not reveal new understanding about relations or abstractions (Kirby, McKenna, 1989).

RESEARCH DOMAIN

I collected information from individuals, namely those with expertise in child health who are currently working with children, families, or both. Barb Seed provided many of the contacts I made during email communication shortly after I started working on this project. Most survey respondents were community nutritionists working in British Columbia. Access to these nutritionists was provided through an email list serve. Eleven responses were returned from a possible 70 community nutritionists in British Columbia.

Most of the remaining research informants were located in the South Fraser Health Region with one interview being conducted over the phone with a childcare worker from the Southern Interior region of British Columbia. All respondents either work with children in population health, school administration, clinical nutrition, education, childcare facilities, mental health and/or are parents of children. All respondents provided verbal consent to participate with the understanding that their contributions could be included in the final document. The research began in March 2001 and was completed in October 2001.
FINDINGS

A Child’s Environment

According to Kidder, et al, (2000) and Wray (2001), there are a myriad of influences acting on children in today’s complex society. Table 2 outlines broad categories of social influence and provides a simple framework from which elaborate prevention strategies can be mapped. Each determinant is expanded upon to include empirical data and emerging theories.

The first four categories (family, school, community, and government) represent spheres of influence over a child’s life. Interestingly, government, the entity most removed from a child’s day-to-day life is perceived as the most powerful when it comes to changing policy that affects communities, schools, and families. The remaining five categories represent aspects of a child’s life that are responsible in some way for influencing their likelihood for developing weight disturbances. These categories are designated as the determinants of childhood weight disturbance. Refer to Appendix B for a ‘puzzle-piece’ representation of all nine categories.

<table>
<thead>
<tr>
<th>Spheres of Influence</th>
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<tbody>
<tr>
<td>Family</td>
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<tr>
<td>School</td>
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<tr>
<td>Community</td>
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<td>Government</td>
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<table>
<thead>
<tr>
<th>Determinants of Childhood Weight Disturbance</th>
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<tbody>
<tr>
<td>Physical Activity</td>
</tr>
<tr>
<td>Nutritional Health</td>
</tr>
<tr>
<td>Diversity</td>
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<tr>
<td>Spirituality/Creativity</td>
</tr>
<tr>
<td>Pop Culture</td>
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Table 2: A child’s environment

Spheres of Influence

Family

The family was mentioned as one of the most central influences on a child’s environment, which is not surprising considering most of a child’s life before school is spent in contact with her or his family and/or primary caregivers. This category contains any references to the family and parental influence so there exists much intersubjectivity with other categories.

“(Girls) are amazingly knowledgeable, even at the age of five. The best predictor of whether girls knew anything about dieting or not were whether their mothers were currently dieting.”

- Leann Birch

Families, especially parents, are experiencing varying degrees of a “poverty of time”, which affects their ability to provide nutritious meals and opportunities for physical activity. Taking the time to prepare food and eat together, as simple as it sounds, is very challenging for parents and children to fit into their busy schedules. To remedy this “poverty of time” may require the attention of workplace management and a shift in workday structure, which would need to be supported by community infrastructure and government legislation. A family-friendly workplace...
that provides adequate child benefits, maternity/paternity leave, parental time, and pensions would indicate support for parents in their attempts to balance work and family responsibilities.

“Mothers need more support because the well-being of children is directly related to the well-being of women.”
- Rachel, nutrition intern

*Parents aren’t providing nutritious foods for their children’s lunches. They need more time to pack nutritious lunches instead of relying solely on convenience foods. Working single parents also don’t have time to get kids to their after-school activities and still provide them with a balanced dinner.*
– Beth, program coordinator, Boys and Girls Club

Many echoed a call for increased education and support for parents so they may better understand how all of their choices influence the lives of their children. Although many respondents felt that parents knew fundamental nutrition information, they also felt that they would benefit having this information reinforced in non-judgemental educational environments. However, if having enough time to complete everyday tasks is a challenge, how will parents find the extra time to attend education seminars?

*Write awareness articles in newsletters sent home to parents as to availability of resources in the community (books/videos/websites) where parents can access more information.*
- Alice, dietitian

**Food Security**

There exists a link between poverty and childhood weight disturbances. Food security is defined by all people at all times have physical and economic access to sufficient, safe, and nutritious foods to meet their dietary needs and food preferences for an active, healthy life (Riches, 1999). A recent article demonstrated that food insecurity had an unexpected and paradoxical association with increased incidence of fatness (Townsend, et al, 2001). Others have also suggested that food choices or physiological adaptations in response to periodic food shortages could cause increased body fat (Dietz, 1995). The ‘food stamp cycle’ is illustrated by periods of overeating when palatable food is plentiful, followed by a period of involuntary food restriction, followed again by overeating, which can result in weight gain over time. Food deprivation in adults and children produces a tendency to gain weight. The issue of food insecurity as it relates to childhood weight disturbance is a clear example of the complexity of the contributing factors and how they are interwoven with each other. Simple solutions targeting children alone are neither acceptable nor socially ethical.

*Educating the kids about food is as important because it may influence the parents to purchase certain foods. The cost of food is a barrier to parents. Making food affordable is necessary.*
- Jane, community program coordinator

Food insecurity represents an involuntary pattern of restriction and overeating, while voluntary food restriction among food-secure women is another area of concern, especially in this culture of food and weight preoccupation. Recent studies confirm that mothers’ weight concerns are directly related to girls’ body dissatisfaction, which also predisposes children to disruptions in
eating and increased risk for weight disturbance (Davison, et al, 2000). It is essential for any health promotion efforts targeted towards mothers to encourage balanced approaches to body weight to prevent further stigmatization of fat.

**School**

School environments exert a significant influence on a child’s life and these environments face many challenges. Teachers today are stretched to the limit with curriculum and time demands and school children come with a variety of needs and learning issues. Based on survey and interview information, respondents were very clear about the perceived influence of the school environment. In order to build a supportive school environment for children, commitment from and communication between school administration, families, the community, and government is required.

A widely accepted model supporting school health is the “Comprehensive School Health” approach ([Appendix C](#)). This model examines many aspects within the school – curriculum/health education, healthy school environment, and support services for students and the community. Many improvements could be made at each of these levels to assist in the prevention of childhood weight disturbances. For example, many have been concerned about the use of fat caliper testing in the physical education curriculum. No policy currently exists as to the (mis)use of skinfold calipers in the physical education curriculum to perform anthropometric measurements. Other concerns include the lack of time available for teaching nutrition or providing physical education in the curriculum. A healthy school environment includes having policies that are consistent with what is taught in the classroom. For example, cafeterias, vending machines, and fundraising activities should include healthy food choices, at affordable prices. As well, parents often complain about the lack of time students have to eat their lunches; students learn to eat their food as quickly as possible, which is not conducive to learning the skills of internal regulation and has been associated with weight gain. Many parents also remarked at the amount of homework expected of children and emphasis on academic performance even at young ages. Much pressure exists in the area of academics without adequate physical, emotional, and creative outlets. Finally, all of these aspects need to be considered within the context of a supportive community.

*From a personal level I must say that I get pretty annoyed at the negative influences the school environment can have on childhood obesity. I’m thinking of the types of snack foods sold in schools, inconsistent messages about good health practices, and especially the lack of regular physical education that is offered. I could go on and on but I won’t.*

- Joan, outpatient dietitian

*One prevention model I’m familiar with is called the Healthy Kids Challenge and is sponsored by Cooking Light magazine. It is offered only in the US. It involves schools working with a contract dietitian and fitness person to set up programs and activities for the children and their families around healthy eating and DAILY physical activity. If I had access to unlimited funding, I would create a Healthy Kids Challenge for each school district in the province, mandatory.*

- Renee, community nutritionist

*Schools could create activity or inactivity competitions between schools or districts with the winners getting tickets to professional sports events or free sports equipment or fieldtrips.*

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Toxic Playground: Understanding & Preventing Childhood Weight Disturbance  - 19 -  
Public Health Nutrition Program  
South Fraser Health Region
school I know of in Ontario is promoting a ‘no TV for a week’ campaign – another school didn’t want to do it because teachers didn’t want to give up their TV for a week...ridiculous, but it shows how important it is to have support from the top down.

- Pat, doctoral student

What people don’t realize is that physical activity can enhance learning. There are many benefits to activity as opposed to only health benefits. If you don’t have your physical health, what good is it to be able to read?

- Chris, physical education coordinator, K-12

Community Schools

School environments exert a compelling influence in a child’s life. There is much interrelatedness between the family, school, community, and government. A great deal of communication and commitment is considered necessary to change the way a school environment can better support children. School administration can champion the changes necessary to create an invigorating and healthy school environment for children. Community schools support and actively involve stakeholders in program planning, thus and providing services specific to meet the needs of the broader school community.

I worked for several years in a community school in an inner city community in the Lower Mainland/Fraser Valley. I heard moms comment that because they lived in the local apartments, access to outdoors was awkward and they never felt it was safe for their children to play outside on their own. They either had to go with them to the playgrounds or the kids had to stay indoors. As parents, they appreciated any after school activities sponsored by the community school so that their kids could be actively engaged with others in a safe environment.

- Jennifer, public health nurse

In many cases the community school acts as a catalyst for the integration of community services at the school site. The goal for such schools is to support the healthy growth and development of children, youth, families, and other members of the community. These goals are similar to those indicated for prevention of childhood weight disturbances. The community school is open beyond the traditional school day to provide academic, extracurricular, recreational, health, social services, and work-force preparation programs for people of all ages in the community. Currently, one school in Surrey and three in Langley are given provincial funding to operate community schools.

One benefit of school-based prevention programming is that it can be offered at little or no cost to families, encouraging participation from families of every age.

“I hear teenagers asking the questions, “Where are the people who used to keep the schools safe? Where are the people who used to keep the communities safe, so that you could walk in the street and not worry? Where are the people who used to protect the environment and assure that water and foods were safe? Where are the people who used to care about children?” I think that is the question that we are facing today. Where is our community? The only way we are going to get a handle on childhood obesity is to answer that question. Together I hope we can regenerate the kind of community that can motivate physical activity and proper nutrition and an environment where people aspire to good health and healthy lifestyles.”

- David Satcher, Surgeon General
income level. Care must be observed to avoid health promotion efforts that foster excessive weight preoccupation and unhealthy weight control behaviours. Activities promoting tolerance, appreciation, and acceptance of diversity among the entire student body and teaching staff will assist in decreasing potential stigma associated with being fat and increase the likelihood of participation in physical activities made available through school-based programs.

**Community**

After school, when children get older they often spend more time in their community before returning home. This time may take the form of supervised after-school care or a variety of other community programs. This after-school time was identified as a critical period when children may be sedentary, watching more television, or playing more video games. As some parents may still be at work, there is a necessity for these after-school programs to be accessible, affordable, and safe. The community can support such endeavors through increased after-school programming in community centers, neighbourhood houses, schools, or other locations such as boys and girls clubs. One community is involved in a reciprocal agreement where the schools use the community center facilities in exchange for use of the school gym for after-school programming. These types of liaisons require communication and cooperation from various organizations, namely the school board, the school, and community agencies, but the benefits to families and children are immeasurable. Being involved in community programs is an ideal opportunity for increased physical activity and fostering peer relationships. Programs can also include parents and caregivers, especially if they are scheduled in the evenings.

*With an emphasis on low-cost after-school care, children have time to interact with others and reap a sense of connectedness. Programs like the Good Food Box and community kitchens foster self-sufficiency and supportive relationships.*

- Rachel, nutrition intern

*Cooking Fun for Families connects the parents, kids, community, and the school. It teaches the family skills and provides a sense of empowerment and belonging.*

- Lisa, mother

*I would love to see a big increase in the use of school gyms after school for kids recreation and fun with food cooking clubs (using nutritious ingredients without a stigma). I worked on this during a research project and we had a great time. The kids and parents loved the program!*  

- Kyra, community nutritionist

*Have school gyms and community centers (swimming pools) available to kids and families after school, on weekends, and holidays (summer vacation) to provide more opportunities for activities.*  

- Pat, doctoral student

**Community Development**

A recently completed MSW thesis described a community development approach to disordered eating (Coutts, 2001). This approach encourages partnerships between several sectors of the community (health, business, art, and education) in order to raise awareness around a particular health issue. The community development model has the potential for raising awareness of
childhood weight disturbances, especially among the community circles of influence that may be creating an environment that put children at increased risk.

**Government**

Many respondents to the survey wanted to hold the government accountable for instituting changes to existing health-related policies. Specific ministries were named as having an influence on shaping a child’s environment and improving access to services, especially physical education but also including tax reform, food policy, and redistributing resources/services from treatment to prevention.

*Prevention initiatives must come from the government or else they will seem biased. The Ministry of Education believes that each school needs to make its own decision about food policy. This will never result in change because principals don’t stick around long enough for change to take root. The Ministry of Education HAS to change the policy around school fundraising using food.*

- Alice, community nutritionist

*Governments need to eliminate taxes on sports equipment for kids or give families tax credits/deductions for kids registered in organized sports.*

- Pat, doctoral student

*We need to address the historical attitudes of folks in the healthcare system. The didactic approach is not good – it devalues experiential knowledge – it precludes a consumer movement.*

- Becky, counsellor

*From a public health perspective, programs should target the health of all kids. So, indirectly the programs will benefit the sub-groups of kids who don’t necessarily need to be singled out or ‘labeled’ as different. In this way, public health initiatives can indirectly decrease obesity prevalence, type-2 diabetes in youth, and hypertension in kids.*

- Pat, doctoral student

*Hospital and community nutritionists have limited time and financial resources. We need a privately funded clinic or encourage the government to cover dietitians fees for nutrition counselling.*

- Brenda, clinical nutritionist

*I think that the Ministry of Children and Families tied in with Education and Health need to come up with a good population health and education approach to prevent this epidemic from getting worse, looking at the community and parental roles in helping kids access more exercise opportunities and get them away from the sedentary activities, plus a move to support more health food options in schools and sports events!* 

- Janet, community nutritionist

*We need to get rid of turf boundaries. The private, non-profit, and for-profit sectors are all off doing their own things. There is so much to do. Canada has such a huge population.*

- Becky, counsellor
Governments act as a gatekeeper when it comes to setting policy that may or may not benefit children. Individuals at all levels of government need to champion prevention efforts among the family, the schools, and the community. Many had suggestions for governmental change, but few had the means to enact this change.

**Determinants of Childhood Weight Disturbance**

**Physical Activity**

Much attention has been directed at the lack of physical activity available for children. The associated physical and psychological consequences are well known, yet physical education programs in schools continue to be reduced or eliminated. Not only are more opportunities for physical activity necessary, but also the curriculum needs to be revised to reflect inclusion and respect for diversity in ability and body shape. Bringing back a program like ParticipACTION was expressed by over 25% of respondents as essential to motivate families and young people to become more active.

"Recess is disappearing, and the point is, to me, recess does not sound like a very fun idea. When I was in school we used to call it play time. Certainly, what we need is more time for play for children. The emphasis on play may be the best strategy for preventing obesity and improving our Nation's long-term health prospects."

- Michael Goran

There are several barriers keeping kids inactive. One is the strongly held perception, actually a misconception, of phys ed being about athletics, but really what we aim to provide for kids is the knowledge and tools to be active their entire lives. Parents had such a negative experience in phys ed when they were kids, they don’t want their children to go there. So the emphasis is on literacy and numeracy where people can see immediate, tangible results. Phys ed has a much lower priority. Parents don’t feel their kids are safe, so everyone is driving to and from school. Right now we are mortgaging our kids’ health.

- Chris, physical education coordinator, K-12

Phys Ed teachers need to show some dignity. The approach needs to be inclusive to different shapes, sizes, cultures, religions, abilities. They should make it so kids feel respected. They need to be more sensitive. It has been one way for so long. We need to look at the phys ed curriculum.

- Jane, community program coordinator

Phys Ed classes should be mandatory, but also flexible to allow for all levels of skill and have a non-team activity component.

- Rebecca community nutritionist

Physical education needs to be fun. It used to be fitness-oriented, which is dreadful! When kids are overweight, those activities are more difficult, teasing happens, kids are set up for failure in fitness and kids make up excuses not to participate.

- Jane, community program coordinator

We need to revamp phys ed programs with a focus on movement and activities for everyone to sustain for a lifetime. These activities should be inclusive and non-competitive.

- Rachel, nutrition intern
An important aspect of redesigning physical activity programs is to consult with the youth involved in such programming. Two such recommendations arise from such consultations with adolescents (Neumark-Sztainer, et al, 2000):

1. Emphasize physical activity for the entire student body
2. Arrange support groups for overweight youth who want to discuss weight-related concerns and participate in extra activities

More specifically, the following suggestions (Table 3) by over 200 adolescents participating in focus group discussions help to characterize successful physical activity programming:

<table>
<thead>
<tr>
<th>Overall Recommendations</th>
<th>Specific Suggestions</th>
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<tbody>
<tr>
<td><strong>Program Activities</strong></td>
<td>Traditional physical activities: dance, water aerobics, step aerobics, basketball, swimming, walking, and running; Nontraditional physical activities: strength training, in-line skating, yoga, and hiking</td>
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<tr>
<td></td>
<td>Exposure to community opportunities via field trips and guest instructors</td>
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<td></td>
<td>Interactive and highly active programs: “don’t just sit around and talk”</td>
</tr>
<tr>
<td></td>
<td>System for students to track their progress; Goal setting and incentive/reward system</td>
</tr>
<tr>
<td><strong>Environment</strong></td>
<td>Supportive environment in which people feel comfortable</td>
</tr>
<tr>
<td></td>
<td>Opportunities to work with others at similar fitness levels</td>
</tr>
<tr>
<td></td>
<td>Tailor programs to participants’ needs</td>
</tr>
<tr>
<td></td>
<td>Make it easy for students to be physically active (i.e. access to facilities) and eat healthy food (i.e. availability within schools)</td>
</tr>
<tr>
<td><strong>Leader Qualities</strong></td>
<td>Healthy, knowledgeable, outgoing, personable, fun, optimistic</td>
</tr>
<tr>
<td></td>
<td>Ability to connect with adolescents: encouraging and supportive of all adolescents; Someone who really cares about the subject</td>
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<td></td>
<td>Someone who lets participants ease into the program and lets students decide what they want from the program</td>
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<td></td>
<td>Past program participants may serve as leaders</td>
</tr>
<tr>
<td><strong>Program Structure</strong></td>
<td>Suggested formats: elective class, extended health class, gym class for credit, and after-school physical activities</td>
</tr>
<tr>
<td></td>
<td>Timing: different times work for different students (before, during, or after school); Location: at school; Frequency: at least 3 times a week</td>
</tr>
<tr>
<td><strong>Barriers to Participation</strong></td>
<td>Lack of time because of other obligations</td>
</tr>
<tr>
<td></td>
<td>Lack of transportation (if offered before or after school)</td>
</tr>
<tr>
<td><strong>Things to Avoid</strong></td>
<td>Cost of program (make program free of charge)</td>
</tr>
<tr>
<td></td>
<td>Putting pressure on participants; program should be fun and optional</td>
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<tr>
<td></td>
<td>Focusing too much on weight issues; focus on benefits of a healthy lifestyle</td>
</tr>
</tbody>
</table>

Table 3: Adolescents’ physical activity program suggestions
(Neumark-Sztainer, et al, 2000)
A high degree of inter-relatedness exists between physical activity and other determinants of weight. Parental work habits, television viewing, and availability of Internet/video games are all conducive to more sedentary lifestyles (Gutin, Manos, 1993). As many of the previous respondents indicated, much attention is needed to create environments for children that are physically engaging and fun.

Nutritional Health

An overwhelming number of respondents remarked on the current nutritional offerings for children. Along with the disparaging remarks about the types of foods, the eating environment was also identified as not being conducive to fostering a healthy, long-term relationship with food.

They are getting fatter because their nutrition is awful. They don’t get nutritious lunches. I wish we could provide at least three food groups like we’re supposed to at snack-time, but we don’t have the time or the money.
– Beth, program coordinator, Boys and Girls Club

The family meal is disappearing. Children are preparing their own food and eating in isolation. Mom doesn’t eat because she is dieting, so there are different rules for different family members. Everyone needs to be aware of their eating. It is difficult to be mindful when the TV is on!
– Kelly, hospital dietitian

Sometimes I force kids to eat, especially if they are trying to throw their lunches away. They have to eat something. During lunch, the kids watch movies for 30 or 45 minutes. It helps them settle. If we are out at the water slides, it is impossible for the staff to check if all the kids have eaten. We just don’t have time.
– Beth, program coordinator, Boys and Girls Club

Parents should definitely be part of the process since we know that parents have the greatest impact on a child’s nutrition.
– Sharon, community nutritionist

Beth wanted to tell me about the time when she was a kid and her mom forced her to finish everything on her plate. If she didn’t finish it all, she could be still sitting at the table at 10 pm. Because she had diabetes, her mom was very strict about Beth eating everything on her meal plan. Now she hates sitting down to eat. She struggles with it everyday, but she still loves her job. Often she is caught between forcing kids to eat and letting them get away with not eating. She told me that she hopes that somewhere along the line that there is one kid she has helped. I was struck by how patterns of behaviour are repeated even if they may be viewed as undesirable.
– Jacqui, researcher

I have twin nephews who are both fat. My sister is in denial claiming it is genetic because she is fat and our mom is fat. Their food prep is unbelievable; chips, and pop and McDonalds all the time. Her doc won’t address it because he doesn’t want to deal with it. Children are a reflection

“Overweight adolescents emphasized the need for support from other overweight students and from a group leader with personal experience with weight issues”
– Diane Neumark-Sztainer
on parents. If someone makes a comment about her fat kids, it is really her who is the failure, but it may break that cycle of denial.
- Angela, nutritioninst

**Vending Machines**

Food choices have been shaped by an increased focus on convenience in our lives. Children are seen to be likely, profitable consumers so food and beverage manufacturers take advantage of this burgeoning market, especially in the school environment. A recent study found that healthy food choices or lower-fat alternatives were often not available in vending machines (Story, et al, 1996). Ludwig and others (2001) found that for each pop children consumed per day, their BMI (body mass index = weight in kg/height in m$^2$) increased by almost 0.2 kg/m$^2$. School children drinking an average of 265 mL (¾ of a can) or more of soft drinks daily consumed almost 835 kJ more total energy every day than those drinking no soft drinks (Harnack, et al, 1999). It appears that individuals are less able to regulate energy intake when it is in the form of a beverage (Mattes, 1996). Several respondents expressed concern about the marketing of pop in schools and recommended changes to school policy.

"You see that selection, intake, and kids’ enthusiasm for (certain) foods is significantly greater when we restricted access. So, restricting access is not the solution to how to alter kids’ diet. As restriction increases, intake of food increases, especially for girls."
- Leann Birch

"You see that selection, intake, and kids’ enthusiasm for (certain) foods is significantly greater when we restricted access. So, restricting access is not the solution to how to alter kids’ diet. As restriction increases, intake of food increases, especially for girls."
- Leann Birch

I would have vending machines filled with mostly healthy choices and just a few treats. Pepsi and Coke would be mandated to be marketing Tropicana and Minute Maid (orange juice) only to kids.
- Rebecca, community nutritionist

My area of concern is the pop machines in the schools. This is a tough one because of the large financial incentive given to the schools from the pop companies.
- Kyra, community nutritionist

Along with an emphasis on convenience comes a detachment from the origins of our food supply. Several individuals pointed out that understanding where our food comes from is a positive educational activity for all children and youth.

We need to emphasize food systems early on in elementary schools. Taking kids to dairy farms, greenhouses, letting them explore and cook are fun ways to generate excitement about healthy eating.
- Rachel, nutrition intern

**The Feeding Relationship**

Many respondents extolled the virtues of Ellyn Satter’s work around the division of responsibility in the feeding relationship and the hierarchy of feeding needs (Appendix D). Satter’s philosophy appears to be the gold standard toward which parents and healthcare professionals should aim when it comes to teaching healthy eating and preventing childhood weight disturbance. The main tenet of Satter’s work is learning to trust internal cues of hunger and satiety, which reduce the effects of suggestive external forces to overeat including, but not limited to the TV, the time of day, or implicit verbal/non-verbal limits on food intake by the caregiver. As Satter suggests (1999), “Optimism, trust, and adventure are also good motivators
for healthy eating.” Leann Birch offers extensive theory to support Ellyn Satter’s practical suggestions (see a sample of Birch’s published work listed under References).

*Dietitians need more training in Satter’s work around weight issues. Dietitians need to be more holistic.*
- Rebecca, community nutritionist

*I disagree, as I’m sure many nutritionists do, with a strong focus on fat avoidance, but maybe some media awareness would be useful. Messages about trusting hunger and fullness cues would be essential and maybe even some skill building i.e. cooking or snack preparation for kids or budgeting and shopping skills for parents. It is important to teach new parents about the feeding relationship.*
- Sharon, community nutritionist

**Diversity**

This aspect of a child’s environment explains the social ramifications of being perceived as ‘different’ and how that can influence a child’s sense of self. The reality is that children come in all shapes and sizes, yet the support for being ‘unique’ is, at best, fragmented and sparse. Discrimination, bullying, or teasing can lead to social isolation, which has far-reaching effects on a child’s physical, emotional, mental, and spiritual well-being.

“If they don’t have cute hair, cool clothes, or if they are fat, they are excluded.”
- Beth, program coordinator, Boys and Girls Club

*Just as it takes a community to raise a child (environmental support for healthy lifestyles i.e. bike paths, school food policies) it also takes many different kinds of children to build a community – not all of them will be active. Bill Gates once said, “Be nice to nerds, one day you’ll be working for them.” We need to stop being fat-prejudiced and fit-prejudiced and instead focus on the child’s strengths. In the background we can be helping the family adjust to a healthier lifestyle, but if the kid is going to be Ben Franklin, then let’s let him be proud of it.*
- Rebecca, community nutritionist

*Size acceptance is the key message. Maybe aspects of the bullying program (often kids are bullied about their weight) could be incorporated. We also need media messages on body acceptance and healthy eating and lifestyle that are as effective as McDonald’s.*
- Sharon, community nutritionist

*Times are different...times are definitely different. One-third of our clients are foster kids. When I was growing up, I didn’t know any foster kids.*
- Beth, program coordinator, Boys and Girls Club

*Workshops for parents, teachers, principals, and health care workers are needed to dispel the myths around obesity as well as the issues faced by overweight children and families. Media campaigns can raise awareness of size diversity, to debunk the notion of willpower and to make*
the public aware of the complexity of weight issues – it’s more than just choosing to eat less and exercise more.
- Pat, doctoral student

Often children are stigmatized because of their weight and this can have devastating effects on whether or not children participate in healthful lifestyle behaviours. Children with disability and/or chronic illness are more likely to feel disconnected from school and family and are often overtly or unintentionally discouraged from engaging in regular physical activity (USDHHS, 1997). Diversity appreciation is one aspect of the work necessary to increase opportunities for physical activity among children. Not every child has the same body shape or size and these differences should never prevent children from enjoying their bodies by engaging in a wide variety of activities.

**Spirituality/Creativity**

The theme of this category is the process of becoming a whole person and belonging to something larger than oneself. Using the word ‘spirituality’ instead of ‘religion’ implies a continuum of belief systems that provide a sense of meaning to life. The view expressed by the research domain implies a narrowing of attention onto a select few, highly-valued pursuits instead of seeking a vast range of possibilities and interests. Diversity is related to this category as a focus away from spirituality/creativity implies an intolerance of the differences in people, which can also relate to safety/bullying issues. Much of the focus away from spirituality is culturally shaped, as science and technology are the sought-after predictors and ideals of success.

*We are in the midst of a crisis of belief. There is less importance placed on spiritual and creative expression and more on literacy skills and academic performance.*
- Rachel, nutrition intern

*I teach personal resiliency in dealing with life, coherence about life, and an understanding of the world. It is the same for all of the big issues (obesity, anorexia, depression, anxiety, etc.).*
- Becky, counsellor

*I see such a strong cultural focus on academics and literacy in my child’s school. Music, art, and phys ed are cut. There are few opportunities for kids to be creative and to play. Everything is so competitive.*
- Lisa, mother

“*It is important for youth to belong to a religion or spiritual group. It gives them a sense of belonging to something bigger than themselves instead of focusing on superficial ways they can’t measure up.*”
- Amber, aged 17

When a child feels connected, she/he also feels cared for and understood. When children are connected to their natural gifts and strengths, they are free to explore and create a better world. In a recently published book, Carroll (1999) suggests that children bombarded with TV programs and environmental issues about things that are not working in the world, become depressed and anxious. Many children take drugs to alter their moods. Eating can also act as a mood enhancer when children are feeling overwhelmed, anxious, bored, lonely, or disconnected. Eating high
carbohydrate foods beyond the internal cues of satisfaction has been shown to alleviate anxiety (Agras, 1997). This is the mechanism by which foods can become an effective antidote to the stresses inherent in today’s society, otherwise known as emotional eating. Many different coping strategies can be provided to children to express and possibly alleviate the full spectrum of emotions.

**Pop Culture**

Children spend more time than ever before in front of the television and the computer. This has many detrimental effects on a child’s health, the most immediate being that of promoting inactivity.

*“Television is a surrogate measure for both inactivity and diet.”*  
- William Dietz

*Kids are more sedentary, they play more video games. Now kids don’t want to play and they don’t have to. They are allowed to sit out or go watch a video. They watch TV from 7-10 am when they arrive and when I open the gym after 10 am, they aren’t motivated to go and play. They would rather keep watching TV.*  
– Beth, program coordinator, Boys and Girls Club

*The TV and computer are our kids’ supervisors.*  
- Lisa, mother

Television viewing can also affect a child’s nutritional status. Children from families who watch television during two or more meals per day consumed less energy from carbohydrates, more energy from fat and more caffeine than did children from families with low television use (Coon, et al, 2001). Additionally, Coon (2001) states that the television was on more in houses with lower incomes, less educated caregivers, or single parents. If children learn television-viewing habits and eating habits from their parents, the choices parents make about the use of television during meals may be associated with the foods that they purchase.

Many households now possess a personal computer with Internet access. A recent study by Health Canada and the Media Awareness Network (2000) indicated that, “Canadian parents clearly understand they have a responsibility to not only supervise and manage their children's online activities, but to teach their children how to be safe, wise, and responsible Internet users. However, this is a job that Canadian parents feel they can't do alone. Many parents suggested a collaborative approach towards managing the Internet, involving public libraries, schools, Internet service providers (ISPs), community institutions, government and police.”

**Social Marketing**

Since television, computers, and video are so much a part of children’s culture, portraying and reinforcing societal norms, many suggest using this medium to educate children and families about healthy living.

*We can use some sort of city-wide or province-wide TV, radio, or newspaper promotion aimed at getting kids in school to participate in physical activity. Develop interactive computer programs for education.*  
- Alice, dietitian
Social marketing campaigns have brought together health promotion and media marketing strategists to educate and raise awareness among the population on a variety of health issues including bicycle helmet use, smoking cessation, alcohol consumption, and HIV/AIDS prevention. Health promoters seeking innovative approaches to population health have been using the tenets of social marketing for over 15 years. With massive populations, school systems plagued with budgetary restraint, and school curricula becoming engorged with an ever-growing amount of subject matter, alternative approaches are warranted. Moreover, cinema, radio, and television are pre-empting a major share of public attention and intellectual energy (Manoff, 1985). With its components of marketing, consumer research, advertising, and promotion - social marketing clearly has a central role to play in today’s public health programs. Health educators may consider social marketing as a potential working partner to increase the effectiveness of health promotion. Promoting good health requires teamwork and collaboration. Taking a team approach to health promotion in turn suggests the incorporation of concepts from the field of marketing. Any costs involved in integrating marketing into the program-planning process will be far outweighed by the benefits to children’s health (Mintz, 1989).

Vitality is one such program using the components of social marketing to promote healthy lifestyles for Canadians. Health Canada and Fitness Canada initiated Vitality as a healthy alternative to the weight-loss industry. Vitality integrates three positive life choices: enjoyable, healthy eating; enjoyable, physical activity; and positive self and body image. It is felt that adopting this approach will lead to well being, enhanced quality-of-life, and indirectly, the maintenance of a healthy weight. Until it’s recent demise, ParticipACTION was an important partner in the Vitality program, supporting the development and delivery of public awareness and information about physical activity. Others also recommend social marketing as an option for nutrition education (Foerster, et al, 1995; Lefebvre, et al, 1995).

Market segmentation is crucial to a successful social marketing campaign. Identifying to which group the messages are intended is an important part of the planning that is necessary for effective health promotion. While a social marketing campaign cannot, on its own, be reasonably expected to change health behaviour, it can nevertheless be a potent element of any comprehensive health promotion program that is intended to reach, inform, and influence people (Mintz, 1989).

**RECOMMENDATIONS**

The following recommendations arise out of the literature review and contributions from research respondents. These recommendations represent the best practice options related to prevention of childhood weight disturbances. Best practices are those that we have determined based on scientific research and collective experience that are most likely to have the desired results i.e. prevention of childhood weight disturbance. Support from a variety of stakeholders will be necessary to enact these recommendations in a timely manner. With a view to providing

“While a social marketing campaign cannot, on its own, be reasonably expected to change health behaviour, it can nevertheless be a potent element of any comprehensive health promotion program that is intended to reach, inform, and influence people.”

- Mintz, 1989
supportive community connections instead of targeting only the individual child to change, much can be done to create a healthy environment for children and youth within which healthy behaviours become the norm.

1. Involve children and youth in the planning and implementation of all of these recommendations. Listen to their suggestions for improving their environment and for meeting the varied challenges of their development and growth. Respect their choices as a means to encourage self-responsibility and life-long learning.

2. Distribute this document widely. As a parallel process, develop an interdisciplinary task group to review this report and develop an action plan. Draw from these suggested groups: regional health professionals, school district, parks and recreation, youth groups, child and youth committees, child-care agencies, parents.

**Family**

3. Breastfeeding is the optimal method of feeding infants. Breastfed infants more readily accept new foods and more naturally regulate their food intake. Breastfeeding may continue for up to two years of age and beyond. 
   **Available Resource:** Nutrition for Healthy Term Infants

4. Role model the choices desired for children. Children are clearly able to mirror positive and negative behaviours. If even one parent is dieting, chances are very high that the child will also diet. This is especially true for girls.

5. Never place a child on a restrictive eating plan. Restricting a child’s intake will trigger overeating and disrupt natural internal energy regulation. Children need to be encouraged to eat according to inner cues of hunger and satiety.

6. Promote the division of responsibility for all those involved in any aspect of feeding children. Social marketing campaigns, in partnership with existing public health promotion, may provide an opportunity for a widespread initiative targeted towards appropriate groups. 
   **Available Resource:** Secrets of Feeding a Healthy Family

7. Avoid using dichotomous language about food i.e. ‘good’ vs. ‘bad’ foods. Indicating one food is better than another will increase the intake of the ‘bad’ food and instill guilt in the eater. Once these beliefs are instilled about food, they can take a lifetime to overcome.

8. Aim to eat with as many members of the family present as possible. Don’t create more ways to ‘eat on the run.’ Slow down and prioritize. Children need adequate time to consume foods, including snack foods. Allowing adequate time without distractions enhances a child’s ability to use internal cues to regulate the quantity of food eaten.
9. Eat mindfully by reducing distractions and creating a relaxed environment for everyone to enjoy their food. Internal regulation of intake is easier to achieve when children (and adults) are not distracted by television, radio, email, driving, or intense emotions. Savour food with all of your senses. Limit television viewing, especially during mealtimes.

10. Women experiencing issues around food, weight, and body image require support. Dieting mothers usually have dieting daughters. Efforts need to be made to raise awareness of disordered eating within the entire community. **Available Resource:** Awareness & Networking Around Disordered Eating
   www.anad.bc.ca

11. Teach, encourage, and support assertive communication. Role-play and re-enact uncomfortable situations involving conflict or bullying. Take an interest in and talk about difficult relationships and work together respectively to dissolve conflict. **Available Resource:** Nurturing Girlpower www.salal.com

**School**

12. The widespread use of vending machines to provide pop and snack food to children in schools requires review. Ensuring vending machines provide a variety of healthful options indicate a strong commitment from school administration to supporting nutritious food choices for children. Promote fruit and vegetable consumption by sponsoring initiatives such as point of purchase subsidizing.

13. Consider the amount of time provided for children to eat their lunch. Research suggests that eating quickly is associated with weight gain among children. Having the teacher sit quietly and eat with the children may help to establish a calm environment where internal cues of hunger and satiety are recognized and respected.

14. Make physical education a priority. Provide support to teachers so they may incorporate physical activity into their daily curricula. Challenge educators and administration to create inclusive, fun environments and opportunities for the entire school to be physically active. Focus on healthy living, not weight. Partner with community organizations and offer gym and playgrounds to children after hours. Educators willing to supervise after-school activities require more support from school administrators. **Available Resource:** Promotion Plus www.promotionplus.org/

15. Introduce children and youth to the origins of their food by visiting an operating farm. Have the farmer lead a tour of the fields and have the students volunteer their time harvesting a crop. Use some of the harvested food to create a meal for the entire class. **Available Resource:** Farm Folk/City Folk http://www.ffcf.bc.ca/

16. Encourage critical thinking and communication about what messages children are receiving on television and the Internet. ‘**Take a Minute**’ (an media awareness initiative) to show an interest and find out what children are viewing on television and the Internet. Teachers and principals can challenge their students and parents to ‘no TV for a week’
with community organizations providing a wide variety of alternative activities for students in which to participate instead of watching TV.

Available Resource: www.media-awareness.ca/

17. Protect children. Immediately report bullying, abuse, or neglect. Advocate for every child’s right to a safe, nurturing environment at home, at school, and in the community. Schools should install a zero-tolerance policy towards any form of mocking or harassment about aspects of physical appearance or demeanor.

18. Invite ongoing participation by children in a wide variety of pursuits lessening the focus on academics and encouraging creative endeavors such as art, drama, and music. Foster a holistic perspective of child development, one that honours and celebrates every child’s talents and gifts.

19. Forge alliances between schools and community centers in order to provide additional, supervised opportunities for physical and leisure activity during the time when school is not in session. Invite parents and after-school caregivers to come and participate in the fun with children.

20. Include children whenever possible in the planning and delivery of activities such as school meals/snacks, school food policy, bullying prevention, physical activity programming, and media literacy.

Community and Government

21. Support community kitchens. Families can participate with their children in preparing nutritious meals on a low budget in a social setting. Community kitchens enhance participants’ abilities and interest in providing good food for their families.

22. Develop groups for families with children with concerns about eating and body weight. Using VITALITY as a template, provide support and information to those interested in learning about internal regulation of hunger, spontaneous physical activity, and positive body image.

23. Socially responsible employers and policy makers need to indicate their commitment to children’s health by providing support to employees and taxpayers with children. Such provisions may include maternity/paternity leave, parental time, and child benefits.

24. Governments need to increase access to safe, affordable foods for all British Columbians. Food insecurity concerns require a systemic commitment from many inter-sectoral organizations and governmental ministries. Available Resource: Feed Our Future, Secure Our Health

25. Municipal governments in partnership with health, business, art, and education sectors of the local community can work to provide safe (supervised and well-lit) walking and
cycling paths through cities and towns particularly on routes that lead to and from schools and playgrounds. Providing other low-cost opportunities for physical activity will benefit the entire community.

26. Provincial ministries need to take a united stance on issues of child health promotion. Food, physical activity, and fund raising policies need to reflect the child’s well being as a central, imminent priority. Taxation relief on sporting goods is one small example of such a commitment to increasing opportunities for physical activity among the children and adults in British Columbia.

27. Resources need to be redistributed from treatment approaches to prevention initiatives. The general public has come to expect a ‘quick fix’ even with respect to weight issues. A lifelong view to promoting health and well being supports a commitment to prevention of health concerns from governmental funding sources. Long-term prevention strategies that create supportive environments are a valuable investment.

**CONCLUSION**

This research was conducted to broaden our understanding of how childhood weight disturbances can be prevented. What remains obvious from the research is the complexity of the issue. Clearly, initiatives to prevent childhood weight disturbances should not include dietary restriction. Much emphasis remains on creating an environment where children have increased opportunities for activity and play. An interesting finding from this research is the association between food insecurity and increased body weight. Economic support for families is necessary to address the many different issues influencing childhood weight disturbances. Long-term prevention strategies that create supportive environments are a valuable investment. Lyons and Langille (2000) maintain that specifically focused initiatives that target symptoms or specific negative health behaviors have limited success if the intervention does not attend to "the larger picture" of lifestyle and its determinants. Combinations of health promotion strategies (e.g., supportive environments, social marketing, community level initiatives, building healthy public policy) with family, school, community, and governmental "buy in" have the greatest possibility for success.

This research revealed an emphasis on respecting diversity as a means for prevention of childhood weight disturbances. Of course, physical activity and nutritional health were key determinants of childhood weight, but I didn’t expect size diversity to feature so strongly in replies from respondents. This indicates an appreciation from the respondents to the extent that reactions to body weight are largely socially constructed norms and ideals. These norms create enormous pressure for children and their parents. Raising awareness of size discrimination, especially as it relates to bullying appears to be as important to creating a healthful environment as increasing opportunities for play and providing nourishing food. Changing normative beliefs around how body weight is determined is a very complicated endeavour. The theory of social marketing applied to this challenge in creative and compelling ways could be one approach that provokes a shift in societal views. Much is already documented about the effects of television viewing, lack of physical activity, and poor nutrition, however, very little is available about diversity and size acceptance as a means for preventing childhood weight disturbances. It was
suggested that some cross-collaboration with bullying/teasing prevention efforts could prove fruitful in enhancing the awareness of stigmatization and discrimination.

Safety did not appear as an explicit determinant of childhood weight through the course of respondent interviews and surveys. This result was somewhat unexpected considering my presumption that one of the main barriers for physical activity is a parental concern for child safety. Possible explanations of this finding is that safety or lack thereof, is now the norm; parents don’t even think to mention safety as a concern because precautions are so much a part of their daily existence and daily routine.

Several respondents indicated that prevention efforts needed to come from the children themselves, so including feedback from children would have certainly enriched this project. Of course, soliciting their feedback is somewhat more challenging due to ethical considerations and receiving informed consent. I would encourage that feedback be solicited as a necessary next step in this process and as a means to enable children and youth to help put into action many of the recommendations stated above.

More investigation is necessary around the aspects of community development and social marketing, especially with respect to how these initiatives pertain to preventing childhood weight disturbances. I think that this approach is well suited to the issue of prevention and consciousness-raising. Additionally, the tenets of community development require a community focus and the potential to establish and build supportive relationships. Connection (or disconnection) is one of the themes that arose out of this discussion paper as a determinant of childhood weight (see Spirituality/Creativity). It appeared that one group was critical of another’s practices and vice versa in numerous instances. Perhaps through community development, an appreciation of what each sector is successful at doing and what challenges each sector face may provide an opportunity for community connection. Opportunities exist through local organizations with a focus to preventing disordered eating to explore the feasibility of community development as it applies to childhood weight disturbances. I presume much overlap to exist between these two issues.

Many of these findings may be generally applied to the entire population of the Lower Mainland. Only one of the respondents indicated involvement with an aboriginal population, therefore the findings represented by this paper cannot be extrapolated fully to include all children of aboriginal ancestry. The spheres of influence could apply to any family, community, and government in the sense that commonalities exist between these structures across Canada. So, in a broad sense, these findings could be extrapolated to a variety of centers across Canada. Unfortunately, ethnicity and sexual orientation were beyond the scope of this document and remained overlooked. Much more can be done to represent these issues as they relate to childhood weight disturbance.

If children feel good about themselves, they will make positive choices around physical activity, nutrition, personal relationships, or television viewing. My strong preference is to work in this direction, encouraging children to appreciate their abilities and talents, using media with a conscientious view to media literacy in order to increase the visibility of diversity messaging and permit children to fulfill their truest potential. This fulfillment of size appreciation has positive
implications for families, communities, and beyond, strengthening the spheres of influence for now and the future.

Finally, I extend much appreciation to the women and men whose voices and insight have made this document come alive. Thank you to everyone who took the time to talk or write out their thoughts for me on email. Without your contributions, this paper would be a mere shadow of it’s current self. Your words are powerful reminders of the hope and strength that reside in all of us. I was so fortunate to be a part of creating this paper as a vehicle for your valuable insight around the issue of child health. It is my wish that your words speak loudest in guiding our direction to alleviate the negative environmental influences that children living in our communities experience on a daily basis. There is no doubt that by working together we can make a difference.
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APPENDICES

Appendix A: Survey and Interview Questions

1. What programs are you currently aware of with childhood obesity prevention as a feature?
   a. Who is involved?
   b. How is it working?
   c. Is it cost-effective?

2. What needs to be done differently?
   a. What key messages should be conveyed?
   b. What effect does this message need to achieve to be considered a success?
   c. Who should be involved?
   d. Where should the “program” be delivered?
   e. How should program “facilitators” or other service providers be trained?

3. Who are the key stakeholders? ex. Program sponsors, influential organizations, policy makers, etc.
   a. Do you know what their beliefs are about childhood obesity?

4. What/who is the most effective medium necessary to reach target groups? ex. TV, radio, magazines, MD, CHN, RDN, etc.

5. What existing tools, resources, and personnel are available to achieve intended outcomes?

6. What additional tools are necessary, if any?

7. What determines success? How can “success” be measured?

8. If you had access to an unlimited source of funding, what would you do to address this issue? Be as creative as possible!
Appendix C: Comprehensive School Health

Comprehensive school health is a framework which integrates health education and services within a healthful school and community environment i.e. nutrition education in the classroom (health education) would be most effective when supported by food services offering nutritious food choices (services), school staff modeling positive eating habits (environment), and community support such as community kitchens (social support). Many national and international organizations support comprehensive school health including but not limited to Canadian Association of Principals, Canadian Cancer Society, Canadian Home Economics Association, Canadian Medical Association, Canadian Teachers’ Federation, and the World Health Organization.
Appendix D: Hierarchy of Feeding Needs

Basic, fundamental needs are on the bottom of the pyramid. These needs have to be satisfied before those higher up on the hierarchy can be considered. To teach nutrition to someone who has not satisfied basic needs, you either have to ignore those needs or find a way to use nutrition education help fill the basic needs. Failure to satisfy basic food needs is often self-imposed. A person who is a restrained eater deliberately deprives herself of enough food, good-tasting, satisfying food, etc. Deprivation can also be a matter of attitude. The person might be eating well but feel there is something wrong with her food or eating.
- Ellyn Satter, “How To Get Your Kid to Eat, but Not Too Much”
Appendix E: Resources

Internet

| Manuals | 
|---------|---|
| Every Body is a Some Body | http://bodyimage.castle.on.ca/everybody1.html |
| Nurturing Girlpower | www.salal.com |
| Promoting Healthy Body Image & Positive Self-Esteem: Kit for Grades 4-7 | Contact Anita Romaniw at Fraser Valley Health Region: Anita.Romaniw@fvhr.org |

Programs

| Manuals | 
|---------|---|
| BullySMART | www.bullysmart.welcomeyou.com |
| Focus on Bullying | http://www.deejays.com/bcsafeschools/ |
| Go Girls! | www.goldinc.com/gogirls/ |
| Healthy Kids Challenge | www.cookinglight.com/hkc/ |
| Social Marketing Institute | www.social-marketing.org/ |
| Media Awareness | http://www.media-awareness.ca/ |
| MediaWatch | http://www.mediawatch.ca/ |

Health Canada

| Manuals | 
|---------|---|
| Focus on Children Six to Twelve | www.hc-sc.gc.ca/hppb/nutrition/pdf/FocusChildE.pdf |
| Healthy Lifestyle: Strengthening The Effectiveness Of Lifestyle Approaches To Improve Health | www.hc-sc.gc.ca/hppb/phdd/docs/healthy/index.html |
| Nutrition for Healthy Term Infants | www.hc-sc.gc.ca/hppb/childhood-youth/cyfh/homepage/nutrition/index.html |
| Social Marketing | http://www.hc-sc.gc.ca/hppb/socialmarketing/index.html |
| The Socioeconomic Gradient in Population Health: Explaining Health Inequalities | http://www.hc-sc.gc.ca/hppb/phdd/resources/gradient.htm |
| Vitality | www.hc-sc.gc.ca/hppb/nutrition/pube/vitality/index.html |

Books

Am I Fat? Helping Young Children Accept Differences in Body Size, Ikeda & Naworski, 1993
Deadly Persuasion, Kilbourne, 1999.
How to Get Your Kid to Eat, but Not Too Much, Satter, 1987
Real Boys: Rescuing Our Sons from the Myths of Boyhood, Pollack, 1998.
Secrets of Feeding a Healthy Family, Satter, 1999.
Appendix F: Contributors

Thanks to the following for their valuable and insightful contributions to this discussion paper:

Alana Rauscher  Eileen Razzo
Andrea Ottem  Fiona Angus
Anita Romaniw  Geoff Ball
Barb Seed  Glen Young
Barbara Crocker  Jan Stephens
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Deanna Chaboyer  Ryna Levy-Milne
Dial-A-Dietitian Nutrition Information  Sandra Ritchie
Society of B.C.  Shaylene Wray
Dina Lambright  Shelagh Bouttell
Donna Antonishak  Sonya Kupka

Appendix G: About the Author

Jacqui Gingras, MSc, RD is a Registered Dietitian, Nutrition Therapist specializing in the emotional aspects of nourishment, disordered eating, body image, and the food/mood connection. She offers nutrition therapy to youth, women, and parents of children struggling with food, weight, and body image issues through her private practice, Deliciosa! Nutrition Counselling. She offers a novel approach where the client is viewed as the expert and a commitment to connection, mindfulness, and creativity is nurtured.

Jacqui received her nutrition degree in dietetics from UBC in 1995 and her graduate degree in nutrition and metabolism from the University of Alberta in 1998. Since then she has been an active member of local and national organizations working to end disordered eating and childhood weight disturbance.

Contact Information:

Suite 102 – 1625 Hornby Street
Vancouver, BC, V6Z 2M2
Telephone: 604-729-8885
E-mail: info@jacquigingras.com
www.jacquigingras.com