

ACSM **FIT** SOCIETY PAGE


AMERICAN COLLEGE  
of SPORTS MEDICINE



ACSM FIT  
SOCIETY

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## THEME: YOUTH WEIGHT MANAGEMENT

## America's "Young" Weight Problem

by Joseph E. Donnelly, ED.D., FACSM, Elizabeth Stewart, Ph.D and Katrina DuBose, Ph.D

### Letter from the editor

by Jeffrey A. Potteiger, Ph.D., FACSM

Welcome to the Fall issue of the *ACSM Fit Society, Page* newsletter. Youth weight management is a particularly timely topic for the fall season. Kids and young adults are now back into their school and seasonal programs after summer hiatus, and health and fitness advice is important to keep parents and students on the right track when busy schedules and colder weather threaten eating habits and activity patterns. This issue is dedicated to this topic. Inside you'll find features on weight maintenance, along with the facts and figures you need to know. Read on to learn about the prevalence of steroid use in youth and insight into weight gain in college. Again this issue, the newsletter is highlighting ACSM's Consumer Information brochure series, featuring "Selecting and Effectively Using Rubber Bands." Bands for exercise are a novel and low maintenance way to begin, or focus on, building strength. Also, check out the advice in the Q&A column and read the latest on sports nutrition in Athlete's Kitchen.

We hope you enjoy this issue and consider using the tips and tools in the *ACSM Fit Society, Page* to enhance the health and wellness of you and your family. If you have any questions or comments, please be sure to contact us.

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From toddlers to teenagers, America's youth have a weight problem. The increase in childhood obesity in the U.S. has more than doubled in the past 20 years, and today almost half of U.S. children and adolescents are at a weight that increases their risk for health problems, including high blood pressure, high triglycerides, abnormal blood lipid values, high blood sugar, type 2 diabetes, sleeping disorders, and psychosocial problems.

Body mass index (BMI) is a measure of an individual's weight relative to his or her height. Unlike adults, children's BMI levels can change over time due to normal growth patterns. Because a child is growing, different cut points have been created. These cut points, represented as percentiles, are based on a

child's gender and age. A child is considered "at risk for being overweight" if the BMI percentile is between 85 to 94, and "overweight" if the BMI percentile is greater than or equal to 95.

For optimum health, a child should be between the 5th to 84th percentiles based on BMI levels. The growth charts to determine a child's BMI percentile can be found at <http://www.cdc.gov/growthcharts> along with detailed explanations on how to use them. However, physicians remain the best resource to help parents determine if a child needs to lose weight or provide additional treatment. A physician or a registered dietician can give the best recommendation on the calorie level a child needs to lose weight. However, it is beneficial for the entire family to follow similar dietary and physical activity guidelines in order to reduce feelings of embarrassment for a heavier child and to prevent future weight gain in a normal weight child. It is critical that parents model and encourage the desired behaviors by "walking the walk" themselves, as most children (and even adolescents) typically want to please their parents and spend time with them. Healthy behaviors should be practiced as the norm, not the exception, and should be done as a unified family activity, such as taking the entire family on a walk after dinner.

### 5 + 2 + 1

Simple, consistent, common-sense strategies are the key to long-term youth weight management. One strategy that has been successfully used is the "5 + 2 + 1" concept. This concept encourages the following every day:

- At least five fruits or vegetables
- No more than two hours of sedentary, non-academic activity
- At least one hour of moderately vigorous to vigorous physical activity.

These numbers represent broad recommendations from national health organizations. Families can brainstorm ways to reach the numbers, using some of the following ideas.



## Weight Problem (continued from page 1)

### 5 fruits/vegetables

A young child can only eat what is in the home. High-calorie, low-nutrition foods should be removed and replaced by fresh fruit and vegetables for easy snacking. Children are more apt to try produce if they get to choose it at the store, or better yet, a backyard garden. Make eating healthy foods more fun by allowing children to participate in the preparation (e.g., tossing fruit into the blender for a smoothie) and serving foods in a child-friendly way (e.g., dunking cut-up vegetables into a yogurt dip). Although fruit juices are marketed as a healthy alternative to soda, they are still high in calories and so should be served in limited quantities and may be diluted with water. Adolescents, who crave independence, can play a more active role by selecting recipes and experimenting in the kitchen themselves.

### Less than two hours of sedentary, non-academic activity

Several national organizations including the National Association for Sport and Physical Education (NASPE) strongly discourage children sitting for more than two hours outside of school. Television, video games, and non-academic computer time all promote habitual sedentary activity. Parents can easily limit “screen time” by not allowing TVs or computers in the child’s room and by restricting his or her own viewing. Television should be an occasional treat rather than a persistent background presence. However, computers and TVs can be part of the solution rather than just the enemy. Video “dance pads” that hook up to the TV are extremely popular with teens and pre-teens eager to learn the latest dance moves. Internet sites such as the U.S. Centers for Disease Control and Prevention’s <http://www.verbnow.com> and <http://www.kidnetic.com> guide children through a variety of exercises and games and

provide child-friendly information on nutrition and activity. But, these sites should not be viewed as easy babysitters — children are more apt to use the Web sites in the ways they’re intended if the parents participate as well.

### One hour of structured physical activity:

Experts recommend children ages five and older accumulate a minimum of 60 minutes of structured physical activity a day and several hours of unstructured “free play” time. While youth sports leagues and classes are one obvious answer, not every child enjoys that environment, particularly if he or she is overweight. Parents can seek non-competitive, family-based activities such as bicycling, hiking, walking, swimming, and informal dancing. Such activities give parents the added benefit of exercise themselves and children see their parents’ model an active lifestyle. Most children enjoy wearing a pedometer and comparing their step counts to mom and dad. ➤

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## Q&A

by Jack Mahurin, Ph.D., D.O.

### Q: Are genetic and/or metabolic dysfunctions responsible for most childhood obesity?

A: There is some genetic contribution to obesity development. However, it is difficult to determine the exact influences each factor contributes to childhood obesity since obesity is influenced by metabolic, behavioral, social, psychological, and other factors that may be unique to the family. Best estimates indicate that approximately 10 percent (or less) of obesity is related to genetics or hormonal defects. Most metabolic complications can be medically treated and should not be a significant factor in childhood obesity. Many genetic syndromes associated with obesity are reflected in children usually being short in stature, frequently possessing a lower intelligence level, lower functioning of the testes, and other medical/physiological abnormalities. Childhood obesity has increased by more than 20 percent during the past decade – hardly reflective of genetic alterations or mutations. Thus, the well-worn statements, “Our entire family has a weight problem,” or “I have a glandular problem,” do not provide adequate explanations for the current obesity epidemic. Bottom line: most childhood obesity appears to be related to an increased caloric intake and, more likely, decreased energy expenditure rather than metabolic and/or genetic defects.

### Q: Are diet suppressants and gastric bypass options for childhood obesity?

A: No. Currently no diet suppressant/anorectic medication is FDA approved for the treatment of childhood obesity. Suppliers of the anorectic medications commonly utilized in adult obesity describe the medication as supportive therapy to accompany exercise, decreased caloric intake and other behavioral changes responsible for weight loss. These medications are limited to short-term intervention (usually weeks) indicating that lifestyle management is the chronic/lifetime treatment for weight loss and maintenance of low body fat. Additionally, data supporting the benefits of diet suppressants are marginal and the side effects may be dangerous if used in several subgroups of obese patients. Gastric bypass is not indicated in children. This drastic procedure carries many short- and long-term risks and side effects. Thus far, caloric restriction, increased activity and other beneficial behavioral changes are the only indicated therapies for childhood obesity.

### Q: Is the current obesity epidemic restricted to children?

A: No. It appears that activity levels, dietary patterns and lifestyles of children are reflective of their parents and other adults responsible for their care, growth and development. A recent article in *The Archives of Internal Medicine* reported dismal adult compliance with four primary lifestyle interventions discussed during most medical office visits. Seventy-six percent of adults do not smoke; 40 percent have a BMI of 18.5 to 25; 23 percent eat at least five servings of fruits and vegetables each day; and 22 percent exercise regularly. Tragically, only three percent of adults follow

(continued on page 9)

Used sporting goods stores and discount stores are a great place to buy inexpensive equipment such as min-trampolines, balls and resistance bands for a “family fitness” room. Research indicates that for children of all ages, even toddlers, outdoor playtime is highly correlated with physical activity. Parents should remember that children are more likely to participate in intermittent, game-based physical activity rather than longer aerobic sessions.

## FEATURE

# Fostering Healthy Weight in Youth

by Sylvia H. Crixell, Ph.D., R.D. and Lisa K. Lloyd, Ph.D.



## Prevalence of Overweight in Youth

Approximately 10 percent of U.S. children ages two to five and 16 percent of children ages six to 19 are overweight. This means about six million preschoolers and nine million older children are overweight! Since the mid 1970s, the incidence of overweight has more than doubled in young children, and more than tripled in older children and adolescents. This is a major concern because overweight children are much more likely to become overweight adults, experiencing some of the same health problems at a much earlier time in life.

## Causes of Overweight in Youth

Children gain weight when they take in more calories than they use. Simply put, children who eat more food and exercise less tend to be overweight. Although there may be many

reasons for the overweight condition of children, one thing we know is that children today do not eat like children did in the past. For example, more children are now

- eating snacks throughout the day
- eating more at restaurants
- eating fewer meals at home
- eating larger portions of foods
- skipping breakfast in the morning

As a result, children today are taking in less milk, vegetables, soups, and whole grains, while taking in more fruit juices, sweetened beverages (like sodas), dough-based dishes (such as pizza, pasta, and Mexican food), fried foods, cheesy foods, and snacks (like chips and cookies). Children who skip breakfast in the morning usually feel hungrier later in the day, which can cause them to overeat. This overeating means more calories, and more calories means more weight.

Children also need to be physically active to achieve healthy weights. However, today's children are more sedentary and less active than ever before. They spend several hours each day watching television and playing video games instead of playing outside. Also, fewer children than ever participate in school-based physical education classes.

## Consequences of Overweight in Youth

Perhaps some of the most devastating consequences of being overweight as a child are psychosocial. Oftentimes, overweight youth face name-calling, exclusion and discrimination by their peers, leading to social isolation and depression. Older children can often become preoccupied with body weight, resulting in disordered eating, which can lead to anorexia nervosa or bulimia. Life isn't easy for an overweight child.

Several diseases historically seen only in middle-aged adults (such as high cholesterol and triglycerides, high blood pressure, sleep disorders, and type 2 diabetes) are now increasingly more common in children and adolescents. The increase in incidence of type 2 diabetes is of particular concern because the consequences of this disease can have a profound impact on quality of life. For example, adults with diabetes face increased risk for heart disease, kidney failure and loss of limb due to amputation. While it is not known how the early onset of type 2 diabetes will affect the long-term health of children, it is likely that children will suffer side effects while still relatively young, and that their life expectancy may be shortened.

## Is Your Child Overweight?

If you suspect that your child may be overweight, it is important to seek professional advice. The U.S. Centers for Disease Control and Prevention has developed growth charts that give health care providers and researchers a tool to help them determine if the body weight of your child is healthy and appropriate for his or her age. Upon diagnosis, an overweight child should be screened for conditions such as high cholesterol, hypertension and diabetes. Early detection and treatment of overweight and related conditions can make a major difference in the life of your child.

## Healthy Choices

While it is notoriously hard for adults to lose weight (and keep it off!), the good news is that small changes in the life of a child can make a tremendous impact on the child's ability to learn to achieve and maintain a healthy weight throughout his or her life. Parents can make all the difference by modeling and teaching healthy eating and exercise behaviors. For example, parents can:

- Schedule meals (including breakfast) and snacks at consistent times each day, allowing children enough time to become hungry between meals
- Serve family meals seated at a table, away from the television
- Involve children in shopping, meal planning and food preparation
- Avoid using food as a reward or punishment
- Stock the pantry and refrigerator with a variety of health foods, including fruits, vegetables, low-fat dairy products, whole grains (whole wheat bread, brown rice and whole grain cereals), unsweetened beverages, nuts, beans, lean meat, fish, and poultry
- Encourage children to enjoy meals, and to eat when hungry and stop when full
- Teach the principles of good nutrition
- Exercise with their children everyday (walking, biking riding, jogging, skating, playing, etc.)
- Encourage children to participate in physical education, leisure activities, and sports
- Limit television viewing and video game playing to less than two hours per day
- Encourage their children to go outside and play

Being overweight can be avoided or reversed if we change the habits of children while they are young. Parents have a unique opportunity to influence the long-term health of their children by modeling and encouraging healthy behaviors.

# Reading, Writing, and Recipes: School-Based Nutrition Programs

by Deanna M. Hoelscher, PhD, RD, LD, CNS, and Jerri Ward, MA, RD, LD



With the rising rates of child overweight, there has been increasing pressure on schools to focus on more than just reading and writing. Public school enrollment is estimated to reach nearly 50 million children in 2013, so schools provide an efficient channel for dissemination of important health knowledge to the majority of children and adolescents in the United States. Schools are natural avenues for nutrition and physical activity programs, since most schools contain facilities for food preparation and physical activity, and employ teachers or staff with health-oriented backgrounds. Nevertheless, the main focus of school is achievement in core academic subjects such as reading and writing, and often, standardized testing and test scores are what administrators prioritize, with student health a distant second (or third).

## What is a School-Based Nutrition Program?

A school-based nutrition program incorporates lessons about food composition, dietary behaviors and food preparation into classroom lessons and the school environment. The type

of educational lesson can include a variety of forms, from a separate, stand alone curriculum to integrated lessons in subjects such as math, science, health, and family life. Behaviorally-based programs that emphasize changes in behaviors and strategies such as goal setting, role model stories, food preparation practice, and reinforcement for making good food choices have been found to be most successful in changing dietary habits in children. Parental education can also be effective, especially for younger children, since parents are often important gatekeepers for food availability in the child's home. Since nutrition is a science, it should be taught as a science course, with knowledge-based or didactic lessons interspersed with practical laboratory applications. The only difference from other science courses is that, with nutrition, the learning laboratory includes the students and their interactions with foods and eating!

In general, most nutrition education programs have been found to be effective at changing eating behaviors, but are not always effective at influencing biological outcomes, such as body weight, body mass index (BMI), and blood cholesterol levels in the general pediatric population. However, school-based programs have been found to be more effective in changing physiologic parameters in children who already have elevated risk factors, as in children who are overweight. Since dietary intake and physical activity are complementary in influencing chronic disease-related outcomes such as overweight or obesity, type 2 diabetes, cardiovascular disease, and cancer, many school-based programs include both in a multi-component program.

Effective school-based nutrition education programs have been implemented and evaluated at all levels: elementary, middle school, and high school. Many of these programs emphasize basic nutrition tenets, such as increased consumption of fruits, vegetables, whole grains, and low-fat/skim dairy foods, or decreased consumption of high fat, high saturated fat, or high sodium foods. School-based nutrition education programs are also increasingly using new technologies that can fit more easily in the school day. For example, one elementary school program, Squire's Quest, uses an entertaining CD-ROM game program set in medieval times to significantly increase fruit and vegetable consumption in elementary school children.

Local and state policies have recently been implemented to influence the school food environment by enforcing nutrition standards for foods available on campus. The Texas Commissioner of Agriculture has instituted the Texas Public School Nutrition Policy, which limits the number of times that certain fried

foods (such as French fries) are served each week, focuses on reducing levels of trans fats in foods served to students, restricts single portion sizes of selected foods, and limits sales of soda and candy.

## Coordinated School Health Programs

For health professionals, the school environment is an excellent opportunity to provide knowledge about good dietary choices, as well as to extend the learning experience into the cafeteria and the playground, so that children are surrounded by an environment that reinforces healthful habits. To illustrate this concept, if a child is taught to select fruits and vegetables in the classroom, fruits and vegetables should be offered in the school cafeteria, in the school food stores and during school-sponsored functions. In this way, the child is able to make appropriate food selections that reinforce and augment the lessons taught in the classroom. The U.S. Centers for Disease Control and Prevention (CDC) has characterized this concept in their model of Coordinated School Health Programs (CSHP), which consist of eight components: child nutrition services, physical education, health education, family/community involvement, healthy school environment, teacher/staff worksite health promotion, school counseling services, and nursing/school health services. Any school-based health promotion program should try to incorporate as many of these components as possible to provide a consistent message for the child and the community. In particular, it is important for a nutrition education program to coordinate with food availability on the school campus, including meals in the cafeteria, snacks or drinks offered in vending machines or school stores, and fundraising efforts.

## Example of School-Based Nutrition Education Programs

One example of a CSHP that has recently shown effectiveness in prevention of overweight among elementary school students is the Coordinated Approach To Child Health, or CATCH, program. CATCH is a school-based health promotion program that was designed and evaluated in grades 3-5, with four of the eight components of a CSHP: health education, child nutrition services, physical education and parental/community involvement. With CATCH, children participate in behaviorally-based classroom lessons which are supplemented with promotional programs in the school cafeteria, family homework assignments, and a physical education program. Children who participated in the CATCH intervention consumed diets that contained significantly less fat than children who participated in their usual health

program. In addition, these changes were maintained for three years post intervention. A recent report indicates that children in schools that implement CATCH have a slower increase in the prevalence of overweight compared to children in schools that do not implement the program.

Other nutrition education programs that have been found to significantly change eating habits include Planet Health, which targets middle school students; Know Your Body, which focuses on elementary and middle school students; the Stanford Adolescent Heart Health Program for high school students, Eat Well and Keep Moving for elementary school students; and Five-A-Day Power Plus and High 5, elementary school-based programs to promote fruit and vegetable intake.

### What Can You Do to Promote School-Based Nutrition Education and Health Promotion?

Current legislation, the Child Nutrition and WIC Reauthorization Act of 2004, recommends that, by the 2006-2007 school year, all school districts convene a Local School Wellness Committee that sets up school-based policies for nutrition and physical activity. As part of this committee, one person should be designated to evaluate the effectiveness of these programs over time. These School Wellness Committees provide an opportunity for schools to begin to implement a nutrition education program that has scope and sequence throughout the school system, as well as to provide consistent health messages to the children. These committees are also good avenues for parental and community involvement in school nutrition policies and practices. By working together to provide consistent diet and exercise messages to children in schools, we can ensure a bright and healthy future for our youth.

### Further References and Web Sites:

- **Texas Public School Nutrition Policy.** Accessed at: [http://www.agr.state.tx.us/foodnutrition/policy/food\\_nutrition\\_policy.pdf](http://www.agr.state.tx.us/foodnutrition/policy/food_nutrition_policy.pdf).
- **Coordinated School Health Programs.** Accessed at: <http://www.cdc.gov/HealthyYouth/CSHP/>
- **School Wellness Policies.** Information for setting up Local School Wellness Policies can be accessed at: <http://www.schoolwellnesspolicies.org/> and <http://www.fns.usda.gov/tn/Healthy/wellnesspolicy.html>.
- **Coordinated Approach to Child Health (CATCH) Web site.** Accessed at: <http://www.sph.uth.tmc.edu/catch/>

- **Planet Health.** Accessed at: [http://www.hsph.harvard.edu/pr/proj\\_planet.html](http://www.hsph.harvard.edu/pr/proj_planet.html).
- **Eat Well and Keep Moving.** Accessed at: <http://www.hsph.harvard.edu/nutritionsource/EWK.html>.
- Other information about school-based nutrition programs can be found at the **USDA Team Nutrition** Web site at: <http://www.fns.usda.gov/tn/>.

### SPECIAL Q & A

## Steroid Use and the Young Athlete

by Nick A. Evans, M.D. and Andrew B. Parkinson, M.D.



#### Q: What are anabolic steroids?

A: Anabolic steroids (AS) are drug versions of the male hormone testosterone. Steroids are a powerful lure for athletes requiring speed and strength, and those who desire a muscle makeover. Available as tablets, injections, patches or gels, steroids are controlled substances and use of these drugs without a doctor's prescription is illegal.

#### Q: Who uses anabolic steroids?

A: An estimated three million people in the United States use illegal steroids to enhance athletic performance or cosmetically customize their bodies. Surveys indicate that one out of every 10 steroid users is a teenager, and that more than 300,000 high school students have used steroids. And they are not all jocks—as

**Table 1. Negative Effects of Anabolic Steroids**

|                              |   |
|------------------------------|---|
| <b>CARDIOVASCULAR</b>        | High blood pressure<br>Raised cholesterol<br>Heart enlargement<br>Palpitations<br>Blood clots and stroke              |
| <b>LIVER</b>                 | Jaundice<br>Liver damage  |
| <b>SKIN</b>                  | Acne<br>Gynecomastia (abnormal enlargement of the breasts in a male)<br>Stretch marks<br>Baldness                     |
| <b>REPRODUCTIVE-HORMONAL</b> | Fluctuating sex drive<br>Infertility  |
| <b>MALE specific:</b>        | Testicle shrinkage<br>Decreased sperm count<br>Impotence<br>Prostate enlargement                                      |
| <b>FEMALE specific:</b>      | Hair growth on face & body<br>Voice deepening<br>Menstrual irregularities<br>Enlarged clitoris<br>Reduced breast size |
| <b>KIDS:</b>                 | Stunted growth<br>Precocious puberty  |
| <b>BEHAVIORAL</b>            | Mood swings<br>Aggression ("Roid Rage")<br>Depression<br>Withdrawal<br>Addiction                                      |
| <b>INJECTION-RELATED</b>     | Bruising<br>Infection<br>Nerve or blood vessel injury   |

many as one-third are girls, and there is a growing problem of steroid use among boys whose heroes aren't baseball sluggers but the sinewy models glowering from the pages of trendy store catalogues. According to surveys, the majority of steroid users are non-athletes who use these drugs to improve body image rather than to enhance sports performance. One in four steroid users begin taking these drugs during their teens.

#### Q: Do steroids work?

A: Yes, steroids do work. There is strong scientific evidence that AS have positive anabolic actions on the musculoskeletal system, increasing lean body mass, muscle size, and strength. AS have medical uses in the treatment of aging men with low testosterone, and in HIV (AIDS) infection.

#### Q: What are the side effects of steroids?

A: Steroid users typically take large doses of the drugs, sometimes exceeding 10 times the recommended therapeutic dose, and nearly everyone that uses steroids experiences at least one side effect. The potential complications of steroid use are listed in Table 1. The most common complications include acne, mood

**Table 2. Signs of Steroid use**

|               |   |
|---------------|---|
| Appearance    | Increase in muscle size<br>Masculinization in females (voice-deepening, facial hair growth) |
| Skin          | Acne<br>Stretch marks<br>Needle marks in buttocks<br>Male-pattern baldness                  |
| Chest         | Development of breast in males<br>Loss of breast tissue in females                          |
| Genitourinary | Testicle shrinkage in males<br>Enlarged clitoris in females                                 |
| Behavior      | Mood swings, aggression, drug paraphernalia   |

swings, stretch marks, sleep disturbance, baldness, and sexual dysfunction. Males commonly experience testicle shrinkage and the development of female breasts, whereas females suffer permanent voice deepening and grow facial hair. Serious health problems tend to occur when large doses of steroids are taken over long periods of time.

Steroid-induced problems don't end when the drugs are stopped. Most steroid users suffer withdrawal symptoms after quitting the drugs. Their muscles shrink, their strength falls off, they lose interest in sex, and they can become lethargic and depressed. The knee-jerk reaction to withdrawal is to resume drug taking, which leads to dependence and addiction. Over time, the dosage of steroids increases and users run the risk of serious complications like permanent heart damage. The risk of death among long-term steroid users may be four times greater than that of those who don't take steroids.

**Q: What are the signs of steroid use?**

**A:** When a parent, coach, or physician suspects chemical enhancement in a muscular athlete, there are numerous features that point a finger toward AS use. Young males who participate in weight training, bodybuilding, or sports that require strength and power are at greatest risk. Fearing the possible legal consequences or a competitive ban, individuals may not admit to using these drugs, and a high index of suspicion is warranted. In addition to asking whether someone has ever tried steroids, inquire about the use of nutritional supplements that often precedes or accompanies AS use. Ask if the individual knows other people who use steroids, because athletes at high risk of using AS are more likely to know other users.

A strategic physical inspection can also help detect a steroid user (Table 2). In the well-muscled male, look for acne, breast development, testicle shrinkage, and stretch marks over the chest and shoulders. The female steroid-user may exhibit big muscles, facial hair, voice deepening, male-pattern

baldness, and breast shrinkage. Also look for needle-stick marks in the buttocks, thighs or shoulder muscles.

## Advice for Steroid Users

Counseling steroid users regarding the risks of AS is a valuable health education tool. Make it clear to those using steroids or considering their use that taking these drugs carries significant legal and health risks, as follows:

- Anyone using steroids for non-medical reasons is breaking the law.
- Athletes taking steroids risk losing the opportunity to compete in sports.
- Four out of every five steroid users experience side effects such as acne, baldness, mood swings, and testicle shrinkage.
- Steroid use by adolescents can stunt growth.
- Females taking steroids suffer permanent side effects such as facial hair growth and voice deepening, even with short-term use.
- Stopping steroids can result in withdrawal symptoms such as depression that can lead to drug addiction.
- Steroid use may lead to the abuse of other illegal drugs.
- Long-term steroid use can lead to serious health problems later in life, and possible death.

college. While researchers have not “proven” the anecdote correct, there is evidence to suggest that college freshmen are at risk for weight gain.

The transition from home to dormitories is one source of stress that almost all freshmen face. Freedom from parental supervision and a structured home life is a welcome change, but some students have difficulty establishing their own limits. Some students may turn to food for comfort, or overeat previously restricted foods and beverages. Most dorms now feature “all-you-can-eat” cafeterias that enable freshmen to indulge in a variety of high fat, high sugar foods. Students often consume multiple entrees, desserts, and sweetened beverages, with limited intake of fresh fruit and vegetables. These eating patterns may lead students down the path to weight gain.

With a new life at college, students often fail to get adequate exercise. Whether no longer on a school sports team or just too busy with classes, many students' activity significantly decreases from high school to college without the student being aware. Decreased activity coupled with increased calorie consumption leads to weight gain that may haunt students well into adulthood.

The good news is there are ways to avoid the infamous “Freshman 15.” Monitoring changes in diet and exercise will help stave off weight gain. Simple behavioral changes such as planning ahead, recording food and activity, and taking a realistic approach can produce desirable results. The following strategies can aid college freshmen in their battle to fight the bulge and win.

- **Don't skip meals!** Students frequently rush out the door to class and forget to eat breakfast. This has always been the most important meal of the day. Researchers have consistently shown that consuming breakfast can help students do better academically and nutritionally. Eating breakfast also decreases overeating later in the day and therefore helps with weight maintenance. Stocking dorm rooms with whole grain cereals, low-fat yogurt, breakfast bars, or trail mix will give busy students a portable selection in the morning.
- **Increase fruits and vegetables.** Studies have shown that a majority of college students are not eating the recommended five to nine servings of fruits and vegetables per day. Adding even one fruit or vegetable to every meal or snack goes a long way toward meeting the minimum recommendation. Eating fruit at breakfast, snacking on raw vegetables, and having a salad with lunch or dinner will get students on the right track.

## FEATURE

# College Weight Gain: The “Freshman 15” and Beyond

by Gretchen Speer, ATC



Every fall thousands of high school graduates enter their freshman year of college concerned about the “Freshman 15.” This popular anecdote refers to college students gaining 15 or more pounds during their freshman year of

# Selecting & Effectively Using Rubber Bands for Exercise



## Staying Active Pays Off!

Those who are physically active tend to live longer, healthier lives. Research shows that even moderate physical activity—such as 30 minutes a day of brisk walking—significantly contributes to longevity. A physically active person with such risk factors as high blood pressure, diabetes or even a smoking habit can get real benefits from regular physical activity as part of daily life.

As many dieters have found, exercise can help you stay on a diet and lose weight. What's more, regular exercise can help lower blood pressure, control blood sugar, improve cholesterol levels and build stronger, denser bones.

## The First Step

Before you begin an exercise program, take a fitness test, or substantially increase your level of activity, make sure to answer the following questions. This physical activity readiness questionnaire (PAR-Q) will help determine your suitability for beginning an exercise routine or program.

- Has your doctor ever said that you have a heart condition or that you should participate in physical activity only as recommended by a doctor?
- Do you feel pain in your chest during physical activity?
- In the past month, have you had chest pain when you were not doing physical activity?
- Do you lose your balance because of dizziness? Do you ever lose consciousness?

- Do you have a bone or joint problem that could be made worse by a change in your physical activity?
- Is your doctor currently prescribing drugs for your blood pressure or a heart condition?
- Do you know of any reason you should not participate in physical activity?

If you answered yes to one or more questions, if you are over 40 years of age and have been inactive, or if you are concerned about your health, consult a physician before taking a fitness test or substantially increasing your physical activity. If you answered no to each question, then it's likely that you can safely begin fitness testing and training.

## About Rubber Band Resistance Exercise

Originally used to train older adults in nursing homes, flexible bands now provide exercise options for beginning to advanced exercisers and athletes. The more you know about flexible bands, rubberized resistance cords and the machines that use them, the better you can choose the method that's right for you. It's all about finding the resistance that matches the exercise you need.

Elastic bands offer no resistance at first, then more and more resistance as they are stretched to their limit. The resistance changes again as the bands return to resting position. This pattern—changing from extension to return—is known as hysteresis.

Rubber bands, by their nature, offer very little resistance when first stretched (for example, over the first 10-30 degrees of their range of motion.) It is important to feel resistance early in the stretch—more easily accomplished with single rubber bands than with some resistance machines.

## Strength Curves

Every exercise can be illustrated by a curve showing the force used over a range of motion. The three primary strength curves are:

- Ascending (Force increases over the range of motion)
- Bell (Force is greatest in the middle of the range of motion)
- Descending (Force decreases over the range of motion)

Variations among exercises and individuals can affect the shape of these curves as well as the timing and degree of force used in each exercise. Exercise loading should match the strength curve to ensure that appropriate force is applied to the muscle.

Take, for example, arm curl exercises using elastic bands. Too much resistance would ➤

- **Eat higher fiber foods.** Whole-grain or whole-wheat foods are preferable to foods made with white flour due to the increased fiber content. Dietary fiber increases the feeling of fullness at meals and may limit intake of other high calorie foods. Choose whole-wheat pastas and breads, whole-grain cereals, or legumes to get adequate daily fiber.
- **Limit empty calories.** Candy, alcohol, regular soda, and other sweetened beverages are all sources of empty calories. Saying "never" to these foods can lead to increased desire for them. Set personal limits on these 'sometimes' foods. Choose smart replacements when possible (i.e., water or diet soda instead of regular soda).
- **Limit fast food restaurants!** Drive-through is tempting when time and money are short; however the high fat and calories in fast food can lead to weight gain. Limit visits to fast food restaurants to once or twice a month. If you do eat at fast food restaurants, opt for foods lower in fat and calories.
- **Join a sport club.** Many campuses offer sport clubs at little to no cost to students. These sport clubs are a great way to stay active and meet new people. Getting involved gets students off the couch and increases the calories they burn. Lacrosse, basketball, and volleyball are terrific forms of exercise offered in club settings.
- **Start a recreational sport.** Tennis, racquetball, and golf are excellent forms of recreational sport. Try swimming, jogging, or in-line skating for great ways to exercise solo.
- **Check out the student recreation center.** These facilities can offer aerobics classes, weight lifting equipment, cardiovascular machines, and even personal trainers. No recreation center? Look into local gyms that may offer a discount to students.
- **Walk or bike to classes.** Take advantage of the proximity of the dorms to classes. Whenever possible, allow time before class to walk or bring a bicycle from home to make the trip. Every minute of physical activity adds up to help prevent weight gain, and eventually the "Freshman 15."

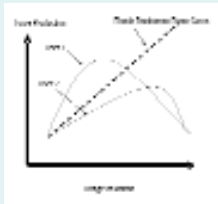
## Rubber Bands (continued from page 7)

prevent smooth motion through the entire range. Resistance that is below the starting strength of the arm curl movement allows normal repetition of the movement.

It is important to be able to choose resistance to suit the exercise. For example, chest presses need more resistance than arm curls.

The graph (right) shows the resistance of an elastic band (dotted line) compared with the strength curves of two different users.

Greater strength gives User 1 force greater than the band's resistance, while User 2 has insufficient force throughout the entire range of motion. Neither user is well matched with this particular band.



## Choosing Resistance Bands

When choosing from among the wide variety of rubberized resistance equipment available, ask:

1. What exercises will I perform with the resistance bands? This tells you what range of resistance you'll need to adequately develop the muscle.
2. What are the bands made of? Natural rubber latex, with its superior strength and elasticity, makes the best bands. Synthetic rubber is reinforced with additives that can cause the band to become harder and less elastic.
3. How are the bands constructed? Understanding how bands are made can help you determine quality of construction and how they can be used in a variety of exercises. While any rubberized band provides resistance, heavier use requires a more durable product.

## Some Features of Bands Include:

- a. Bonded Ends: A 1/2-inch strip of rubber is bonded at the ends to make a continuous band. This joint is a weak spot that can break during exercise.
- b. Extruded Rubber: Strands of rubber are wound together like spaghetti, making it very strong. The bonded ends, though, are a weak spot.
- c. Over-layered: A strip of rubber is overlapped and bonded into a continuous band. The center of the overlapped section is very strong, but both ends are weak.
- d. Layered on Mandrills: Bands are built in layers, forming a continuous band. The first and last layers should finish on different planes, at least 3 inches apart. This forms a one-piece band with no weak spots.

## Exercises

Rubber band exercises can be used for a variety of drills, such as:

- Running and agility side-to-side drills
- Power exercises such as squat jumps and conventional resistance exercises
- Traditional exercise such as chest press, arm curl, and squats
- As always, safety is the primary consideration. Consider band strength.

## Safety Questions

Before using a resistance band or rubber band machine, ask a number of questions, especially when there are multiple users. Rubber bands should be checked at rest and then when stretched to their usable length. Examine them carefully, asking:

1. Is the resistance smooth and flexible in use?
2. Are there signs of wear from repetitive use, including cracks or worn endings?
3. Are there signs of weather exposure—such as sun, water or cold—making the rubber cracked or pale?

## A Complete Physical Activity Program

*A rounded program of physical activity includes aerobic exercise, strength training exercise and flexibility training—but not necessarily in the same session. Create a pattern that you'll stick to and that fits into your schedule. Commitment to regular physical activity is more important than the intensity of the workouts. Choose exercises you are likely to enjoy.*

*ACSM's Position Stand "The Recommended Quantity and Quality of Exercise for... Healthy Adults" ©1998 states that aerobic training should be performed three to five days per week for a minimum of 20 minutes per day. Remember, it's better to exercise for a shorter period of time than not at all. Typical aerobic exercises include walking and running (or treadmills), stair climbing, cycling on a stationary or moving bike, rowing, cross-country skiing, and swimming. Many devices offer a combination of these motions.*

*Generally, strength training should be done two to three times per week, using flexible rubber resistance, free weights or weight machines. For general training, do two to three upper-body and lower-body exercises.*

*Abdominal exercises are an important part of strength training. Flexibility training is important and frequently neglected, resulting in increased tightness as we age and become less active. Stretch with sustained gradual movements lasting at least 15 seconds per stretch. At a minimum, try to stretch every day.*

*ACSM's Consumer Information brochures may be printed for distribution from the ACSM Web site. Please visit <http://www.acsm.org/health%2Bfitness/productpurchase.htm> for a complete listing in this series.*

## THE ATHLETE'S KITCHEN

# Your Overweight Child: What's a Sports Parent To Do?

by Nancy Clark, R.D., FACSM



"My son is chubby. What can I do to help him lose weight...?"

"My 10-year old niece sure could skip a few meals..."

"One of my kids is skinny but the other child is chunky. How can I feed one but restrict the other?"

Most readers of my sports nutrition articles are lean and fit. But with more than 60 percent of Americans being overfat or obese, you likely have relatives who are fat, unfit, and unhealthy—perhaps even your fifth-grade daughter who is pudgy or your chunky son who loves TV.

As a sports-parent, you can be a good role model for athleticism and healthful food choices. But, when it comes to controlling your children's eating and exercise practices, you likely feel more and more out of control with each passing year. Once your child is old enough to march off to the local store to spend his or her allowance on candy, chips and soft drinks, what can you do to regain control without becoming the food police—especially if your child is overweight?

The answer is complex, under-researched, and a topic of debate among parents and pediatricians alike. We know that restricting a child's food intake does not work. Rather, restricting kids' food tends to result in sneak-eating, binge-eating, guilt, shame—the same stuff that adults encounter when they “blow their diets.” But this time, the parents become the food police—an undesirable family dynamic.

## Food Restrictions Cause Problems

Despite your best intentions to prevent creeping obesity, do not put your overfat child on a diet, deprive him of french fries, nor ban candy. Dietary restrictions don't work – not for adults, and not for kids. Think about this: If diets did work, then the majority of people who have dieted would all be lean. That's far from the case.

Diets for children cause more problems than they solve. They disrupt a child's natural ability to eat when hungry and stop when content. Instead, the child overcompensates and doesn't stop when he's content (binges) or stuffs himself with “last chance eating.” You know, “Last chance to have birthday cake so I'd better eat a lot now because when I get home I'm restricted to celery sticks and rice cakes.”

If you are a parent of a chubby child, note that children commonly grow out before they grow up. That is, they often gain body fat before embarking on a growth spurt. Instead of putting your daughter on a diet (which damages self-esteem and imprints the message she isn't good enough the way she is), get her involved in sports and other activities. You can

delicately ask if she is comfortable with her body. If she is discontent with her physique and expresses a desire to learn how to eat better, arrange for a consultation with a registered dietitian who specializes in pediatric weight control. (Use the American Dietetic Association's referral network at [www.eatright.org](http://www.eatright.org).)

## Is Your Child Really Overfat?

If you are feeling anxious about your child's weight, get some professional advice from the pediatrician to determine if the problem is real. You must remember the body your 10-year-old daughter has during pre-puberty will change as she grows and develops. You can also monitor your child's weight on charts available through the CDC ([www.cdc.gov](http://www.cdc.gov)).

Some parents are rightly concerned about their child's weight; we're seeing more and more medical problems with childhood diabetes, high cholesterol, and high blood pressure. But for other parents, the concern about their child's weight reflects their own anxiety about having an “imperfect” kid. Yes, you say you want to spare your child the grief of being fat — but be sure to also examine your own issues. If you yourself are very weight-conscious and put a high value on how you look, you may be feeling blemished if your child is overfat. Often, the child's weight problem is really the parent's issue. You may want a “perfect child.”

Be sure to love your overfat child from the inside out — and not judge him from the outside in. Just little comments (“That dress is pretty, honey, but it would look even better if you'd just lose a few pounds...”) get interpreted as “I'm not good enough.”

Self-esteem takes a nose-dive and contributes to anorexic thinking, such as “thinner is better.”

## Weight Management Tips

So what can you do to help fat kids slim-down? Instead of maligning them and trying to get them thin by restricting food, we can get them healthier by helping them see the benefits of being more active. This could mean watching less TV, planning enjoyable family activities (unlike boot camp), and perhaps even creating a walking school bus with the neighborhood kids. As a family, you might want to sign up for a charitable walking or running event. As part of a society, make your voice heard about the need for safe sidewalks, health clubs that welcome overfat kids, swimming pools that allow children (and adults, for that matter) to wear t-shirts and shorts instead of embarrassing bathing suits.

Food-wise, provide your kids with wholesome, nourishing foods, as well as semi-regular “junk foods.” (Otherwise, they will go out and get them). Encourage them to eat breakfast. Plan structured meals and snacks; take dinnertime seriously. Your job is to determine the what, where and when of eating; the child's job is to determine how much and whether to eat. (That is, don't force them to finish their peas, nor stop them from having second helpings.) If you interfere with a child's natural ability to regulate food, you can cause a lifetime of struggles. Trust them to eat when hungry, stop when content, and have plenty of energy to enjoy an active lifestyle.

## Q&A (continued from page 2)

all four healthy lifestyle interventions, with women being twice as compliant as men. Remembering the old adage, “we are shaped by those who love us,” we, as adults, should become better role models if we expect to overcome the childhood obesity problem.

### Q: Is exercise-induced weight loss preferred over weight reduction secondary to restricted caloric intake?

A: Realistically, both approaches are recommended for a successful weight loss regimen. Below are three of the numerous reasons supportive of this combination. First, additional caloric expenditure from increased activity will help widen the caloric intake/caloric output gap and hasten fat loss. Most low calorie utilizers/sedentary individuals are limited in the amount of caloric restriction they can safely undertake.

Drastic caloric restrictions may not provide a diet supplying adequate nutrition for proper growth and development. Increasing caloric expenditure via increased activity while modestly decreasing caloric intake should allow adequate nutrition while speeding the desired fat loss.

Second, exercise appears to enhance the sensitivity of fat cells (adipocytes) to epinephrine which increases the amount of fat breakdown (lipolysis) to be utilized as energy during daily activity and, in turn, reduces the size of the fat cells.

The third reason is especially important for children. Physical activity induces an anabolic effect on muscle metabolism and promotes an increase in lean body weight or fat free mass. Thus, exercise will promote the positive

nitrogen balance required for healthy growth patterns in children and utilize calories to hasten the desired fat loss.

Overall, a combination of exercise and caloric reduction allows fat loss at a healthier and more rapid rate and promotes a healthier growth pattern in our overweight/obese children.