

YOUTH SPORTS & HEALTH

The Right Time for Kids to Exercise

By Paul E. Luebbers

Activity is good. This seems to be something that kids intuitively know. Children tend to be naturally active, as many exhausted parents can attest. However, most of the activities children do are in very short, intense bursts, not in terms of the sustainable activity most of us would regard as "exercise." As children grow older and move through adolescence into young adulthood, their activity levels steadily decrease.

In the last decade, we have seen an alarming increase in childhood and adolescent obesity. This is due in large part to decreases in physical activity among children. When inactivity, coupled with obesity, is carried into adulthood, there is an increased risk of developing several health problems; cardiovascular disease and diabetes among the most dangerous.

Motivating children to remain active has become an important objective for parents, teachers, and health professionals. There is no question that exercise is good for growing children, and generally, the earlier they begin, the better. Although we know exercise is good for all children, we also know that not all exercises are suitable for all children. When is the proper time to encourage certain activities or exercises

for children? A child's age becomes an important consideration when developing a safe exercise program.

The right time to begin an exercise program is specific for each child, not just an arbitrarily-selected age. While all children age chronologically the same, their physiological development can vary a great deal. Just because the kid next door can ride a bike without training wheels at age five doesn't mean that all five-year olds should be able to ride one as well. Children develop skills at different ages. It's important not to compare young children with one another.

Because of the variation in skill levels, it is virtually impossible to specify exercise-readiness ages with much success. Also, it becomes difficult to suggest optimal amounts of time and exercise types for young children and adolescence. However, most experts agree that activities and exercises need to be individualized for each child and based largely on the maturity level, skill level, and prior experiences of the child.

With children, especially the very young, it is important to find activities that are appealing and pleasing for the child as well as appropriate to his or her skill level.

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Letter from the editor

Welcome to the Spring 2003 issue of the *ACSM Fit Society® Page*. In this edition of the newsletter, sports medicine and exercise science experts examine Youth Sports and Health. If you are interested in learning how exercise programs can help improve your child's overall health and wellness, this is the issue for you. As we move into the spring and summer seasons, the time is right to encourage your children to adopt healthier habits. Specific articles on when kids can begin an exercise program and how to make exercise fun can help you effectively encourage your children to be physically active. Be sure to read articles on treatment strategies for obesity in children, working with overzealous parents, identifying overtraining in kids, and common sports injuries among children. As always, we have regular features including the Athlete's Kitchen and our popular Question and Answer section.

We hope you enjoy this issue of the *ACSM Fit Society® Page* and find information that you can use to enhance you and your family's health and wellness. If you have any questions or comments, please be sure to contact ACSM via e-mail at publicinfo@acsm.org.

Jeffrey A. Potteiger, Ph.D., FACSM
Editor, *ACSM Fit Society® Page*

Q&A with ACSM

by Bryan Smith, M.D., Ph.D.

Q: How do I get my children interested in sports without pushing them?

A: Limit their access to television and video games. Be a role model by getting physically active yourself. Start with activities you and your child can do together, such as walking, swimming, biking, tennis, or basketball.

Q: How do I keep my children from overtraining, or feeling burnt-out in sports?

A: Encourage more free-play activities and limit year-round organized sports participation in any one particular sport unless your child demands it. Playing multiple sports develops motor skills. Playing multiple sports encourages sportsmanship and self-esteem and

usually permits greater social interactions. Look for red flags that your child is overtraining such as he/she wanting to skip practice or competition or becoming unhappy prior to practice or a game, hopefully before an injury develops. Ask them if they are having fun!

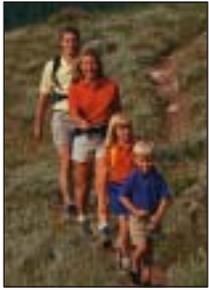
Q: My child just started playing team sports for the first time. How should I, as a parent, act at the game?

A: Cheer for your child's team, not just for your child. Don't try to coach your child during the contest. Remain in the spectator area during games. Be in control of your emotions. Be enthusiastic and support your child. Finally, thank the coaches, officials, and other volunteers for their time.

Q: My teenage daughter is a cheerleader and the coach told her that she needs to lose 10 pounds. What should I do?

A: Take your daughter to her physician and explain the situation. If your physician feels uncomfortable, see a sports medicine physician. It may not be appropriate for your daughter to lose weight. If the physician recommends a weight loss program, make sure it's based on realistic and attainable goals, sound nutritional practices, and allows proper hydration for rest and activity. Extreme alternatives such as weight loss supplements, laxatives, diuretics, extreme caloric restriction, rubber suits, steam rooms, and saunas have no place in the process and could be life-threatening.

Feature



Making Physical Activity Fun

by Melanie Mitchell, Ph.D. and Robert McKethan

Mrs. Jones is a physical education teacher who values the role of physical activity. Her philosophy regard-

ing learning emphasizes that the selection of adult-type activities, equipment, and rules are prerequisites for student success. However, her students do not possess the same values. The discrepancy between the teacher's values and her students' values prompts one to speculate about the dynamics of the physical education program. This is an important consideration since a major goal of physical education is to provide enjoyable experiences that will enhance the likelihood of continued participation.

In the sections to follow, we identify problematic behaviors, the consequences of those behaviors and remedies for those behaviors. Although these descriptions are the context of a physical education class, these problems and solutions apply to any physical activity setting that involves children

Age Appropriate Activities

Mrs. Jones' third grade physical education class is beginning a unit in stickball. The equipment for this unit consists of dowel rods for bats and tennis balls. The class is divided into two groups of 15 students each. Regardless of readiness to play a full-fledged game, Mrs. Jones begins the unit without any skills practice. In this game, third graders are expected to hit a pitched tennis ball, field the ball, and successfully play the game.

If the activity is too hard and the children experience little or no success, they will be turned off by the activity and learn that physical activity is "not for me." On the other hand, if the activity is too easy,

the children may become bored with the activity and choose not to participate. This scenario is a perfect example of a teacher/coach not providing developmentally appropriate activities.

Providing developmentally appropriate activities is essential to fostering positive attitudes toward participation in physical activities. Some remedies for ensuring developmentally appropriate activities are as follows:

- The roles in games should match the developmental levels of the students. For example, a tag game in the primary grades should focus on tagging and fleeing. Whereas, in intermediate grades a tag game such as "Capture The Flag" involves more than just tagging and fleeing.
- The cognitive demands of the activity should be based on student developmental levels. For example, the games played by primary-aged students should focus on fundamental skill development and not game tactics.
- Grouping of students for tasks and applications (games) should facilitate many opportunities for each participant to be involved.

Regulation Equipment

Mrs. Jones' fourth grade class participates in a unit in basketball. In this unit, the students are given opportunities to practice dribbling skills, shooting skills, and play in full-fledged games. She chooses to use men's regulation size and weight basketballs. Also, these students are required to shoot at 10-foot goals.

Due to the equipment selection and goal height, students experience difficulty controlling, passing, and shooting the ball. The result for the students is frustration followed by giving up. Consider properly equipping students for

game play by:

- Providing equipment designed for children (e.g., junior-sized basketballs).
- Modifying distances and boundaries to match children's capabilities.
- Modifying the size and position of goals (e.g., soccer goals or basketball goals).

Regulation Rules

In all team sports, Mrs. Jones expects the students to use the rules of a regulation game in order to facilitate an understanding of the how the game is played. For example, in the fifth grade soccer class, students play on regulation-sized field with 11 vs. 11 teams.

There are two types of players in this game: Those who know the rules, have the prerequisite skills and dispositions, and those who lack the prerequisites. The students who lack sufficient skills are excluded from the game leaving them to be ball chasers. Soon, however, they grow weary and socialize with other excluded students. Some strategies for conforming rules to match student abilities include:

- Use small-sided games with modified rules to fit student needs.
- Begin with games that focus on basic game skills and progress to more complex games.

Emphasis on the score

Mrs. Jones' sixth grade students are allowed to select their own teams for game play. Also, these games place a great emphasis on winning and losing.

One consequence of this arrangement is student arguments over scores and rule violations. Sometimes, these conflicts continue well beyond the physical education class. The signifi-

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Activity

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cance of competition, winning and losing, and team selection further marginalizes the less skilled students. The dispositions acquired from these experiences will reduce the likelihood that children will participate in physical activity as adults. To reduce emphasis on competition:

- Provide students with games where scoring is determined by cooperative efforts.
- Never allow students to choose their own teams.
- Include rules that ensure active participation by all students.

Warm-ups

Mrs. Jones invariably starts class with callisthenic-type routines and a 10-minute jog around the perimeter of the gym or field. The warm-ups include various stretches, pushups, sit-ups, and other exercises. These routines are introduced at the beginning of the school year and are implemented daily.

Because of the repetitive use of the same exercise routines, students quickly become bored and dread coming to class. Boredom often leads to less-than-enthusiastic participation and discipline problems. Eliminate stagnant warm-ups by:

- Incorporating lively music to the routine
- Using instant activities such as tag games, skill routines, student suggestions for warm-ups.
- Using individual and team goals to foster greater enthusiasm when running is a part of warm-ups.

In physical education and physical activity programs, children must be presented with activities that foster knowledge, skills, and dispositions that support the continuation of physical activity following their school years. Planning that fails to take into account children's physical, social, and emotional needs will have long-term consequences for engagement in physical activity.

Exercise

(Continued from page 1)

Here are some general guidelines to keep in mind when beginning an exercise program for children. Remember that it is important to match the activity or exercise with the physical maturity of the child.

Ages 2-6

At this age, kids are just learning many of the fundamental skills, such as throwing, catching, running, jumping, skipping, and hopping. It's important to take the time and learn these and other basic skills correctly. They contribute to the proper development of the muscular and nervous systems in children, which in turn makes the road ahead a little bit smoother and much more enjoyable.

Since most kids in this age group are still in the early stages of physical development, a regular "exercise" program is generally not recommended. Rather, it's suggested to stick with activities and games that emphasize the basic motor skills, but do not combine them in a complicated or confusing way. Games for this age group should focus on participation and not competition, as

the added pressure of opposition can distract from the emphasis of skill development and enjoyment. Let kids be kids.

Some suggested activities for children ages 2-6:

- Playing catch
- Tumbling
- Jumping rope
- Swimming
- Tag
- Hopscotch
- Frisbee
- Walking
- Kickball
- Riding a bike

Ages 7-10

Children in this age group generally have a good grasp on the basics of movement and fundamental motor skills. Most will also have developed better memory and decision-making skills that should enable them to understand the basic strategies of simplified forms of some team sports. However,

many may not be ready to handle the more complex movements and skills (or emotional demands) of some of the organized competitive sports.

For most children in this age group, focusing on combining the fundamental skills they've learned into more challenging activities and games should be the emphasis (i.e. kicking a ball for distance, throwing for accuracy).

Some suggested activities for children ages 7-10:

- Riding a bike
- Kickball
- Netball
- Baseball
- Tennis
- Table tennis
- Inline skating
- Dancing
- Gymnastics
- Soccer

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Exercise

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Ages 10 and up

Usually by the age of 10, most children's motor skills have developed enough to enable them to begin the more complex activities of organized competitive team sports. Several of these team sports are "contact" sports (football, soccer, basketball) and the safety of the playing child is the highest importance. Parents need to be well informed about the child's sport, including knowing what safety equipment is needed, as well as proper injury prevention techniques. Also, it is necessary to remember that physical injury is not the only concern. Competitive sports come with the requisite winner and loser. Losing can be emotionally tough for children (and adults) if the contest is not kept in the proper perspective. It is important to keep the focus of the game on child participation.

Most experts agree it isn't until this stage in a child's development that it is safe and appropriate to begin an actual "exercise" program, such as aerobic or resistance training. Although distance running (lengths of more than three-quarters of a mile at a time) is usually discouraged until adolescence, it is generally regarded as safe to begin in this age group with a structured aerobic exercise program consisting of moderate to intense activity. Frequency should be no more than three days per week with at least one day of rest in between workouts. The duration should be no longer than 30 minutes. It is important to do a wide variety of activities for overall muscular development, as

well as making sure that exercise remains interesting.

Some suggested aerobic exercises for children ages 10 and up:

- Running
- Inline skating
- Biking
- Power walking
- Jumping rope
- Aerobics classes
- Swimming
- Rowing

Several studies have indicated that children can participate safely in resistance training programs that are properly designed and supervised. The American College of Sports Medicine recommends the following guidelines and principles for those interested in starting a resistance training program for kids.

- All strength-training activities should be supervised and monitored closely by appropriately trained personnel.
- No matter how big, strong, or mature an individual appears, remember that he or she is physiologically immature.
- The primary focus, at least initially, should be directed at learning proper techniques for all exercise movements and developing an interest in resistance training.
- Proper technique should be demonstrated first, followed by gradual application of resistance or weight.
- Proper breathing techniques (i.e., no breath-holding) should be taught.

- Stress that exercise should be performed in a manner in which the speed is controlled, avoiding ballistic (fast and jerky) movements.
- Avoid the practice of power lifting and body building.
- Perform full-range, multi-joint exercise (as opposed to single-joint exercises).
- Be sure participants can understand and follow instructions.
- Follow approved intensity, duration, and frequency guidelines.

Intensity

- Avoid use of maximal amounts of weight. Weight loads should be used that permit at least 8-12 repetitions to be completed per set.

Duration

- Perform only one (for absolute beginners) to two sets of 8-10 different exercises, ensuring that all of the major muscle groups are included.
- Rest at least one to two minutes between exercises.

Frequency

- Limit strength training sessions to twice per week and encourage children to participate in other forms of activity.

Activity is good for everybody. For kids, it's even better. It provides an excellent opportunity to build and improve crucial motor skills. In addition, it can help protect them against future health problems by giving them a head start on developing a healthy and active lifestyle.

Feature



Working With Overzealous Parents in a Youth Sport Setting

By Melanie Mitchell, Ph.D. and Robert McKethan

It was the deciding game of the series to determine which team would continue to the World Series Ponytail Championships. At the bottom of the seventh inning, Halifax was winning 10 – 7 over Danville. The bases were loaded with two outs as Danville's Wilkins walked to the plate. In her previous at-bats, Wilkins struck out. The Halifax pitcher threw two beautiful strikes. The count was no balls and two strikes. Wilkins tightened her grip and made contact with the ball on the third pitch. The ball sailed to center field, bouncing off the top of the fence. The outfielders chased the ball as three runs were scored. As Wilkins slid into home plate, the catcher tagged her. The umpire motioned and yelled "safe." The crowd went wild. The Halifax parents were irate that the umpire missed the call. The Danville parents were cheering. As the bantering escalated to volatile levels, parents from both sides moved down from the stands to confront one another. The game was at a standstill as the players stopped to watch what was happening. The girls from both teams couldn't believe their eyes. Their parents were ready to fight over a call the umpire made.

Scenes like this are more prevalent in youth sporting events than ever. Most parents intend to be supportive of their children when attending sporting events. However, their words and actions may send messages inconsistent with their intentions. For example, in the heat of a game, some parents forget that they are not the ones playing; often engaging in unhealthy and unsportsmanlike behaviors.

There are several types of snares that

parents unwittingly place themselves in when being overzealous. These usually compromise the desire of children to joyfully participate, put undue pressure on coaches, and contribute to unhealthy environments at children's sporting events.

Mr. and Mrs. Agenda

These parents over-schedule their children in sporting events, music, choir, drama, dance, etc. Some parents over-schedule to fulfill their own vicarious needs. Parents who arrange an overloaded agenda often feel their child must be successful in a myriad of activities in order to be the "perfect child." For example, Mr. and Mrs. Agenda scheduled at least one extra-curricular activity for each day of the week. Often, in this scenario, scheduled practice for one activity is in conflict with another scheduled event. Unless parents are sensitive to this, their child may suffer from burnout. Here are some tips for teachers and coaches to help children with over-scheduling parents.

- Advise and provide opportunities for children to be open in telling parents their likes and dislikes and willingness to participate in scheduled events.
- Coaches can meet with parents (one-on-one) explaining the requirements for participation. In this meeting, the coach might suggest to parents the need to prioritize and select only the activity with which the child has interest.

Mr. Braggadocio

This parent type gloats constantly about his child's talent to other parents, the

coach, teammates, and anyone else who will listen. This parent also places undue pressure on the coach for concession and pressure on the child to perform up to his or her parent's expectations. Often children of the Braggadocios will shrink with embarrassment when their parents are around. Here are some tips for teachers and coaches to help children with parents who constantly gloat.

- Actions speak louder than words. Coaches should communicate the philosophy to children and parents that "if you've got to brag about what you or your child did, it probably isn't noteworthy."
- At the end of the game, parents should become a part of the team for participation in end-of-game rituals. For example, parents from each team join the line and shake hands and offer compliments to opposing players and parents.
- Following the ritual with the opposing team, parents should gather with other parents and their children and offer congratulatory remarks and gestures.

Mr. and Mrs. Hothead

These parents behave appropriately until the game starts. After the start of the game, the Hotheads will analyze the coaching and officiating. If the coaching and officiating is contrary to their liking, a tirade of abusive comments will be showered upon coaches and officials during the game. The intensity is significantly elevated when there are multiple hotheads from each side. Here are some tips for teachers and coaches to help children with hothead parents.

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Feature



Common Injuries in Young Athletes

by Anthony Luke M.D., MPH

Keywords: Sports injuries, children, apophysitis, head and neck injuries, heat injuries

The unique aspects of the child athlete are that they are growing and maturing, both physiologically and socially. Sports play a fun and exciting part of the growing up process, as it helps children develop physical skills, learn about rules and teamwork, socialize with other children, and gain the health benefits of physical activity. However, age specific injuries can occur that are different from those seen in adults. Musculoskeletal injuries are still the most common problems. Falls, collisions, and accidents are usually responsible for traumatic or “macro” injuries requiring medical attention. Similarly, overuse injuries, which result from the repetitive stresses of sports on tendons, bones or muscle, are very common and often disregarded until the child has been complaining for some time.

Growth plate fractures

The growth plates, or “physes,” can be found at the ends of the long bones and are sites of linear growth. However, they represent areas of weakness in the developing bone, especially during puberty when growth is occurring most rapidly. Fractures involving the growth plates can occur as a result of sports trauma. The upper extremities, particularly the wrist, are most commonly affected, often occurring after a fall on the outstretched hand. However, fractures in the lower extremities, such as the ankle, can occur in sports like soccer. Fortunately, they usually do not affect growth if they are treated properly, typically under the care of an orthopedic surgeon.

Apophysitises

The “apophyses” are areas in a child’s body where tendons insert into bone, which are subject to forces which stretch or extend the muscles. Young athletes may experience pain and swelling from injuries ranging from microfractures to the tearing of a bony fragment. They are often worse with activities involving running and jumping and typically occur at the beginning of their growth spurt. This commonly occurs in the front of the leg and the heel. Other locations for these types of injuries include the joints of the pelvis, kneecap, and elbow. Sudden, severe pain may indicate this type of injury. The athlete and parents need to understand the problem and its association with activity. Treatment in almost all cases is conservative, including modification or restriction of activities as necessary.

Head and neck injuries

Head and neck injuries in sports, though relatively rare, are serious concerns since they can cause permanent disability or even death. Head injuries include concussions. Children are at particular risk due to larger head to body size, developing neck muscles and sometimes reckless play. High risk sports include gymnastics, diving, cheerleading, equestrian riding, bicycle riding, and trampolines (due to the possibility of falling from a height onto the head or neck), as well as contact sports, such as football, rugby, and hockey. Educating athletes on safety and proper skills, such as tackling in football, can help prevent these serious injuries. Protective equipment must meet safety standards set by organizations such as the American National Standards Institute (ANSI), be properly

fit and checked regularly, and be worn at all times, especially the helmet. High risk sports should be supervised by qualified individuals. Prevention is the ideal approach for these injuries.

Heat injuries

Children are particularly vulnerable to heat injuries and dehydration. They produce more metabolic heat with similar activities and have less sweating capacity than adults. Children with heat illness may exhibit extreme weakness, exhaustion, headache, dizziness, and even acute mental changes ranging from confusion to coma. The environment and time of day for an activity should be considered carefully. Several guidelines suggest extreme caution when the temperature rises above 75°F (24°C) after both temperature and humidity are accounted for. Although sports drinks may be more palatable and promote fluid intake, water is the mainstay for fluid replacement. Kids do not instinctively or voluntarily drink enough liquids. Consequently, thirst is not a good measure of dehydration. Kids should plan to hydrate before practice or competition and during regular drink breaks, every 15 to 20 minutes.

Look and Listen

Special vigilance regarding injuries in young athletes is necessary, since they still develop the usual muscle, tendon, and ligament injuries. Growth defects in bone and cartilage (osteochondritis dissecans), tumors, and juvenile arthritis occur rarely, but should be considered, especially if the child complains of pain, swelling, or disability with no injury, or constitutional symptoms, such as pain at night, fever, or weight loss. If a problem is suspected, parents and children should seek early medical attention, as injuries can hinder a child’s ability to have fun and enjoy sports.

Feature



Overtraining in Children and Adolescents

by Jordan D. Metz, M.D., Sports Medicine Institute for Young Athletes

There are more than 30 million children and teens, under the age of 18,

playing some form of organized sports team in the United States. Sports participation should be strongly encouraged in children since it is generally a very positive endeavor that encourages both physical and psychological health benefits.

From a physical point of view, sports participation promotes activity, especially important in America, where the incidence of youth obesity has more than doubled since 1976. Finding ways to get children off the couch and on to the sports field is a public health practice that should be promoted by all practitioners involved in the care and treatment of children and teens. From a psychological perspective, sports participation in young athletes encourages many favorable trends, including reduced rates of depression, greater measures of self-esteem, and improved academic performance.

Although sports participation is clearly favorable for children, a realm exists in which participation becomes excessive. In the increasingly competitive “win at all costs” world of youth sports, there are numerous stories and reports of sports becoming unhealthy for children, and this places participation at odds with the virtues that participation should encourage. Highly publicized cases such as Danny Almonte, the little league base-

ball player whose birth certificate was changed to allow him to pitch in the Little League World Series, reflect the darker aspect of youth sports.

Occasionally, children, often participating in environments shaped by adults, are pushed to limits that are both mentally and physically unhealthy. Psychologically, the “burnt-out” child athlete, a child or teen who plays on multiple sports teams simultaneously, will often treat sports much like a disliked job, trudging to practice and games without joy or enthusiasm. These athletes will often “burn out” from sports before their parents or coaches recognize the signs of psychological excess including disproportionate anxiety before or during sports participation, falling grades in school, and a repeated desire to quit the team.

Physical sports overtraining is often more apparent than mental overtraining, and is sometimes the tell-tale sign of an athlete who is doing too much. Young athletes who suffer repeated injuries, and particularly overuse injuries such as stress fractures, may be overtrained. A helpful general rule is that if a young athlete misses more than 10 percent of a sports season due to injury, the possibility of overtraining should be strongly considered.

The treatment for overtraining, much like the causative factors, is often multidimensional. From a psychological standpoint, attempting to create the

healthiest environment is the optimal goal. This often includes changing the number of hours spent participating and the climate of participation, such as the level of competition, for a particular child. Physical overtraining should be addressed by examining factors including the types of sports being played compared to the types of injuries being sustained. For example, a gymnast who develops a stress fracture in her spine known as spondylolysis should have a specific strengthening program instituted prior to returning to gymnastics to prevent recurrence if she wishes to continue with her sport.

Physical overtraining is also frequently influenced by factors such as nutrition that can contribute to repeated injury. These too should be considered. Finally, encouraging parents and coaches to institute preventive conditioning programs for young athletes, including preventive weight training starting as young as eight years of age, should be part of the normal pre-season routine for children who participate in youth sports.

With the increasingly competitive world of youth sports, overtraining in children and adolescent athletes is becoming more common. With improved recognition, through effective parent and coach education, the damaging issues of mental and physical overtraining are easily prevented.

Feature



Addressing an Epidemic: Treatment Strategies for Youth Obesity

By Katherine A. Beals, Ph.D., R.D.

According to a recent national survey, the prevalence of overweight and obesity among America's youth has more than doubled in the past 20 years. It is estimated that currently 15.3 percent of children (ages six - 11 years) and 15.5 percent of adolescents (ages 12 - 19 years) in the United States are overweight. Another 15 percent are "at-risk" for overweight. The *amount* of extra weight that children and adolescents are carrying has also increased. This excess weight often persists into adulthood, where it is estimated that 40 percent of obese children and 70 percent of obese adolescents will grow to be obese adults.

While there is no doubt that some youngsters are genetically destined to be overweight or obese, this likely represents a very small percentage of America's youth. In fact, most obesity experts blame increasingly sedentary lifestyles (e.g., watching television and playing on the computer vs. playing outside) combined with progressively greater consumption of super-sized, high-calorie, high-fat foods for the growing girth of America's youth. A recent study found that obese children and adolescents consumed significantly more total calories and fat and spent significantly less time in both moderate and vigorous exercise than lean children. Other reports show that average energy intake (i.e., calories consumed) has increased over the past 10 years while average energy expenditure (i.e., physical activity) has decreased.

Because both dietary patterns and physical activity behaviors contribute significantly to pediatric obesity, treatment must focus on both decreasing or

modifying energy intake and increasing energy expenditure.

Treatment Protocols

According to a leading researcher in pediatric obesity, the goals for treating juvenile obesity are to regulate body weight (and body fat) without negatively affecting normal growth and development; minimize loss of lean body mass; prevent endocrine disturbances; and promote positive changes in the physiological and psychological consequences of obesity (e.g., elevated blood lipid levels, insulin resistance, cardiorespiratory disturbances, and decreased self-esteem and self-worth).

In order to achieve these goals, obesity treatments need to focus on modifying eating and exercise behaviors, along with the factors that regulate these behaviors, so that new, healthier behaviors will evolve and persist throughout a lifetime. A variety of treatment approaches has been studied in both clinical and community settings. These approaches, along with an evaluation of their effectiveness, include the following.

Diet alone

Dietary treatment for obesity is based on the premise that obesity results from an energy imbalance (i.e., excessive energy intake or inadequate energy expenditure) and that the negative energy balance required for weight loss can be achieved more readily through decreasing energy intake (i.e., calorie restriction) than increasing energy expenditure (i.e., programmed exercise). Several different dietary approaches designed to reduce energy intake and/or create healthier eating habits in children and adolescents have

been studied. Absolute energy restriction (i.e., reducing energy intake to a predetermined level such 1,000-1,200 kcal/d) is probably the most commonly used dietary treatment and has been shown to be successful in promoting significant weight loss in both children and adolescents, at least over the short term.

Not surprisingly, the greater the energy restriction, the greater the weight loss. Unfortunately increasing the severity of energy restriction also increases the health risks while decreasing the likelihood for long-term weight loss maintenance. Some research has compared the effects of more restrictive diets (such as limiting protein intake) to less restrictive diets that promote cutting back on calories and increasing physical activity. The results of one particular study show that over time, kids on more restrictive diets gained back some of their weight, while those on less restrictive diets maintained their weight.

One dietary approach that has been used to successfully treat obesity in children is the "traffic-light diet." This is a structured eating plan that guides participant's eating patterns around the food guide pyramid and provides approximately 900-1,300 kcal/d. Using the colors and implications of a traffic signal, this diet groups food into categories based largely on fat content. Green or "go" foods contain zero to one gram of fat per serving and generally include fruits, vegetables, non-fat dairy products, and whole grains. Yellow or "caution" foods contain two to five grams of fat per serving and might include low-fat or reduced fat dairy products, refined grains, poultry and lean meats. Lastly, red or "stop" foods

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Obesity

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contain more than five grams of fat per serving and would include pastries, cookies, most desserts, fried foods, fatty meats, and foods in the miscellaneous category of the food guide pyramid. Research examining the “traffic light diet,” either alone or as part of a program that includes exercise and/or behavior modification, supports its effectiveness for treating youth obesity.

Exercise alone

Most research suggests that exercise alone (without the addition of calorie restriction) is ineffective for treating pediatric obesity. Even though exercise alone may not produce significant reductions in body weight, there is some evidence to suggest that it may promote positive changes in body composition (i.e., reductions in body fat) and improve weight loss maintenance. When exercise is combined with moderate calorie restriction, the outcomes are better than either treatment alone.

Studies show that obese children are more sedentary than lean children. While the reasons for the lower activity levels are unclear, some suspect obese children may avoid exercise due to feelings of inadequacy, self-consciousness, and/or fear of failure. Thus, a unique way to approach pediatric obesity treatment might be to target and reduce the time spent in sedentary endeavors as opposed to focusing on increasing programmed exercise.

One study evaluated the effects of reinforcing obese children for reducing sedentary behavior, increasing physical activity or a combination of both. At the end of the intervention period, children reinforced for reducing sedentary behavior showed a significantly greater decrease in percentage of overweight than either the combination group or the group of children reinforced for increasing physical activity only. A year later, the group reinforced for less sedentary

behavior maintained their weight loss while the other two groups had gained most of their weight back.

It has been speculated that the lifestyle activity and/or interventions aimed at reducing sedentary behavior is more effective than programmed exercise because it is seen as more “doable,” so less threatening. It is also less “structured” and may allow the children the flexibility to do what they want to do when they want to do it.

One of the most popular buzzwords in the fitness field today is “lifestyle physical activity,” or exercise that is incorporated into one’s daily routine (i.e., taking the stairs vs. the elevator, parking further away and walking, riding a bike or walking vs. driving a car). Surprisingly, in studies comparing lifestyle physical activity to the more structured or programmed exercise, the lifestyle physical activity has routinely been shown to be superior for promoting weight loss, and more importantly weight loss maintenance, particularly among children.

One form of exercise that may be particularly beneficial in the treatment of youth obesity is strength training. Unlike most aerobic activities, additional body weight can be considered an advantage in weight training. The ability to accomplish something physical will undoubtedly impart a much-needed sense self-esteem in the obese child and/or adolescent. Although there has been no research examining the effects of strength training on weight and/or body fat loss in the pediatric population, research in adults indicates that weight training can be effective in promoting modest reductions in body weight. Of perhaps more significance is the fact that unlike aerobic exercise, weight training, when added to a reduced calorie diet, has been shown to promote increases in lean body mass, maintenance of metabolic rate and improvements in weight loss maintenance.

Combining diet and exercise

As previously mentioned, when it comes to losing weight, exercise alone is not nearly as effective as reducing energy intake. Nonetheless, adding exercise to a reduced calorie diet may enhance weight and/or body fat loss and weight loss maintenance, and improve physiological parameters (e.g., blood lipids, glucose tolerance, cardiorespiratory endurance, muscular strength and endurance) and promote general well-being. Recently, experts reviewed studies to determine whether adding exercise to dietary interventions enhanced weight and/or body fat loss. The results suggest that exercise plus energy restriction was significantly more effective in treating childhood obesity than either diet or exercise alone.

Family support/parental involvement

It is well-known that parents have a dramatic influence on the diet and exercise behaviors of their children. Research suggests that if both parents are physically active, their children are six times more likely to be physically active than children of inactive parents. Similarly, if both parents eat high-fat foods, their children are three to six times more likely to become overweight. It would stand to reason, then, that to improve pediatric eating and exercise behaviors it is necessary to modify these behaviors in the parents as well. A recent study highlights the importance of parental involvement. Researchers compared the effectiveness of a family-based approach in which the parents served as the exclusive agents of change (group one) with that of a conventional approach in which a health professional served as the agent of change with the parents serving in a support role (group two). After a year, children in group one demonstrated a reduction in percentage overweight that was almost twice that of group two.

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Obesity

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Treatment duration and frequency

Research clearly shows obesity treatment duration is positively correlated with weight loss and long-term weight loss maintenance in adults; that is, the longer treatment duration the greater weight loss and weight loss maintenance. To date, there has been no clinical research studies designed specifically to examine the effects of treatment duration on weight loss or weight loss maintenance in obese children and adolescents. However, experts recently examined many studies comparing treatment duration on change in percentage of pediatric overweight. They found that longer treatment periods were associated with greater reductions in the percentage of overweight among children and adolescents.

There is also some evidence to suggest that the frequency of treatments might impact weight loss and weight loss maintenance. Another study found groups that changed their behavior

gradually had a significantly greater weight loss than those that changed behavior rapidly.

Treatment vs. Prevention

Some researchers have suggested that the focus of pediatric obesity treatment should be on prevention (i.e., preventing further weight gain) versus attempting to actually reduce a child's body weight. Proponents of the "prevention approach" oppose treatment largely out of concern about the effects of energy restriction on growth and development. While less aggressive "preventative" approaches may be acceptable for children and adolescents who fall into the "at-risk for overweight" category, they are not appropriate for the overweight/obese youngster, particularly one who is already suffering the health consequences associated with obesity (i.e., cardiorespiratory problems, hypertension, hyperlipidemia, glucose intolerance or non-insulin dependent diabetes mellitus, etc.).

The Bottom Line

When it comes to obesity treatments, one size does not fit all. The successful management of pediatric obesity hinges on individualizing treatment protocols to

meet the unique needs of each child or adolescent. Nonetheless, there are some general principles that should be incorporated into all treatment protocols or programs. First, both dietary changes (reducing calories and/or altering macronutrient composition i.e., low-fat, moderate protein and carbohydrate) and changes in physical activity (i.e., reducing sedentary behaviors while increasing the time spent doing both cardiovascular or aerobic exercise as well as strength training) need to be included. Second, the child's parents must be involved in the behavior change process. Ideally they should embrace the healthy lifestyle behaviors themselves. Last, but not least, whatever weight loss program is utilized it needs to be of sufficient duration to instill permanent changes in behavior. It is generally recommended that a program be no less than 16 weeks in duration and there is some indication that increasing treatment duration upwards to one year may significantly enhance outcomes. Indeed, the longer the treatment duration the greater the likelihood those healthful behaviors will be incorporated into one's lifestyle and last for a lifetime.

Overzealous

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- The coach needs to conduct a parent meeting in which sportsmanship expectations are explicitly stated.
- Coaches facilitate the development of a sportsmanship contract with parents and children. Once the contract is developed, both parents and children sign it.

Mr. and Mrs. Over-Indulgence

These parents mistakenly think that the "more is better" philosophy will make their child perform better in the game. These parents shower their children

with top-of-the-line name-brand shoes, apparel, and ancillary equipment. These parents also are likely to excessively reward their children for successful performances. The end result is that the children "have it all" with nothing to look forward to as they grow and mature. Here are some tips for teachers and coaches to help children with over-indulgent parents.

- The coach should develop guidelines to aid parents in the selection of safe and appropriate equipment for their children.
- The coach and parents should also develop rules, which support appropriate end-of-game and end-of-season celebrations. These guide-

lines, should address: 1) recognition for all participants, 2) trophies, 3) food, and 4) location of the celebratory event.

Unless coaches and parents are sensitive to children's needs, we allow ourselves to unwittingly compromise children's enjoyment derived from participation in sporting events. Unless coaches and parents are careful, children's desire to be life-long participants in sporting activity will be stifled. Use of the above tips can help parents and coaches to be sensitive to the needs of their children but also guard against the snares of overzealous parent behaviors.

Feature



Making Exercise A Family Affair

By Kirk D. Hendrickson, M.S.

Being a parent is very challenging in today's society, especially in

achieving good health for themselves and their family. The technology of computers, e-mail, and cell phones have fast-forwarded our minds, but slowed our bodies to dangerous levels. Regular physical activity is an important part of staying healthy and is recommended for children, adolescents, and adults. Only 25 percent of adults and less than 50 percent of young people in the U.S. exercise at the recommended levels of regular physical activity.

This lack of physical activity is one factor that has contributed to the high prevalence of overweight and obesity in the United States. In fact, a staggering 50 percent of adult Americans are considered to be overweight, and an increasing amount of children and adolescents are following this same pattern. This includes more than 10 percent of preschoolers between ages two and five, and in 1999, more than nine million, 15 percent of American children and adolescents between the ages of six and 19 years were overweight. This is triple what the percentage was in 1980, and it is growing rapidly. This is very concerning for parents and the medical community. Being overweight at an early age not only increases the risk of being overweight as an adult, but increases the risk of physical complications such as cardiovascular disease and diabetes at a much earlier age.

Other factors that contribute to increased obesity include genetics, environment, and the consumption of high calorie foods. We have an overabundance of food choices available to

us, including high-fat fast foods and high-calorie snacks and beverages leading to an excessive amount of caloric intake. This coupled with a decrease in energy expenditure from a sedentary lifestyle produces an energy imbalance leading to weight gain.

There are several reasons for a decrease in physical activity in our youth. First, the majority of children travel to school by bus or car. There has also been a decline in physical education in school and an increase in sedentary activities at home. Due to budget constraints in many school districts, daily physical education requirements have been eliminated. In fact, last year only 30 percent of high school students had a daily gym class, and many elementary school children have physical education classes that meet only once a week, if at all. Sedentary activities at home include television viewing, video games, and computers. The average American child spends approximately 24 hours each week watching television. Some of this time could be spent doing some sort of physical activity.

What can a parent do to keep their family physically active and healthy? First, have a family meeting to discuss the reasons to make healthy choices in our lives. Talk to them about weight, allowing them to share their concerns with you. Parents should gradually change their family's physical activity and eating habits. Family involvement helps to teach everyone healthful habits and does not single out the overweight child.

Next, monitor sedentary activities like the television and computer as well as food consumption. As a parent, it is important to set limits to guide our children, like setting curfew times and time spent on the phone with friends. Set a limit of less than two hours a day of television viewing or using a personal computer. One recent study showed an increase in body weight and body fat in children who watched television more than two hours per day. As a parent, it is also important to be a role model in decreasing sedentary activities and increasing physical activity.

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Some Health Consequences of Obesity

(Adapted from the National Center for Chronic Disease Prevention and Health Promotion)

- High blood pressure
- High blood cholesterol
- Coronary heart disease
- Type 2 (non-insulin dependent) diabetes
- Insulin resistance and glucose intolerance
- Hyperinsulinemia
- Lower back pain
- Hip and knee strain
- Breathing disorders such as sleep apnea
- Depression, lack of self-confidence, and low self-esteem

Feature



THE ATHLETE'S KITCHEN

Value Meals: The High Price of Fast Foods

by Nancy Clark, M.S., R.D.

Someone once joked that building lots of fast food restaurants in “enemy territories” would eradicate the need for atomic bombs; the obese population would soon self-destruct. Unfortunately, we Americans have become our own worst enemy, as obesity has reached epidemic proportions. More than 60 percent of American adults are, well, super-sized, as are 14 percent of American teens and 13 percent of six- to 11-year olds.

While most of the readers of this column are fit and healthy, you’ve perhaps noticed your uncle, parent or neighbor become bigger and talk about high blood pressure, heart disease, diabetes, and another undesirable health conditions. These diseases of aging not only interfere with longevity but also lead to worrisome medical expenses. This nation cannot afford to be so unhealthy!

Obesity is indeed a complex condition associated with over-eating, under-exercising, stress, fatigue, and TV-viewing, among other factors. Some say obesity stems from ignorance. Children, in particular, may be unaware of the health dangers of a steady diet of fast foods; most would happily eat chicken nuggets and french fries daily. Recently, a person tried to sue several fast food chains for contributing to his obesity, diabetes and heart disease. His complaint: he didn’t know how bad these foods were for his health. His case was eventually thrown out of court.

With luck, good changes will arise from this publicity of this suit. For example, perhaps we’ll eventually see Nutrition Facts printed on fast food wrappers,

telling us about a “Super Burger’s” calories, fat, and sodium content. Or perhaps a warning label will appear:

“Consuming a steady diet with large portions of fatty, high calorie foods can be dangerous to your health.”

While it is unclear as to whether the food industry can be held accountable for America’s problem with obesity, this suit may have raised consciousness about the industry’s efforts to overfeed Americans. Between value meals and super-size portions, hungry people can all-too-easily be lured into gluttony while thinking “I only ate one serving.” A popular restaurant chain’s cinnamon roll, mind you, is more than enough for two people.

While all foods (even fast foods, in moderation) may be balanced into a healthful diet, the food marketing industry is succeeding at getting us to consume more and more and more. (For example, have you noticed how regular colas, which originally came in eight-ounce bottles, and then in 12-ounce cans, are now prevalent in 20-ounce bottles—enough for at least two people?) The public needs to grasp the importance of feeding appropriate portion sizes to ourselves, our family, and most importantly to our children who have never seen “small” as a menu option.

The High Price of Value Meals

At most fast food restaurants you can have a medium, large or super-sized value meal with incremental increases in the fries and soft drink. In one example, by ordering the value meal, as opposed to ordering each item sepa-

ately, you’ll save 78¢ per increment (medium to large; large to super-size). For that 78¢, you can get about 200 to 250 more calories. Calorie for calorie, the medium value meal costs a bit more than the super-sized meal (3.5¢/calorie vs 3.2¢/calorie). A large burger with cheese value meal can offer a total of up to 1,825 calories from the burger, fries, and soft drink. This equates to a whole large cheese pizza (that would more likely feed the whole family, not one person) or the whole day’s worth of calories for the average women.

If you are looking for the whole day’s calories in one dose, as well as the whole day’s fat intake (if not more), this meal is seemingly a bargain. Unfortunately for our health, most people eat two other meals in their day—and the medical bills related to obesity will not come with a bargain price!

If you are a fast food eater, you have to decide for yourself if a value meal is truly a good deal—and if it is really the best way to spend your calories. After all, almost half of those calories all too often come from fat, cloggage and the stuff that makes heart attacks. For example, that large burger with cheese medium value meal provides almost 1,400 calories (equivalent to three-fourths of a pizza that feeds a family of three) and 71 grams of fat (more than you need). A peanut butter and jelly sandwich costs far less and is far more healthful.

The best value at a fast food restaurant is to NOT get the value meal, but rather just get one item. That is, by having just

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Fast

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a large cheeseburger (no fries or soda, thank you), you can save 590 calories and about \$2.10. You'll still be left with 800 calories (that need to be balanced with lowfat choices at other meals). This is more than enough for most hungry people.

Even impoverished students, who commonly ponder how to get the most calories for the least amount of money, should skip the fries and soda. The cheeseburger costs about 3.6¢ per calorie, as opposed to the soda (5.6¢/calorie) and fries (4.4¢). Now of course, you'll save a few pennies per calorie if you upgrade to the largest size. But then, do you really want that money to go to waist?

Tip: Most fast food chains have Web Sites. Calorie information is available on most of these sites. Surf the Internet for more information.

For children, fast food kids' meals are also a bad deal. For \$4.39, a child can get a double cheeseburger, small fries and a small soda. This comes to just under 1,000 calories—the equivalent of two hefty peanut butter and jelly sandwiches or half a large cheese pizza (food for two kids, not one). A steady diet of kid's meals will make kids big (and fat) for sure.

Equally worrisome, kids who eat the whole meal because it is just "one portion" will get stuffed. Each time a child overeats, he or she chips away at the body's natural ability to regulate an appropriate intake. The desire for big food grows, as does the waistline.

Perhaps it's time to move back in time to "slow foods;" you know, the homemade meals that nourished the body, fed the soul and were one of life's pleasures?

Family

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The American College of Sports Medicine (ACSM) and U.S. Centers for Disease Control and Prevention (CDC) recommend the accumulation of at least 30 minutes of moderate physical activity most days of the week to improve health. One can make gradual changes by increasing lifestyle activities. These include short bouts of brisk walking, climbing stairs more frequently, gardening and other domestic activities. Do these yourself and encourage your family to follow your lead. Plan daily walks after dinner as a family. Consider the use of a pedometer with the goal of walking 10,000 steps per day with every step getting the family closer to good health.

Before including vigorous exercise in your family's program, it is wise for

parents to seek medical clearance to exercise. It is also recommended for the family doctor or pediatrician to evaluate the child in a wellness visit prior to exercise. This is especially beneficial in an overweight child to screen for high cholesterol, high blood pressure, or high blood sugar that may not have been previously detected. Vigorous exercise can be done three to five times per week from 20-40 minutes. Young persons may not choose to participate in organized youth sports because of unfavorable experiences in the past. Find alternative activities that the child feels comfortable in performing. These can include exercise bikes, treadmills, modified games such as soccer, football and basketball. Other activities like flexibility exercises and supervised muscle strengthening can complement the activity program.

Physical education in the school can be a valuable part of a child's development.

Parents should encourage the school board to increase the physical education activities. However, physical education classes should be restructured to increase the individual fitness of the participants and promote positive attitudes toward maintaining an active lifestyle. Other community resources for activities should be sought, including community fitness centers, parks, bike trails, and skating rinks that offer many enjoyable ways of staying active.

Parents can lead their families in becoming more physically active by making small changes gradually. Finding activities that are enjoyable will ensure the success of staying active. A parent that stays active and enjoys it will be an example for his/her children to stay active throughout their lives. A family that stays active will improve their health now and in the future.