

Overweight Among Nebraska Youth

2002/2003 Academic School Year



**Office of Disease Prevention
and Health Promotion**

NEBRASKA HEALTH AND HUMAN SERVICES SYSTEM



OVERWEIGHT AMONG NEBRASKA YOUTH

2002/2003 Academic School Year

Nebraska Health and Human Services System

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June 2004

Suggested Citation:

Nebraska Health and Human Services System. *Overweight Among Nebraska Youth - 2002/2003 Academic School Year*. Lincoln, NE: Nebraska Health and Human Services System, Department of Health and Human Services, Office of Disease Prevention and Health Promotion; 2004.



Dear parents, educators, health care providers, and concerned citizens,

It is time for the youth of Nebraska to log off and get moving. They are sitting and eating themselves into a lifetime (shortened at that) of pain and misery.

Fast food, super sized sodas, and electronic entertainment are addicting our youth and endangering their lives just as certainly as tobacco does. If one out of three youth were addicted to tobacco, with its known long-term health risks, we, as a state, would be up in arms. But where is the alarm when our youth are developing life-long habits of overeating and under-exercising?

I hope that this report will be the wake up call that all of us need to begin to take actions to reverse the trends that are undeniable and must be addressed if we are to help our youth become productive, healthy adults.

Sincerely,

Richard Raymond, M.D.
Chief Medical Officer
Nebraska Health and Human Services System

ACKNOWLEDGMENTS

Numerous individuals and organizations collaborated to make this project a success. First and foremost, we would like to thank the Nebraska school nurses and any other individuals who assisted in collecting and submitting youth height and weight data. Their tireless work and desire to improve the lives and health of Nebraska's youth was evident from the positive response we received.

We would like to thank the following individuals/organizations for substantial support and contribution to the project:

- Rose Ann L'Heureux, School Nurse Coordinator for the Nebraska Health and Human Services System (NHHSS), for her support and guidance in developing and implementing this project.
- Doug Christensen, Commissioner of Education, Nebraska Department of Education, and the entire Nebraska Department of Education for their support of this project.
- Dan Hoyt, Ph.D., Director of the University of Nebraska Bureau of Sociological Research, for his technical assistance in analyzing the data.
- Melissa Kaup, Nebraska Cardiovascular Health Program Intern, for entering the data.

We would like to thank the following individuals for reviewing this report:

Roméo J. Guerra, Deputy Director, Health Services, NHHSS; Julane Hill, Health and Physical Education Consultant, Nebraska Department of Education; Dan Hoyt, Ph.D., Director of the University of Nebraska Bureau of Sociological Research; Rose Ann L'Heureux, School Nurse Coordinator, NHHSS; Richard Raymond, M.D., Chief Medical Officer, NHHSS; Bill Wiley, Office of Communications, NHHSS.

-Nebraska CVH Program

Financial support for this project and publication was provided through the Nebraska Cardiovascular Health Program of the Nebraska Health and Human Services System, using Public Health and Health Services Block Grant (2004-PHHSBG-10-HHSS-C) from the Centers for Disease Control and Prevention (CDC).

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Executive Summary

Background: Obesity among both youth and adults in America is increasing at epidemic levels. Between 1976-1980 and 1999-2000, the percentage of overweight U.S. children (ages 6-11) more than doubled (increasing 135%) while the percentage of overweight adolescents (ages 12-19) more than tripled (increasing 210%). Overweight and obese individuals are at increased risk for both physical and emotional disorders. Furthermore, many of the health conditions resulting from overweight and obesity that were previously not evident until adulthood are beginning to appear in youth. Given these devastating trends in overweight among youth nationally and the lack of quality data available for youth in Nebraska, the Nebraska Health and Human Services System developed and implemented a project to collect heights and weights from a representative sample of Nebraska students in grades K-12.

Methods: Packets of information requesting student height and weight data were sent to 408 Nebraska public and non-public schools using a stratified cluster sampling design. The sample was stratified by school type, school size, and geographic location within Nebraska. Schools with large minority populations were over-sampled to increase the likelihood that representative data would be available for racial and ethnic minority students. Data were collected on 40,154 Nebraska students in grades K-12 from 234 Nebraska schools. The overall response rate was 42 percent. Obtained heights and weights were converted to body mass index (BMI) values and used to categorize students as underweight, healthy weight, at risk for overweight, or overweight. To adjust for stratification and any sampling or non-response bias by demographics, data were weighted to the 2002/2003 Nebraska school membership (census) data from the Nebraska Department of Education.

Findings: In Nebraska, 1 in every 6 students (16.2%) in grades K-12 is overweight while an additional 1 in every 6 (17.1%) is at risk for overweight. This indicates that 1 in every 3 (33.3%), or approximately 106 thousand Nebraska students, is either at risk for overweight or overweight. Students at greatest risk for overweight include males, students in grades 4-6, Hispanic and Native American students, and students in the south central Nebraska region.

Preventing Overweight in Nebraska's Youth: There is a serious problem with overweight in Nebraska youth. To properly address this problem, Nebraska must strive to create and implement new and aggressive plans to address the problem of overweight among current and future generations of youth. Individuals, families, communities, schools, worksites, health care, media, faith-based organizations, and government must unite to both educate youth on the importance of maintaining a healthy body weight and to create environments that support physical activity and healthy eating. Many state and local efforts are currently underway to address overweight among Nebraska youth, however, additional resources and supports are needed if long-term success is to be achieved.

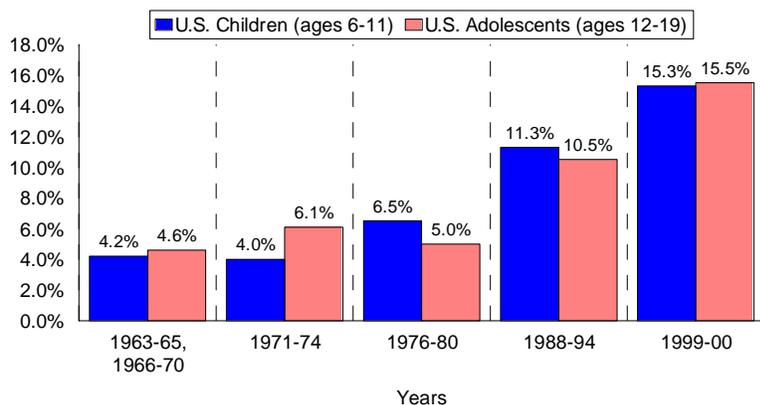
Introduction

Obesity among both youth and adults in America is increasing at epidemic levels¹. Between 1976-1980 and 1999-2000, the percentage of overweight U.S. children (ages 6-11) more than doubled (increasing 135%) while the percentage of overweight adolescents (ages 12-19) more than tripled (increasing 210%)². Over the past 10 years, obesity rates have increased by more than 60% among U.S. adults, with approximately 59 million adults currently being obese¹.

According to the American Obesity Association, childhood obesity is the major health challenge for the 21st century³.

resulting from overweight and obesity were not evident until adulthood, however, this trend has begun to change in recent years. Type 2 diabetes, formerly considered a disease of middle age, is increasing in children and young adults⁴. In addition, high blood lipids, hypertension, early maturation, and orthopedic problems are also occurring with increased frequency in overweight youth⁴.

Figure 1: Overweight* U.S. Children, Ages 6-19



*BMI values >95th percentile, based on age (mid-point value) and gender specific BMI values from the 2000 CDC growth charts
Source: Data reproduced from National Center for Health Statistics. *Health, United States 2002 With Chartbook on Trends in the Health of Americans*. Hyattsville, Maryland, 2002. Table 71, updated on October 8, 2002. Available online at <http://www.cdc.gov/nchs/hus.htm>

Adolescence is a pivotal time for establishing lifelong habits of physical activity and healthy eating. It is important that youth maintain a healthy body weight because overweight children and adolescents are more likely to become overweight or obese adults⁴.

Given the importance of maintaining a healthy body weight among youth and the unfortunate overweight trends among youth nationally, the Nebraska Health and Human

Services System collected youth heights and weights from a representative sample of Nebraska students in grades K-12. These data allow, for the first time, insight into the problem of at risk for overweight and overweight among Nebraska students that can be used for a variety of purposes including baseline measures for establishing state health objectives.

The physical and emotional impacts of overweight and obesity are extraordinary. Obese individuals are 50 to 100 percent more likely to die prematurely from any cause than individuals at a healthy body weight⁴. In addition, overweight and obesity substantially increase the risk for (among other diseases) coronary heart disease, type 2 diabetes, some forms of cancer, and certain musculoskeletal disorders such as osteoarthritis⁴. Overweight and obese individuals also may suffer from social stigmatization, discrimination, and poor body image⁴.

While there has been some height and weight data available for Nebraska youth since 2001, these data are self-reported and represent only public school students in grades 9-12. The data presented in this report represent students in grades K-12 from both public and non-public

Traditionally, many of the health conditions

schools in Nebraska. Furthermore, these data were obtained through actual height and weight measurements taken within Nebraska schools, providing highly reliable and valid data.

Overweight and Obesity among Nebraska Adults

According to 2002 data from Nebraska Behavioral Risk Factor Surveillance System, nearly 1 in every 4 Nebraska adults (aged 18 years and older) are obese (23.2%) while 2 in every 3, or an estimated 758 to 795 thousands Nebraska adults, are either overweight or obese (60.2%). Obesity among Nebraska adults doubled between 1990 and 2002, increasing from 11.6 percent to 23.2 percent.

Methods

During the 2002/2003 academic school year, height and weight data were collected from 40,154 Nebraska students in grades K-12 from 234 Nebraska public and non-public schools or school districts (excluding special education schools).

In September 2002, packets of information were sent to 408 Nebraska schools requesting the height and weight of all students within the school. Of the 408 schools selected, 344 were selected at random while 64 were selected because they had a minority population of 50 percent or greater. To assure these data represented a cross-section of Nebraska students, the sample was stratified by school type (elementary, secondary), school size (small, medium, and large), and geographic location within Nebraska (W, NC, SC, NE, E, SE).

The packets of information were directed to the school nurse or health services provider within each selected school, and contained a cover letter, a blank data collection form, and a

computer disk containing a blank data collection table (in MS Excel format). Schools were given the option of compiling the data onto the form by hand or entering the data into the Excel table electronically (and then returning via mail or email).

Information was requested on each student's gender, age, grade, race, height, and weight. Schools were encouraged to compile and return their data within one week after the data collection at their school was complete. Approximately 6-weeks after the initial packet of information was sent out, all schools were sent a follow-up postcard to thank participating schools and encourage non-participating schools to participate.

Data were collected from 234 Nebraska public and non-public schools and school districts. Of the 234 schools, 148 were from randomly sampled schools, 18 were from minority over-sampled schools, and 68 were from schools that were not sampled.

It was a surprise to obtain data from such a large number of non-sampled schools. Some school nurses (working at multiple schools) voluntarily chose to provide data from all their schools rather than just those sampled. If it was difficult to decipher which cases belonged to which school in the district, the contact person within the school/district was contacted for clarity. All obtained data were included in the final analysis.

The overall response rate for the project was 42 percent (44 percent response rate for randomly selected schools and a 29 percent response rate for minority over-sampled schools). Within the sample, 13 schools from one of the states largest school districts were selected (12 selected randomly, one selected because of its large minority population). This district selected a random sample of students within their district, and as a result, provided data on students from across the district rather than from individual schools. To calculate a

response rate, these 13 schools were viewed as one randomly sampled school.

During the data collection phase of the project, some schools responded by indicating that they were unable to participate because they do not measure the height and weight of students within their school. If all schools collected this information, the response rate would likely have been higher.

Body Mass Index (BMI) values were calculated for each student by dividing their weight in kilograms by the square of their height in meters. To convert pounds to kilograms, pounds were multiplied by 0.4536. To convert height in inches to height in meters, inches was multiplied by 2.54 then divided by 100. Age and gender specific BMI values were grouped into four categories (Table 1). Some researchers refer to the 95th percentile as overweight and others as obesity³. This report follows the CDC practice of referring to values above the 95th percentile as overweight and values above the 85th percentile as at risk for overweight.

For example, a nine-year-old female that is 5'2" tall and weighs 115 pound has a BMI of 20.4. According to the 2000 CDC growth charts, her gender and age specific BMI value places her between the 85th and 94th percentile, indicating that she is at risk for overweight.

To adjust for stratification and any sampling or non-response bias by demographics, the University of Nebraska Bureau of Sociological Research weighted the final sample to allow results to be generalized to all Nebraska students in grades K-12. Data were weighted to the Nebraska school membership (census) data obtained from the Nebraska Department of Education.

Data were simultaneously weighted to reflect gender, grade, race, and region. Due to a large number of empty cells when crosstabulating region and race, a two-stage weight was calculated. The first stage consisted of weighting for race, grade, and gender. The second stage consisted of weighting the stage one variable by region to obtain the final weighting variable. While the two-stage weight resulted in marginal distributions for gender, race and grade that are proximate, the ability to incorporate gender, grade, race and region into one weight outweighed any limitations.

We analyzed all data using SPSS software. All percentages presented within this report represent weighted data while all n (or sample size) values represent the number of non-weighted cases. Relative risks (the ratio of two weighted percentages) were calculated to demonstrate disparities between subpopulations.

To compare differences between groups, the z-test for independent proportions was administered. Z-test scores greater than the z-critical value of 1.96 ($\alpha=0.05$, 95% confidence) determined significance. To calculate 95% confidence intervals ranges for proportions, the following formula was used:

$$\hat{p} \pm 1.96 \sqrt{\frac{\hat{p}(1-\hat{q})}{n-1}}$$

Table 1: BMI Categories*

BMI Categories	Age and Gender Specific BMI Cut-off Values
Underweight	<5 th Percentile
Healthy Weight	≥5 th Percentile but <85 th Percentile
At Risk for Overweight	≥85 th Percentile but <95 th Percentile
Overweight	≥95 th Percentile

*BMI values are categorized based on gender and age specific values from the 2000 CDC Growth Charts
 Source: BMI for Children and Teens. (2003). Division of Nutrition and Physical Activity, CDC. Available at <<http://www.cdc.gov/nccdphp/dnpa/bmi/bmi-for-age.htm>>

Findings

See tables in appendices A-D for further results

In Nebraska, 1 in every 6 students (16.2%) in grades K-12 is overweight while an additional 1 in every 6 (17.1%) is at risk for overweight (Figure 2). This indicates that 1 in every 3 (33.3%), or approximately 106 thousand Nebraska students, is either at risk for overweight or overweight.

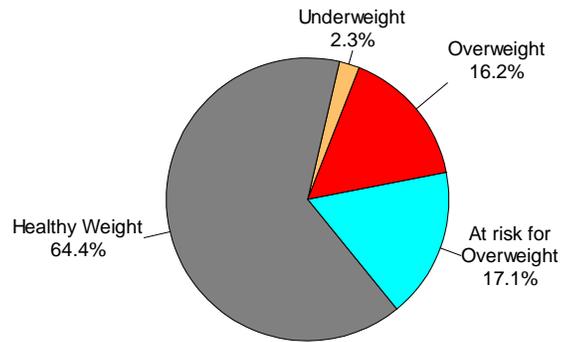
Grade Differences

- Students in late elementary and early middle school grades (4-6) are the most likely to be overweight (Figure 3).
- Students in grades 3-8 are more likely than students in both younger (K-2) and older (9-12) grades to be overweight, 17.4 percent, 13.5 percent ($p < .001$), and 16.2 percent ($p < .01$) respectively.

Gender Differences

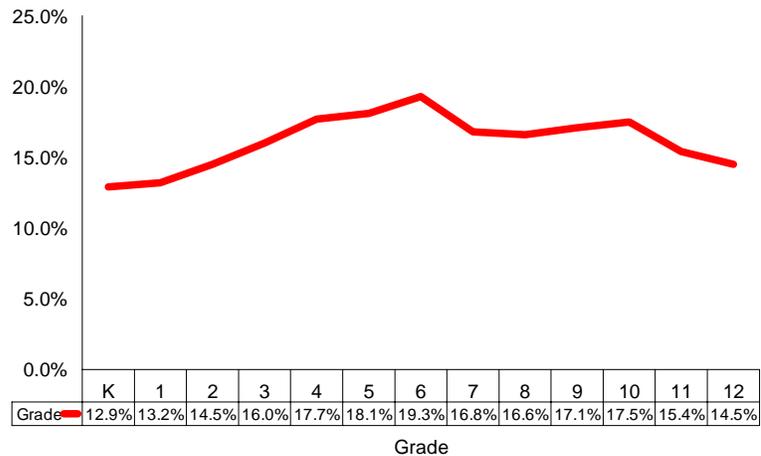
- Male students are 24 percent more likely than female students to be overweight, 17.8 percent and 14.4 percent respectively ($p < .001$).
- As grade level increases, the overweight disparity between males and females increases. While male and female students are equally likely to be overweight in grades K-3, male students are 33 percent more likely than female students to be overweight in grades 9-12 (Figure 4).

Figure 2: BMI Classifications* for Nebraska Students in Grades K-12, 2002/2003



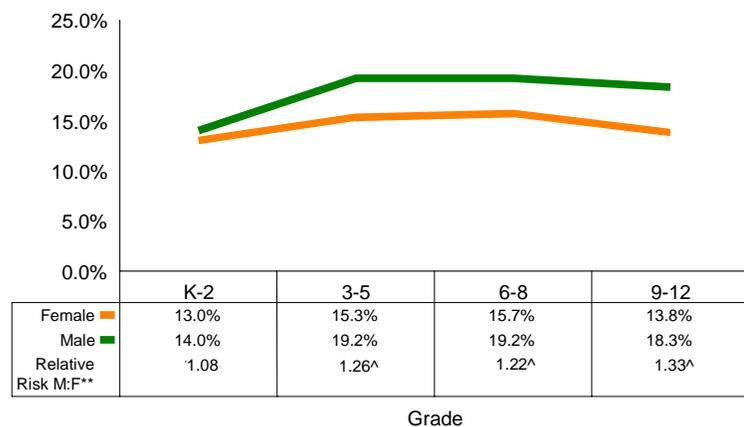
*Represent age (mid-point value) and gender specific BMI values from the 2000 CDC growth charts: Underweight: <5th percentile; Healthy Weight: \geq 5th but < 85th percentile; At risk for Overweight: \geq 85th but < 95th percentile; Overweight \geq 95th percentile

Figure 3: Overweight* Nebraska Students by Grade, 2002/2003



*BMI values $>$ 95th percentile, based on age (mid-point value) and gender specific BMI values from the 2000 CDC growth charts

Figure 4: Overweight* Nebraska Students by Grade, 2002/2003



*BMI values $>$ 95th percentile, based on age (mid-point value) and gender specific BMI values from the 2000 CDC growth charts

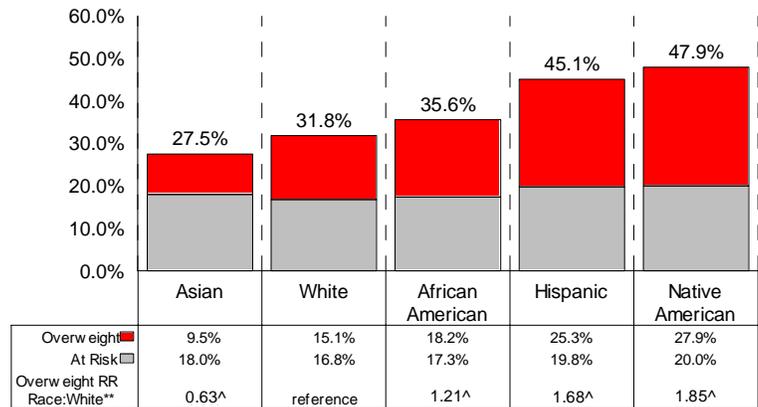
**Relative risk represents the male to female percentage ratio

^Males are significantly more likely than females ($p < .05$)

Racial/Ethnic Differences

- Native American students (27.9%) and Hispanic students (25.3%) are more likely than students of any other race/ethnicity to be overweight (Figure 5). Native American students are 1.8 times more likely than White students while Hispanic students are 1.7 times more likely than White students to be overweight ($p < .001$). Furthermore, close to half of Native American and Hispanic students are either at risk for overweight or overweight, 47.9 percent and 45.1 percent respectively.

Figure 5: At Risk for Overweight or Overweight* Nebraska Students in Grades K-12 by Race, 2002/2003

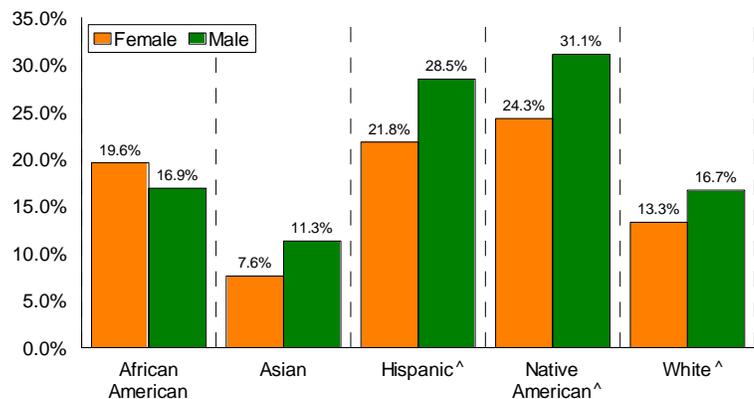


*Represent age (mid-point value) and gender specific BMI values from the 2000 CDC growth charts: A t risk for Over weight: \geq 85th but $<$ 95th percentile; Over weight \geq 95th percentile

**Relative risk represents the race to white percentage ratio for over eight
^Percentage over eight is significantly different from white ($p < .05$)

- African American students are 20.5 percent more likely than White students to be overweight, 18.2 percent and 15.1 percent respectively ($p < .01$) (Figure 5). However, gender differences indicate that African American females are 47 percent more likely than White females to be overweight ($p < .001$) while African American and White males are equally likely to be overweight (Figure 6).

Figure 6: Overweight* Nebraska Students in Grades K-12 by Race and Gender, 2002/2003



*BMI values $>$ 95th percentile, based on age (mid-point value) and gender specific BMI values from the 2000 CDC growth charts
^Significant gender difference ($p < .05$)

- While the difference was non-significant, African American students were the only racial or ethnic subpopulation that had a higher percentage of overweight females than males (Figure 6).
- Asian students (9.5%) are less likely than students of any other race/ethnicity to be overweight. In particular, Asian students are 37 percent less likely than White students to be overweight, 9.5 percent and 15.1 percent respectively ($p < .01$).

Geographic Differences

- Students in the western region of the state have the lowest percentage of overweight students, and are significantly less likely than students in the northeast (16.7%), south central (18.0%), and southeast (16.9%) regions of the state to be overweight.
- In contrast, students in the south central region of the state have the highest percentage of overweight students, and are significantly more likely than students in the east (15.1%), north central (14.9%), northeast (16.7%), and west (14.0%) regions of the state to be overweight.

What's Causing Overweight in Nebraska's Youth

The high prevalence of overweight among Nebraska youth is resulting from an imbalance of physical activity and healthy eating. According to the American Obesity Association, today's youth are considered the most inactive generation in history, caused in part by reductions in school physical education programs and unavailable or unsafe community recreational facilities⁴. In the U.S., Illinois is the only state that requires daily physical education for all students in grades K to 12⁴.

Data from the 2003 Nebraska Youth Risk Behavior Survey (YRBS) indicate that many Nebraska high school students (in grades 9-12) are not engaging in sufficient levels of physical activity, are engaging in excessive levels of television viewing, video game system use, and computer use (excluding homework) (electronic sedentary behavior (ESB)), and are eating unhealthy diets. Key findings indicate that:

Physical Inactivity

- More than 3 in every 4 students (76.7%) do not engage in sufficient levels of both moderate physical activity (participation in activities that did not make them sweat or breath hard for at least 30 minutes on five or more of the seven days preceding the survey) and vigorous physical activity (participation in activities that made them sweat and breath hard for at least 20 minutes on three or more of the seven days preceding the survey).
- Participation in sufficient vigorous physical activity declined 7 percent between 1991 (69.6%) and 2003 (64.7%) (p <.001).

Electronic Sedentary Behaviors

- During an average school day, Nebraska high school students spend more than 3½

hours (3.65 hours) engaging in ESB (including television viewing, video game system use, and computer use (excluding homework)).

- Specifically, during an average school day, students spend approximately 1 hour and 45 minutes (1.78 hours) watching TV, 1 hour and 15 minutes (1.25 hours) using the computer (excluding homework) and approximately 30 minutes (0.55 hours) playing video games on a video game system.
- Three in every four students (75.6%) spend 2 or more hours engaging in ESB during an average school day while more than 1 in every 4 (27.3%) spends 5 or more hours daily.

Unhealthy Eating

Soda Consumption

- Almost 9 in every 10 Nebraska high school students (87.8%) drank soda during the seven days preceding the survey
- Half (50.7%) of all students drank 12 or more ounces of soda per day while 1 in every 4 students (23.8%) drank 32 or more ounces per day.
- The majority of soda consumed by Nebraska high school students is regular (non-diet) soda, which contains a large number of empty sugar calories. Among students that drank soda during the seven days preceding the survey, 2 in every 3 (63.6%) consumed only regular (non-diet) soda.

Milk Consumption

- More than 8 in every 10 Nebraska high school students (85.6%) consumed milk during the seven days preceding the survey, however half (49.6%) consumed less than one glass per day.
- Less than 1 in every 5 students (18.4%)

consumed milk regularly (an average of 3 or more glasses per day) during the seven days preceding the survey.

Fruit and Vegetable Consumption

- Less than 1 in every 5 Nebraska high school students meets the USDA recommendation of 5 or more daily servings of fruits and vegetables (5-a-day). In 2003, only 16.3 percent of students ate 5-a-day during the seven days preceding the survey. In fact, 3 in every 5 students (61.3%) ate 2 or fewer servings of fruits and vegetables per day, far below the USDA recommendation of 5-a-day.

Overweight Disparities in Nebraska's Youth

Causes of overweight disparities among different subpopulations of Nebraska youth are unclear. Currently, there are limited data available on physical activity, nutrition, and barriers to health among youth in Nebraska. As a result, it is important that we conduct additional research to better understand these differences. These findings can be used to tailor prevention efforts to the specific needs of high-risk subpopulations.

Preventing and Decreasing Overweight in Nebraska's Youth

Overweight among Nebraska youth is highly prevalent and given the national trends, is likely increasing. To properly address the problem of overweight among Nebraska youth, Nebraska must strive to create and implement new and aggressive plans to address the problem of overweight among current and future generations of youth.

While decreasing overweight is a difficult challenge, the promising news is that it is almost entirely preventable through physical

activity and healthy eating. In addition to decreasing overweight and obesity, improvements in healthy eating and physical activity can also decrease incidence rates for numerous chronic diseases. To effectively prevent and decrease overweight among youth in Nebraska, individuals, families, communities, schools, worksites, health care, media, faith-based organizations, and government must unite.

Given the number of overweight and obese youth and adults in Nebraska, we cannot rely solely upon individualized interventions that target one person at a time. Rather, according to CDC's public health approach, the prevention of overweight and obesity requires coordinated policy and environmental changes that affect large populations simultaneously.

State Level Activities/Resources

There are currently numerous state and local efforts underway to address overweight among youth in Nebraska through promoting increases in physical activity and healthy eating. Below are some of the current state level efforts:

All Recreate on Fridays (ARF) Movement: ARF is a new "movement" to encourage Nebraska youth to be more physically active. ARF will encourage Nebraska youth to accumulate at least 60 minutes of activity through school, family, and community activities every Friday. The goal of ARF is to get kids moving through creating social and physical environments that encourage and support physical activity and educating children about the importance of physical activity. For more information contact Michelle Garwood (402-471-0505) or Kimberly Barrett (402-471-1045).

Project Drink Milk: Competitive funding is awarded annually to approximately four Nebraska schools to purchase milk vending machines. The Nebraska CVH Program

provides approximately \$3,000 while each funded school provides approximately \$1,000 in matching funds. During the three-year project, schools are required to develop and implement a student driven milk campaign to promote consumption among students, teachers, and other school patrons. At least 75% of the proceeds from the machines must be used to improve physical activity (excluding athletics) and/or nutrition within the schools. For more information contact Kimberly Barrett (402) 471-1045.

Governor's Council on Health Promotion and Physical Fitness: The primary focus for this Council is to address physical activity and obesity in Nebraska. The Council issues "Recognition Awards" quarterly to individuals who are "positive role models and encourage others to live healthy and physically active lives". The Council recently released a document entitled "Promoting Better Health for Young People in Nebraska through Physical Activity: A Report to the Governor from the Nebraska Governor's Council on Health Promotion and Physical Fitness." This document can be accessed at <http://www.hhs.state.ne.us/hew/hpe/GovsReport/index.htm>. For more information contact the Council at fitnegov@hotmail.com.

Nebraska Physical Activity & Nutrition State Plan: Promoting Healthy Weight and Preventing Chronic Disease: The Nebraska Health and Human Services System, in collaboration with numerous state and local partners, is currently developing a state plan for physical activity and nutrition. This plan will include goals, objectives, and strategies for preventing and decreasing overweight and obesity among people in Nebraska. The plan will provide a framework for communities, schools, worksites, and numerous other entities for increasing physical activity and healthy eating opportunities in Nebraska. The anticipated release date for this plan is January 2005. For more information contact Jamie Hahn (402) 471-3493.

Nebraska Action for Healthy Kids Coalition: Action for Healthy Kids (AFHK) is a nationwide initiative dedicated to improving the health and educational performance of children through better nutrition and physical activity in schools. The Nebraska Action for Healthy Kids Coalition (a national chapter) has representatives from public health, health care, and education, and is currently embarking on numerous activities that address overweight among Nebraska youth. For more information contact Janice Strang (402) 592-3355 or Jamie Hahn (402) 471-3493.

Nebraska Association for Health, Physical Education, Recreation, and Dance (NAHPERD): NAHPERD is a statewide professional organization that supports the mission and goals of the American Alliance for Health, Physical Education, Recreation and Dance. NAHPERD's goals are to provide leadership, professional development and networking opportunities, information, and advocacy in the areas of health education, physical education, recreation and dance. NAHPERD conducts a yearly conference, provides awards, and produces a quarterly newsletter. For more information contact Julane Hill (402) 471-4352 or Vicki Highstreet (402) 472-4771.

Dairy Council of Nebraska: The Dairy Council of Nebraska contributes to optimal health through leadership in nutrition research and education by encouraging food selection patterns that include dairy foods and other major food categories in accordance with scientific recommendations. For more information contact Janice Strang (402) 592-3355 or view their website at: <http://www.drinkmilk.org>.

University of Nebraska Cooperative Extension: The University of Nebraska Cooperative Extension Program, known as the Nutrition Education Program (NEP), works with low-income youth in targeted Nebraska counties. NEP reaches 8,000 youth per year and helps youth increase their nutrition knowledge and

change their eating behavior. NEP focuses on increasing fruit and vegetable consumption, increasing calcium consumption, choosing healthy snacks, decreasing soda consumption, and increasing physical activity. NEP also includes food preparation, food safety, and food resource management skills. For further information please contact Wanda M. Koszewski, Ph.D. at (402) 472-7966.

Nebraska Department of Education (NDE) - Health and Physical Education Section: The NDE has a Health and Physical Education Consultant who interacts with schools and institutions of higher education to provide guidance on the latest research and best practices in the fields of health education and physical education. This individual provides leadership in quality physical education programming, provides professional development opportunities, and disseminates information on health education and physical education. For more information contact Julane Hill at (402) 471-4352.

National Resources

The following is a list of national resources for promoting healthy body weight through physical activity and healthy eating:

- 5 A Day, National Cancer Institute. Available at: <http://www.5aday.gov/>
- Action for Healthy Kids. Available at: <http://www.actionforhealthykids.org/>
- American Alliance for Health, Physical Education, Recreation, and Dance. Available at: <http://www.aahperd.org>
- American Obesity Association (AOA). Available at: <http://www.obesity.org/>
- Division of Nutrition and Physical Activity at the Centers for Disease Control and Prevention (CDC). Available at: <http://www.cdc.gov/nccdphp/dnpa/>

- Steps to a Healthier US Initiative. Available at: <http://www.healthierus.gov/steps/>
- The Surgeon General's Call To Action To Prevent and Decrease Overweight and Obesity. Available at: <http://www.surgeongeneral.gov/topics/obesity/>

Future Collection of Nebraska Youth Heights and Weights

The Nebraska CVH Program is currently in the process of establishing a statewide surveillance system for collecting youth height and weight data. This surveillance system will allow for the ongoing collection of data that can be used for measuring progress in efforts to increase healthy weight and prevent and decrease overweight among Nebraska youth.

Nebraska Cardiovascular Health Program Contacts

For more information on the Nebraska Cardiovascular Health Program, please visit: <http://www.hhs.state.ne.us/cvh> or contact any of the CVH Program staff:

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Appendix A: Overweight* among Nebraska Students in Grades K-12, 2002/2003

	Non-Weighted n**	Weighted Percentage	95% Confidence Interval***		Estimated Number of Nebraska Students^
			Low	High	
Overall	40,154	16.2%	15.8%	16.7%	51,400
Gender					
Female	19,381	14.4%	13.9%	14.9%	22,300
Male	20,773	17.8%	17.3%	18.3%	29,000
Race					
African American	1,443	18.2%	16.2%	20.2%	3,700
Asian	311	9.5%	6.2%	12.8%	500
Hispanic	3,799	25.3%	23.9%	26.7%	6,800
Native American	926	27.9%	25.0%	30.8%	1,300
White	33,571	15.1%	14.7%	15.5%	39,300
Grade					
K-2nd	9,733	13.5%	12.8%	14.2%	9,600
3rd-5th	9,894	17.3%	16.5%	18.0%	12,500
6th-8th	9,094	17.5%	16.8%	18.3%	13,200
9th-12th	11,433	16.2%	15.5%	16.8%	16,100
Age					
6-11 years old	19,152	16.1%	15.6%	16.6%	24,100 ^^
12-18 years old	18,754	16.5%	15.9%	17.0%	29,300 ^^
Region					
East	4,767	15.1%	14.1%	16.1%	17,300
North Central	7,361	14.9%	14.1%	15.7%	3,000
North East	7,813	16.7%	15.8%	17.5%	6,800
South Central	10,198	18.0%	17.3%	18.8%	9,200
South East	6,089	16.9%	16.0%	17.9%	13,300
West	3,926	14.0%	12.9%	15.1%	1,800

*BMI values $\geq 95^{\text{th}}$ percentile, based on age (mid-point value) and gender specific BMI values from the 2000 CDC growth charts

**Non-weighted sample size value

***Confidence interval for the weighted percentage value

^Estimated number of overweight Nebraska students (excluding pre-K and special education schools) rounded to the nearest 100, based on the 2002/2003 Nebraska school membership data from the Nebraska Department of Education (NDOE)

^^Based on school census data (including all youth regardless of student enrollment) from the NDOE

Appendix B: At Risk for Overweight or Overweight* among Nebraska Students in Grades K-12, 2002/2003

	Non-Weighted n**	Weighted Percentage	95% Confidence Interval***		Estimated Number of Nebraska Students^
			Low	High	
Overall	40,154	33.3%	32.8%	33.7%	105,700
Gender					
Female	19,381	31.6%	31.0%	32.3%	49,000
Male	20,773	34.8%	34.1%	35.4%	56,700
Race					
African American	1,443	35.6%	33.1%	38.0%	7,300
Asian	311	27.5%	22.5%	32.5%	1,500
Hispanic	3,799	45.1%	43.5%	46.7%	12,100
Native American	926	47.9%	44.7%	51.1%	2,200
White	33,571	31.8%	31.3%	32.3%	83,000
Grade					
K-2nd	9,733	29.8%	28.9%	30.7%	21,100
3rd-5th	9,894	34.5%	33.6%	35.5%	25,000
6th-8th	9,094	36.3%	35.3%	37.3%	27,400
9th-12th	11,433	32.4%	31.5%	33.3%	32,200
Age					
6-11 years old	19,152	33.2%	32.6%	33.9%	49,800 ^^
12-18 years old	18,754	33.7%	33.0%	34.4%	60,000 ^^
Region					
East	4,767	32.7%	31.4%	34.1%	37,600
North Central	7,361	31.3%	30.2%	32.3%	6,300
North East	7,813	33.5%	32.5%	34.6%	13,700
South Central	10,198	35.2%	34.3%	36.1%	18,000
South East	6,089	33.8%	32.7%	35.0%	26,600
West	3,926	28.7%	27.3%	30.1%	3,600

*BMI values $\geq 85^{\text{th}}$ percentile, based on age (mid-point value) and gender specific BMI values from the 2000 CDC growth charts

**Non-weighted sample size value

***Confidence interval for the weighted percentage value

^Estimated number of at risk for overweight or overweight Nebraska students (excluding pre-K and special education schools) rounded to the nearest 100, based on the 2002/2003 Nebraska school membership data from the Nebraska Department of Education (NDOE)

^^Based on school census data (including all youth regardless of student enrollment) from the NDOE

Appendix C: Overweight* among Nebraska Students in Grades K-12, by Region and Gender, 2002/2003

Region/Gender	Non-Weighted n**	Weighted Percentage	95% Confidence Interval***		Estimated Number of Nebraska Students^
			Low	High	
East					
Female	2,249	13.7%	12.3%	15.2%	7,700
Male	2,518	16.3%	14.8%	17.7%	9,500
North Central					
Female	3,492	13.1%	11.9%	14.2%	1,300
Male	3,869	16.6%	15.4%	17.8%	1,700
North East					
Female	3,756	15.0%	13.8%	16.1%	3,000
Male	4,057	18.3%	17.1%	19.5%	3,800
South Central					
Female	4,960	15.8%	14.8%	16.8%	3,900
Male	5,238	20.1%	19.0%	21.2%	5,300
South East					
Female	2,955	15.1%	13.9%	16.4%	5,800
Male	3,134	18.6%	17.3%	20.0%	7,500
West					
Female	1,969	10.8%	9.4%	12.1%	600
Male	1,957	17.3%	15.6%	19.0%	1,100

*BMI values >95th percentile, based on age (mid-point value) and gender specific BMI values from the 2000 CDC growth charts

**Non-weighted sample size value

***Confidence interval for the weighted percentage value

^Estimated number of overweight Nebraska students per region and gender (excluding pre-K and special education schools) rounded to the nearest 100, based on the 2002/2003 Nebraska school membership data from the Nebraska Department of Education (NDOE)

Appendix D: Overweight* among Nebraska Students in Grades K-12, by Region and Grade, 2002/2003

Region/Grades	Non-Weighted n**	Weighted Percentage	95% Confidence Interval***		Estimated Number of Nebraska Students^
			Low	High	
East					
K-2nd	1,311	12.3%	10.5%	14.1%	3,300
3rd-5th	1,200	15.3%	13.2%	17.3%	4,100
6th-8th	1,371	16.5%	14.5%	18.4%	4,500
9th-12th	885	15.5%	13.2%	17.9%	5,300
North Central					
K-2nd	1,386	12.0%	10.2%	13.7%	500
3rd-5th	1,410	17.0%	15.1%	19.0%	700
6th-8th	2,118	16.0%	14.5%	17.6%	800
9th-12th	2,447	14.4%	13.0%	15.8%	1,000
North East					
K-2nd	2,088	15.6%	14.0%	17.1%	1,400
3rd-5th	2,229	19.2%	17.5%	20.8%	1,800
6th-8th	1,340	16.7%	14.7%	18.7%	1,600
9th-12th	2,156	15.6%	14.1%	17.2%	2,000
South Central					
K-2nd	2,192	16.6%	15.1%	18.2%	1,900
3rd-5th	2,253	19.0%	17.3%	20.6%	2,200
6th-8th	2,613	21.0%	19.4%	22.6%	2,500
9th-12th	3,140	16.1%	14.8%	17.4%	2,600
South East					
K-2nd	1,780	13.1%	11.5%	14.7%	2,300
3rd-5th	1,853	18.6%	16.8%	20.3%	3,300
6th-8th	991	18.3%	15.9%	20.7%	3,400
9th-12th	1,465	18.1%	16.1%	20.0%	4,500
West					
K-2nd	976	11.0%	9.1%	13.0%	300
3rd-5th	949	13.1%	11.0%	15.3%	400
6th-8th	661	17.0%	14.1%	19.9%	500
9th-12th	1,340	14.9%	13.0%	16.8%	700

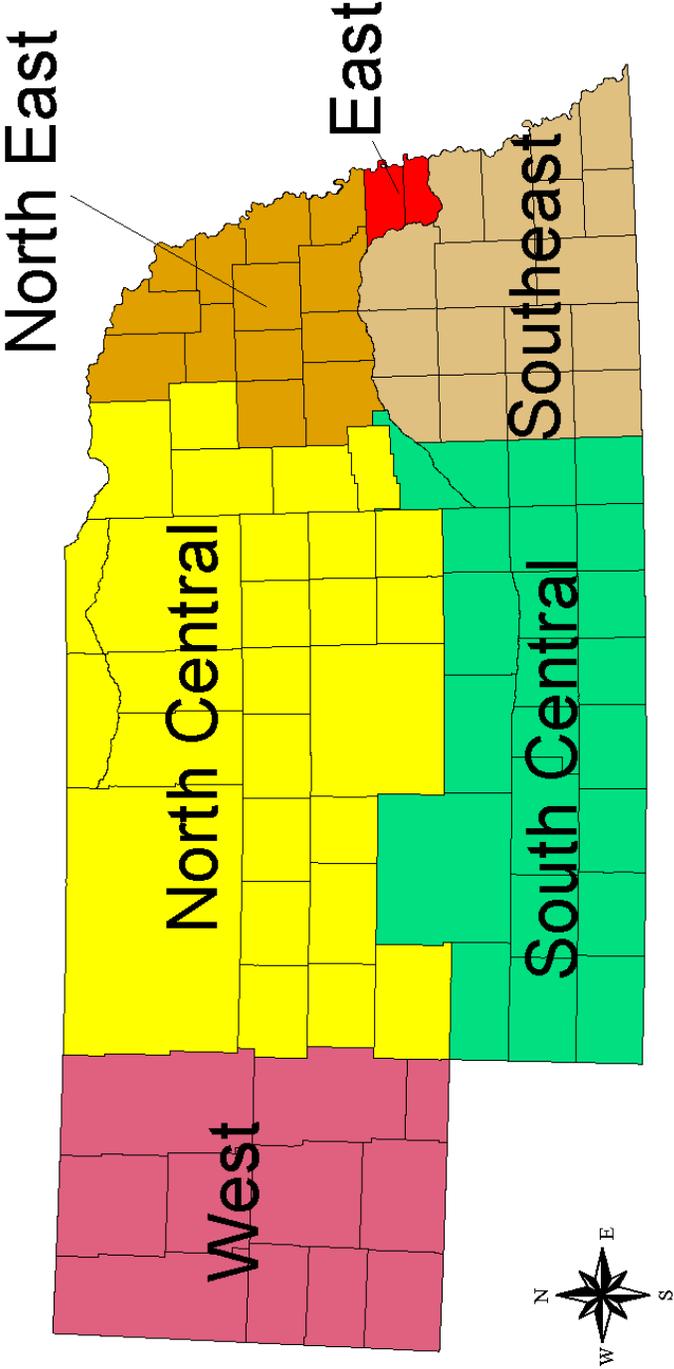
*BMI values >95th percentile, based on age (mid-point value) and gender specific BMI values from the 2000 CDC growth charts

**Non-weighted sample size value

***Confidence interval for the weighted percentage value

^Estimated number of overweight Nebraska students per region and grade (excluding pre-K and special education schools) rounded to the nearest 100, based on the 2002/2003 Nebraska school membership data from the Nebraska Department of Education (NDOE)

Appendix E: Nebraska youth height and weight data collection regions



Appendix F: Nebraska Counties Per Stratified Region

Region/Counties

East

DOUGLAS
SARPY

North Central

ANTELOPE
ARTHUR
BLAINE
BOONE
BOYD
BROWN
CHERRY
CUSTER
GARFIELD
GRANT
GREELEY
HOLT
HOOKER
HOWARD
KEITH
KEYA PAHA
KNOX
LOGAN
LOUP
MCPHERSON
NANCE
PIERCE
ROCK
SHERMAN
THOMAS
VALLEY
WHEELER

North East

BURT
CEDAR
COLFAX
CUMING
DAKOTA

North East (cont.)

DIXON
DODGE
MADISON
PLATTE
STANTON
THURSTON
WASHINGTON
WAYNE

South Central

ADAMS
BUFFALO
CHASE
CLAY
DAWSON
DUNDY
FRANKLIN
FRONTIER
FURNAS
GOSPER
HALL
HAMILTON
HARLAN
HAYES
HITCHCOCK
KEARNEY
LINCOLN
MERRICK
NUCKOLLS
PERKINS
PHELPS
RED WILLOW
WEBSTER

South East

BUTLER
CASS
FILLMORE

South East (cont.)

GAGE
JEFFERSON
JOHNSON
LANCASTER
NEMAHA
OTOE
PAWNEE
POLK
RICHARDSON
SALINE
SAUNDERS
SEWARD
THAYER
YORK

West

BANNER
BOX BUTTE
CHEYENNE
DAWES
DEUEL
GARDEN
KIMBALL
MORRILL
SCOTTS BLUFF
SHERIDAN
SIOUX

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