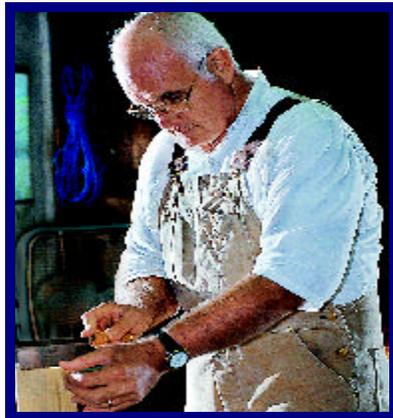




# Promoting Healthy Lifestyles



## Missouri Obesity Burden Report 2002

# Executive Summary



*Photo: Missouri Department of Tourism*

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As a nation, we have come far in reducing the burden of disease and increasing the life-span of Americans. There have been great advancements in the understanding of prevention and management of chronic disease. Yet chronic diseases remain the leading causes of morbidity (illness) and mortality (death) in the United States, accounting for 1.7 million deaths each year.

Many of these chronic diseases can be reduced, if not prevented. A major contributing modifiable risk factor for a number of chronic diseases is obesity. Over the past two decades, obesity has risen to epidemic proportions. The rise has been evident nationally as well as in Missouri.

Obesity is a complicated condition with multiple causes. Two of the primary behavioral and environmental-related causes are the level of physical inactivity and the poor diet that many Americans experience in their daily lives. Physical inactivity and poor diet combined are the second leading cause of death nationally, resulting in approximately 300,000 preventable deaths each year. To tackle this significant problem, healthy behaviors must be adopted alongside changes in our physical environment that encourage the cultivation of these healthy behaviors.

Not only does obesity place a great health burden on the individual, but the economic burden associated with obesity can be far-reaching and consequential. Ranging from investments in weight-loss programs to increased medical costs, the economic burden of obesity can vastly impact the individual, their family and society at large.

The purpose of this report is to describe the public health problem of obesity, the multiple factors (i.e., environmental, cultural, social, behavioral, genetic, etc.) that contribute to it, the barriers many face in adopting a healthy lifestyle, some opportunities toward building a healthy lifestyle, and a highlight of some of Missouri's efforts in addressing these issues.

# Introduction

Obesity is a new epidemic facing our country. Affecting all age brackets, genders and races, obesity is becoming a public health crisis. More than one in five Missouri adults (22%) are considered to be obese, and more than half (56%) are overweight. Obesity in children and adolescents is also becoming a growing concern. Nationally, obesity affects 70 million Americans.

The health implications related to obesity are significant and the link between obesity and chronic diseases has gained substantial scientific evidence. Individuals who are obese are at an increased risk, compared to those with a healthy weight, for developing conditions such as adult-onset diabetes, cardiovascular disease, gall bladder disease, hypertension, stroke, osteoarthritis of weight-bearing joints, gout and sleep apnea.

An obese individual's quality of life can also be impaired. Obesity can be overwhelming, ranging from physical limitations to psychological distress and social inequality. The economic impact can be devastating for the individual, their family and for society. Health-care costs attributable to obesity amount to nearly \$70 billion per year.

The causes for obesity are complicated and intertwined, consisting of environmental, behavioral and genetic components. Our environment influences the lifestyle we adopt. Many societal changes have occurred during past decades that discourage healthy behaviors. Sedentary lifestyle and unhealthy diet of many Americans are significant contributors to obesity.

The rise in obesity and unhealthy lifestyles among children and adolescents is disturbing. With the expansion of technology and growth of the fast-food industry, it is no mystery that our children are growing up in an unhealthy environment. Obese adolescents are 70 to 80 percent more likely to become obese adults than non-obese adolescents. They are more likely to suffer from chronic disease as adults and even as children. Furthermore, data shows that children are now acquiring obe-

sity-related disease, such as Type II diabetes, a disease that at one time was only common among adults.

However, these health consequences can be reduced, if not prevented altogether. Even a modest reduction in weight of 5 to 10 percent can help reduce both the incidence and severity of these illnesses. Promoting healthy behavior change by creating an environment that is conducive to healthy lifestyles can have far-ranging benefits for the individual, the family and the community. Recently, public health approaches have emphasized the promotion of physical activity and healthy eating through environmental and policy changes.

Each of us has a role to play in promoting better health. The community, the health system, the family and the individual must actively strive for changes and improvements in the quality of life for adults and children throughout Missouri.

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# Obesity Defined

## Surgeon General's Report on Preventing Obesity

The U.S. Surgeon General recently addressed obesity as one of the most important public health challenges this nation is facing. The Surgeon General warns that obesity has reached such epidemic proportions that it might surpass smoking as the leading cause of preventable deaths in the nation. As obesity is a condition that is primarily a result of behavioral adaptation as well as environmental influence, taking a comprehensive approach targeting the individual and the community with the emphasis on health rather than appearance may be most conducive to reducing obesity prevalence. The *Call To Action* presents prevention and treatment strategies to be achieved through the collaboration of a variety of organizations and individuals, a useful tool in guiding of the efforts toward promoting a healthy lifestyle.

## Measuring Obesity

Obesity can be measured in many ways. The body mass index (BMI) has been shown to be a very reliable and commonly used indicator of one's weight status. It is a measurement of weight (kg) divided by height (m<sup>2</sup>). A BMI of greater than or equal to ( $\geq$ ) 25kg/m<sup>2</sup> is considered overweight and  $\geq 30$ kg/m<sup>2</sup> is considered obese. The National Heart, Lung and Blood Institute (NHLBI) developed the new standard definition of overweight and obesity in 1998 based on an extensive evidence-based review of morbidity and mortality related to weight.<sup>1</sup>

The BMI chart (see bottom right) breaks down the categories for weight and is a useful tool to quickly assess one's weight status. This chart applies to adults 18 years and older.

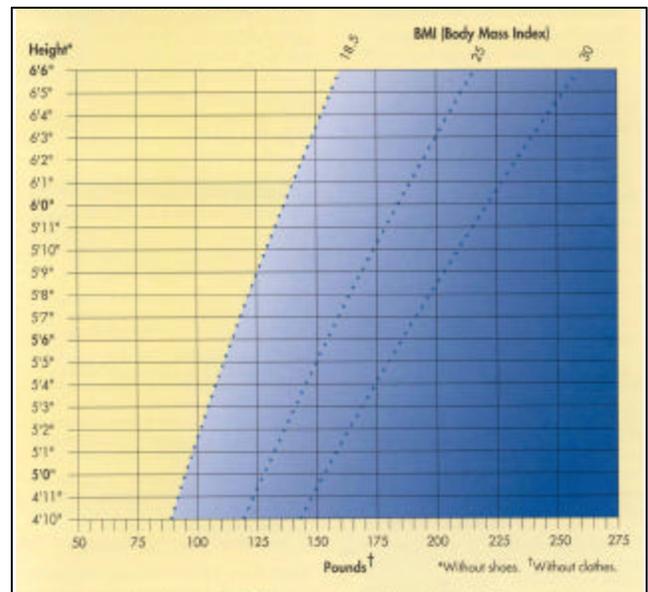
For children and adolescents, overweight or "at risk for overweight" is defined as the 85<sup>th</sup> - 94<sup>th</sup> percentile of BMI by age and gender. Obesity or "overweight" for children and adolescents is defined as  $\geq 95^{\text{th}}$  percentile of BMI.



## Obesity Defined

*Obesity is a biological condition where an individual has an excess of body fat which is caused by an energy imbalance between the energy intake and energy expenditure.*

## Are You at a Healthy Weight?



**Directions (For those 18 years and older):** Find your weight on the bottom of the graph. Go straight up from that point until you come to the line that matches your height. Then look for your weight group.

**Healthy Weight:** BMI from 18.5 up to 25.  
**Overweight:** BMI from 25 up to 30.  
**Obese:** BMI 30 or higher. Obese persons are also overweight.

Source: Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2000.

# Obesity Burden

## Obesity in the United States

Approximately 70 million Americans are obese - more than 1 in 3 of all adults and 1 in 5 children. In the U.S., the changes in obesity prevalence during the past decade have been dramatic. Maps (see top right) developed by Centers for Disease Control and Prevention (CDC) researchers demonstrate how rapidly widespread obesity has become. In 1991, there were only four states with an obesity prevalence of more than 15%. In 2000, 49 states had an obesity prevalence greater than 15%, demonstrating how epidemic obesity has become. In 1994, Missouri joined the ranks of high obesity prevalence exceeding 15%. In 2002, the prevalence exceeded 20%. It continues to rise nationally and in Missouri.

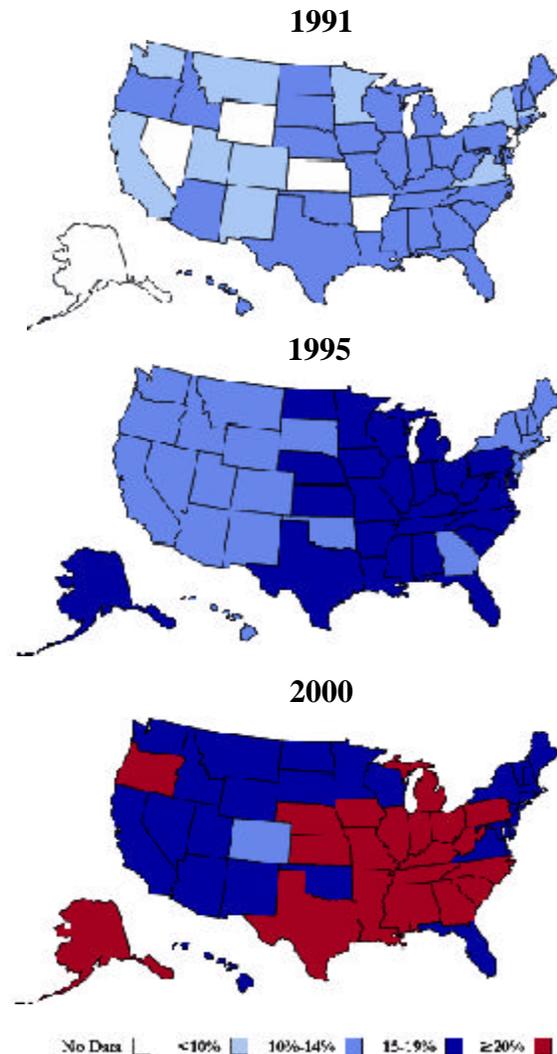
Transcending racial, gender and socioeconomic boundaries, obesity affects nearly all states and all populations. "Rarely do chronic conditions such as obesity spread with the speed and dispersion characteristic of a communicable disease epidemic." <sup>2</sup>

## Obesity in Missouri

When comparing U.S. trends with Missouri trends, we see a similar escalation in obesity prevalence over the past decade. Missouri ranks 10<sup>th</sup> in the nation with an obesity prevalence of 22% in 2000, or more than 1 in 5 adult Missourians. This represents an 86% difference from 1990 to 2000.

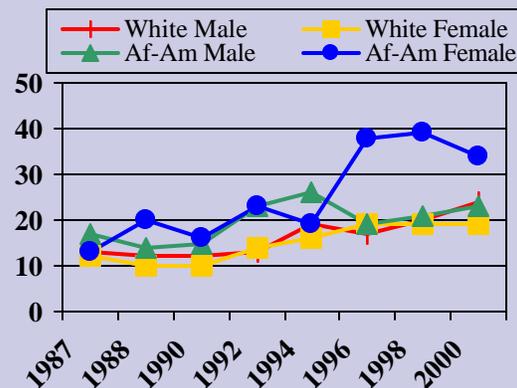
Following trends over time between 1987 and 2000 (see bottom right) in the race and gender population subgroups, we note that all are showing increasing trends in obesity. The prevalence trends demonstrate that obesity is increasing much more rapidly among African-American women by a remarkable 160% from 1987 to the present. The population with the second greatest increase were white males with an 85% increased difference from 13% in 1987 to 24% in 2000.

### Obesity Prevalence Trends in the U.S.



Source: CDC, 1991-2000

### Obesity Prevalence Trends



Source: 1987-2000 Behavioral Risk Factor Surveillance System

# Childhood Obesity

## A National Perspective

Obesity has received significant attention from the media, especially as it relates to children. The July 3, 2000 issue of *Newsweek* examined the emerging public health threat of childhood obesity, reporting that six million American children are significantly overweight.

National data shows that obesity prevalence among children and adolescents, 2-17 years of age, is between 20 and 27%. Obesity has increased among all children, regardless of age, gender and race. The prevalence of obesity among African American and Hispanic children has increased by 120% from 1986-1998.



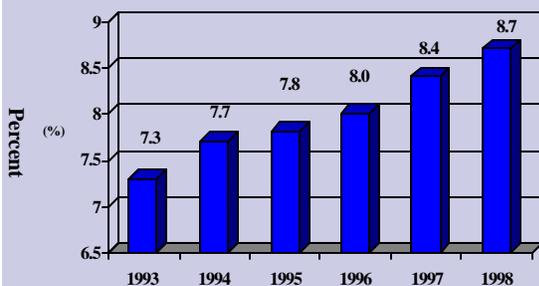
## A Missouri Perspective

Missouri data reveals that the proportion of 0-5 year olds participating in the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) demonstrate a steadily increasing prevalence of overweight from 7.7 to 8.7% over five years (see top left), with an annual rate of increase at 3.6% (3 times higher than that of the U.S.). This represents approximately 25% of Missouri's 0-5 year old population.

Population-based data is available for children in grades 6-8 and adolescents in grades 9-12 through two separate surveys. The Missouri Middle School Health Survey (1999) and the Youth Risk Behavior Survey (1999) provides information on health behaviors among children and adolescents.

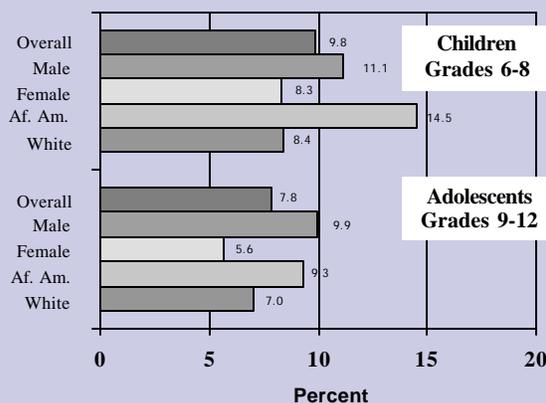
When observing differences in gender and race (see bottom left), we see that a higher proportion of males are obese than females; African Americans have a higher prevalence of obesity than whites. Overall, African American children in grades 6-8 have the highest prevalence of obesity at 14.5%.

**Prevalence of Obesity Among Missouri Infants/Children in WIC (age 0-5)**



Source: Missouri Pediatric Nutrition Surveillance, 1993-1998

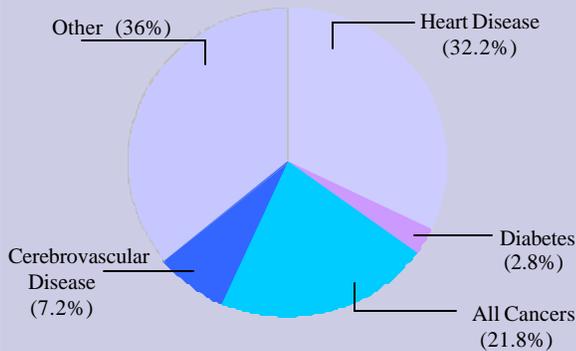
**Prevalence of Obesity Among Missouri Children and Adolescents**



Source: Missouri Middle School Survey, 1999;  
Missouri Youth Risk Behavior Survey, 1999

# Consequences

## Leading Causes of Death in Missouri



Source: Missouri Vital Statistics, 1999  
 Note: Obesity is a major risk factor for 64% of Missouri deaths.

## Obesity-Related Chronic Diseases in Missouri Adults

Chronic diseases are now the leading causes of mortality and morbidity in the U.S., and they pose a tremendous public health challenge. Analysis of the leading causes of death in Missouri for 1999 revealed that heart disease, diabetes, all cancers and cerebrovascular diseases account for 64% of the total mortality, for which obesity is a major risk factor (see top left).

In 1999, the Missouri Department of Health (now known as the Department of Health and Senior Services or DHSS) conducted a special survey, the *Obesity Reduction Survey*, to look specifically at barriers to and perceptions of disease and health. Data from this survey indicates that as weight increases from underweight to normal weight to overweight and to obesity, so does the prevalence of chronic diseases, such as cardiovascular disease (CVD), diabetes, arthritis, high cholesterol and high blood pressure (see left).

Those individuals who are obese are 3.6 times more likely to have diabetes, 65% more likely to have arthritis, 2.43 times more likely to have high blood pressure and 83% more likely to have coronary heart disease than those individuals who are of normal weight. The state ranks second in the nation for deaths due to coronary heart disease.<sup>3</sup> If overweight and obesity continue to rise, Missouri will likely see a sharp increase in chronic diseases in years to come.

## Prevalence of Chronic Conditions by Weight Status



Source: Obesity Reduction Survey, 1999

## Medical Conditions Associated with Obesity

1. Arthritis and Osteoarthritis
2. Birth Defects
3. Breast Cancer
4. Cancers of the Esophagus and Gastric Cardia
5. Colorectal Cancer
6. Endometrial Cancer
7. Renal Cell Cancer
8. Cardiovascular Disease
9. Chronic Venous Insufficiency
10. Deep Vein Thrombosis
11. End Stage Renal Disease
12. Gallbladder Disease
13. Hypertension
14. Impaired Immune Response
15. Impaired Respiratory Function
16. Infertility
17. Liver Disease
18. Obstetric and Gynecological Complications
19. Severe Acute Biliary & Alcoholic Pancreatitis
20. Sleep Apnea and Daytime Sleepiness
21. Stroke
22. Type 2 Diabetes (NIDDM)
23. Urinary Stress Incontinence

Source: American Obesity Association, 2000

# Consequences

## The Health Consequences of Childhood Obesity

Approximately 25 - 50% of obese children and 70 - 80% of obese adolescents are likely to grow up to become obese adults.<sup>4</sup> The more severe and earlier the onset of obesity in childhood, the more severe the adult obesity and the earlier the onset of obesity-related co-morbidities.

Persistence of childhood-onset obesity is associated with higher rates of morbidity and mortality compared with adult-onset obesity.<sup>5</sup> For instance, Type II (adult-onset) diabetes, once thought to only occur in adults, now affects children at a remarkable rate. It is estimated that 30% of children that are diagnosed with diabetes have the Type II form. Before 1990, this disease was rarely seen in people under the age of 40.

Obese children are also at higher risk for developing high blood pressure, high cholesterol levels and a number of other health conditions. Consequently, overweight children are at increased risk for various chronic diseases in later life. Thus, the early prevention of obesity becomes a critical issue when working to reduce the incidence of chronic illness and to prevent its development early in life.



## Quality of Life Impact Physical, Psychological, Economic

Obesity is multifaceted not only in its development, but in its consequences. Obesity can impact an individual's productivity, health and sense of security and comfort. Testimonies from people affected by obesity reveal the magnitude of these effects and how they impact their quality of life. In addition to the health consequences, obesity affects an individual psychologically, socially, economically and physically.

The physical impact of obesity can result in limitations in general functioning and mobility. Physical limitations may even prevent an individual from becoming physically active.

Psychological effects such as depression and low self-esteem can be detrimental, especially among children and adolescents. "Obesity was associated with a 37% increased risk of depression among women. These findings were true for both blacks and whites."<sup>6</sup> In addition to depression, social discrimination at work or at school can impact an individual's overall interaction, productivity and peace of mind.

Economically, the burden of obesity ranges from medical costs to weight-loss programs to indirect costs associated with decreased productivity and absenteeism. The direct costs associated with obesity and physical inactivity account for 9.4% of the national healthcare expenditure.<sup>7</sup> Health-care costs attributable to obesity amount to nearly \$70 billion per year.

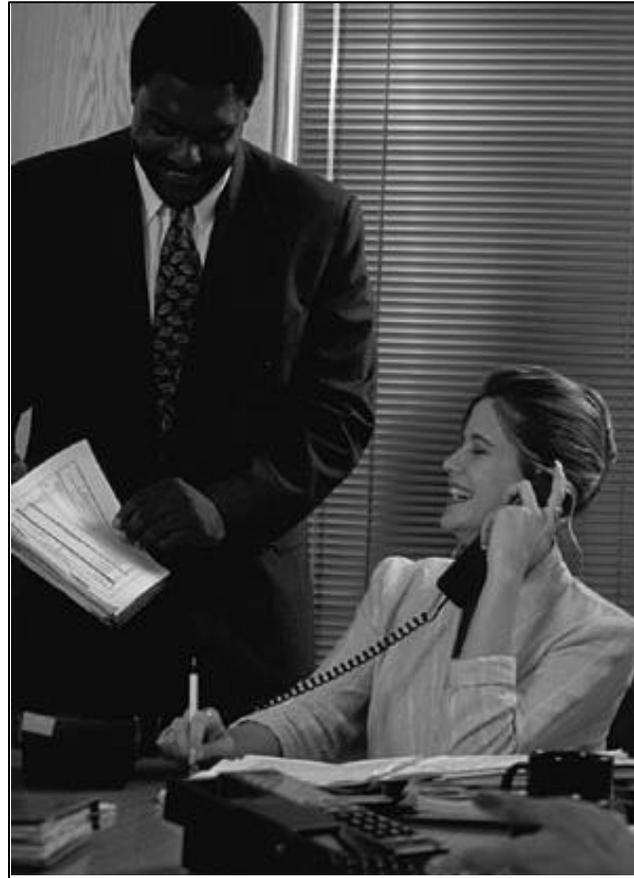
# Contributing Factors

## Our Changing Lifestyle

Over the previous 20 years - the time period during which the epidemic of obesity has emerged - dramatic changes have occurred in our social and physical environment.

Today, Americans live in an environment that promotes poor food choices and overeating and discourages physical activity as part of their daily routine. Advertisements and media messages encourage “supersized” portions and foods that are high in calories, sugar or fat, and low in nutrition. Fast food restaurants, vending machines and convenience foods make these products available practically everywhere.

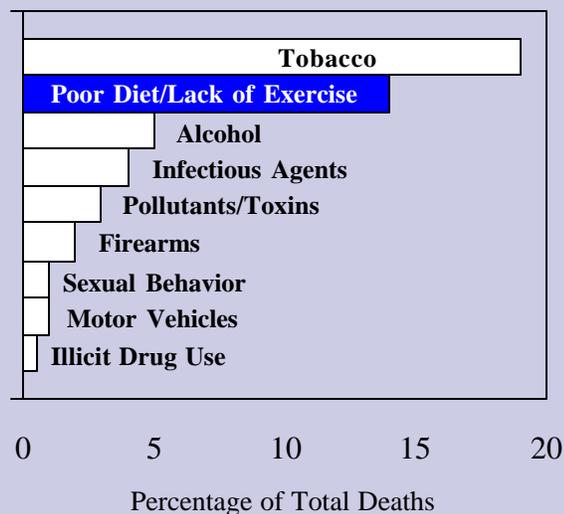
Opportunities to be physically active during work hours are often limited. Automatic doors, elevators and other labor-saving devices limit our calorie expenditure during everyday activities. Nationally, daily participation in physical education classes dropped from 42% in 1991 to 25% in 1995.<sup>8</sup> A lack of sidewalks and safe recreational areas pose barriers to physical activity during leisure time.



The changing roles of women have dramatically influenced what and how we eat. In the early 1900s, only 6% of married women worked outside the home. By 1999, this has increased to 65%.<sup>9</sup> Family meals appear to be declining, with almost 50% of the American food dollar spent on meals away from home.<sup>10</sup> When we do eat at home, it is often in front of the TV. Eating is often done “on-the-go,” such as while driving. Time and convenience are a top priority when making decisions about what and how we eat.

Poor nutrition and physical inactivity are health risks for everyone, not just those who are obese. Combined, these factors have been shown to contribute to nearly 300,000 preventable deaths annually in the U.S.<sup>11</sup> This is second only to tobacco use (see left). Preventing chronic diseases, including obesity, requires changing nutrition and physical activity behaviors.

Actual Causes of Death, United States, 1990



Source: JAMA, 1999

# Physical Activity



## Missouri Facts

In 1999, over 50 percent of Missouri adults (age 18 and older) and 36 percent of adolescents do not achieve the recommended amount of physical activity, and an estimated 25 percent are not physically active at all. The rate of adult physical inactivity has increased, especially for African Americans and individuals over age 65.

## Barriers to Physical Activity

Today's generation faces many challenges to active living. There are time constraints, lack of energy after a full day of work or taking care of the kids and lack of an environment that makes physical activity convenient, easy and safe. With the "energy-saving" technology boom, our increased reliance on cars, TV, video games and other sedentary pastimes, it is no surprise that children and adults are becoming heavier.

Studies have shown that increased TV viewing among children is associated with an increased likelihood of obesity. Additionally, a switch from rural living to urban living over the past century has dramatically altered the physical activity of daily work. Rural farming communities required more physical labor than that of the urban setting, where more people work behind a desk.

With population increases and the popularity of the suburban and urban lifestyle, increased traffic and crime in our neighborhoods have made it unsafe for children to play outdoors. Lack of sidewalks and biking or walking trails complicate the issue, making physical activity a challenge for everyone. Overcoming these challenges can seem impossible, but there are ways to incorporate physical activity into one's busy life.

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**Physical activity not only improves your physical health, but is a great way to relieve the stresses of everyday life!**

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## Tips to Get *Moving*

**Exercise with a friend to stay motivated.**

**Take 10 minute activity breaks.**

**Walk more and drive (or ride) less.**

**Limit watching TV, playing computer games and other inactive forms of play.**

**Exercise during your lunch break.**

## EXPERT Recommendation

***Accumulate 30 minutes or more of moderate-intensity physical activity on most, preferably all, days of the week.***

Source: CDC

## Missouri Facts

In 1999, approximately 80 percent of Missouri adults and 82 percent of adolescents do not eat the recommended servings of fruits and vegetables a day. African Americans have a lower mean daily intake of fruits and vegetables than all other race groups.

Eating out has become a daily routine for many Missourians. Of the American food dollar, 34% is spent on fast foods that are high in calories and fat and low in nutrition.<sup>10</sup>

Soda consumption has skyrocketed from 22 gallons (1970) to an average consumption of 41 gallons per year, per person (1997).<sup>12</sup> Soda not only adds extra sugar and calories, but often replaces milk that supplies calcium and other important nutrients.

## Barriers to Good Nutrition

Time is a key factor in today's food decisions. With our fast-paced lifestyles, getting all of the family together around the dinner table at the same time is a challenge. For many, home cooking means microwaving a frozen product or reheating something picked up on the way home.

Adults are making fewer of the family's food decisions. Children are more independent with their food choices today and they often determine what foods adults purchase. TV and media messages influence what foods we eat as well as how we eat.

TV advertisements targeting children promote soda, fast foods, candy and high-sugar breakfast cereals. Advertisements for adults promote alcoholic beverages and eating out or home delivery. Competing with all these major marketing campaigns is a tremendous challenge for public health.

## Healthy Eating Tips

**Enjoy more meals at home with your family and friends.**

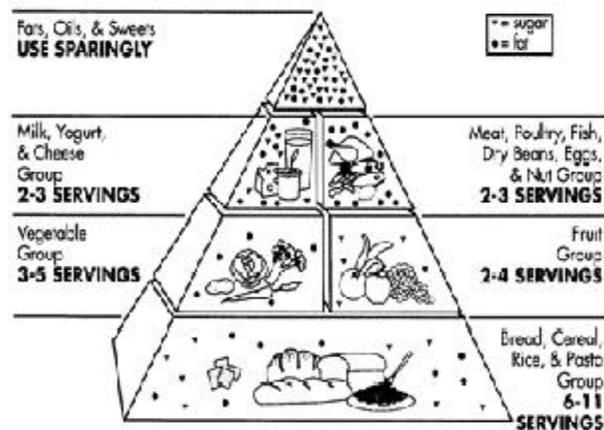
**Eat slowly and in moderation.**

**Eat a wide variety of foods (see right).**

**Limit foods and beverages high in sugar, fat, or alcohol.**

**Avoid eating when not physically hungry.**

The Food Pyramid



Source: United States Department of Agriculture

## EXPERT Recommendation

**Consumption of 3-5 servings of vegetables and 2-4 servings of fruits each day.**

Source: Dietary Guidelines for Americans, 2000.

# A Chance to Change

## Environment and Community

There is a growing emphasis on environmental and policy changes to promote healthy behaviors. Unsafe neighborhoods and lack of sidewalk or walking trails prevent individuals from being physically active. Availability and cost of nutritious foods and health information in communities also play a role in healthy eating.

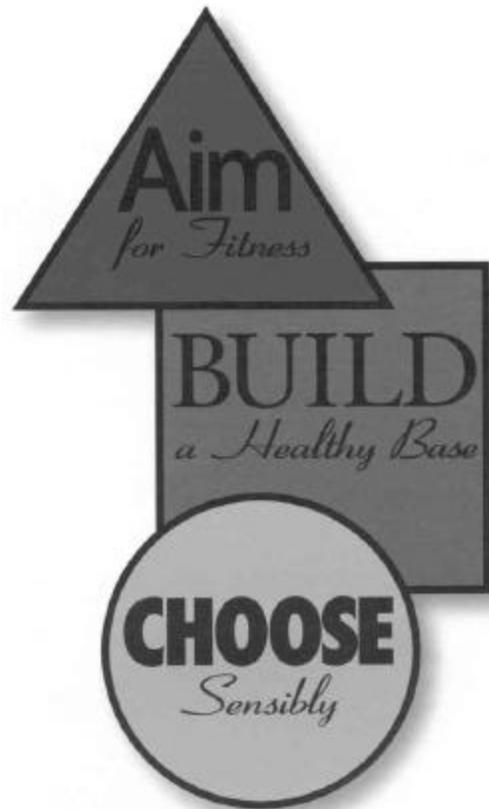
## Healthcare Professionals

Health care professionals are a credible source of health-related information and, therefore, have a tremendous opportunity to promote healthy behaviors and reduce obesity. Data shows that those who are advised to lose weight are 4.6 times more likely to attempt weight loss than those not counseled.<sup>13</sup> Unfortunately, less than 1 in 5 who reported being overweight and 1 in 3 of those who reported being obese were advised to lose weight by a health care professional.

## A WORD OF CAUTION: *Unhealthy Weight Loss Approaches*

Avoid unrealistic or dangerous weight-loss approaches. Popular fad diets, over-the-counter pills and exercise gadgets promise quick and easy weight loss. Restrictive diets and extreme exercise programs, however, are likely to do more harm than good, and rebound weight gain is frequent after rapid weight loss.

A diet mentality and obsession with body weight may contribute to eating disorders, such as anorexia nervosa and exercise bulimia. A focus on healthy eating and physical activity promotes gradual changes that can be continued throughout one's life.



## The Family, Individual

Ultimately, the responsibility for health behavior change rests on the family and the individual. Efforts to dine together and play together as a family can benefit everyone and instill healthy behaviors at a young age. Everyone should: **A**im for fitness, aim for a healthy weight by being physically active each day; **B**uild a healthy base by eating the nutrients our body needs each day; and **C**hoose sensibly, eating in moderation.

# Missouri's Efforts



The Missouri Department of Health and Senior Services (DHSS) is committed to addressing this problem by taking a comprehensive and coordinated approach to combat obesity. Below highlights some of the programs currently in place to combat obesity in the state.

## **Bureau of Chronic Disease Control Missouri Cardiovascular Health Program (CVHP)**

*Community Policy and Environmental Change* program is designed to enable communities to support healthy lifestyles. These changes include: Developing and improving existing walking trails; changing school policies to increase physical activity venues; and establishing a community garden.

The *Worksite Inventory Program*, implemented through local public health agencies, assesses the policy and environmental barriers to physical activity and nutrition for local work sites. Recommendations are then proposed to the work sites with provision of technical assistance on addressing the identified barriers to improve the work environment and promote healthy lifestyle behaviors.

The *School Health Index* helps schools identify the strengths and weaknesses of their health promotion policies as they relate to physical activity and nutrition. The program involves

the participation of teachers, parents, students and the community working together to assess policies and programs based on national standards and guidelines.

## **Missouri Diabetes Control Program (MDCP)**

Through *Diabetes Today*, the MDCP trains local community leaders and concerned citizens to identify needs and resources for individuals with diabetes and their family members and assists these coalitions in planning, implementing and evaluating community-level programs to prevent and control diabetes and its complications. Physical activity and healthy diet are components of these programs.

## **MO Arthritis, Osteoporosis Program (MAOP)**

Physical activity and self-management programs are promoted by seven Regional Arthritis Centers (RACs) throughout the state. Their education and services center around reducing disability and minimizing pain caused by arthritis and related conditions. Weight management is an important element, as obesity is a risk factor for osteoarthritis. Physical activity has been shown to be essential in reducing the pain and severity of the condition and increasing the productivity and independence of Missourians with arthritis.

## **Office of Surveillance, Research and Evaluation Behavioral Risk Factor Surveillance System**

The Behavioral Risk Factor Surveillance System (BRFSS), a population-based annual survey, provides information on behavioral risk factors and health indicators for the adult population, age 18 or older. Special surveys, such as the Obesity Reduction Survey and the Cardiovascular Disease survey, focus in on specific aspects of obesity.

# Missouri's Efforts

## **Bureau of Nutrition Policy and Education**

*5-A-Day for Better Health* works to increase the intake of fruits and vegetables through educational materials, public service announcements and web and computer technology.

*Breastfeeding Promotion* focuses to increase the number of women who breastfeed, the number of infants who receive nutrition only from breastfeeding the first six months of life, and support breastfeeding for at least the first year of the infants' life.

*Missouri Nutrition Network* promotes consistent nutrition messages targeting Missouri food stamp recipients and low-income families.

*School Nutrition Education* provides evaluated education, training and resources to school based audiences.

## **Bureau of Community Food and Nutrition Assistance**

*Child and Adult Care Food Program* (CACFP) provides nutrition standards and reimbursement for meals and snacks served at child and adult care programs, including licensed or license-exempt child care centers, licensed family child care homes, homeless shelters, after-school programs, and licensed adult day care centers.

*Summer Food Service Program* provides nutrition standards and reimbursement for summer programs to insure provision of meals and snacks when school is out for the summer.

## **Bureau of Nutrition Services and WIC**

*WIC* serves pregnant women, new mothers, infants and children up to five years of age who qualify as "nutritionally at-risk" based on medical and nutrition needs and state income guidelines. WIC provides financial assistance for the purchase of nutritious foods to supplement

the diet, nutrition education, breastfeeding counseling, and conducts immunization screenings and referrals.

*Farmers' Market Nutrition Program* provides nutrition education and fresh fruits and vegetables from farmers and farmers' markets to WIC participants and elderly participants.

## **Bureau of Nutrition Research and Surveillance**

*The Nutrition Surveillance System* monitors nutrition behaviors and risk factors of participants in WIC, the Special Supplemental Nutrition Program for Women, Infants, and Children and school age children. Two systems, the Pregnancy Nutrition Surveillance System (PNSS) and the Pediatric Nutrition Surveillance System (PedNSS) provide data to program planners and policy makers to aid in establishing health priorities and policies.

## **Bureau of Health Promotion**

*The Chronic Disease Health Education Initiative* supports environmental, policy and behavioral change interventions to increase physical activity and healthy eating in 34 counties. Public health educators work with communities, work sites and schools to identify barriers to physical activity and healthy eating and plan strategies to overcome them. The health educators also work with schools to implement evidence-based physical activity and nutrition curricula such as *CATCH*, *SPARK* and *Planet Health*.

*The MOve For Your Health Physical Activity Challenge* is implemented with adults in worksite and community settings, as well as with students in high schools. The program includes an individual journal that provides instructions for planning a personal physical activity program by setting weekly goals and recording daily activity for eight weeks. The goal of the program is to increase moderate-to-vigorous physical activity to levels sufficient to achieve health benefits.

# REFERENCES

## National Resources

**National Heart, Lung and Blood Institute**  
[www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)

**Surgeon General's Report**  
[www.surgeongeneral.gov/topics/obesity/default](http://www.surgeongeneral.gov/topics/obesity/default)

**Centers for Disease Control and Prevention**  
[www.cdc.gov](http://www.cdc.gov)

**American Obesity Association**  
[www.obesity.com](http://www.obesity.com)

**United States Department of Agriculture**  
Food and Nutrition Services  
[www.fns.usda.gov.fns](http://www.fns.usda.gov.fns)

## Missouri Resources

**Missouri Department of Health and Senior Services**  
[www.dhss.state.mo.us](http://www.dhss.state.mo.us)

**Bureau of Chronic Disease Control**  
(800) 316-0935

**Division of Nutritional Health and Services**  
(573) 526-5520

**Governor's Council on Physical Fitness and Health**  
[www.gov.state.mo.us/boards/cgi/boards.cgi](http://www.gov.state.mo.us/boards/cgi/boards.cgi)

**The Virtual Healthcare Team**  
[www.vhct.org/case2500/index.html](http://www.vhct.org/case2500/index.html)

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