Preschoolers Increasingly Overweight

Preventing Childhood Obesity: A Prop 10 Opportunity

Updated Policy Brief, January 2005

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In 2002, 16.2% of California children under age five were overweight, compared to 13.5% of young children nationwide.[1]

This alarming trend is reflected among older children, too. Recent 2004 estimates show that the national incidence of overweight in all children has increased to 15%, with another 15% at-risk.[2] The rates of overweight and childhood obesity have tripled over the last twenty years, and the prevalence is higher in California than the national average.[3,4] In some California school districts, 40 to 50% of children are overweight.[5]

The widespread causes and consequences of childhood obesity point to the need for multilevel systemic change in the United States. A pattern of inactivity and poor nutrition develops early in life, making the promotion of physical activity and healthy eating habits imperative among very young children. Because studies show that early intervention is key to preventing overweight, California's First 5 Commissions have a unique opportunity to help address this serious epidemic that threatens the health and well-being of our children.

Obese and overweight children become sick more often, perform more poorly in school, are at heightened risk for a number of chronic childhood conditions, and are increasingly diagnosed with "adult" diseases like Type II diabetes, hypertension, and high blood cholesterol.[6] In addition, overweight children often experience discrimination and stigmatization by society and their peers, which contribute to psychological stress and low self-esteem. Anxiety, loneliness, poor school performance, and disruptive behavior are all demonstrated effects of childhood obesity.[7]

Because about one-third of overweight preschool children and one-half of overweight school-age children remain overweight in their adult years, the lasting consequences of childhood obesity can be serious.[8] The economic costs of adult obesity are also undeniable. In 2004, America's obesity costs were estimated at about $93 billion, translating to 9.1% of all health care spending.[9] Including the indirect costs ($56 billion) associated with obesity that year, America spent a total of about $149 billion on the epidemic in 2004.[10, 11] Adjusting for inflation, the total cost of obesity last year was approximately $80 billion more than it was in 1990.[12]

Therefore, parents and caregivers of young children play a vital role in establishing lifelong healthy habits. Recent studies have shown that food intake patterns instituted in early childhood predict a child's eating habits in adulthood, and that foods consumed during infancy and childhood may have long-term, and perhaps permanent, effects on health and metabolism.[13]

The increasing prevalence of overweight among very young children indicates that prevention activities need to begin in the early childhood years. Behavior patterns are established during the preschool

years, and it is especially important to encourage healthy choices about diet and exercise at that critical time.[14]

Experts advise that prevention efforts must begin early and address two crucial issues:

- *The increasingly unhealthy and sedentary lifestyle of young children, and*
- *Inadequate parent and caregiver knowledge of basic infant and toddler nutrition and physical activity needs.*

Understanding the Causes of Childhood Obesity

Weight gain among children is due to a confluence of factors. Studies reveal a clear link between childhood obesity and environmental variables, such as a dearth of walkable communities, absence of safe outdoor play areas, and unavailable fresh fruits and vegetables.[15] Increasingly accessible private transportation, the changing role of physical education in school curricula, and a lack of intensity and frequency when physical activity *does* occur also likely contribute to the obesity epidemic. Personal factors including sedentary behavior, genetic makeup, family lifestyle, and income status also affect a child's weight. Notably, unhealthy eating habits are a major cause of overweight.

Although young girls used to exhibit higher rates of overweight than boys, rates are now essentially equivalent by gender.[16] Obesity rates are much more strongly correlated to socioeconomic status and ethnicity.[17,18] The overweight prevalence among youth is considerably higher than average for Hispanic boys, Hispanic girls, and African-American girls.[19] Nationally, overweight rates have increased fastest among minorities and southerners, creating large demographic differences in the prevalence of childhood overweight. Between 1986 and 1998, this country saw a triple digit percentage increase in overweight just among African-American and Hispanic children.[20] Obesity rates among these minority populations continue to be high, particularly when compared to whites.[21] Within California, a statewide survey of children found that one-third are overweight or at-risk for overweight. American Indian, Hispanic, African-American, and Asian-American children are more likely than white children to meet this criterion.[22] Studies also show that second generation Hispanic and Asian American adolescents are twice as likely to become obese as their parents.[23]

Overweight Among Children 0-59 months, 2002

Ethnic Group	% Overweight, California	% Overweight, National	% Overweight or At-Risk for 2 Years or More, California	% Overweight or At-Risk for 2 Years or More, National
African American	14.3%	12.0%	27.2%	25.5%
American Indian/ Alaskan Native	19.3%	17.4%	40.3%	36.7%
Asian/Pacific Islander	13.6%	12.1%	29.5%	27.2%
Hispanic	17.5%	17.0%	35.5%	36.0%
White, Non-Hispanic	12.3%	11.5%	28.6%	26.9%
Total, All Ethnic Groups	16.2%	13.5%	33.6%	29.7%

Source: 2002 Pediatric Nutrition Surveillance, *Growth Indicators by Race/Ethnicity and Age, Children Aged <5 Years, National and California Data*

High obesity rates among children can be correlated to four essential causes.

- *Low Physical Activity Levels*

Public health recommendations usually cite vigorous activity (that which expends calories at a higher rate than normal and requires the individual to breathe hard) as a necessary component for sustaining good health.[24] However, preschoolers spend 58% of their free-play time in sedentary activities and are only vigorously active 11% of the time.[25] Among older children, approximately 25% do not engage in regular structured physical activity, with adolescents and girls least likely to participate.[26] Nationwide, countless districts have eliminated P.E. requirements in response to budget cuts and growing pressure to improve academic performance on standardized tests. Despite rigorous state standards (200 minutes of physical activity every ten days), many California schools do not comply with the P.E. requirement, citing a lack of specially trained teachers and fear of encroachment on academic time.[27]

Urban planning that ignores walkable streets, accessible playgrounds and shorter commutes contributes to the obesity epidemic. The physical design of communities affects families' overall travel choices and how much they walk or bicycle, thus impacting their chances for obesity. A study sponsored by the Centers for Disease Control and Prevention found that every additional hour spent in cars each day was associated with a 6% increase in the likelihood of obesity. Conversely, each kilometer walked per day was associated with a 4.8% reduction in obesity risk.[28] Sociodemographic variables (ethnicity, income, and education) are strongly associated with travel mode choice, but mixed land use has been found to generally be a good predictor of pedestrian travel.[29] Whereas long commutes and increased car time are correlated to higher obesity odds, individuals living in areas with nonresidential land use are less likely to be overweight, as they tend to walk more to accomplish their daily activities.[30]

- *Impact of Television*

The negative effects of television are two-fold. Time spent watching television fosters sedentary habits that are strongly correlated to obesity rates. Television

advertising also influences poor food choices, which are equally detrimental to a healthy weight and lifestyle. On average, children spend over four and a half hours (281 minutes) per day watching television, playing video games, or using the computer, and each hour spent watching is associated with a 2% increase in obesity prevalence. [31,32] African-American girls are particularly at risk, as studies show they tend to watch more television than any other group.[33] Not only does exposure to television affect physical activity levels and high-calorie snacking, but as the largest media source of food messages, television also propagates unhealthy nutrition choices through its programming and advertisements. While under-consumed fruits and vegetables are rarely advertised, food commercials frequently advertise high-fat, high-sodium items, thus mirroring the unhealthy products that are typically over-consumed in the United States.[34]

- *Deteriorating Eating Habits*

In addition to the influence of television, poor nutrition can be linked to other causes as well. Age correlates to deteriorating eating habits, as older children tend to make poorer food choices than younger children. In fact, diets of two- and three-year-old children have been shown to be significantly healthier than those of four and five year olds.[35] On average, preschoolers eat just two or three servings (as opposed to the recommended five to nine) of fruit, juice, and vegetables daily, with about 40% of this amount coming from juice.[36,37] The spiral of unhealthy eating continues through childhood, as 91% of children ages six to eleven do not eat the recommended daily amounts of fruits and vegetables. Other causes of poor eating include the absence of consistent and comprehensive nutrition education and the increasing number of meals eaten in restaurants and fast food chains. A surge in convenience foods, growing portion sizes, progressively more energy-dense food and drink, high calorie school lunches, and cheaper overall food costs that drive increased consumption are still more culprits.

- *Poverty, Food Insecurity, and Hunger*

As defined by the University of California, food security is the access by all people at all times to enough nutritious food for an active healthy lifestyle.[38] In the United States, low-income individuals, who are more at-risk for food insecurity, are now more likely to be overweight.[39] The proportion of overweight children in the national Women, Infants, and Children (WIC) program increased 20% from 1983 to 1995.[40] In fact, in only ten years, overweight and obesity have surpassed nutrient deficiency and hunger as the most serious public health nutrition problem facing the low-income population.[41] Among California WIC participants in 2003, 18.6% of children ages three to five are overweight, and an additional 17.2% are at-risk. Taken together, this translates to more than one-third of California WIC children who are overweight or at-risk for obesity.[42] Similarly, in 2003 over 40% of children enrolled in California Head Start were overweight.[43]

While many families scrape by to avoid real hunger, they lack the money to buy healthy foods that comprise a balanced diet, particularly when there is a limited selection of nutritious food available to them. One survey indicated that 52% of families cannot regularly afford to feed

their children balanced diets, and 81% relied on low-cost foods to feed their children because they often ran out of money.[44] Cheapest foods tend to be those high in calories, fat, and sugar, while more nutritious alternatives can be prohibitively expensive. As a result, families increasingly turn to "value" meals at fast food chains as a way to maximize calorie intake with limited dollars.[45] This scenario demonstrates the important distinction between food quantity and food quality, explaining a major reason that food insecurity co-exists with obesity. Other reasons for the correlation include overeating when food *is* available and physiological mechanisms that compensate for periodic food shortages by allowing the body to become more efficient at storing calories as fat. Also, common in low-income communities are corner convenience stores (stocked with high-cost processed foods) rather than grocery stores that offer low prices and wide selection.[46] Such data speak to the need for offering low-income families better access to nutritionally adequate food at reasonable prices.

Strategies for Prevention

- *Breastfeeding Promotion: A Healthy Start*

The American Academy of Pediatrics established that extent and duration of breastfeeding correlate to decreased obesity risk in later childhood, possibly due to the feeding and parenting patterns associated with nursing.[47] Even when mothers are themselves overweight, breastfeeding has been proven to protect against obesity.[48,49,50,51,52] Findings also suggest that breast-fed infants more readily accept a variety of new foods, enabling them to develop healthy eating habits more easily.[53]

The American Academy of Pediatrics recommends that infants be exclusively breastfed for the first six months and that breastfeeding continue until at least the age of twelve months. However, women face many cultural, societal, and logistical barriers to breastfeeding. Strategies to address these barriers include: healthcare provider prenatal counseling on breastfeeding, early home visits that include culturally competent lactation education, breastfeeding help lines, and access to lactation professionals. The U.S. Department of Agriculture's (USDA) WIC nutrition program implements proven strategies to promote and support breastfeeding. USDA child nutrition programs such as the Child and Adult Care Food Program provide reimbursement for feeding expressed milk in childcare centers and daycare homes.

- *Parent and Primary Caregiver Education*

Parents and other primary caregivers have a tremendous impact on children's eating and physical activity patterns. Because busy daily schedules leave families limited time for food purchase, preparation, and regular family meals, food is increasingly eaten out or prepared outside the home. In fact, a 1997 California Dietary Practices Survey found that over 40% of adults eat at least one meal from a restaurant or cafeteria each day, and 12% eat two or more meals out.[54] Another study showed about 18% of meals for children age 2-5 are eaten away from home, with about 8% of all meals from fast food restaurants.[55] People who regularly eat out consume significantly fewer fruits and vegetables,

and whether eating at home or away, children learn habits from their families.[56,57] Unfortunately, evidence indicates that most families and providers still lack basic nutrition knowledge and do not seek information very often.[58,59,60] A focus group study of WIC mothers suggested that many rely primarily on the child-feeding advice of their mothers, even when it contradicts that of their WIC nutritionist.[61] Also, studies have shown that caregivers hold astonishingly inaccurate perceptions about children's nutritional habits. For example, one focus group of providers and parents believed that their children probably ate much more than five servings of fruit and vegetables daily.[62] Statistics overwhelmingly indicate, however, that children consume far fewer than the recommended daily number of fruits and vegetables. In fact, over 50% of five year olds eat less than two servings of produce each day.[63]

Just as unhealthy eating habits are learned, so too are food preferences, which are established by repeated exposure to items. Parents and primary caregivers can provide opportunities for children to learn to enjoy a variety of nutritious foods.[64] In addition to changing the home environment, other strategies could effectively improve child nutrition. Mandatory nutrition education and regulation could be established for daycare providers, and resources could be available to parents about how to prepare fruits and vegetables. Numerous proven programs and curricula exist for educating parents on proper early childhood nutrition and developmentally appropriate feeding practices. However, educational programs should be tailored to the beliefs, behaviors, and needs of the target populations.

- *Children Require More Exercise*

Some evidence indicates that lack of rigorous physical activity is more troublesome for childhood obesity than poor nutrition. In fact, a decreasing level of structured physical play among preschoolers appears to be the crucial factor in early weight problems.[65] Although few studies have evaluated physical activity interventions for preschool children, several elementary school studies show that enhanced physical education programs can increase children's physical activity.[66] Moreover, a 2002 study proved that structured physical activity in school can actually improve test scores and that participation in P.E. does not hinder academic performance.[67] Further, adding just one hour per week to existing P.E. time could decrease the prevalence of overweight among elementary-age girls by 10% and by 21% in at-risk-for-overweight girls.[68] Expanding existing P.E. instruction time nationwide to at least five hours per week for kindergarteners could reduce the national prevalence of overweight among girls by 43% and at-risk-for-overweight by 60%.[69]

Many scientific and governmental organizations recommend regular structured physical activity for children. The 2005 Dietary Guidelines for Americans recommend that children engage in at least sixty minutes of moderate to vigorous activity each day.[70] Additionally, according to The National Association for Sports and Physical Education (NASPE), toddlers and preschoolers should not be sedentary for more than 60 minutes at a time unless sleeping. NASPE further recommends that young children have indoor and outdoor areas safe for performing large muscle activities, such as climbing and

jumping.[71] Several organizations also recommend that TV viewing be limited to two hours per day, and the American Academy of Pediatrics recommends that children under two not watch any television.[72]

Because they are often the gatekeepers of their children's activity patterns, parents play a critical role in fostering appropriate levels of physical activity. A California study of Mexican-American and white preschool children found that household rules about play impact children's physical activity.[73] Equally important, when parents model sedentary behavior, children adapt similar habits.[74] However, the strongest correlate of children's activity is time spent outdoors.[75] Access to safe outdoor play areas can support parents' promotion of physical activity. Also, studies show that rewarding obese children for decreasing sedentary time leads to more physical activity as well as weight loss.[76]

For young children, structured play not only develops social skills, but is also an opportunity for exercise. Developmentally appropriate play, which follows predictable sequences of growth in young children, is important to incorporate into all preschool curricula. During the preschool years, children learn to perform tasks such as throwing, kicking, running, hopping, and catching. Structured play allows children to participate in supervised and organized group activities while exploring equipment like jungle gyms and ball pits. These activities allow caregivers to promote physical activity as a natural and lifelong component of healthy living.

- *Teaching by Example*

Preschools and other childcare centers provide excellent venues for educating children about the importance of healthy eating and physical activity. Research shows that with increased knowledge, children display better eating behaviors and increased physical activity levels.[77] In addition to formal nutrition education programs, preschools and childcare centers can also teach by example. By providing nutritious foods, family-style mealtimes, and substantial amounts of physical activity for children, providers can significantly contribute to the development of healthy habits.[78] Experts stress that effective change requires both educational and environmental modifications.

The California Department of Education Healthy Kids Resource Center and its Nutrition Services Division provide background information for early childhood nutrition education.[79] Another resource is the national Healthy Start program, a comprehensive preschool health education program that includes a proven curriculum developed for three to five-year-old children in Head Start, preschool, and other childcare settings. Two of the twelve educational units address nutrition—developing healthy eating patterns and food preferences in young children. A third unit focuses on fitness. Included in this program are teacher training, take-home educational materials for parents, and a food service modification model, which trains cooks how to reduce the total and saturated fat in school meals and snacks.[80] As of March 1, 2004, twelve scientific papers had been published evaluating the effectiveness of the Healthy Start programs, demonstrating the programs' success in promoting healthy behaviors

and reducing risk of cardiovascular disease.[81]

In 1998, USDA funded Fit WIC as a three-year effort to evaluate prevention strategies for childhood obesity.[82] Goals of the Fit WIC California Project included the incorporation of physical activity into all aspects of WIC service and the development of community coalitions. Perceiving WIC as a leader in preventing childhood overweight, community agencies continued their involvement with the program even after funding expired. The project implemented the WIC Farmers' Market nutrition program, secured funding for a local community garden project, and trained childcare providers and other community stakeholders in issues affecting childhood overweight. Fit WIC coalitions advocated numerous bills related to school nutrition, including SB 1566, SB 19, and SB 677 (signed into law in 2003).[83,84] Surveys indicated that Fit WIC participants ultimately were more likely to help their child be physically active and watch television less.[85] Although funding has run out, lesson plans and other materials are still available, should individual agencies and community agencies wish to implement ideas from Fit WIC.[86]

- *Comprehensive, Community-Based Approaches*

The deteriorating health habits of children, families, and communities have contributed to the recent increase in childhood obesity. With fast food cheaper and more accessible than healthier alternatives, it is hardly surprising that studies have correlated high obesity rates to low socioeconomic status. Despite the association between healthy weight and time spent in neighborhood play areas, many communities increasingly lack designated safe areas, thus decreasing preschoolers' overall activity levels.[87] Therefore, programs that address widespread food insecurity, neighborhood safety, and poverty are vital to curtailing the obesity epidemic. An effective long-term strategy for combating childhood overweight is to design local programs that support active, healthy lifestyles.

Projects that reposition cultural norms—such as community gardens, farmers' markets, community recreational center activities for young children and families, conveniently located parks and playgrounds, and walkable neighborhoods—aim to provide opportunities for affordable healthy foods and safe places for physical activity. Community planning should include mixed land use for new and infill development, as well as traditional social service outreach connections. Other community-based approaches can include funding local produce stands, working with officials to set up farmers' markets in visible locations throughout the community, collaborating with health officials to market the value of healthy eating and physical activity, and advocating for funds to enhance walkable neighborhoods and safe play areas. Additionally, funding should target community centers, to reduce entrance fees, provide new equipment, upgrade courts and pools, and ensure cleanliness and appropriate staffing during after-school and weekend hours.

Because contributing causes have been developing and converging for the past three decades, a solution to childhood overweight will require a widespread and comprehensive approach. Yet, the

primary and most preventable reasons for childhood obesity are poor dietary habits and a sedentary lifestyle. Simply replacing these behaviors with more positive ones—better food choices, commitment to physical activity, and improved provider education about healthy living—could dramatically decrease California's obesity rates. Various model programs have been developed to encourage local implementation of these straightforward and sustainable changes.

Promising Programs

Many complex social and environmental influences affect childhood obesity, and its increasing prevalence illustrates the need for urgently addressing this public health threat. However, since the issue has only recently emerged in the national spotlight, evidence-based data are still scarce. A variety of approaches and promising practices are currently being evaluated, but a single "best" strategy for reversing the obesity trend is unlikely. Rather, because the problem of childhood obesity is multidimensional, effective change will require widespread modifications to behavior, culture, and environment. Prevention strategies should include intergenerational family education, social marketing, and caregiver training.

La Cocina Saludable/The Healthy Kitchen is an innovative nutrition education program designed for low-income Hispanics and migrant farm workers. In addition to incorporating Hispanic grandmother figures (*abuelas*) as outreach workers and educators, the key feature of this program is an interactive CD-ROM program available at kiosks in WIC centers. An evaluation of this bilingual, culturally appropriate, inter-generational approach found it to be successful in improving nutrition-related knowledge, food shopping, and cooking behaviors of the participating mothers of preschool children.[88]

The SPARK Program grew out of a 1989 grant from the National Institute of Health and sought to create a national model for elementary physical education programs by maximizing class activity time without sacrificing learning. SPARK's dedication to improving the quantity and quality of physical activity for children and teachers has evolved into a robust program, successfully adopted in thousands of schools. SPARK represents a collection of research-based physical activity and nutrition programs that target specific age groups. Developed for Head Start, preschools, day care/childcare providers, and WIC agencies, the SPARK Early Childhood Physical Activity Program brings high-energy activities to children ages three to five. Provided materials include curricula, staff development information, extensive follow-up consultation, and equipment. SPARK places a heavy emphasis on staff training, to provide teachers and families with information on age-appropriate structured play, personal activity goals, and methods to encourage children to be physically active. School readiness skills, enhanced motor development, and nutrition concepts are also integrated into the program.

Recommendations:

The implementation of practical obesity prevention methods is both imperative and achievable. While more data and research are required to establish best practice guidelines in the prevention of early childhood obesity, strategies for collaboration are widely available. Importantly, Prop. 10 local commissions can take a leadership position by linking prevention to overall child health indicators, increasing collaboration and evidence-based research on young child obesity, and modeling healthy practices within community organizations.

1. *Teach by example:* Commissions have the opportunity to set precedents for the communities they serve. Adopting internal policies to support healthy behavior include serving nutritious foods at Commission meetings, providing Commission staff opportunities for physical activity during the workday, and ensuring that Prop. 10-sponsored events reflect high standards of nutrition and exercise.

2. *Build community collaboratives:* Many grassroots and statewide organizations are working on the issues of childhood obesity prevention without coordination, communication or integration of early childhood intervention. Lead a community mapping process to identify assets, resources and gaps in the community that relate to the needs of young children. After an inventory of both current activities and status of evidenced-based programs, Commissions can build community readiness for a structured collaborative that fosters information sharing and contributes to evidence-based research in the field. Structured collaboratives using the Institute of Healthcare Improvement (IHI) process improvement model may be applied regionally.

3. S*trengthen local programs that promote and support breastfeeding:* In the first years of Prop. 10, breastfeeding promotion was frequently funded. Review the status of local breastfeeding promotion programs. Partner with local healthcare providers, lactation programs, WIC, or home visiting programs to expand existing breastfeeding programs.

4. *Promote structured physical play as a family activity and build community awareness about healthy lifestyles:* Commissions can begin to change the cultural norm about the necessity of physical activity and healthy lifestyle behaviors. Support the replication of successful community-based strategies, such as WIC Farmers' Market Nutrition Program, and revitalization of local parks with updated equipment and safe play areas. Fund and strengthen community resources, including recreational programs that emphasize family participation and various types of physical activities.

5. *Create and implement nutritional and physical education training programs for preschool teachers, daycare providers, and parents:* Because daycare providers are central figures in many children's lives, these caretakers should be educated in the fundamentals of early childhood nutrition and the importance of structured physical activity. Establish guidelines, in the context of the CARES program, to encourage nutrition education, certification, and modeling of healthy behaviors by care providers. If Prop. 10 Commissions are involved in pilot Preschool for All initiatives,

information for parents on nutrition and physical exercise should be established as components of the program. Because there is a lack of evidence on high-quality community programs, commissions should consult promising programs and add to ongoing evidence of improved outcomes in family nutrition education and healthy lifestyles.

6. *Enhance the quality standards for preschoolers' nutrition and structured physical activity levels in your community:* Ensure Prop 10-funded preschools and daycare centers provide foods that meet dietary guidelines and provide sixty minutes of vigorous daily activity for each child. Determine if preschools and daycare facilities have sufficient training, equipment and supplies to support a good physical activity program. High-quality physical activity curricula are needed for preschool children, and local Prop. 10 commissions can make an important contribution by supporting the development and evaluation of such programs.

7. *Partner with healthcare providers to educate the parents of young children and the wider community about effective strategies to prevent childhood obesity:* Family health providers have a unique opportunity to counsel parents and caregivers on both effective nutrition and physical activity practices for growing children and on the availability of community supports. Involve pediatricians, community clinics and other providers in community efforts to promote healthy lifestyles. Physicians should refer to the recommendations issued in 2003 by The American Academy of Pediatrics, which offer strategies for providers to supervise and advocate on behalf of childhood obesity issues.

8. *Engage communities in better land use planning and design:* Neighborhood design must be considered a critical factor in early childhood obesity prevention. Communities should be conducive to walking and other outdoor activities, and smart growth principles should be actively promoted. Institute traffic calming measures and similar revitalization efforts in older areas. New communities can be designed with an eye toward decreasing commute times, providing alternative forms of transportation, and employing mixed land use to ensure shops and services are in close proximity to homes. Designate vacant city land for community gardens and encourage widespread participation for its upkeep. To promote exercise in communities, ensure parks are safe and accessible and that they offer clean, adequate facilities for a variety of activities.

9. *Support a coordinated First 5 Commission approach to information sharing on strategies and evaluation.* The widespread causes and consequences of childhood obesity point to the need for multilevel systemic change in the United States. A pattern of inactivity and poor nutrition develops early in life, making the promotion of physical activity and healthy eating habits imperative among very young children. Because studies show that early intervention is key to preventing overweight, California's First 5 Commissions have a unique opportunity to contribute strategies and evidence of what works.

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GLOSSARY:

Obesity is defined as an excessively high amount of body fat in relation to lean body mass.[89]

Overweight defines an excess in body weight for height. According to the Center for Disease Control, this definition captures those children and youth ages 2-20 who are at or above the 95th percentile weight-for-height for their age and gender.[90]

At-Risk for Overweight: The "at-risk" category includes youth ages 2-20 who are between 85th and 94th percentile weight-for-height for their age and gender, according to the Center for Disease Control. These children are not currently overweight, but have a much greater chance of becoming overweight than children who fall below the 85th percentile.[91]

The Body Mass Index (BMI) is a relationship between weight and height that is associated with body fat and health risk. To calculate BMI, weight in kilograms is divided by height in meters squared (kg/m^2).[92] In children, BMI is both age and gender specific, so BMI-for-age is used.[93] Due to growing concern over childhood obesity, the U.S. Department of Health and Human Services Centers for Disease Control and Prevention recently revised pediatric growth charts and introduced BMI charts for children as young as two.[94]

Resources

- Education Training Unit, Nutrition Services Division, California Department of Education: (916) 445-0850
- Food and Nutrition Information Center, Child Care Nutrition Resource System: *Childhood Obesity: A Food and Nutrition Resource List for Educators and Researchers*. www.nal.usda.gov/childcare/
- Healthy Kids Resource Center: (510) 670-4581 or www.californiahealthykids.org
- La Cocina Saludable: *Jennifer Anderson,* (970) 491-7334; www.cerc.colostate.edu/titles/XCM186.html
- The National Healthy Start Preschool Education Program: *B.J. Carter*, (631) 549-0010; www.healthy-start.com
- US Dept of Health & Human Services/US Dept of Agriculture: *Dietary Guidelines for Americans, 2005*. http://www.health.gov/dietaryguidelines/dga2005/document/pdf/DGA2005.pdf
- USDA Center for Nutrition Policy and Promotion: *Food Guide Pyramid for Young Children.* http://www.usda.gov/cnpp/KidsPyra/
- WIC Breastfeeding Promotion or Farmers' Market Programs: contact your local WIC agency or *Poppy Strode, Fit WIC California,* (916) 928-8627; http://www.wicworks.ca.gov/education/nutrition/FitWIC/fitWICIndex.htm

Endnotes

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