

A Comparison of Regular Public and Special Public School Teachers'
Perceptions Regarding Obesity as it Occurs in Students With Multiple Disabilities

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Abstract

This research project examines differences in teacher perceptions as they occur in relation to children and adolescents with multiple disabilities (MD). Teachers of students with MD from two subgroups, regular public schools and special public schools, were asked to rate their level of agreement or disagreement with a series of statements related to the exercise and nutrition habits of their students. Analysis of the data found that significant differences exist in the way the surveyed teachers view those habits and several trends were noticed as well. The results of this research indicate that significant differences exist in the obesity rate of regular and special public schools exist and that barriers to exercise among children and adolescents with MD should be of particular concern. Significant differences were also found in how teachers of students with MD from regular schools and teachers of students with MD from special public schools perceive health and disability as limitations and in some of the behaviors those teachers may be modeling to their students.

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Chapter One

Statement of Problem

Research indicates that the health of our nation's youth is on the decline. Unfortunately, reversing this trend will not be easy due to the many factors that contribute to this unfortunate news. Drugs, alcohol, sexual behavior are just a few of the factors contributing to the decline that has taken place in recent decades. Such behaviors are certainly destructive, but just as or more telling is that children in this country are leading increasingly sedentary lifestyle. Add poor nutrition habits to the lack of exercise our nation's youth appears to be getting as whole and troubling problem becomes apparent. According to the Center for Disease Control (CDC), lack of exercise and poor nutrition are causing an epidemic of obesity among the children who live in this country (CDC, 2008). Doctors and researchers agree that the issue of health among the young people in this country must be addressed (American Secretary for Planning, 2008). Given the rate at which the obesity epidemic is spreading, effective action must be taken quickly.

Advertisements for the latest weight loss pill are everywhere and infomercials about the latest fitness fad or gadget lead consumers to believe that they get in shape fast while dropping pounds and inches (according to Rebecca Reisner of Business Week, the fitness industry rakes in over \$40 billion a year). Even Hollywood has gotten into the act of discussing the problems associated with poor eating habits and a sedentary lifestyle: the film *Supersize Me* took in several million dollars at the box office. Although the topic of obesity receives large amounts of attention in newspapers and on television, the increasingly poor exercise and eating habits held

by many of our nation's youth remains problematic as the pace at which childhood obesity is occurring continues to climb. Statistics from the CDC (2008) indicate that the rate of obesity among 6-11 year olds has more than doubled since 1980, going from 6.5% that year to 17% in 2006. Another glaring statistic is that obesity among adolescents, ages 12-19 more than tripled in that same span, going from 5% to 17.6%.

Numerous health problems are associated with obesity, even among children and adolescents. Among them are at an increased risk for high cholesterol, high blood pressure, stroke, arthritis and type II diabetes. Obesity during childhood and adolescence also increases the likelihood of being overweight or obese as an adult (Surgeon General, 2010). Making matters even worse is that obesity takes a psychological toll on the individual as well.

The statistics regarding obesity for children and adolescents with disabilities is even more unsettling. The CDC's 2005 Youth Risk behavior Survey (YRBS) found that high school students with intellectual disabilities were more likely to describe their health as being poor, more likely to watch more three hours of television daily, more likely to spend over three hours on using a computer daily, less likely to meet recommended levels of physical activity. They also found that high school students with intellectual disabilities were more likely to describe themselves as being overweight (CDC, 2005).

Even the youngest children with disabilities are at greater risk for becoming overweight or obese. Emerson (2009) found that in the United Kingdom, three to five year old children with disabilities are at a significantly greater risk for being overweight or obese in comparison to typically developing children. Furthermore, 58% of the children with disabilities who were

overweight at age three were also as overweight at age five, while 47% of the typically developing children who were overweight at age three remained overweight at age five. Unfortunately, this increased likelihood of remaining overweight is one that continues into adolescence and adulthood (Jones & Lollar, 2008).

This information should be unsettling to the people who serve individuals with disabilities. It is true that some children and adolescents with disabilities often look or behave differently from so-called normally developing children. However, the similarities between children who develop normally and children with disabilities outweigh the differences, and sometimes with negative consequences. Obesity presents an individual with disabilities with the same problems it poses the general population. Like the typically developing child and adolescent, obesity among children and adolescents with disabilities increases the risk of diabetes, heart disease and a host of other maladies. In addition, obesity may exacerbate existing motor and muscle problems in some with disabilities (De, Small, & Baur, 2008).

The objective of this project is to add to the literature regarding the prevalence of childhood obesity among children with disabilities. Specifically, this research will look to fill a significant void in the current literature. While some information is available regarding diet and exercise patterns among adults that are both intellectually disabled and obese, there is little information about children with intellectual disabilities who are obese. There is even less information available regarding teacher perceptions of this subgroup of individuals. This research paper will examine obesity as it occurs in individuals who have more severe disabilities, specifically those who receive services in classes for learners with multiple

disabilities (MD) that are in regular public schools and obesity as it occurs for the same population who receive services in special schools. This study will seek to find information about the exercise and nutrition habits of students in both of the school settings. It will also attempt to analyze teacher perceptions of the role parents and schools should play in getting a child to meet the exercise and nutrition guidelines set by the CDC.

Chapter Two

Review of the Current Literature

For children and adolescents with disabilities, reaching and maintaining a healthy weight is a goal that may or may not be reached for a number of reasons. Understanding these reasons requires an exploration of current knowledge on the subject. Exercise and nutrition habits are certainly part of the equation, as they are for the general population and these are common themes in the literature. However, for many people who are plagued by excessive bodyweight, it is not as simple as exercising more and eating less (Poskitt, 1987). Barriers to exercise and proper nutrition can make attaining a healthy bodyweight difficult, if not impossible. Further complicating anti-obesity efforts in people with disabilities are hypothalamic and chromosomal abnormalities that occur in Down's Syndrome are more likely to be obese (Poskitt, 1987).

The literature review that follows examines the importance of physical activity and sound nutrition. It also examines the impact obesity has on the physical and mental health and the implications of these problems for children and adolescents with multiple disabilities (MD).

Physical Activity

One of the most common themes that emerged in the literature regarding obesity is physical activity, or lack thereof. It has been established that nearly all children and adolescents need exercise, including those who have disabilities (Murphy & Carbone, 2008). According to the CDC (2008), children need approximately 60 minutes of exercise every day, yet most young people are missing this target. This is rather surprising given the variety of ways in which the target can be reached. After all, there are all kinds of sports and recreational activities that qualify as exercise that young people can enjoy. As a whole, children with disabilities are even less likely to meet the standards set by the CDC than the general population (Rimmer & Rowland, 2008).

This is unfortunate news because the benefits of physical activity are numerous. Regular exercise improves the strength of muscles, joints and bones (Murphy & Carbone, 2008). It can also increase flexibility, improve motor control and provides opportunities for children to improve social skills (Fragala-Pinkham, Haley, Rabin & Kharasch, 2005). Aerobic exercise is generally considered the most appropriate way for children and adolescents to meet the CDC's recommendation for physical activity and should make up most of their exercise routine. However, children can benefit from anaerobic activities as well. While strength training is considered inappropriate for most children, bones and muscles can be strengthened through exercises such as calisthenics, running, jumping and gymnastics (CDC, 2008). Many people with disabilities can benefit from exercise programs similar to those used by the general population. However, individual goals and health differences must always be taken into account. For

people who are new to exercise or who have health concerns that prevent them from taking part in more vigorous activity, the recommendation is often for less intense exercise performed more frequently and of longer duration (Durstine et al, 2000). For children with cerebral palsy, an exercise program may be designed with the goal of increasing range of motion and decreasing spasticity (McBurney, Taylor, Dodd & Graham, 2003). Regardless of disability type, it is important that exercise programs be developed with the goals and needs of the individual in mind and accommodations should be made when necessary.

In an ideal world, all children and adolescents would have the opportunity to participate in individual and team sports and everyone would get the exercise he or she needs. According to King et al., (2003), the ability to participate is of key importance to the development of children and adolescents. Unfortunately, research indicates that children with disabilities are less likely to participate in activities that are common to typically developing children, including sports and exercise (Healthy People 2010) (King et al., 2003). Again, this is bad news for people with disabilities because of the potential benefits that come from a sound exercise program (Johnson, 2009). The lack of time many children with disabilities spend exercising is likely part of the reason that obesity rates in this population exceed the obesity rates of the general population (Murphy & Carbone, 2008).

Zick, Smith, Brown, Fan, and Kowaleski-Jones (2007) found that the amount of time spent participating in physical activity declines as adolescents move into adulthood. If correct, this means that people with disabilities need to begin exercising when they are young. Furthermore, they must be presented with the opportunity to engage in physical activities

when they are young. It seems that for too many children and adolescents with disabilities, overcoming the barriers to exercise can be more challenging than the exercise itself (King, et al, 2003).

There are numerous barriers that keep people with disabilities from participating in physical activity (King et al, 2003). Barriers differ depending on the intensity of the individual's disability and vary according to the environment in which one lives and the resources he or she can access (Majnemer et al., 2008). Barriers can be physical or institutional. They may also be due to a lack of resources, lack of time available to parents, lack of transportation or from a lack of supportive relationships. For some people with disabilities, the ability to communicate can be a barrier. Individual preference, self-esteem, and how the young person perceives his or her skill in a physical activity can also be barriers to reaching the CDC's recommendation of 60 minutes exercise daily (King et al., 2003). Removing barriers and providing access will be a key to reversing the upward trend of obesity in children and adolescents with disabilities.

Nutrition

According to Puhl and Schwartz (2003), thousands of new food products are introduced to Americans each year. In fact, they go as far to say that "we live in a society preoccupied with food" (p. 58). This statement appears to be quite factual when the evidence is weighed. Even the youngest of children are bombarded with thousands of food advertisements each year (Puhl & Schwartz, 2003). If this was not bad enough, a recent article from Science Daily (2008) claimed that most of the food depicted in these advertisements is loaded with fat, sodium or sugar (Mink, Evans & Calderon, 2010). Given the messages of the advertisements and the

dearth of fad diets, is it any wonder children and adults are confused about what foods they should and should not put in their bodies?

The confusion that children and adults have about proper nutrition is problematic because of the vital role nutrition plays in the development of children and adolescents, for those with disabilities and without. Through proper nutrition, children and adolescents are likely to experience increased energy, build strong bones and joints, and put themselves at lower risk for anemia, malnutrition and dental problems. Proper nutrition also plays a role in preventing a number of diseases and helps improve performance in school (CDC, 2008).

The mixed messages children and adults receive from the media regarding nutrition has important implications for young people. In summarizing childhood eating patterns, Schwartz and Puhl (2003) found that children are born with a preference for salty and sweet foods. Evolutionary biologists believe this inborn preference may have served as a mechanism to protect young children from harmful substances in earlier human history (Schwartz & Puhl, 2003). Ironically, this mechanism that may have once protected children can be detrimental to children in today's society. Foods that are laden with sugar and salt no longer require the energy used by people in hunter and gatherer societies. Instead, they are as close the local supermarket or kitchen. Compounding this problem is that in addition to an innate preference for certain foods, parents and teachers, who may be confused about what constitutes good nutrition, may model poor nutrition habits and provide children and adolescents with poor food choices. Children with disabilities are not immune to this behavior, thus it is important for

professionals who work with this population to have a good understanding of nutrition and for them to be conscious of what they are communicating through their own behavior.

Unfortunately, much less is known about nutrition than exercise among the population of people with intellectual disabilities (Aldridge, Pullen, & Whelan, 2000). In fact, Bax (93 in Aldridge, Pullen & Whelan, 2000) found that the nutritional status of children with disabilities is often ignored altogether. According to Tada, Baer, Robinson and Ichiho (1998), most nutrition professionals lack the know-how they need when it comes to working with children with disabilities. The lack of knowledge related to nutrition patterns is partly due to the variety and severity of the disabilities that exist (Johnson, 2009).

Part of the nutrition problem among people with disabilities is the process of eating itself (Cloud, 1993). In some people with disabilities, the motor skills of chewing, swallowing and holding utensils may be impaired to the point where eating becomes difficult. People with more intensive disabilities may display aversive behaviors while eating. They may also need adaptations or assistance from another person, or may be relegated to eating soft foods. These difficulties can lead to nutritional deficiencies (Schwartz, Corredor, Fisher-Medina, Cohen & Rabinowitz, 2001). If these difficulties can cause nutritional deficiencies, it seems possible that they might also contribute to weight gain and obesity. Regardless of the person's individual eating differences, it is important for the people who interact with him or her to recognize the importance of nutrition (Tada et al., 1998). That includes parents and teachers.

Health Risks

The notion that people with disabilities are more likely to have poor nutritional habits and less likely to exercise is important for a number of reasons. It has been established that people who do not get enough physical activity and have a poor diet are at risk of becoming overweight or obese. While some people consider obesity to be cosmetically unappealing, that is not the chief concern of the disease (Poskitt, 1987). Obesity places children at risk for a number of physical health problems. In fact, Puhl & Schwartz (2003, p. 59) postulate that 60% children who are overweight have “at least one cardiovascular risk factor.” Other physical health problems may be endocrine, pulmonary, orthopedic, neurological or gastroenterological in nature (Lobstein, Baur & Uauy, 2004). Oftentimes, these health problems go untreated because people with disabilities are less likely to get the health care services they need (Puhl & Schwartz, 2003).

Perhaps the best known pulmonary problem related to obesity is sleep apnea (Lee, 2009; Ho, 2009). Sleep apnea is the generic term for a variety of sleep disorders characterized by a resistance to airflow through the upper respiratory system and snoring. In severe cases, sleep apnea may lead to death (Lee, 2009; Lobstein, et al, 2004). Mallory (1989) found that 37% of research subjects who were obese had symptoms of sleep apnea. A gastroenterological problem linked to childhood obesity is non-alcoholic fatty liver, also known as liver steatosis (Lee, 2009). In its early stages, steatosis had no adverse side-effects. However, without proper treatment it often develops into steatohepatitis and eventually liver disease. Non-alcoholic fatty liver usually is likely to become progressively worse as the person ages (Lobstein et al.,

2004). Obesity also presents problems to the human skeletal system. Orthopedic problems associated with obesity include an increased risk for broken bones, ankle sprains and arthritis (Lobstein et al., 2004). These problems have the potential to worsen existing motor control and strength deficits in people with disabilities and without (Johnson, 2009).

Perhaps the most frightening aspect of childhood obesity is the increased risk of heart disease and type II diabetes. Until the 1980s, type II diabetes was found almost exclusively in the adult population. However, over the last two decades, health care professionals have noted a dramatic rise of this disease in young children. The dangers of type II diabetes are well-known. As a person with the condition ages, he or she is more likely to develop heart disease, blindness, the amputation arms and legs and kidney failure. Making the disease more problematic for people with disabilities is that treatment of type II diabetes depends largely on the individual's ability to manage the disease (Lobstein et al. 2004). If the person with disabilities does not have the self-management skills needed to slow the progression of the type II diabetes, the disease will likely become worse more rapidly. Interestingly, the increased rates of type II diabetes and obesity in children of obesity have occurred concurrently (Lee, 2009).

Like type II-diabetes, cardiovascular disease has increased in children and adolescents along with the rise in childhood obesity (Lee, 2009). Cardiovascular problems associated with childhood obesity include increased risk for hypertension, stiffness and thickness of the carotid artery and metabolic syndrome (Ho, 2009). If not treated, these problems may cause more pronounced disability and even death. The CDC (2009) claims that heart disease kills more than

650,000 people every year, making heart disease responsible for 27% of deaths in the U.S. every year.

Psychological and Cognitive Risks

Less is known about the cognitive and psychological risks of childhood obesity in comparison to the health risks, because health risks are largely universal and psychological risks are largely dependent on individual personality. However, there is a body of evidence suggesting that children and adolescents who are overweight or obese are more inclined to have cognitive and psychological difficulties, especially in regards to self-esteem. These psychological difficulties can be attributed in part to the social stigma that being obese carries (Schwartz & Puhl, 2003). For instance, people who are obese are often characterized as lazy, irresponsible and unhappy. There is also the stigma that people who are obese can overcome the disease with diet and exercise alone (Brylinsky & Moore, 1994).

In a 1961 study by Richardson, Goodman, Hastorf and Dombusch (in Schwartz and Puhl, 2003), children were given six pictures of children with different physical attributes. They were then asked to arrange the pictures to show who they would most like to have as a friend. The picture of the child who was obese was found to be the least likely friend among the children surveyed. Making matters worse, recent research indicates that children who are obese are viewed less favorably by their peers today than they were almost 50 years ago (Schwartz and Puhl, 2003). A study similar to the 1961 study was done by Koroni, Garagouni-Areou, Roussi-Vergou, Zafiropoulou and Piperakis (2008) using Greek children of elementary school age. Like the 1961 study, they were asked to arrange pictures to show who they would most like to have

as a friend. In this study six pictures were used: a healthy child, a child with a disfigured face, a child on crutches, a child in a wheelchair, and a child with one hand. The healthy child was the overwhelming favorite of the children surveyed. As in the previous study, the obese picture was found to be the least likely friend among the children surveyed. The pictures of the child in a wheelchair and the child with one hand were also less likely to be chosen as a friend. The ramifications of these studies are huge as they provide evidence that a social stigma is attached to people who are obese or physically handicapped. If children are acting upon the viewpoints described in these studies, harm is being done to the self-esteem and body image of people sharing characteristics of those in the pictures.

Another psychological problem is that people who have physical disabilities are more likely to feel depressed, and more likely to contemplate and attempt suicide (Jones and Lollar, 2008). When you compound this information with evidence that people who are obese are more likely to attempt suicide (Mather, Cox, Enns and Sareen, 2009; Schwartz and Puhl, 2003), it seems logical that people with disabilities that are obese would be at higher risk for suicide than the general population of obese people.

In examining data from the Third National Health and Nutrition Examination Survey [NHANES III], Li, Dai, Jackson and Zhang (2008) found that children who were overweight or at-risk for being overweight scored more poorly on tests in reading and arithmetic. The study did not suggest that being overweight or obese was to blame for the lower scores among those subgroups, but did suggest that a relationship exists between reduced cognitive functioning and being overweight or obese. The study also provides further evidence that the physical health

and mental health of people is closely related. Based on these findings, obesity needs to be prevented in people with disabilities so that cognitive functioning can be maximized.

Chapter 3

Methodology

While there is much information in the literature related to obesity among children and adolescents in general, there remains a knowledge gap regarding obesity among children and adolescents with MD. Even more unknown is the role played by teachers of students with MD and their corresponding schools in preventing obesity and the problems associated with it. This chapter explains the setting for research, selection of subjects and procedures for instrument development and data collection.

Because obesity among children and adolescents has reached epidemic levels, it is important to examine the perceptions of teachers of students with MD as they relate to the health of their students. Information gathered from such research may provide valuable insight as to the role of educators, schools and parents in stemming the tide of this malady. This research may provide useful information regarding the exercise and nutrition habits of students in classrooms designed for students with MD and could give future researchers a reference point when starting future investigations on related subjects. The chapter that follows will review the setting for research, the selection of subjects, the design of the study, the instrument and procedures used during data collection, and an analysis of resulting data.

Participants

This study was conducted with the intention of learning about the perceptions teachers of students with MD have as they relate to the diet and exercise habits of their students. Eligibility for this study was limited to teachers currently employed by school districts in the state of Ohio. Eligibility was limited to this group because the definition of what constitutes a disability (in this case multiple disabilities) varies from state to state. Ohio was also chosen out of convenience; it is the state in which the researcher resides, thereby cutting any possible travel and other research costs. In addition to being teachers licensed and employed in the state Ohio, subjects were required to be working in classrooms serving students labeled as MD. Teachers labeled LD or CD were not included in this study nor were teachers serving students in general education settings. Also excluded were teachers of students in pre-K classes designed for students with MD. While obesity is a growing problem among that population as well, this study focused on teachers of children and adolescents with MD who were ages 5-21.

Possible subjects were found by searching school web pages for teachers of students with multiple disabilities. The researcher found that many schools listed teachers as simply "Special Education Teacher" or "Intervention Specialist" and did not classify them according to area of specialization. Though an exact number is not known, a substantial number of participants were disqualified from this study because the school web page did not provide this information.

Setting

According to <http://quickfacts.census.gov> Ohio's population was estimated at 11,542,645 in 2009, with 17.3% of these people believed to be of school age of. Furthermore, over 200,000 people between the ages of 5 and 20 are suspected to be living with a disability at this time. Information on the specifics of these disabilities was unavailable, but it can be surmised that a substantial portion of these people would be classified as having MD (it is estimated that 1-2% of all Ohio students have multiple disabilities and the 1% cap on Ohio students participating in Alternate Assessment may reflect this number (ODE, 2009). It is this group of young people, along with the perceptions of their teachers as they relate to obesity, in which this study hopes to collect evidence.

Procedures of Survey Development

Because the people selected as subjects are employed as teachers of students with MD, it can be expected that they are at least somewhat concerned about the health and well-being of their students. While this is likely a given, it is unknown how these teachers view their role as well parental and school roles in preventing obesity among their students. A questionnaire was developed (Appendix A) to examine these roles as well as to obtain demographic information about the population of students in classrooms serving students with MD. Demographic information included information on the school in which the teacher was employed by (regular or special public schools), how many students were served in their classroom, how many students were considered to be obese, amount of physical activity had by students during a typical school day and types of exercise in which students participate.

Because it was important to collect quantitative data on the subject, the survey (see Appendix A) included 14 statements designed using a Likert Scale format. Participants were asked to rate their level of agreement on a scale of 1-5 (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree). Responses to the Likert Scale items report the teachers' perceptions of the diet and exercise habits of their students (items 6, 7, 12, 16, 17, 18, 19), their perception of personal and school roles in educating students about diet and exercise (items 6, 7, 8, 10, 14, 15, 20) and perceptions of parental roles in educating students about health and exercise (items 9, 11, 13, 17).

Procedures for Data Collection

Approval to begin collection procedures for this study was granted by the Ohio University Institutional Review Board (IRB) on June 1st, 2009. On the same day, email messages were dispersed to Principals around Ohio requesting permission to contact eligible teachers working in their buildings. In all, 33 Principals were sent email messages regarding permission to contact teachers in their buildings. Included in the message was information regarding the purpose of the study along with a consent form regarding permission to contact teachers of students with MD. The contacted Principals were given the opportunity to contact the researcher by telephone or email if there were additional questions or concerns regarding the research. Two follow-up messages were sent to Principals who did not respond to the initial emails. Due to a low response rate, a request was made to the IRB to contact additional teachers. This request was approved and an additional 36 Principals were contacted on June 9, 2009 for permission to contact teachers. Despite attempts to contact additional Principals, the response rate remained low (14 of 69 gave permission). It is believed that the low response

rate was likely due to a combination of several factors. Ohio's school year comes to an end during or around the first week in June. Because of this, many Principals may have been too busy to reply and some may not have received the initial request at all. Other Principals were unable to give approval because of school regulations limiting research request to employees only. In November, 2009 additional emails were sent to Principals from 11 of the schools contacted earlier that year with seven giving permission to contact their teachers. Due to the difficulty obtaining responses, data collection was stopped upon reaching a matched sample of 20 teachers from regular public schools and 20 teachers from special public schools.

Eligible participants were sent an email message containing a link to the 20 item questionnaire described earlier. Included with the link to the survey was a cover page describing the study and the purposes. The cover page explained that participation in the study was voluntary and that steps had been taken to protect their confidentiality. It also explained that completion of the survey constituted consent. The survey was hosted by SurveyMonkey.com, a web-based survey tool that allows researchers to design, distribute and collect surveys using the world-wide web. Survey Monkey provides tools allowing collected data to be analyzed quickly, all in a cost-effective manner. Survey Monkey allowed the researcher to protect password data, which was important given the sensitive nature of the information collected. Survey Monkey also allowed data to be collected anonymously. No personal identifiers of any kind were present on the survey.

The survey was designed knowing that teachers have many responsibilities at school and at home. With that in mind, it was created so that it could be completed quickly and with

little difficulty. It was estimated that the survey would be completed in no more than eight minutes.

After surveys had been collected, data was analyzed using survey monkey's data analysis tool. Data was downloaded into a table format displaying the results of each question from the survey. Data was reviewed and Likert scale items were given t-test to determine if significant statistical differences existed between the two subgroups. P-values range from 0-1, with values closer to zero being more statistically significant. The lower the p-value, the less likely an outcome is considered to be the result of chance. P-values of less than 0.05 will be considered significant for this study. In addition to examining statistical significance, p-values will also be used to see if any trends emerge among questions clusters.

Chapter 4

Results

The following section reviews the data collected from the 20 item questionnaire utilized during the period of this study. Analysis of the data will attempt to compare and contrast trends in obesity among students with MD as perceived by their teachers, who were divided into two subgroups. Those subgroups were 1) teachers of students with MD in regular public schools and 2) teachers from special schools designed for students with MD. Teacher perceptions of the exercise and nutrition habits of students as they occur in those subgroups will be compared, along with the perception teacher's have of parental roles in helping their children meet the recommendations set by the CDC.

It should be mentioned that the data collected should be considered meticulously. The sample size used for this study is large enough to provide statistical data related to the research questions, but represents the perceptions of only 40 teachers of students with MD who were working in Ohio classrooms during the time period in which responses to questionnaires were being collected.

Question 1 provided the researcher with information necessary to identify the two subgroups; one subgroup being teachers of students with MD from regular public schools and the other being teachers of students with MD from special public schools. Twenty (50%) of the participants in this study were teachers from regular public schools and 20 (50%) were teachers from special public schools. Including question 1, a total of 20 questions were asked, with 100% of respondents answering 95% (19 of 20) of the questions.

Questions 2 asked teachers to report the total number of students in their classrooms. The 20 teachers of students with MD from the regular public schools reported a total of 158 students for a mean class size of 7.9 students in comparison to a total of 147 students for a mean of 7.0305 students per class as reported on by the teachers of students with MD in special public schools.

Question 3 asked teachers to report how many of these students were obese. In all, 22 (13.924%) of 158 students with MD from regular public schools were reported as being obese, while 33 (22.449%) of 147 students with MD from special public schools were reported as being obese. The 13.9% of students with MD from regular public schools in Ohio who were obese is 4 percentage points below the national average of 17% of students who are obese. On the other

hand, 22.449% of students in special public schools were described as being obese, which exceeds the national average of 17%.

Questions 4, 5, 6 and 15 examined how much time students were perceived to be exercising and what they were doing during that time. A majority of teachers from the regular schools (65%) and special schools (65%) reported that their students fell into the 15-30 minutes or 30-45 minutes categories. None of the teachers surveyed reported that their students participated in no physical activity during a typical school day. Only 15% of teachers of students with MD from regular public schools and 5% of teachers from special public schools communicated that their students were getting 60 minutes of physical activity during their school day. Despite this, most teachers from each subgroup believed that there is enough time for students to exercise at school during a typical day. Seventy percent of teachers from regular public schools believed there was enough time to exercise at school and 60% of teachers from special public schools believed there was enough time. Twenty percent of teachers from regular public either disagreed or strongly disagreed with time being a limiting factor compared to 25% at special public schools. A t-test of the data found p value of 0.7504 indicating the difference between the two subgroups was not statistically significant.

Walking was the form of exercise reported most frequently on the survey (89.5% of students participated) according to teachers from both subgroups. Among the least common types of exercise reported were baseball, football, gardening and hiking. Table 1 reports the types of exercises teachers reported their students participated in.

| Activity | Regular Public School | Special Public School |
|-----------------|------------------------------|------------------------------|
| Aerobics | 52.6% (10) | 42.1% (8) |
| Baseball | 10.5% (2) | 5.3% (1) |
| Basketball | 31.6% (6) | 36.8% (7) |
| Biking | 5.3% (1) | 47.4% (9) |
| Bowling | 31.6% (6) | 52.6% (10) |
| Dance | 36.8% (7) | 26.3% (5) |
| Football | 0.0% (0) | 5.3% (1) |
| Gardening | 0.0% (0) | 10.5% (2) |
| Hiking | 0.0% (0) | 21.4% (4) |
| Softball | 5.3% (1) | 15.8% (3) |
| Soccer | 5.3% (1) | 15.8% (3) |
| Swimming | 52.6% (10) | 63.2% (12) |
| Track & Field | 26.3% (5) | 26.3% (5) |
| Walking | 89.5% (17) | 89.5% (17) |
| Weight Training | 42.1% (8) | 26.3% (5) |

Table 1

Teachers were asked to list any additional activities in which their students participated. Activities included miscellaneous forms of exercise done in Adapted Physical Education classes (3), general education physical education classes (3), water aerobics (1), fitness class (1), swinging (1), floor scooters (1), roller skating (2), jumping (1), cheerleading (1) and various work experiences (1).

Questions 7, 12 and 18 reflected teacher perceptions of accessibility to various forms of exercise. Data collected from these items was analyzed using unpaired t-tests because of rating averaged differences greater than one between the two subgroups. Question 7 asked the teachers if their students participated in sports or other forms of exercise with general education peers. Ninety-five percent of teachers from special public schools either disagreed or strongly disagreed that their students participate in sports and other types of exercise with general education peers. Meanwhile, 55% of teachers from regular public schools believed that their students participated with general education peers in sports and other types of exercise. The mean response for teachers from regular public schools was 3.35 (SD=1.31) to 1.30 (SD=0.73) for teachers from special public schools. An unpaired t-test was conducted due to a difference of >1.0 on the rating average for this item. An extremely significant p-value of 0.0001 was found, which suggest strongly that students with MD in regular public schools have a greater possibility of accessing exercise with general education peers than students with MD in special public schools. Question 12 asked teachers from the two subgroups if they believed their students exercise choices were limited by their disability. A rating average of 2.75 (SD=1.07) was found among teachers from regular public schools indicating that those teachers tended to disagree with the statement, while a rating of 4.20 (SD=1.11) was found among the teachers from special public schools indicating that they tended to agree with the statement. A t-test on the responses found a p-value of 0.0001 which also indicated that teachers from special public schools were more likely to believe their students' exercise choices were limited by their disabilities than those from regular public schools. Question 18 asked teachers if the health concerns of their students with MD limited exercise choices. A rating average of 2.45

(SD=0.83) was found for teachers from regular public schools and an average rating of 3.30 (SD=0.98) was found for teachers from special public schools indicating that teachers of students with MD from regular public schools were less likely to agree with this statement than teachers of students with MD from special public schools. A t-test on the data found a p-value of 0.0052, which is considered to be statistically significant.

Questions 8, 10, 14 and 20 were intended to gather information regarding the health habits and health knowledge of the teachers surveyed. Question 8 asked if teachers understood the health risks associated with obesity. Both groups tended to agree that they were aware of the risks as 100% of teachers of students with MD from regular public schools either agreed or strongly agreed with the statement as did 95% of teachers of students with MD from special public schools. Question 10 asked the teachers if educating their students about making healthy food choices was a regular part of their curriculum. The survey showed that 85% of teachers of students with MD from regular public schools agreed or strongly agreed with this statement while 65% of teachers of students with MD in special schools agreed or strongly agreed with the statement. A p-value of 0.0575 indicated the difference on this item was not quite statistically significant. Item 14 asked teachers if they exercised regularly. The rating average was 4.10 for each subgroup, which indicates that teachers from both groups tended to agree with that statement. Item 20 asked teachers if they ate a balanced diet. Only 10% of the teachers from the regular public school subgroup indicated that they strongly disagreed or disagreed with that statement while 70% agree or strongly agreed with the statement. None of the teachers from the special public school subgroup disagreed with the

statement, while 90% agree or strongly disagreed. A p-value of 0.0330 was found indicating that the difference between the two subgroups was statistically significant.

Questions 9, 11, 13, 16, 17 and 19 were selected to gather data regarding teacher perceptions of the health and nutrition knowledge and practices of their students and the parents of those students. Item 9 asked teachers if they believed their students should exercise more at home. Teachers from both subgroups were in relative agreement on this statement. One hundred percent of teachers of students with MD from regular public schools agreed or strongly agreed that students should exercise more at home, while 95% of teachers from the special public schools subgroup agreed or strongly agreed with the statement (one teacher from the latter group answered neutral). Item 17 asked teachers if their students had time to exercise at home. The rating average for this question was 4.05 for teachers from the public school subgroup and 3.60 for teachers from the special school subgroup. A p-value of 0.0798 was found indicating the difference between the subgroups was not statically significant.

Item 11 asked teachers to rate their level of agreement or disagreement with the statement, "parents are more responsible for preventing obesity in their children than teachers." A rating average of 4.05 was found in the teachers in regular public schools subgroup and an average of 3.90 in the special public schools subgroup. In all, 90% of regular public school teachers agreed or strongly agreed with the statement while 75% of teachers in special public schools agreed or strongly agreed (35% answered neutral). Similar levels of agreement were found on item 13 which asked teachers to rate their level of agreement or disagreement with the statement, "parents understand the health risks associated with obesity." Teachers

from each subgroup were in slight agreement that parents understand those risks as evidenced by rating averages of 2.90 among teachers of students with MD from regular public schools and 2.95 among teachers of students with MD from special public schools.

Items 16 and 19 asked teachers to rate their level of agreement or disagreement with the statements, “my students understand the importance of proper nutrition,” and “my students understand the health risks associated with obesity.” On item 16, teachers from both camps favored the responses strongly disagree, disagree and neutral. A t-test found p-value of 0.1983 indicating no significant statistical difference was found. Teachers from each subgroup responded similarly on item 19. Eighty-five percent of teachers from the regular public school subgroup answered that they disagreed or strongly disagreed that their students understood the health risks associated with obesity. Likewise, 75% of teachers from the special school subgroup responded the same way. Again a t-test found no significant statistical difference between the two subgroups (p-value 0.2797).

Chapter 5

Conclusions and Recommendations

The following chapter describes the conclusions and recommendations for future research in related topics. Also included is a section on the limitations of this study.

Conclusions

The data collected from the survey showed that there are differences in the way teachers of students with MD who work in different settings (in this case regular public schools

and special public schools) perceive the exercise and nutrition habits of students, along with the role of the school and parents in preventing obesity. Teachers from regular public schools reported that considered 13.924% of their students to be obese, while teachers from special public schools reported 22.449% of students with MD to be obese. The latter statistic is somewhat staggering. It suggest that, at least in Ohio, students with MD who attend special public schools are more than 1 ¼ times more likely to be obese than the general population. On the other hand, teachers from regular public schools report less obesity among their students with MD than is seen in the general population. This seems to indicate that regular public schools may be doing something right for students with MD when it comes to preventing obesity, at least in comparison to the special public schools. This may also mean that children and adolescents who are obese have great health complications and are thus more likely to receive special education services in a more restrictive environment.

Nevertheless if there is less obesity in regular public school students with MD, it is interesting how these statistics coincide with the items related accessibility to various types of exercise. Teachers from regular public schools were much more likely to report that their students were participating in sports and exercise with general education peers (only 5% of teachers from special public schools reported that their students participated with general education peers). It isn't surprising that students in regular public schools have more access to general education peers as much of their education takes place in the same building. More surprising perhaps is that the subgroups perceived health factors and the nature disability differently. Teachers from special public schools were more likely to view health concerns and

disabilities as limiting factors when it comes to exercise choices. It may also mean that those students with greater health issues are more likely to attend a special public school.

Another trend that emerged was that only 10% of the teachers surveyed reported that their students get the 60 minutes of daily exercise recommended by the CDC (2008). In both subgroups a majority of students were reported to fall between 15 and 45 minutes of daily exercise. This isn't necessarily bad, because some students are physically active outside of school. However, 10% of teachers from regular public schools and 15% of teachers from special public schools reported that their students exercised for 0-15 minutes during a typical school day. Teachers from both subgroups were in virtual agreement that students should exercise more at home and they may be correct. However, teachers cannot make students exercise at home. If barriers to exercise exist outside the school, the child may have difficulty reaching the 60 minutes recommended by the CDC (2008). This would be of particular concern to the children who are getting fewer than 15 minutes of exercise during a typical school day.

Another trend that emerged was that teachers from both subgroups doubt the understanding their students have of good lifestyle habits. Teachers from both groups felt their students lacked an understanding of proper nutrition and the health risks associated with obesity. Similar ratings from each group on each of the statements emerged indicating that students with MD could benefit from more of an emphasis on health education at school. However, most of the teachers surveyed reported that educating students about nutrition is already a regular part of their curriculum. Increasing the amount of time spent on nutrition and exercise may mean less time is available for other important activities.

Teachers tended to view their knowledge of health risks associated with obesity and nutrition and exercise habits favorably. Little difference was seen between the two groups regarding knowledge of the health risks associated with obesity as nearly everyone agreed or strongly agreed that they understood the dangers of obesity (only one teacher answered neutral). Seventy percent of respondents from each group agreed or strongly agreed that they exercised regularly and most claimed to eat a balanced diet.

The subjects had less confidence in their students' parents than they did in themselves. Only 30% of teachers from regular public schools and 35% of teachers from special public schools felt that parents understood the risks associated with obesity. Meanwhile, 39 of the 40 teachers surveyed agreed or strongly agreed that they understood those same risks. As evidenced by similar rating averages, teachers also felt that parents were owed more of the responsibility when it came to preventing obesity.

Limitations

A number of limitations must be mentioned in considering this data. First, the sample used in this study represents only a small portion of teachers of students with MD from the state Ohio. Given that this study had only 20 participants in each subgroup, it would be misleading to suggest that these findings are indicative of all teachers of students with MD in Ohio, let alone nationally. That a small sample population was used is the result of a low response rate to the survey.

A large number of variables could not be analyzed due to time constraints on the researcher and the participants involved. The survey was limited to 20 questions so as to have minimal impact on the already busy lives of teachers. It was feared that additional questions might make the survey too time-consuming, thus several items of interest were left out. Among the unknowns is how the age of the individual contributed to the answers. It is also unclear what specific age groups of the student whom the teachers were working with. The instructions on the survey asked that teachers of students ages 5-21 respond. The results might have looked quite different had a specific age group been targeted by the study.

It is also unknown how teachers defined obesity and what they considered to be a balanced diet. What constitutes a balanced diet for one person can be very different from what makes up a balanced diet for another. The same idea can be applied to exercise. What is considered exercise by one of the teachers could be very different from what is considered exercise by another teacher. After all, there are some people who can run for miles without getting winded, while others have difficulty climbing a set of stairs.

This survey cannot account for honesty either. A majority of the teachers surveyed reported that they had a balanced diet, exercise regularly and had a good understanding of the risks factors associated with obesity. Research indicates that this is unlikely. While 80% of teachers from each subgroup answered agree or strongly agree to the statement, "I exercise regularly," the President's Council on Physical Fitness and Sports (2010) claims only 30% of adults exercise. That teacher's perceptions of themselves may be inaccurate does not insinuate

that they were knowingly dishonest. Because the schema of each individual is unique, what may appear to be a dishonest response could be genuine in his or her mind.

Lastly, the survey did not ask teachers to describe the unique circumstances of their students. It was reported in this study that a larger percentage of teachers from special public schools perceived health issues and disability as barriers to exercise. This survey did not ask questions about medical diagnoses and the nature of the disabilities of the students. Such questions could help determine if health concerns and individual disabilities were in fact preventing students from exercising.

Recommendations

The information gathered during this study may be of benefit to teachers of students with MD on several levels. It became apparent that many of the teachers surveyed did not believe their students knew enough about exercise and nutrition. As discussed in chapter two, proper nutrition is important for young people for a number of reasons. It is essential for the growing bodies and brains of all students, perhaps even more so for students with MD. That so many of the teachers surveyed were not confident in their students' ability to make wise food choices indicates this is an area that needs to be developed. The typical diet of children and adolescents with and without disabilities is lacking in fruits and vegetables, and is sugar and fast food laden, which makes the fight against obesity an uphill battle (Gomez, Leblanc & Murray, 2006). To win this fight, it may be necessary for teachers of students with MD make an increased effort to develop new materials and devote more time educating their students about healthy food choices.

It goes without saying that instructional practices vary from school to school, but in light of the findings of this study it could be recommended that special public schools, in general, work to provide their students with more opportunities to exercise with students who participate in general education. The social benefits are enormous and based on this study, it appears that children with MD who exercise with general education peers are less likely to be obese than those who exercise only with other students with MD. Participating in exercise and sports with general education peers does not mean sitting on the sideline and watching, keeping score or working with an intervention specialist on a different activity while in the presence of general education peers (Ryan, Tripp, Rizzo & Webbert, 2007). It would be preferred to have students with MD participating with general education peers with any needed accommodations, while maintaining the least restrictive environment. This approach would have benefits for the general education students as well (Rizzo & Webbert, 2007).

Too many children are sedentary for a large portion of their day (Gomez, Leblanc & Murray, 2006). For children with disabilities it could be theorized that the lack of access to varied exercise choices is likely to increase sedentary behaviors like watching television or playing video games. Some students with MD may not like exercise and thus not participate because they have yet to be exposed to a form of exercise they can enjoy. Finding an enjoyable type of exercise may be enough to get some students up and moving.

Lastly, it is important for teachers, paraprofessionals, parents and doctors to work together to develop exercise plans for students whose disability and/or health concerns limit their exercise choices. Not everyone can do everything, but almost everyone can do

something. By working with physical therapists and doctors, parents and teachers are likely to learn what types of exercise are appropriate for children whose exercise choices are limited. Likewise, involving a dietician may be worthwhile as they have more expertise on what goes into our bodies than most doctors. This would also be of benefit to teachers and parents who are not clear as to what constitutes a healthy diet. Being aware of what constitutes healthy lifestyle choices may help teachers and parents mold and model good exercise and eating behaviors.

References

- Aldridge, J., Pullen, J., & Whelan, C. (2004). A Survey of the Nutritional Status of Adults and Children Using the Learning Disability Services of a Health Trust. *The Journal of Intellectual Disabilities, 4*(2), 141-152.
- American Secretary for Planning. (July, 2008). What Challenges are Boys Facing and What Opportunities Exist to Address those Challenges. Retrieved May 2, 2009, from <http://aspe.hhs.gov/hsp/08/boys/Findings1/brief.shtml>
- Bandini, L., Curtin, C., Hamad, C., Tybor, D., & Must, A. (2005). Prevalence of overweight in children with developmental disorders in the continuous national health and nutrition examination survey (NHANES) 1999-2002. *The Journal of Pediatrics, 146*(6), 738-743.
- Brylinsky, J., Moore, J., The identification of body build stereotypes in young children. *Journal of Research in Personality, 28*(2), 170-181.
- Cardinal, B. J., Kosma, M., & McCubbin, J. A. (2004). Factors Influencing the Exercise Behavior of Adults with Physical Disabilities. *Medicine and Science in Sports and Exercise, 36*(5), 868-875.
- Cloud, H., (1993). Feeding Problems of the Child with Special Health Care Needs. In S.Walberg Ekvall (Ed.), *Pediatric Nutrition in Chronic Diseases and Developmental Disorders* (pp. 203-217). New York: Oxford University Press.
- De, S., Small, J., & Baur, L. (2008). Overweight and obesity among children with developmental disabilities. *Journal of Intellectual & Developmental Disability, 33*(1), 43-47.

- Durstine, J., Painter, P., Franklin, B., Morgan, D., Pitetti, K., & Roberts, S. (2000). Physical activity for the chronically ill and disabled. *Sports medicine (Auckland, N.Z.)*, 30(3), 207-219.
- Emerson, E. (2009). Overweight and obesity in 3- and 5-year-old children with and without developmental delay. *Public Health (Nature)*, 123(2), 130-133.
- Fragala-Pinkham, M., Haley, S., Rabin, J., & Kharasch, V. (2005). A fitness program for children with disabilities. *Physical Therapy*, 85(11), 1182-200.
- National Guideline Clearinghouse. (n.d.). Active healthy living: prevention of childhood obesity through increased physical activity. Retrieved June 6, 2010 from http://www.guideline.gov/summary/summary.aspx?ss=15&doc_id=9271&nbr=4962
- Ho, T. (2009). Cardiovascular risks associated with obesity in children and adolescents. *Annals Academy of Medicine Singapore*, 38(1), 48-59.
- Johnson, C. (2009). The benefits of physical activity for youth with developmental disabilities: a systematic review. *American Journal of Health Promotion*, 23(3), 157-167.
- Jones, S. E., & Lollar, J. (2008). Relationship Between Physical Disabilities or Long-Term Health Problems and Health Risk Behaviors or Conditions Among US High School Students. *The Journal of School Health*, 78(5), 252-257.
- King, G., Law, M., King, S., Rosenbaum, P., Kertoy, M., & Young, N. (2003). A conceptual model of the factors affecting the recreation and leisure participation of children with disabilities. *Physical & Occupational Therapy in Pediatrics**, 23(1), 63-90.
- Koroni, M., Garagouni-Areou, F., Roussi-Vergou, C., Zafiropoulou, M., & Piperakis, S. (2009). The stigmatization of obesity in children. A survey in Greek elementary schools. *Appetite (APPET)*, 52(1), 241-254.

- Lee, Y. (2009). Consequences of childhood obesity. *Annals Academy of Medicine Singapore*, 38(1), 75-77.
- Li, Y., Dai, Q., Jackson, J., & Zhang, J. (2008). Overweight is associated with decreased cognitive functioning among school-age children and adolescents. *Obesity (Silver Spring, Md.)*, 16(8), 1809-1815.
- Lobstein, T., Baur, L., & Uauy, R. (2004). Obesity in children and young people: a crisis in public health. *Obesity Reviews*, 5 Suppl 1, 4-104.
- Mallory GB Jr, ., Fiser, D., & Jackson, R. (1989). Sleep-associated breathing disorders in morbidly obese children and adolescents. *The Journal of pediatrics*, 115(6), 892-897
- Majnemer, A., Shevell, M., Law, M., Birnbaum, R., Chilingaryan, G., Rosenbaum, P. et al. (2008). Participation and enjoyment of leisure activities in school-aged children with cerebral palsy. *Developmental Medicine & Child Neurology*, 50(10), 751-758.
- Mather, A., Cox, B., Enns, M., & Sareen, J. (2009). Associations of obesity with psychiatric Disorders and suicidal behaviors in a nationally representative sample. *Journal of Psychosomatic Research*, 66(4), 277-285.
- McBurney, H., Taylor, N., Dodd, K., & Graham, H. (2003). A qualitative analysis of the benefits of strength training for young people with cerebral palsy. *Developmental Medicine & Child Neurology*, 45(10), 658-663.
- Mink, M., Evans, A., Moore, C., Calderon, K., & Deger, S. (2010). Nutritional imbalance endorsed by televised food advertisements. *Journal of the American Dietetic Association*, 110(6), 904-910.

- Murphy, N., & Carbone, P. (2008). Promoting the participation of children with disabilities in sports, recreation, and physical activities. *Pediatrics*, *121*(5), 1057-1061.
- Neri M, Kroll T, Scheer J; Academy for Health Services Research and Health Policy. Meeting. *Abstracts of Academic Health Service Research Health Policy Meet.* 2001; 18: 17.
- Ohio Department of Education. (n.d.) Ohio's Alternate Assessment for Students With Disabilities. Retrieved June, 6, 2010 from <http://www.ode.state.oh.us/GD/Templates/Pages/ODEDetail.aspx?page=3&TopicRelationID=229&ContentID=8695&Content/Pages/ODE=74519>
- Patel, D., & Greydanus, D. (2002). The pediatric athlete with disabilities. *Pediatric Clinics of North America*, *49*(4), 803-827.
- Poskitt, E. (1987). Management of obesity. *Archives of Disease in Childhood*, *62*(3), 305-310.
- Schwartz, M., & Puhl, R. (2003). Childhood obesity: a societal problem to solve. *Obesity Reviews*, *4*(1), 57-71.
- Reisner, R. (2008, January 8). The Diet Industry: A Big Fat Lie. In *Business Week*. Retrieved May 3, 2009 from http://www.businessweek.com/debateroom/archives/2008/01/the_Diet_indust_htmil
- Rimmer, J., & Rowland, J. (2008). Physical activity for youth with disabilities: a critical need in an underserved population. *Developmental Neurorehabilitation*, *11*(2), 141-148.
- Tripp, A., Rizzo, T. L., & Webbert, L. (2007). Inclusion in Physical Education: Changing the Culture. *Journal of Physical Education, Recreation and Dance*, *78*(2), 32-36.
- Schwartz, M., & Puhl, R. (2003). Childhood obesity: a societal problem to solve. *Obesity Reviews*, *4*(1), 57-71.

- Schwarz, S., Corredor, J., Fisher-Medina, J., Cohen, J., & Rabinowitz, S. (2001). Diagnosis and treatment of feeding disorders in children with developmental disabilities. *Pediatrics*, *108*(3), 671-676.
- Tada, W., Baer, M., Robinson, N., & Ichiho, H., (1998) Meeting the Nutrition and Feeding Needs of Children With Disabilities. *The Journal of Research in Rural Education*, *14*(2), 76-84
- The U.S. Census Bureau. (n.d.) *Ohio Quickfacts from the U.S. Census Bureau*. Retrieved May 29, 2010 from <http://quickfacts.census.gov/qfd/states/39000.html>
- The U.S. Center For Disease Control. (n.d.) *Physical Activity Fact Sheet*. Retrieved May 1, 2009 from <http://www.cdc.gov/HealthyYouth/physicalactivity/facts.htm>
- The U.S. Center For Disease Control. (n.d.) *Physical Activity Fact Sheet*. Retrieved May 1, 2009 from <http://www.cdc.gov/HealthyYouth/obesity/>
- The U.S. Center For Disease Control. (n.d.) *2005 National Youth Risk Behavior Surveillance* Retrieved May 3, 2009 from <http://www.cdc.gov/mmwr/pdf/ss/ss5505.pdf>
- The U.S. Department of Health and Human Services. (n.d.). *Healthy People 2010*: Retrieved May 3, 2009 from http://www.healthypeople.gov/Document/HTML/uih/uih_4.htm
- The U.S. Department of Health and Human Services. (n.d.) *The Surgeon General's Vision for Healthy and Fit Nation*. Retrieved April 26, 2009 from http://www.surgeongeneral.gov/topics/obesity/calltoaction/fact_adolescents.htm
- Zick, C., Smith, K., Brown, B., Fan, J., & Kowaleski-Jones, L. (2007). Physical activity during the transition from adolescence to adulthood. [No Journal Title] *4*(2), 125-137.

Appendix A

Survey instrument

Please answer the following questions.

1. Which of the following best describes the school you work at. (Check only one answer)

- Which of the following best describes the school you work at. (Check only one answer) Public School
- Special Public School
- Regular Public School

2. How many students are in your class?

3. How many of your students would you consider to be obese?

4. How much physical activity do your students get during a typical school day?

- | | |
|-------------------------------------|-------------------------------------|
| <input type="radio"/> None | <input type="radio"/> 30-45 minutes |
| <input type="radio"/> 0-15 minutes | <input type="radio"/> 45-60 minutes |
| <input type="radio"/> 15-30 minutes | <input type="radio"/> 60+ minutes |

5. Which of the following activities do your students participate in? (Check all that apply)

- | | | |
|-------------------------------------|------------------------------------|--|
| <input type="checkbox"/> Aerobics | <input type="checkbox"/> Dance | <input type="checkbox"/> Soccer |
| <input type="checkbox"/> Baseball | <input type="checkbox"/> Football | <input type="checkbox"/> Swimming |
| <input type="checkbox"/> Basketball | <input type="checkbox"/> Gardening | <input type="checkbox"/> Track & Field |
| <input type="checkbox"/> Biking | <input type="checkbox"/> Hiking | <input type="checkbox"/> Walking |
| <input type="checkbox"/> Bowling | <input type="checkbox"/> Softball | <input type="checkbox"/> Weight Training |

Other (please specify)

6. My students exercise at school regularly.

- | | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| . | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

7. My students participate in sports and/or exercise with general education peers.

- | | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| . | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

8. I understand the health risks associated with obesity.

Strongly Disagree Disagree Neutral Agree Strongly Agree

.

9. Students should exercise more at home.

Strongly Disagree Disagree Neutral Agree Strongly Agree

.

10. Educating students about healthy food choices is a regular part of my curriculum.

Strongly Disagree Disagree Neutral Agree Strongly Agree

.

11. Parents are more responsible for preventing obesity in their children than teachers.

Strongly Disagree Disagree Neutral Agree Strongly Agree

.

12. The exercise choices of my students are limited by their disability.

Strongly Disagree Disagree Neutral Agree Strongly Agree

.

13. Parents understand the health risks associated with obesity.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| . | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

14. I exercise regularly.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| . | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

15. There is not enough time for students to exercise at school.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| . | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

16. My students understand the importance of proper nutrition.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| . | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

17. Students have time to exercise at home.

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| . | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

18. Health concerns limit the exercise choices of my students.

Strongly Disagree Disagree Neutral Agree Strongly Agree

.

19. My students understand the health risks associated with obesity.

Strongly Disagree Disagree Neutral Agree Strongly Agree

.

20. I eat a balanced diet.

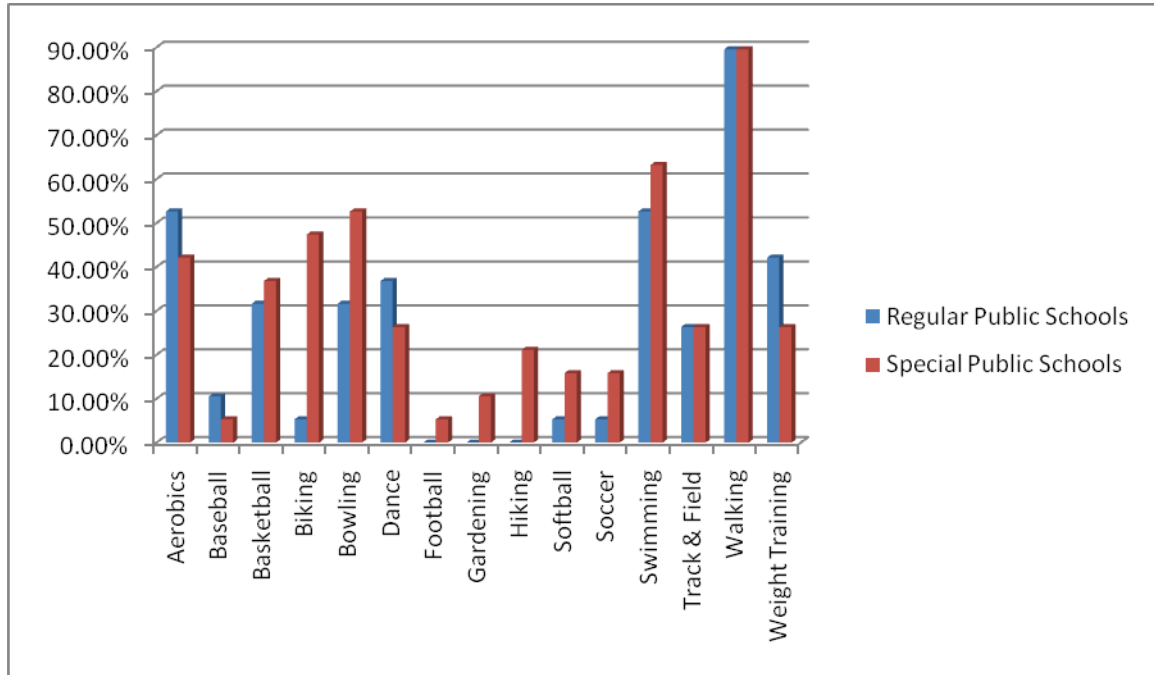
Strongly Disagree Disagree Neutral Agree Strongly Agree

.

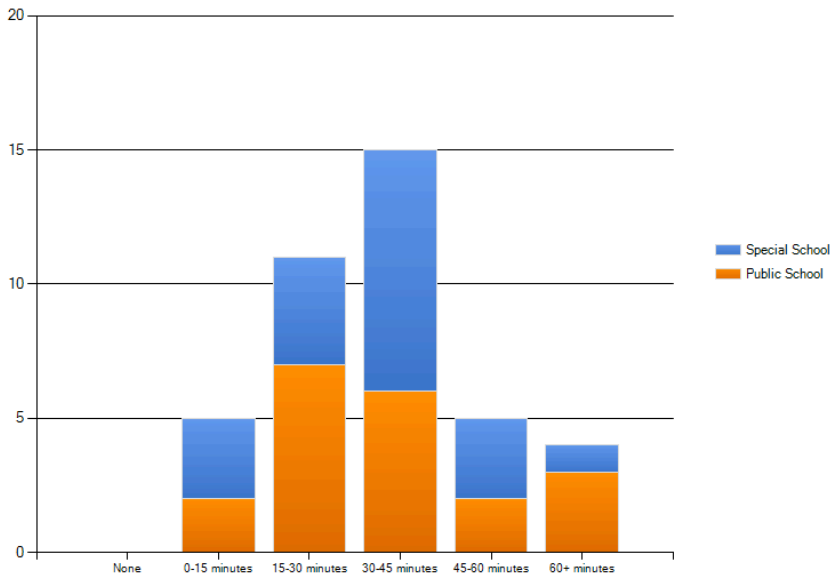
Appendix B

Table and Graphs of Survey Results

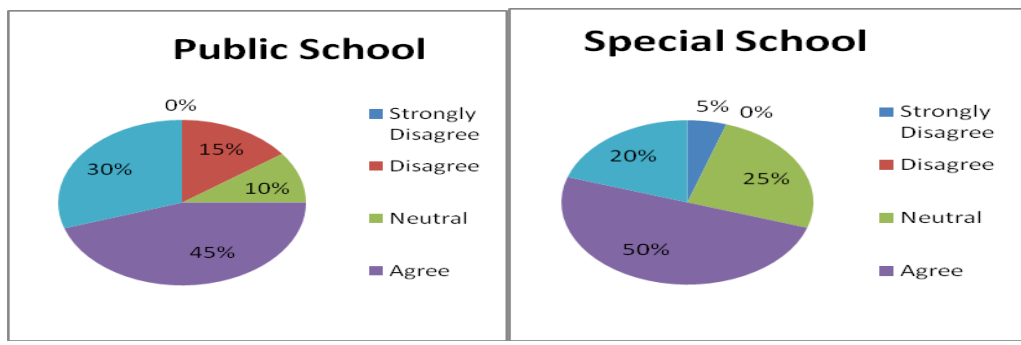
Physical Activity Students With MD Participate In As Reported By Teachers from Regular Public Schools and Special Public Schools.



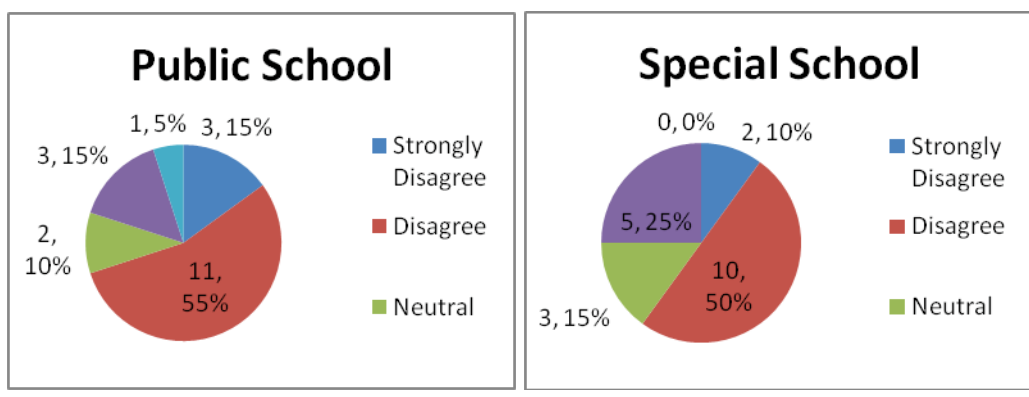
How much physical activity do your students get during a typical school day?



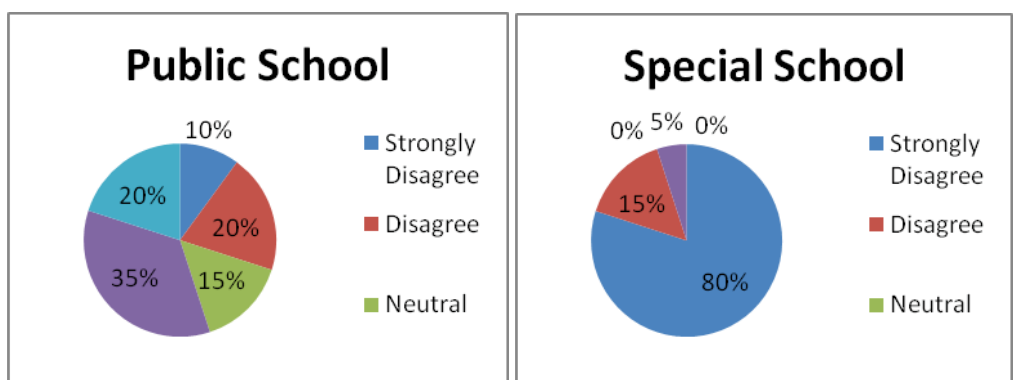
My Students Exercise Regularly At School.



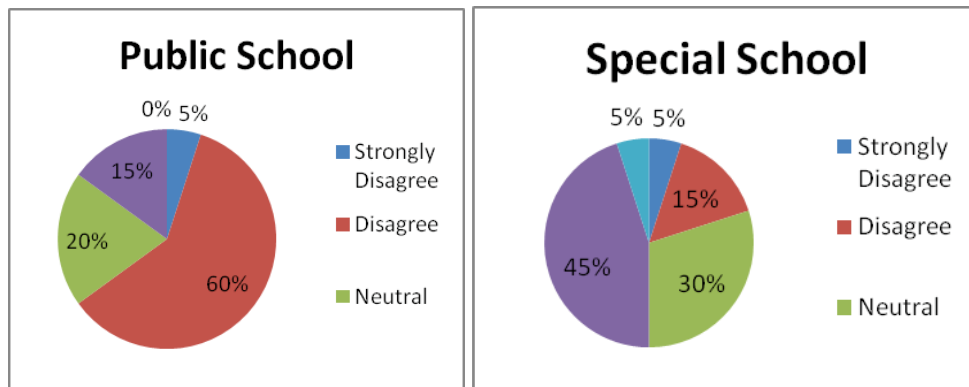
There is not enough time for my students to exercise at school.



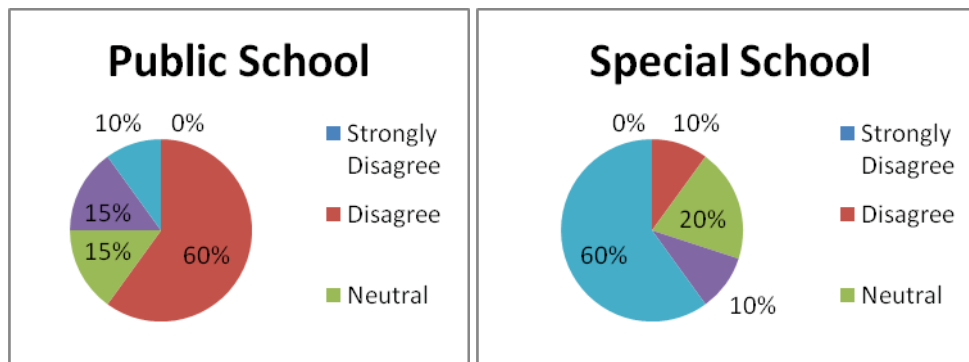
My students participate in sports and exercise with general education peers.



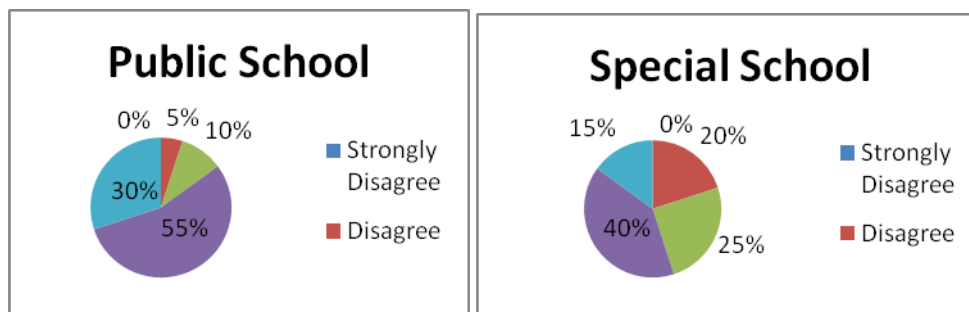
Health concerns limit the exercise choices of my students.



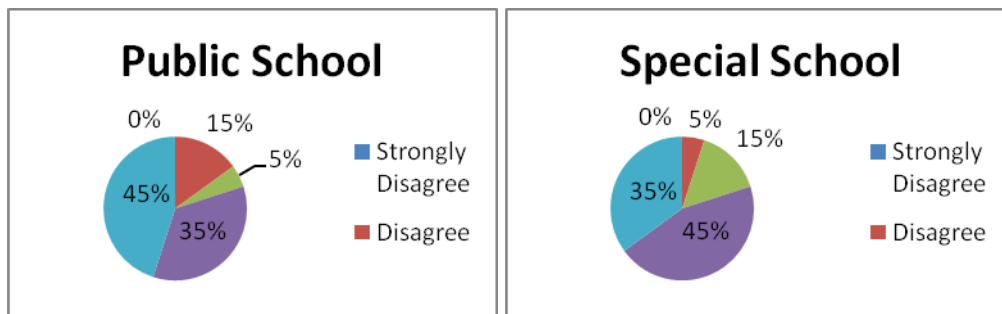
My students disability limits their exercise choices.



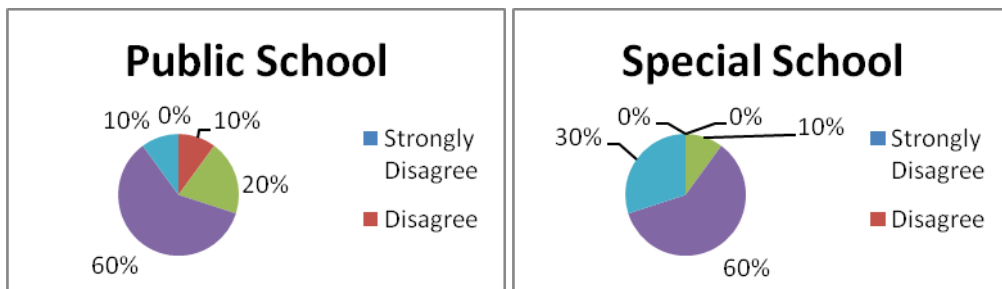
Educating students about healthy food choices is a regular part of my curriculum.



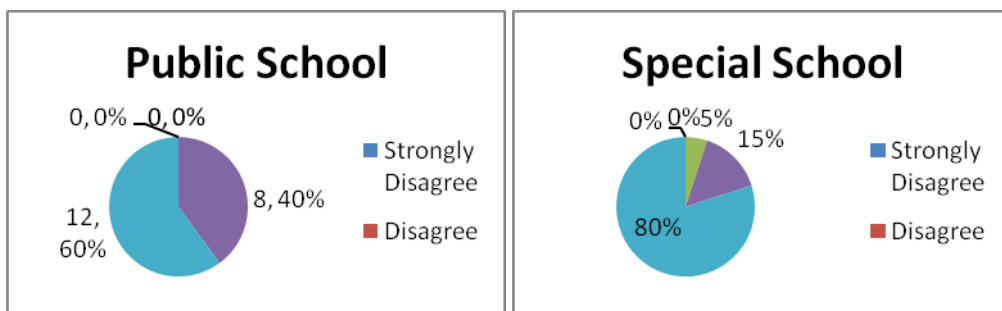
I exercise regularly.



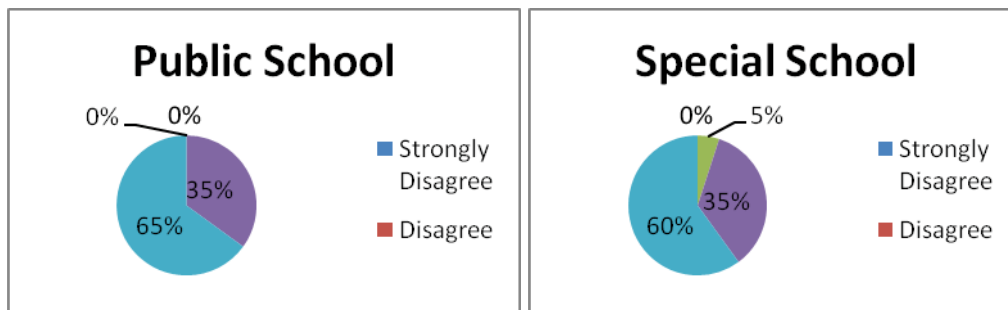
I eat a balanced diet.



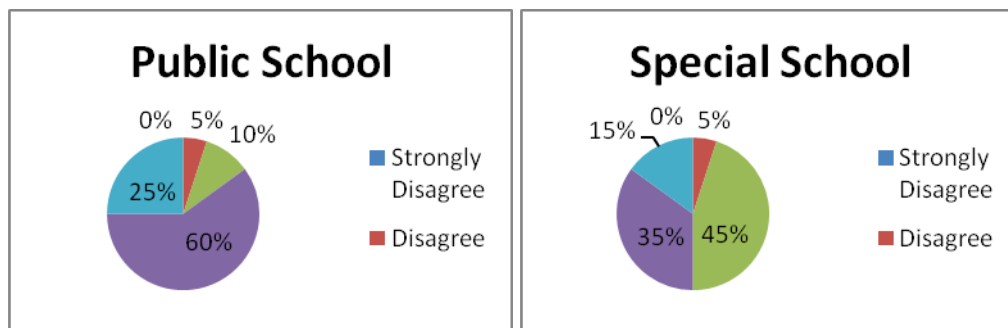
I understand the health risks associated with obesity.



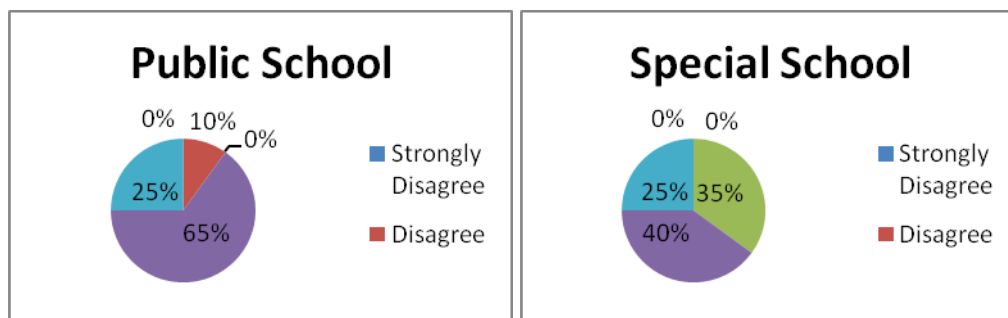
Students should exercise more at home.



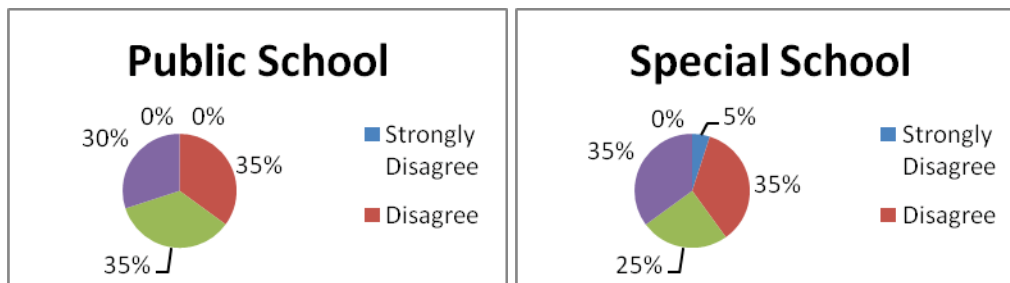
Students have time to exercise at home.



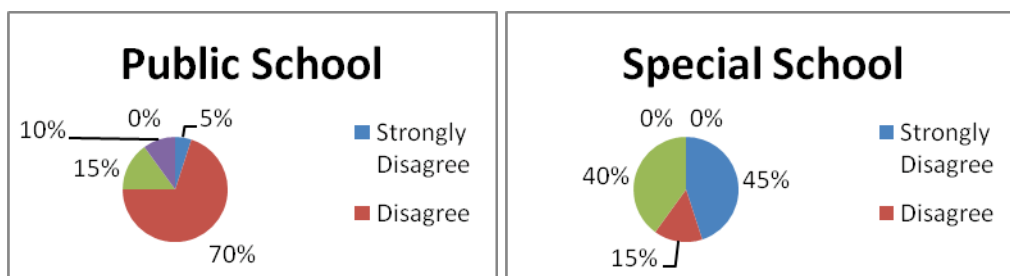
Parents are more responsible than teachers for preventing obesity in their children.



Parents understand the health risks of obesity.



My students understand the importance of proper nutrition.



My students understand the health risks associated with obesity.

