The Obese Child: Motivation as a Tool for Exercise

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ABSTRACT

The purpose of this article is to describe the importance of motivation in enhancing the participation of obese children in exercise activities. Recognizing the different influences that are important determinants of exercise behavior in children may help pediatric nurse practitioners play a significant role in advising parents and others of the need to offer positive, constructive, and immediate feedback without being evaluative, critical, or demanding. By addressing the problems of obesity and low fitness levels early in the child's life, a significant step can be taken toward reversing the negative trends of this unhealthy and potentially dangerous condition.

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Motivating obese children to exercise can be a formidable task for pediatric nurse practitioners (PNPs) and other health care providers. However, properly motivating youngsters from the outset can help make the task easier. Some knowledge of motivation is helpful to determine how an obese child will perform on any given exercise at any given time. It is important to establish baseline information regarding an obese child's performance before beginning an exercise program and then motivate the child in such a way that he or she wants to continue exercising. The purpose of this article is to describe the factors involved in motivating obese children to exercise, including how verbal motivation can help obese children achieve a greater exercise output, thereby potentially enhancing participation in exercise or sporting activities.

BACKGROUND

For the past several decades, the average American adult has become less active, less physically fit, and subsequently more obese (Sothern et al., 1999; U.S. Department of Health and Human Services, 1996). According to several studies, children have adapted this adult "stereotype" and also are becoming more obese and less active. In fact, several youth fitness test results indicate that children weigh more and have more body fat than did their counterparts 30 years ago. In addition, 50% of youth are not physically active enough for the development of healthy cardiorespiratory systems (Hunter, Bamman, & Hester, 2000; Ross & Gilbert, 1985; Sothern et al., 1999). As a result, concern exists that children may not be active enough to achieve and retain the health benefits of an active lifestyle (Biddle & Armstrong, 1992). Although at present no guidelines have been established

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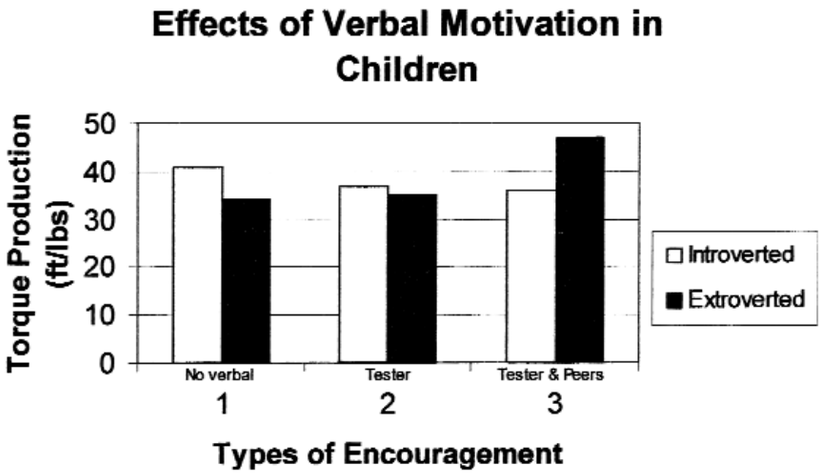

FIGURE Three different types of encouragement have an effect on the child's performance levels. 1. No verbal = no verbal encouragement from tester or peers; 2. tester = verbal encouragement from tester only; 3. tester & peers = verbal encouragement from both the tester and peers.

regarding when children should begin exercise programs, getting children to exercise regularly early in their lives could lead to decreased cardiovascular disease (CVD) risk factors and increased cardiovascular fitness into adulthood (U.S. Department of Health and Human Services, 1996).

Exercise-induced physiologic changes in obese youth have been well established in the literature (Becque, Katch, Rocchini, Marks, & Moorehead, 1988; Rocchini et al., 1988). These changes include increased resting metabolic rate, muscle hypertrophy, and decreased percentage of body fat. Continued physical activity and exercise following weight loss are considered critical in managing weight and preventing weight from being regained. Physical activity and exercise increase total daily energy expenditures, help maintain or increase fat free mass, and enhance the loss of body fat. According to the National Children Youth and Fitness Study, approximately 50% of today's youth participate in appropriate physical activities that would lead to long-term health promotion (Gortmaker, Dietz, & Sobol, 1987; Huttunen, Knip, & Paavilainen, 1986; Lenfant, 1992). However, more than 25% of the children in the United States are considered clinically obese (with a weight that is 20% above ideal body weight being considered obese) (Sothern et al., 1999). The American College of Sports Medicine (ACSM) (1988) and the American Academy of Pediatrics (AAP) (1998) have issued policy statements stressing the importance of physical activity for the health of young people and the need to sustain the activity into adulthood. The ACSM also has suggested that pediatric health care providers need to become more actively involved in promoting physical fitness for children. The AAP endorses an enhancement of physical fitness and activities in schools. Physical fitness also can be achieved by participating in activities sponsored by other organizations, such as local "Parks and Recreation" and kids fitness clubs such as the YMCA and Boys and Girls Clubs of America.

Obesity has been shown to greatly increase the stress to working muscles and joints, resulting in discomfort.

What determines obesity? Body mass index (BMI) calculated within chronological age groups is an effective measure for determining obese status (Himes & Dietz, 1994). However, this measurement is not used until a child has attained adult height. BMI can be calculated with use of the following equation:

BMI = body fat (kg) ÷ height (meters)^2

It has been determined that children with BMIs greater than or equal to the 95th percentile (>30 kg/m^2) are considered obese and those with BMIs between the 85th and 95th percentiles are at risk for becoming overweight (Must, Dallal, & Dietz, 1991).

As the problem of obesity continues, the child becomes more inactive. Some researchers and fitness professionals believe that this inactivity could be attributed to an increase in discomfort associated with physical activity (Nolen-Hoeksema, Girgus, & Seligman, 1986). Obesity has been shown to greatly increase the stress to working muscles and joints, resulting in discomfort. In addition, the cardiovascular system in obese children is overworked, often resulting in premature cardiovascular fatigue (Nolen-Hoeksema et al., 1986).

Many people assume that children are naturally active and participate readily in physical activities that lead to and help them maintain high levels of fitness during their early years. However, society has changed to encourage a more sedentary lifestyle. Children's activity levels decline through the teenage years, with girls being less active than boys. Today there is a greater availability of sedentary pursuits that can lure children away from physical activities (Biddle & Armstrong, 1992). McArdle, Katch, and Katch (2000) reported that children between the ages of 6 and 11 years spend as much time watching TV as they do attending school (average 26 hours per week). In addition, toy manufacturers lure children into playing "electronic games" (ie, computer or video games) that do little more than exercise the fingers. Other factors also may influence a sedentary lifestyle, such as living in an apartment, unsafe neighborhood environments, lack of time for parents to spend with children in recreational pursuits, and the cost of participation in and/or equipment for extracurricular sporting activities. The number of children who have adopted a sedentary

lifestyle is of great concern because this lifestyle contributes to major health problems other than obesity, such as asthma, diabetes, hypertension, and coronary heart disease. By the age of 16 years, a child in the United States has a 1 in 5 chance of having clinical symptoms of coronary heart disease (DeMarco & Sidney, 1989).

DETERMINANTS OF EXERCISE FOR CHILDREN

The roots of many behavior patterns that have significant implications for a healthful lifestyle are established during childhood and adolescence (Baranowski et al., 1992; Flaherty, 1986; Hester, 1987; Sallis & Patrick, 1994). Evidence exists to support probable links between childhood inactivity and CVD risk factors (Frerichs, Webber, Voors, Srinivasan, & Berenson, 1979; Parker & Bar-Or, 1991). Children's attitudes toward long-term exercise, health, and fitness are different than those of adults. Childhood is an ideal time to develop healthy attitudes and behavior patterns toward exercise. Whereas adults may be more concerned with enhancing their level of cardiovascular fitness and improving their blood lipid profile, children just want to have fun and build friendships.

A number of influences appear to be important determinants of exercise behavior for children. Research has supported a strong relationship between the exercise patterns of parents and children, which implicates parental modeling as a crucial influence (Stucky-Ropp & DiLorenzo, 1993). In other words, physically active parents tend to have more physically active children. Other important factors include the child's enjoyment of physical activity, the friends' support of exercise, and the child's self-efficacy. Other studies have shown that children's activity levels are related to prompts to be active (Klesges, Eck, Hanson, Haddock, & Klesges, 1990; Sallis et al., 1993).

How can health care practitioners motivate obese children to want to exercise, especially when their parents do not exercise? Preliminary data from a pilot study conducted by one of the authors have shown that verbal motivation can play a key role in improving outcomes during exercise for some children (Figure 1.)

FACTORS AFFECTING EXERCISE PARTICIPATION

Motivation

Making exercise a positive, fun activity is important for any child, especially an obese one, because forcing a child to exercise may have negative consequences for later adult activity (Taylor, Blair, Cummings, Wun, & Malina, 1999). Rather than focusing entirely on fitness skills and sports performance, efforts should be redirected toward improving fundamental physical activity skills such as running, jumping, twisting, kicking, and balancing in noncompetitive and nonthreatening settings.

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According to the Social Cognitive Theory, children are motivated to exercise if they believe that the targeted behavior will benefit them (outcome expectancy) and if they believe that the intended behavior is attainable (self-efficacy).

However, obese children cannot be motivated in the same way as children of normal weight. Not only are obese children physiologically different from children of normal weight, but they also have demonstrated significant emotional differences (Sothern et al., 1999). For these children, lack of motivation to exercise has also been attributed, in part, to the idea of "learned helplessness." These learned helplessness deficiencies are summarized in Box 1.

BOX 1 Learned helplessness deficiencies contributing to lack of motivation to exercise

1. Passivity/nonassertiveness
2. Cognitive flaws and inability to recognize existing opportunities to control outcomes
3. Sadness
4. Lowered self-esteem
5. Lowered competitiveness
6. Lack of motivation, initiative, and persistence

Data from Sothern et al., 1999

With all children, obtaining an accurate assessment can be extremely challenging because of factors such as lack of an adequate attention span, low pain threshold, and lack of motivation. As a result of poor strength and cardiovascular endurance, any form of exercise or activity can be viewed by obese children as "hard work." Subsequently, most children will shy away from participation (Vilhjalmsson & Thorlindsson, 1998). Research in sports psychology suggests that verbal encouragement can be effective if the performers are not exerting maximum effort. Some authors believe that urging children to exert more effort will have a more beneficial effect when the task being performed is simple and involves strength, speed, or endurance (Sage, 1984). Preliminary data from a study conducted by one of the current authors suggests that motivation for maximal isokinetic muscle contractions can have a positive or negative effect depending on whether the child is introverted or extroverted (Figure 1). The extroverted child relies more on what his peers and adults think. The introverted child relies more on self-reflection. Children who were classified as extroverts performed better when compared with the introverted children. It appeared that the introverted children in this study felt intimidated by the extra verbal encouragement. The extroverted children appeared to be more motivated and consistently performed at higher levels.

Motivation to exercise becomes particularly important after an injury has been sustained. Although many children eventually overcome the injury, returning to pre-injury fitness levels may be difficult if proper motivation is not provided. Whether children are motivated to exercise after an injury could ultimately affect their ability to return to sports and hence their status within their peer group.

RATIONALE FOR EXERCISE

One result of having obese children involved in an exercise program will be to increase exercise-induced caloric expenditure. This increased energy expenditure coupled with an appropriate diet should result in weight loss (Becque et al., 1988; Gortmaker et al., 1987; Ross & Gilbert, 1985). As a result, future joint, orthopedic, and cardiovascular problems related to obesity could be minimized (Baranowski et al., 1992; Frerichs et al., 1979; Huttunen et al., 1986; Sothern et al., 1999). Exercise in water is often a good choice for children who need to increase their physical activity, because it decreases joint stress and is considered enjoyable by most children. Although more intense exercise may have more health benefits, health care practitioners should encourage sedentary or obese children to perform any type of exercise they feel comfortable doing.

THE MOTIVATIONAL COMPONENT OF AN EXERCISE PROGRAM

Children are easily influenced by "significant others" in all aspects of their lives. Although parents exert a strong influence over their children and may be the key to motivating them to exercise and be more active, most parents are unaware of the importance of helping their children develop early beneficial exercise habits. Research has indicated that up to 40% of 5- to 8-year-olds in the United States have at least one risk factor for developing CVD (Faigenbaum, 1998). Subsequently, all parents should be educated about their children's general and special fitness needs. Orientation sessions should be given to provide parents with information about the content and purpose of school physical education programs and to alert parents to the value of positive encouragement.

Physical education teachers also can play a significant role in the lives of these children. They should offer positive, constructive, and immediate feedback without being evaluative, critical, or demanding (Biddle & Armstrong, 1992; DeMarco & Sidney, 1989; Hester, 1981). Children should be taught how to set their own personal goals that should be realistic and in keeping with the students' perceptions of their skill level (Nolen-Hoeksema et al., 1986). It is important to recognize all levels of effort and ability. Obese children should be taught that they should never compare themselves with other children who may be more skilled or at a different level of maturation. Mastery of skills and effort should be emphasized over winning and competition. The goal should be self-improvement, and success should be allowed on a regular basis. Students should be taught a health-oriented approach to physical education with an emphasis on health promotion. The concept of physical education as a required course should be replaced with the approach that physical activity is an important part of a healthy lifestyle. Use of prizes and awards for participation should be encouraged, but prizes for performance outcomes should be de-emphasized.

Physically active parents tend to have more physically active children.

By the 8th grade, obese children have acquired a poor self-concept and decreased activity levels (Klesges et al., 1990; Sallis & Patrick, 1994; Vilhjalmsson & Thorlindsson, 1998). Thus, it is important to implement meaningful physical activity and education well before junior high school. All physical education classes should be coeducational, conducted for a minimum of 30 minutes per day, and consist of moderate to vigorous physical activity. Fitness testing should be conducted for everyone and the results shared with each child privately. Periodic re-evaluations should be done to help the children see their progress. School guidance counselors should be advised of the characteristics of potential physical education dropouts so they can encourage these children and advise them of the need to continue participating in physical activity. It is advisable to alter grading systems so that highly skilled children are not compared with obese and less skilled children.

ROLE OF THE PNP: GUIDELINES FOR CLINICAL PRACTICE

Although the AAP (1998) encourages schools to take the lead role in promoting more physical activity, this position does not exonerate primary care providers from the responsibility of helping to prevent obesity and/or treating obese children. The PNP plays an integral role in working with obese children and their families, because PNPs frequently are the first providers of services to this population. If obesity is viewed as a chronic, insidious condition, the goal of treatment is the early establishment of lifelong behavior patterns that promote physical activity to reduce the adverse health conditions associated with sedentary lifestyles. By working with physical education teachers and parents, PNPs can enhance the dynamic interaction of all concerned persons to bring about the desired behavior change. Success in delivering a truly integrated exercise program requires NPs to become knowledgeable about the physical activity programs available in local schools. This knowledge of community programs can help the practitioner develop a comprehensive health promotion plan for children that is realistic and practical.

As part of the well-child visit, a child's dietary habits, level of physical activity, and degree of stress should be routinely assessed. The PNP also should determine the parents' and child's levels of motivation, self-esteem, and body image; personality traits (introvert vs extrovert); and locus of control. A comprehensive family history should be obtained to rule out potential hereditary conditions or predispositions that might increase health risk factors. Children should be assessed for genetic traits or neurologic disorders such as Prader-Willi syndrome, Bardet-Biedl syndrome, or lipodystrophy (American Association of Clinical Endocrinologists, 1998). It is

also imperative that pre-existing psychological conditions be identified, including depression, substance abuse, sexual abuse, and eating disorders. When appropriate, a previous history of dieting should be ascertained, including the use of medications and/or smoking to control weight.

While performing the physical examination, special attention should be given to the child's height and weight. The weight-for-height value should be plotted on the growth chart. If this value falls within the 95th percentile, the child's weight exceeds his or her expected height by 120%, rendering him or her obese. It is important to remember that children of the same age, height, and gender can have weights that vary by as much as 20% because of frame size (American Association of Clinical Endocrinologists, 1998). However, once the child has attained adult height and weight, the BMI measurement can be used. The hip-to-waist measurement may not be helpful in determining obesity states. In addition, skin fold measurements have not been standardized for children and therefore are not routinely used. Serial blood pressures should be reviewed at each clinic visit to determine the presence of hypertension. On a case-by-case basis, specific laboratory studies could be obtained, including measurements for lipids, glucose, and thyroid function (thyroid-stimulating hormone and free T_4); however, generalized laboratory screening is not advocated.

Anticipatory guidance of childhood physical activity should be started as soon as children become more physically mobile. PNPs should reinforce the idea that parents are their child's earliest and most important role models and that the parents' level of physical activity will set the standard of physical activity for their children.

When a child's assessment indicates that he or she has the potential to become obese, the PNP should develop an exercise prescription plan. Things to consider when developing this individualized prescription plan include the following: (a) the child's gross motor and fine motor development, so that planned activities are commensurate with the child's abilities; (b) the child's daily caloric requirement, to ensure proper growth for age in spite of a greater energy expenditure; and (c) using the child's current physical activity level as a baseline, what other activities can be added, whether the child can or wants to participate in organized sports, and what other school activities can be incorporated into the child's plan. Above all, it is important to ensure that the planned activities are enjoyable.

Rather than focusing entirely on fitness skills and sports performance, efforts should be redirected toward improving fundamental physical activity skills such as running, jumping, twisting, kicking, and balancing in noncompetitive and nonthreatening settings.

The exercise plan should be written so it is similar to a contract that is developed with input from the child. The established physical activity goals should be realistic and obtainable. A commitment should be solicited from the parent to be actively involved in his or her child's activities. List all activities that the child has expressed an interest in; preferably, these activities are ones in which the entire family can engage. Ask the child to choose one or two of the identified activities that he or she can accomplish easily. Start out slowly and break down each task into small steps to ensure success. In the beginning, the chosen activities should consist of low-intensity activities. Gradually work up to more physically demanding activities as the child demonstrates improvement. Be aware of fatigue or orthopedic problems such as joint pain or muscle soreness. If the parents have physical conditions that do not permit them to participate in vigorous activity with their child, have them provide support from the sideline. Have parents keep an activity log that is reviewed frequently to point out the incremental changes that have taken place, because this can serve as a strong motivating force to continue the exercise prescription plan. As the child and family experience success, verbally praise them for a job well done. In this regard, it is helpful to know the child's personality type. Shy, introverted children may be stifled by too much verbal motivation. On the other hand, extroverted children may greatly benefit from the same verbal encouragement. In the beginning, depending on the child, the PNP might suggest that parents provide some type of incentive

BOX 2 Guidelines for motivating children in exercise participation

Do's:
1. Educate children and parents in the importance of fitness.
2. Allow children to participate in exercise goal formulation.
3. Make goals attainable.
4. Give frequent positive verbal feedback to the extroverted child.
5. Direct goals toward self-improvement.
6. Make the activity fun.
7. Begin with low-intensity activities.

Don'ts:
1. Avoid being critical or overly demanding.
2. Avoid categorical comparisons with physically fit children.
3. Winning and competition should be de-emphasized.
4. Extrinsic rewards should be de-emphasized.
5. Be careful not to give the introverted child excessive verbal feedback.
6. Avoid progressing to high-intensity activities too quickly.

Data from Faigenbaum, 1998, and Parker & Bar-Or, 1991.

such as stickers to reward positive physical activity behaviors.

As the child experiences successful mastery of physical activities, the reward can be gradually extinguished and replaced with verbal praise alone. The NP should encourage parents to solicit support for their child's efforts from other family members, as well as the child's teachers and peers. The display of social support from significant individuals can help maintain higher levels of motivation to remain active.

SUMMARY OF GUIDELINES

A short summary of "do's and don'ts" is provided in Box 2. The following guidelines can be used by the PNP and other health care providers to help motivate children to participate in fitness activities:

1. Promote education. PNPs and other health care providers should educate both children and parents. Children should have a role in the development of attainable goals, which should not merely be dictated by parents or health care professionals.
2. Understand the role necessary in helping to motivate the child. Fitness experts need to understand that children are easily influenced by adults, which can lead to positive motivation to enhance participation in fitness activities. They also must realize the need to give positive feedback frequently without being overly critical or demanding. It is essential to have regular interaction with children to encourage them, motivate them, and point out benefits of exercise; they should be given verbal kudos for being successful in a given activity.
3. Avoid categorical comparisons with children who are not obese. Goals should be directed toward self-improvement and should be reassessed on a regular basis.
4. De-emphasize winning and competition. Emphasis should be placed on mastery of preset attainable basic skills with frequent feedback concerning success of each goal.
5. De-emphasize extrinsic rewards and emphasize intrinsic values via self-motivation.
6. Make exercise fun. Promote activities that the child will enjoy; this approach will greatly enhance the success of participation in the exercise program.
7. Know the child's personality type. Realize that shy, introverted children may be stifled by too much verbal motivation. On the other hand, extroverted children may greatly benefit from the same verbal encouragement.
8. Begin with low-intensity activities. Gradually work up to more physically demanding activities as the child demonstrates improvement. Be aware of fatigue or orthopedic problems such as joint pain or muscle soreness.

Exercise in water is often a good choice for children who need to increase their physical activity, because it decreases joint stress and is considered enjoyable by most children.

CONCLUSION

Many obese children are prone to health problems. Programs designed to treat these children should include verbal motivation as a key component. PNPs and other health care professionals should be aware of a child's personality type, because this will dictate how best to motivate the child in an exercise program. More research should be done to determine the efficacy of motivation and which specific types of motivation are best for the obese child.

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LITERATURE REVIEW

Raising a Responsible Adolescent

Ginsburg, K. R., Jablow, M. M. (2001). *But I'm almost 13!: Raising a responsible adolescent.* Chicago, IL: McGraw-Hill/Contemporary Books.

Dr. Ginsburg has written an informative book entitled But I'm Almost 13: An Action Plan for Raising a Responsible Adolescent (2001). This book contains practical insights to assist both health professionals and parents in communicating with and guiding teens.

Dr. Ginsburg begins by reminding the reader that the developmental task of the teen years is to become increasingly independent, which includes decreased parental supervision and advice and formulation of the adolescents' own values. Dr. Ginsburg discusses adolescent brain functioning in comparison with how the brain of a child or adult rationalizes. The prefrontal cortex, where judgments and emotions are regulated, grows slowly and functions much the same as a child's, but the limbic system, where emotions are generated, is developing more rapidly, thus causing erratic behavior. This is the reason that teens return to concrete thought when under stress. He includes many examples to help both practitioners and parents comprehend why teens are impulsive, emotional, and cannot always think logically. He reiterates that, due to the preadolescent and adolescent stage of cognitive development, lecturing by parents or health professionals is futile as lecturing is abstract in nature and presumes that the preteen understands future consequences. This only serves to make the child feel stupid, unheard, and disrespected.

This text includes practical advice on how to help teens through adolescent behavioral changes as well as how to manage difficult decisions and situations, deal with peer pressure, recognize a line (i.e., or failures or pleasant phrases with ulterior motives,) cope with stress, and become an independent adult. His book includes valuable teaching techniques such as role-playing, the use of decision trees, choreographed discussion, and modeling, by discussing one's problems and demonstrating how to make decisions in those situations. He also discusses other effective preventative measures in assisting adolescents to avoid risky or irresponsible behaviors such as the use of positive attention and making a contract with teens. There are examples of concrete suggestions to give to teens for dealing with problems including how to shift the blame, create a rumor, and develop a code word for uncomfortable situations.

This book contains teen-friendly suggestions to use in guiding adolescents through problematic situations. It also identifies many practical tools to assist parents in guiding their adolescents. Parents, especially those of pre-adolescents, can use the book's action for raising responsible adolescents as a template for engaging teens in discussions to guide them through the difficult and challenging tasks of the teen years.

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