

THE BREAKFAST HABITS OF MIDDLE SCHOOL STUDENTS

by

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A Research Paper

Submitted in Partial Fulfillment of the
Requirements for the
Master of Science Degree
With a Major in

Guidance and Counseling

Approved: 2 Semester Credits

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The Graduate College
University of Wisconsin-Stout
December, 1999

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ABSTRACT

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The Breakfast Habits of Middle School Students

Guidance and Counseling (Major)	Dr. Robert Wurtz (Research Advisor)	12 / 99 (Date)	vi-viii Pages
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APA STYLE

The purpose of this research was to describe the breakfast eating habits of middle school students as measured by a twelve-item questionnaire developed by the researcher.

The objectives of this study were to determine the percentage of students who ate breakfast and who did not eat breakfast; identify reasons given by students for not eating breakfast; identify nutritional value of breakfast food that was consumed; identify emotional and physical symptoms as a result of not eating breakfast; give recommendations to parents to encourage a healthy breakfast.

One Hundred students from Northstar Middle School in Eau Claire, Wisconsin were asked to respond to the twelve-item survey.

The survey results indicated that 72% of the participants did eat breakfast, 28% did not eat breakfast. Of this 72%, 79% indicated that they lived with both parents and 65% also stated that the parents were present during breakfast. Eighty-one percent of the respondents indicated that they prepared their own breakfast.

The breakfast meal should provide 25 to 30% of the recommended daily allowances. The results of this survey indicate that the respondents met a minimum of 25% of the recommended daily allowances for protein, vitamins A, B1, B2, B3, C, calcium and iron. Ninety-two percent of all ready-to-eat breakfast cereals are fortified with essential nutrients. Forty-two respondents ate cereal for breakfast.

For the students who chose not to eat breakfast, 67.4% stated that time was the factor influencing their decision to skip breakfast. Sixty-nine percent of these respondents also indicated that they felt fine by mid-morning. However, 31% indicated that they were hungry and tired.

Breakfast is perhaps the easiest meal to provide. The fortified ready-to-eat cereals allow individuals to meet the 25 to 30% of the recommended daily allowances.

Parental habits of eating breakfast and establishing good eating habits at an early age set the tone for lifetime healthy habits. Parents can encourage healthy habits by providing ready-to-eat cereals, waking their

child fifteen minutes earlier to allow for that extra time needed or send along a sack breakfast with their child. In addition, the School Breakfast Programs are designed to meet 25% of the daily recommended allowances. The School Breakfast Program also provides free and reduced prices for families with low incomes.

CHAPTER I

Problems and Objectives

Introduction

Why is breakfast the most important meal of the day? Breakfast, as defined by Webster's New World Dictionary, is the first meal of the day; the term implies to break the fast. Nutritionists explain that it's the brain's first shot of fuel for the day. " Our brain runs on glucose, or blood sugar, stored up overnight. If we do not eat breakfast, by mid-morning that sugar gets used up and kids as well as adults can grow tired and irritable" (Melton, 1998). There is a nutritional toll as well. Studies show that 75 percent of kids who skip breakfast never catch up on daily requirements for calcium, and a third fall short on protein (Melton, 1998). JoAnn Hartner, a spokesperson for the American Dietetic Association states, "the meals and snacks kids eat later in the day simply don't make up for the nutrients found in breakfast foods." (Walsh, 1998). Breakfast should provide one-fourth to one-third of an adolescent's nutritional needs for the day. (Kowtaluk & Kopan, 1986). Although adolescents consume a high number of calories, their food choices do not help them reach the Recommended Dietary Allowances for vitamins and minerals. (Healthier People in Wisconsin, 1990). " Adolescents, without a nutritional start to

their day, face dealing with mid-morning slump, low energy levels, and feeling tired". (Kelly & Eubanks, 1988).

Studies show that people who skip breakfast do less work, have little energy, and have difficulty concentrating in late morning hours. (Dickie & Bender, 1982). The omission of breakfast was demonstrated to result in a poor attitude toward school work. Students tend to be irritable, apathetic, and lethargic. (Smith, Kendrick, Maben & Solomon, 1994). The American Dietetic Association's Child Nutrition and Health Campaign reports that "children who eat breakfast, perform better in school because of increased problem solving ability, better memory and verbal fluency and more creativity. They are also less likely to be absent." (Kines, 1997).

During adolescence, children gain 15 % of their adult height and 50% of their adult weight and bone structure. According to the 1989 National Adolescent Student Health Survey, this age groups consumes more fat and saturated fat then recommended. (Rubin, 1997). In addition, calcium intake was low in 20 % of males and 40% of females. Inadequate calcium intake may lead to osteoporosis later in life (Rubin, 1997). Poor eating habits contribute to the high percentage of overweight teens. An estimated 25% of adolescents are overweight today. Eating habits and lack of exercise contribute to obesity. (Rubin, 1997). According to the Harvard Growth Study, which followed students for more than 50 years,

"individuals who were overweight at anytime during late adolescence or early adulthood, even if they lost the weight, were at increased risk of chronic diseases such as coronary heart disease, certain cancers, and increased mortality later in life." (Picciano, McBean, & Stallings, 1999). Anorexia nervosa and Bulimia are eating disorders also associated with poor eating habits. (Rubin, 1997).

Research literature reveals that breakfast eating behaviors tend to be learned. Studies indicate that childrens' eating habits and attitudes about food develop early and last a lifetime. (Troccoli, 1993). The "Parent Connection", a monthly newsletter for parents, contends that if we want our children to eat breakfast, we must set the example. To help children build better diets, child-care providers must understand factors shaping children's food-acceptance patterns (Picciano, et al. 1999).

According to Dr. Picciano, et al., professor of nutrition at the Pennsylvania State University, "children learn to associate foods with certain contexts and consequences that may influence their preferences for a particular food. "

Another factor to evaluate in the problem of children eating breakfast is the number of parents in the work force. Each year this number increases.

In Wisconsin, 56.2% of children have both parents in the labor force. In single parent households, teenagers are active in food preparation and purchasing. In single male parent households, 2.9% work outside the home. In single female parent households, 11.6% work outside the home. (Young, 1992).

Human nutrition is defined as the study of foods and their effects on a person's development, health, and performance (Deutsch & Monill, 1993). The most effective way to improve human nutrition is through increasing knowledge and changing attitudes and behaviors. The National Dairy Council's review of scientific literature reports that "there needs to be a shift from a nutrient focus toward a healthful eating pattern for children as part of a healthful lifestyle that includes physical activity." (Picciano, et al.1999).

If indeed breakfast is the most important meal of the day, in fact sets the tone for the success or failure a child may experience at school, why is it that a review of the literature shows that one in five children do not regularly eat breakfast?

This study identified reasons given by middle school students for not eating breakfast. This study also reported the benefits of offering a school breakfast program. In addition, this study cited other research that determined the habits of healthy eating is a life long pursuit, and therefore

healthy habits established at an early age are critical. Also, family routine is essential in developing healthy breakfast choices.

Statement of the Problem

The purpose of this study was to describe the breakfast eating habits of middle school students as measured by a 12 -item questionnaire, with recommendations for parents.

The objectives of this study were:

1. To determine the percentage of middle school students who do eat breakfast.
2. To determine the reasons why middle school students do or do not eat breakfast.
3. To determine the nutritional value of breakfast food that middle school students do eat.
4. To develop recommendations for parents to encourage a healthy breakfast for their child

CHAPTER 2

Review of Literature

Introduction

This research examined the benefits of breakfast. Specifically, this research explored the eating habits of adolescents, the Recommended Dietary Allowances for adolescents, the role of the family regarding breakfast habits, and the role of the School Breakfast Program.

Importance of Breakfast

Importance of Breakfast

Breakfast should provide one fourth to one third of an adolescent's nutritional needs for the day. (Kowtaluk & Kopan, 1986). In an Australian Study, conducted by Mary E. Shaw, "eating breakfast was one of the seven healthy habits, linked to long-term health. It is a central component of nutritional well-being, contributing to total daily energy and nutrient intake." (Shaw, 1998).

Sports Illustrated writer, Mickey Rathbun (1996) discusses the importance of children eating breakfast, especially before an athletic event. "In the morning, after 12 or more hours without eating, a child's blood sugar level is low, and without proper food, their performance will be impaired."

Single Parent Magazine, (1994) in their article, "Healthy Breakfast, Healthy Kids," confirms that children who eat breakfast have greater physical endurance, work faster with fewer mistakes and are more creative.

Dr. Ernesto Pollitt (as cited in Healthy Breakfast for Everyone, 1993) at the University of California at Davis, has shown that four key areas, aptitude, time on task, attendance, and perseverance at the task, suffer as a result of missing breakfast. According to the Food Research and Action Center, "hunger leads to nervousness, irritability, lack of interest in learning, and inability to concentrate."

The Kellogg Company studies indicate that eating breakfast on a regular basis reduces the likelihood of obesity, improves overall nutrition, and improves alertness and learning skills in the morning. (Irwin, 1995). In addition, those individuals who skip breakfast are more likely to eat high-fat snacks and to have higher cholesterol levels than do breakfast consumers. (Shaw, 1998). Several studies have indicated that omission of breakfast is a factor contributing to poor school performance and to dietary inadequacies that are rarely compensated for in other meals of the day. (Nicklas, O'Neil, & Berenson, 1998). Nicklas et al. also contends that poor eating habits established in childhood often continue into adulthood.

Breakfast Habits of Adolescents

A national survey by the National Dairy Council reports that:

56% of 8 to 13 year olds eat breakfast every day. A disturbing 8% report they hardly ever eat a morning meal. As children enter the critical growth spurt, children are even less likely to eat breakfast, with 17 % of 12 and 13 year olds responding they rarely eat breakfast. (Parent, 1994).

Trends in Breakfast Consumption for Children in the U.S. from 1965 -1991, indicate a decline in breakfast consumption, particularly for older adolescents aged 15-18 years. In addition the decline was attributed to behavioral changes and not the population's change in sociodemographic patterns. The research also indicated that the nutritional quality of food consumed in this time period had improved. (Seiga-Riz, Popkin, & Carson, 1998). According to Seiga-Riz et al. "the improvement over time in the quality of food consumed at breakfast, however, is offset by the large percentage of persons aged > 11y who do not presently consume breakfast." Seiga-Riz et al. added:

given the association of obesity with less frequent breakfast consumption and the rise in obesity among persons of this age group, a renewed emphasis on the importance of breakfast is warranted; that only adolescents had a significant sex-age interaction, indicating that adolescent males are more likely to eat breakfast than females of the same age.

According to the results of an Australian study, 12 % of the sample skipped breakfast; gender was the only statistical significant sociodemographic variable, with females skipping at over three times the rate of males. (Shaw, 1998). "Skippers were more likely to be dissatisfied with their body shape and to have been on a diet to lose weight than those who ate breakfast. In a follow-up telephone survey, the reasons given for skipping were almost exclusively lack of time and not being hungry in the morning." (Shaw, 1998).

The Journal of Adolescent Health reports that "body image has been found to be an especially strong determinant of adolescent nutritional habits." (Middleman, Vazquez, & Durant, 1998).

A Minnesota study of 900 adolescents concluded that in general youth know how to improve their diets. These youth, however, reported lack of time, inconvenience, and lack of urgency as major barriers to achieving a more healthful diet. (Middleman, et al. 1998).

The sociodemographic characteristics of breakfast skippers have also been investigated:

The household component of the 1987 National Medical Expenditure Survey, with a sample of 6,722 U.S. children aged 5-17, indicated that one in five did not regularly eat breakfast, and of these, females, teenagers, and those from families where the head of the household had a relatively low level of education were more likely to skip breakfast; race differences were not found." (Shaw, 1998).

Other studies have also found females and older children are more likely to skip breakfast. Children from low-income families have also been found to be more frequent skippers. (Shaw, 1998).

Recommended Dietary Allowances

The Recommended Dietary Allowances (RDAs) are a set of nutrient standards established by the Committee on Dietary Allowances. The RDA are the average daily intakes of energy and nutrients considered adequate to meet the needs of most healthy people in the United States under usual environmental stresses. (USDA, 1998). According to the USDA, the RDAs were designed for the maintenance of good nutrition. People are urged to base their diets on a variety of common foods in order to obtain other nutrients for which human requirements have been less well defined. (USDA, 1998).

A nutrient is an essential substance needed for good health and growth which the body is unable to make and so must obtain from foods. Six groups of nutrients are considered essential for health. They are protein, carbohydrate, fat, vitamins, minerals, and water. Some nutritionists also classify fiber as a nutrient. (Irwin, 1995).

The Recommended Dietary Allowances (RDAs) are developed by the Food and Nutrition Board, Commission on Life Sciences, National Research Council and published by the National Academy Press. In 1973

the Food and Drug Administration (FDA), developed the U.S. RDA system to replace the minimum daily requirements which had previously been used for nutrition labeling purposes. The U.S. RDAs were based on the Food and Nutrition Board's RDAs. The current RDAs also use Daily Values on nutrition labels. (USDA, 1998).

Daily Values are standard values developed by the Food and Drug Administration (FDA) for use on food labels. In creating the Daily Values, the FDA first established two sets of reference values. The first set, the Reference Daily Intakes (RDI), are for protein, vitamins, and minerals and reflect average allowances based on the RDA. The second set, the Daily Reference Values (DVR), are for nutrients and food components, such as fat and fiber. Together, the RDI and DVR make up the Daily Values used on food labels. (USDA, 1998).

The Bureau for Food and Nutrition Services (1993) list these items for a healthy start: "One serving of fluid milk; one serving of vegetable/fruit or full-strength juice; two servings of bread/bread alternate, or meat/meat alternate."

Nicklas et al. (1998) identifies the average daily intake by breakfast consumption patterns. "Studies have shown that breakfast provides important nutrients and that individuals who skip breakfast do not compensate for potential nutrient and energy losses at other meals.

Deficiencies in vitamins A, B-6, iron, calcium, magnesium, cooper, zinc, pose special problems for children." In this study, Nicklas et al. determined that non-breakfast eaters failed to meet two-thirds of the recommended dietary allowances.

The recommended dietary allowances for adolescent males and females as established by the ESHA are as follows:

	Female	Male
Basic Components		
Protein	49.90 g	54.43 g
Vitamins		
A/RE	800.00 RE	1000 RE
Thiamin - B1	1.17 mg	1.50 mg
Riboflavin - B2	1.41 mg	1.80 mg
Niacin - B3	15.48 mg	19.76 mg
C	50 mg	50 mg
Minerals		
Calcium	1300 mg	1300 mg
Iron	15 mg	12 mg

Korinis, Korslund, Belli, Donohue, and Johnson (1998) in their article "Comparison of Calcium and Weight Loss Information in Teens," contend that:

adolescent females enter puberty with calcium requirements at their peak, however, food intake, and consequently calcium consumption, during this period is often sporadic and given to fads and fetishes. The relationships of maladaptive eating habits followed by periods of self-deprivation and anorexia nervosa with amenorrhea and ultimately reduced bone mass at maturity has been well documented.

Korinis et al. (1998) goes on to say that "osteoporotic bone loss, which is not completely reversible, has been found in female athletes as early as their teens and in young gymnasts whose rigorous training often begins in childhood."

The National Health and Nutrition Examination Survey determined that teenage girls consume an average of only 68% of the RDA for calcium, making it unlikely that many will reach their full genetic potential for bone mass development." (Sztainer, Story, Dixon, Resnick, & Blum, 1997). In light of the importance of calcium intake during adolescence for both males and females, one of the nation's health objectives outlined in Healthy People 2000 is to increase calcium intake so at least 50% of youth, aged 12-24, consume three or more daily serving of foods rich in calcium. (Sztainer, et al. 1997).

Harel, Riggs, Vaz, White, & Menizies (1998) believe that adolescents are aware of the major health benefits of calcium, but lack specific information about daily requirements, sources, and amounts. It is this lack of information that contributes to adolescents' suboptimal intake of calcium. Harel's et al. research determined that only 19% of participants in his study knew the recommended intake of calcium (4 servings /day.) In their study, the adolescents who were informed about the recommended allowances and sources of calcium consumed more than those who did not.

Family Influence on Eating Habits

"Not enough time," is often a response given by an adolescent as to why they do not eat breakfast. "Trends in Breakfast Consumption," by Siega-Riz et al. (1998) cited reasons for the omission of breakfast as lack of companionship to share the meal, lack of desire to prepare breakfast themselves, limited availability of ready-to-eat foods, and peer influence.

Barbara Kines, of The Parent Connection, states, "if you can allow 15 minutes for breakfast, you can cover three food groups with such offerings as whole grain toast with peanut butter and a glass of milk; a blender shake of nonfat yogurt and fresh fruit topped with granola; cereal with milk and fruit." Kines also suggests a brown bag breakfast consisting of a cinnamon-raisin bagel with peanut butter, carton of juice, string

cheese, pretzels, apple; hardboiled egg, rice cake, chocolate milk; trail mix nuts, carton of yogurt; dry cereal, pudding, and raisins. (Kines, 1997). The American Dietetic Association points out that parents need to be role models for children, especially when it comes to eating breakfast.

Providing ready-to-eat cereal is a good, quick, nutritious way to provide for one's family. "Ninety-two percent of all ready -to-eat cereals are fortified with essential nutrients; these cereals have a significant effect on the nutritional quality of the US diet," contends Teresa Nicklas et al. (1998) author of the "Nutrient Contribution of Breakfast. Nicklas's research in conjunction with the Bogalusa Heart Study, also indicate that the consumption of ready-to-eat cereal boosted the consumption of milk 92% as well. (1998). "Children who eat ready-to-eat cereals have a higher intake of vitamins and minerals overall than children who do not eat ready-to-eat cereals," says Nicklas et al.

Sue Gilbert (1999), in her article, "Another Reason to Eat Your Cereal, says "the less B vitamins that your child consumes, the higher his/her serum homocysteine levels are apt to be. And that, down the road, can lead to a greater risk for Cardiovascular Disease (CVD)." According to Gilbert,(1999) Homocysteine is used by the body to help manufacture protein and carry out cellular metabolism, but too much may cause blood platelets to clump together and vascular walls to bread down." Gilbert

(1999) contends that "getting your kids to eat their morning cereal is a good weapon in the prevention of heart disease."

"Mealtime can be an important time for family interaction," according to Gemlo, Keenan, Ruffing, & Sweet (1998) authors of "Nutrition Education Needs and Preferences of Fathers." Gemlo's et al. research contends that "companionship at mealtime, a positive home atmosphere, and appropriate, food-related parenting behaviors, such as giving smaller portions when introducing a new food, have been found to improve dietary habits for children."

In a study by the International Food Information Council (How Children are Making Food Choices, 1990), 60% of the respondents that rated their eating habits as excellent or good, ate with their family everyday. Families with lower socioeconomic status have a more difficult task of providing a nutritious, well-balanced meal for their children. (Break the Fast, 1992). In 1990, more than 11 million children lived in households with incomes below the poverty level. According the U.S. Census Bureau, (1998), the poverty threshold for a family of four was \$16,400 in annual income in 1997. This is why the school breakfast and lunch programs are so important.

The American Society for Nutritional Sciences conducted a symposium regarding food insecurity and hunger in the U.S. Hamelin,

Habicht, & Beaudry (1999), from the University Laval, Quebec, report, "the consequences of food insecurity at the household level are manifested in physical impairment, psychological suffering, and sociofamilial perturbations; stress was illustrated by a range of reactions from decreased interest in food and nourishment."

Respondents in the study indicate that eating patterns and family dynamics were disrupted; friends could not be invited over, mealtime was no longer a happy gathering opportunity for the family. Consequences at the household level often interact with the larger environment to which the household belongs. "On a chronic basis, the resulting interactions have certain implications which we tentatively label as social implications," states Hamelin et al. (1999).

School Breakfast Program

The School Breakfast Program was originally a pilot program that targeted children from low-income school districts and was intended to provide a nutritious breakfast to children who might not otherwise receive one. (Devaney, 1998). To expand availability of the program, the Child Nutrition Act of 1989 required that the Secretary of Agriculture provide funds to states to support the cost of starting breakfast programs in schools in low-income areas. All public and private elementary and secondary schools in the United States are eligible to participate in the

School Breakfast Program. To participate, schools must make breakfast available to all students. (Devaney, 1998).

The U.S. Department of Agriculture (USDA) reimburses schools for each breakfast served that meets nutritional standards. The cash reimbursements vary according to whether students qualify for free, reduced-price, or full-price meals. To be eligible for free meals, students must have family income less than or equal to 130% of the poverty level. To be eligible for reduced-price meals, students must have family income between 130 and 185 percent of the poverty level. (Devaney, 1998)

According to Devaney, (1998), "the School Breakfast Program is required to provide approximately one-fourth of the Recommended Dietary Allowance (RDA) for important nutrients over a period of time". Each reimbursable breakfast must include a serving of fluid milk, a serving of fruit or vegetable or a full-strength fruit or vegetable juice, and two servings of either bread or meat or their equivalent. (Devaney, 1998).

Nicklas et al. (1998) in her article "Nutrient Contribution of Breakfast," provides an overview of the Bogalusa Heart Study. In this study, the introduction of the School Breakfast Program dramatically reversed the growing trend of breakfast omission. "The availability of the School Breakfast Program increases the probability that children will eat breakfast," writes Nicklas et al. (1998).

Conflicting evidence on the effectiveness of the School Breakfast program was given by the National Evaluation of the School Meals Program. Their analysis showed that the School Breakfast Program does not increase the likelihood that a student will eat breakfast. The School Nutrition Dietary Study indicated that the predicted percentage of students who eat breakfast is virtually the same regardless of whether a school offers the program. (Nicklas, et al.1998).

Mary Jo Tuckwell, (1999), Nutritionist for the Eau Claire School District, reports," for the 1998-99 school year, the price of a breakfast is \$1.05. The reduced price is \$.30. Eau Claire has three Middle Schools, South, DeLong, and Northstar. The percentage of students who qualify for free breakfasts are 11%, 26%, and 24% respectively. Students qualifying for reduced lunch are 15%, 8%, and 8%, respectively.

Conclusions

Breakfast is still considered the most important meal of the day. It is a healthy habit linked to long-term health. This meal is to provide one-fourth to one-third of a person's recommended daily allowances. The nutritional value of this meal cannot be regained with snacks consumed later in the day.. The omission of breakfast results in low blood sugar levels resulting in fatigue, low productivity, irritability, difficulty in problem solving, and poor attendance. Poor eating habits contribute to obesity,

eating disorders such as bulimia, and anorexia nervosa; also, cardiovascular disease and other health problems.

Breakfast habits are established at a young age. Parental modeling is key to the establishment of healthy habits. Family meals contribute to a healthy lifestyle that affects all areas of healthy socialization for one's family. Providing healthy food choices contributes to healthy eating habits. Ninety-two percent of all ready-to-eat cereals are fortified with nutrients and provide a good source for reaching the recommended daily allowances.

Adolescents cite time as a factor in their choice to not eat breakfast. Other factors such as having to eat alone or having to prepare one's own breakfast were given as reasons for not eating.

Females are three times more likely than males to skip breakfast, with 68% never reaching full genetic potential for bone mass development. The objectives outlined in Healthy People 2000 are to increase calcium intake so that at least 50% of youth consume three to four servings of food rich in calcium. Kids who are knowledgeable about calcium requirements and foods rich in calcium are more likely to consume the proper amounts.

The School Breakfast Program also provides a means for youths to eat breakfast. The percentages given for students qualifying for reduced or free lunch indicates a need for the School Breakfast Program. The

program and food choices are designed to meet one-fourth of the recommended daily food allowances. The cost for parents is affordable at the reduced as well as full prices. The School Breakfast Program meets the needs for low income families as well as families who maintain time is a factor in omitting breakfast from the morning routine.

CHAPTER 3

Methodology

Introduction

The purpose of this study was to describe the breakfast eating habits of middle school students. The selection and description of subjects, school district, instrument, unknowns, limitations, and data analysis are included in this chapter.

Subjects

The subjects in this study were sixth, seventh, and eighth graders from Northstar Middle School in Eau Claire, WI. There are three middle schools in Eau Claire; Northstar has an enrollment of 658. Eau Claire is a city of approximately 60,000. There are several smaller communities within a 20 minute radius of the city.

Northstar has 51 homeroom classes. Each homeroom has approximately 14 students, consisting 50 % boys and 50% girls. In addition, one third of each grade is represented. Ten homeroom classes were randomly selected to participate in the survey. The survey was conducted on Friday, May 7, 1999.

Surveys developed by Joan Mayer (1995), Ryan (1981), Harmon (1990), and Tingling Clemmons (1991) were used as references to

develop this survey. The questions were developed around 5 areas similar to Mayer (1995). These five areas were:

- 1). Frequency of eating breakfast
- 2). Reasons for eating or not eating.
- 3). Who prepared the breakfast?
- 4). What was eaten?
- 5). Was breakfast eaten at school?

Questions one through four deal with demographics. These questions answer gender, with whom do they live, who works outside the home, and if so, do they leave the house before the student eats breakfast?

Question five deals with frequency. Students indicating that breakfast is never consumed are instructed to answer two questions: one, as to why they choose not to eat breakfast; two, how do they feel mid morning? Students who respond with a number for the frequency question continue to give reasons for eating breakfast and list items they had consumed that particular morning.

Diet Analysis Plus is a software program available through the Home Economics Department at U.W. Stout. This program will determine the nutritional value of what each student listed for their breakfast on that particular day. In addition, the breakfast program at Northstar recorded

information as to what items were purchased on April 8th, and the nutritional value of each item.

Procedures

Dr. Tom Fiedler, Principal of Northstar Middle School, granted me permission to conduct a breakfast survey on Thursday, April 1. Letters were sent home to parents on Wednesday, May 5. Students who return the signed permission slip were given the survey on Friday, May 7. Each homeroom teacher met with the researcher to clarify any questions they may have had regarding the survey. Completed surveys were returned immediately to the researcher following the class.

Unknowns

Possible conditions that may effect the results of the study are unsigned permission slips, absences, interruptions during the homeroom time. Students may still have had questions even after directions were given.

Limitations

These are based on student self reported behavior; discrepancies may exist between what is recorded and what was actually eaten. Students' accuracy in stating amounts may be a limitation. Students who generally eat breakfast may not have eaten breakfast on that particular day.

Data Analysis

The questionnaires were analyzed by the UW-Stout computer center. The demographic and breakfast habit section of the survey, was evaluated with nominal data that was stated in frequency counts and percentages.

The analysis of the food eaten was based on the nutrients Vitamin A, Vitamin C, Vitamin B1, Vitamin B2, niacin, calcium, iron, and protein. The analysis produced data stated in frequency counts, percentages, mean, median, and standard deviation. The nutritional value of the food eaten was based on percentages from Recommended Daily Allowances. A Pearson Correlation Coefficient Matrix was done on all questions and combinations.

CHAPTER 4

Research Results

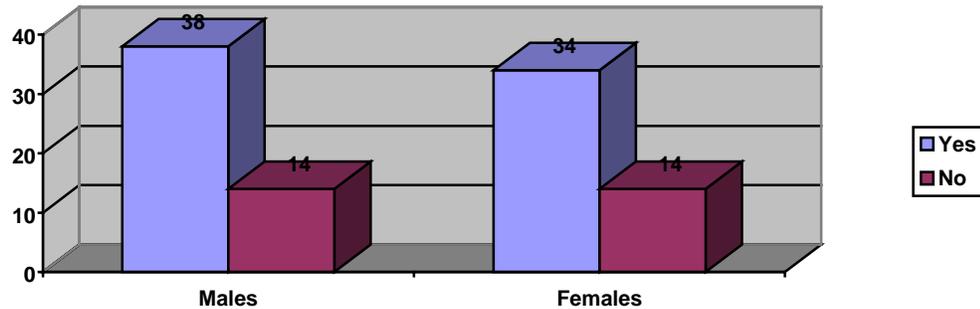
Introduction

This survey was designed to describe the breakfast eating habits of middle school students. The following results are based on the analysis of this data. Questions one through five surveyed gender, family status, employment status, morning departure time of parent(s) and youth, and frequency of eating breakfast. Questions six through ten were only for breakfast eaters. Questions 11 and 12 were specifically for non-breakfast eaters.

Discussion

The sample group for this survey was 100 respondents; 52 % male and 48 % female. Thirty-eight percent of the males indicated that they eat breakfast and 34 % of the females indicate that they also eat breakfast. A national survey by the National Dairy Council reports that 56% of 8 to 13 year olds eat breakfast every day. (Parent, 1994). In this study, 14% of both females and males indicated that they do not eat breakfast. The Dairy Council also reported that as children enter the critical growth spurt, children are even less likely to eat breakfast, with 17% of 12 to 13 year olds responding they rarely eat breakfast. (Parent, 1994)

Chart 1



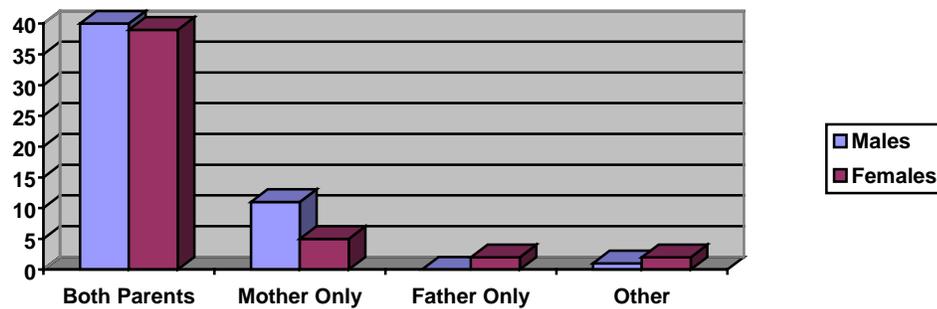
Breakfast Eaters and Non-breakfast Eaters

Chart 1 represents the number of participants, gender, and their breakfast choice. There were 100 participants, 52 % male and 48% female. Thirty-eight percent of the males indicated they did eat breakfast. Thirty-four percent of the females indicated they also eat breakfast. Fourteen percent for both males and females indicated they did not eat breakfast.

A total of 79% indicated that their household included both parents. (40% male and 39% female). Eleven percent of males indicated that they lived with their Mother only, and 5% of the females stated they also lived with their Mother only. Two percent, females only, lived with their Father, and 3% indicated another type of living situation. The literature shows that breakfast eating habits tend to be learned. In her article "Trends in

Breakfast Consumption, Riz points out that the omission of breakfast may be due to lack of companionship to share the meal, lack of desire to prepare breakfast themselves, and limited availability of ready to eat foods.

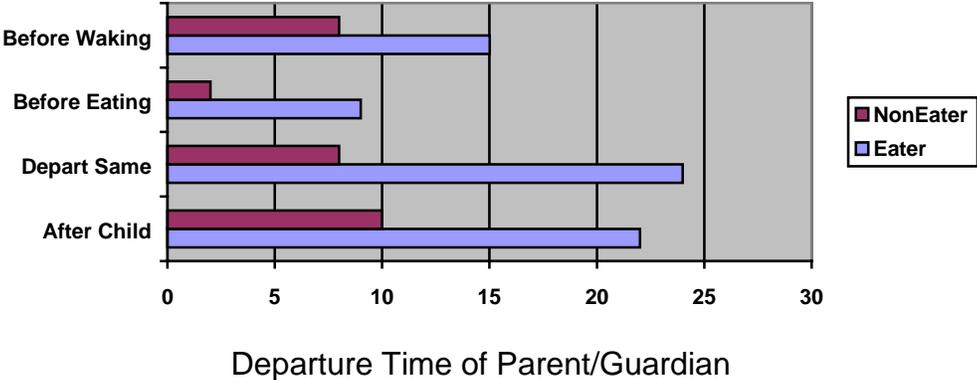
Chart 2



Family Status

This chart indicates that 79% of the respondents live with both parents; 16 % live with their Mother only, 2% live with their Father only; 3 % live in another situation.

Chart 3



Sixty-five percent of respondents' parents leave after they do or at the same time. Eleven percent of respondents' parents leave before they eat breakfast. Twenty-three percent leave before the youth is awake.

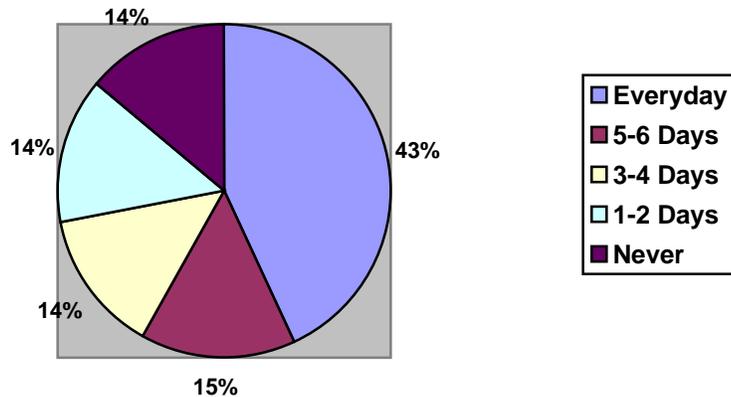
The American Society for Nutritional Sciences reports "the consequences of food insecurity at the household level are manifested in physical impairments, psychological suffering, and sociofamilial perturbations; stress was manifested in decreased interest in food and nourishment." Hamelin, 1996). Studies indicate that childrens' eating habits and attitudes about food develop early and last a lifetime. (Troccoli, 1993).

In this study 37 % of both male and female respondents said that both parents work outside the home. In Wisconsin, 56.2% of children have both parents in the labor force. In single male parent households, 2.9 % work outside the home. (Young, 1992). In this study, 11.1% of

respondents Fathers work outside the home. In Wisconsin the statistic is 11.6 % of single female parents work outside the home. (Young, 1992). The survey showed 12.1 % of single female parents working outside the home.

In regard to frequency of eating breakfast, 43% of the respondents indicated that they eat breakfast everyday. Fifteen percent in the 5-6 day range, 14% for the remaining categories of 3-4 days, 1-2 days, and never. The National Dairy Council Survey indicated that 56% of 8-13 year olds eat breakfast everyday. (Parent, 1994).

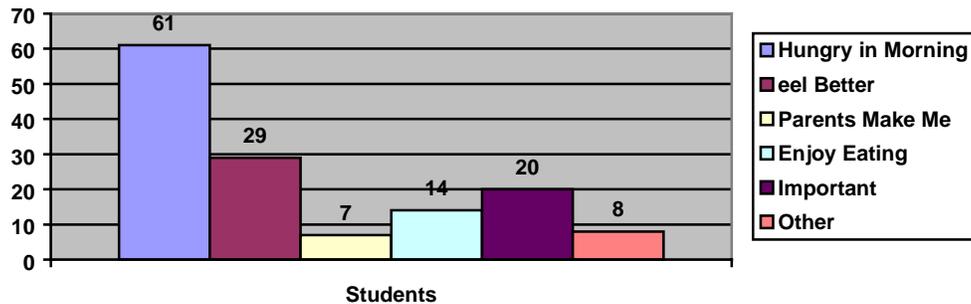
Chart 4



Frequency of Weekly Breakfast Eating

This chart indicates that 43% of students eat breakfast everyday. The 5-6 day range included 15 % of the sample. The 1-2 day range and 3-4 day range included 14 %. Those who chose "never" were also at 14%

Chart 5



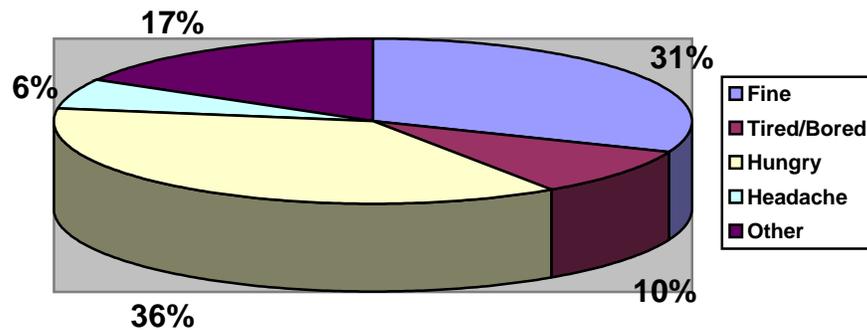
Reasons for Eating Breakfast

The reasons given for eating breakfast are shown in Chart 5 with 70.9 % of breakfast eaters indicating that hunger is their main motivation. The feel better category totaled 33.7 % of the respondents. Twenty-three percent felt that breakfast was important. Sixteen percent indicate that they eat breakfast because they enjoy it. Eight percent responded with the parents make me, category.

The respondents in this survey selected being hungry 70.9% of the time; males 40% and females 45% respectively, as the main motivating factor for eating breakfast. Nutritionists explain that it's the brain's first shot of fuel for the day. "Our brain runs on glucose or blood sugar, stored up overnight. If we do not eat breakfast, by mid-morning that sugar gets

used up and kids as well as adults grow tired and irritable." (Melton, 1998).

Chart 6



Health Status after Missing Breakfast

Breakfast eaters were also asked how they felt if they missed breakfast. Thirty-six percent checked the "starving" option, while 31% indicated that they felt fine.

Thirty-three percent of the breakfast eater respondents indicated that they feel better when they eat breakfast. Studies show that people who skip breakfast do less work, have little energy, and have difficulty concentrating in late morning hours. (Dickie & Bender, 1982).

"Breakfast should provide one-fourth to one-third of an adolescents nutritional needs for the day", according to authors Kowtaluk & Kopan. (1986), in their article "Plan Your Daily Food Choices." Dr. Zeev Harel

et al. (1998), states "that adolescents who were informed about the recommended allowances and sources of calcium, consumed more than those who did not. In this study 20 % of respondents indicated that they ate breakfast because it was important.

Sixteen percent of respondents indicated that they enjoyed eating breakfast. Eight percent indicated it was their parents idea that they should eat breakfast. Providing healthy food choices makes it easier for youths to choose to eat breakfast. Ready to eat cereals is a good, quick, nutritious way to provide for one's family. (Nicklas, et al.1998).

The term breakfast implies to break the fast. 36.9% of respondents said they were "starving" by mid-morning if they skipped breakfast. Thirty-one percent indicated that they felt "fine." Nine percent stated they were "tired." Five percent concluded they suffered with a headache.

According to the food Research and Action Center, (Healthy Breakfast for Everyone, 1993), "hunger leads to nervousness, irritability, lack of interest in learning, and inability to concentrate."

Table 7
Why Skip Breakfast?

	Not Hungry	Time	Availability	Eat Alone	Preparation	Other
Students	37.2%	67.4%	27.9%	1.2%	3.5%	9.3%

This survey, in Table 7, shows that 67.4% of students miss breakfast because of the time factor.

"Not enough time" is often a response given by an adolescent as to why they do not eat breakfast. Sixty-seven percent of respondents indicated that time was a factor in skipping breakfast. Barbara Kines, of the Parent Connection states, if you can allow 15 minutes for breakfast, you can cover, three food groups with offerings such as whole grain toast with peanut butter, and a glass of milk; cereal with milk and fruit." (1997). The American Dietetic Association points out that parents need to be role models for children, especially when it comes to eating breakfast.

In regard to skipping breakfast, 27.9% of respondents indicated that they didn't like what was available to eat. Ninety-two percent of all ready-to-eat cereals are fortified with essential nutrients. (Nicklas, et al.1998). Thirty-seven percent they were not hungry at that time. Kines, (1997), also suggests a brown bag breakfast consisting of a cinnamon-raisin bagel with peanut butter, trail mix, yogurt, carton of juice, pretzels, apple,

or a carton of chocolate milk. 1 respondent said they did not like to eat alone, with 3 % indicating that because there was no one to prepare breakfast for them, they skipped it.

Table 8

Preparation of Breakfast

	Self	Father/Mother	Brother-Sister	School	Other
Students	81.4%	25.6	1.2%	8.1%	0%

The preparation of breakfast as shown in Table 8, reveals that 81.4% of breakfast eaters prepare their own breakfast.

It has been said that when a meal is prepared by someone else, it always tastes better. In regard to the preparation of the breakfast meal, 81.4 % of respondents indicated that they prepared their own breakfast; 25.6% stated that it was prepared by a parent; 1.2% indicated a sibling prepared it and 8.1% participated in the School Breakfast program. In single parent families or households where parents have already left for work, or have not yet returned, teenagers are active in food preparation and purchasing. (Young, 1992).

Table 9
Recommended Daily Allowances and Percentages Obtained from Male
and Female Middle School Students

	Female Mean n = 34	Female 33% RDA	Male Mean n = 38	Male 33% RDA
Basic Components				
Protein	17.87 g	16.47 g	18.51 g	17.96 g
Vitamins				
A/RE	548.32 RE	264.00 RE	564.27	330 RE
Thiamin - B1	.80 mg	.37 mg	.74 mg	.50 mg
Riboflavin - B2	1.29 mg	.47 mg	1.27 mg	.59 mg
Niacin - B3	8.73 mg	5.10 mg	7.86 mg	6.52 mg
C	40.42 mg	16.5 mg	48.93 mg	16.5 mg
Minerals				
Calcium	472 mg	429 mg	423 mg	429 mg
Iron	7.01 mg	4.95 mg	7.60 mg	3.96 mg

Table 9 represents the various nutrients and daily recommendations of each nutrient., based on gender. Table 9 illustrates the percentages obtained by the respondents.

The literature review stated that breakfast should provide 30 % of the recommended daily allowances. The RDA recommends 1300 mg of Calcium per day for adolescent males and females. The National Health and Nutrition Examination Survey determined that teenage girls consume an average of only 68% of the RDA for calcium, making it unlikely that many will reach their full genetic potential for bone mass development. (Sztainer, 1997).

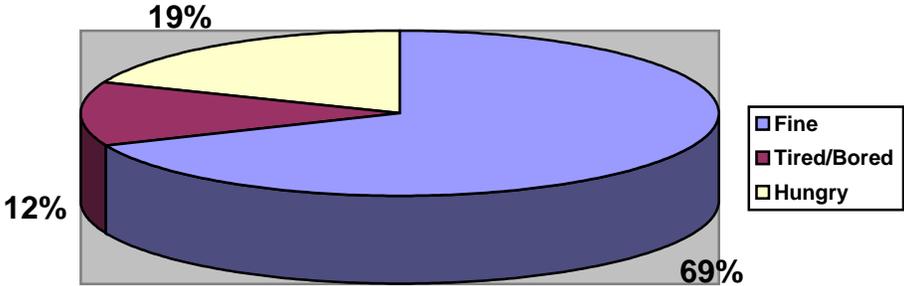
It was reported that 62.5 % of the breakfast eaters had ready-to-eat cereal on the day of this survey. Ninety-two percent of all ready-to-eat cereals are fortified with essential nutrients. (Nicklas, et al.1998). Nicklas et al. also points out that the consumption of ready-to-eat cereals has boosted the consumption of milk 92% as well. The results of this survey show that in each category, protein, Vitamin A, Vitamin B1, Vitamin B2, Vitamin B3, Vitamin C, Calcium, and Iron, the respondents mean score was above the 30% required daily values.

Table 10
Non-breakfast Eaters

	Not Hungry	Time	Lose Weight	Availability	Eat Alone	Preparation
Students	37.0%	18.5%	3.7%	11.1%	3.7%	11.1%

The non-breakfast eaters represented in Table 10 indicate that 37% and 18.5% respectively do not eat breakfast because they are not hungry and do not have enough time.

Chart 11



Non-breakfast Eaters Health Status Mid-Morning

The result of not eating breakfast, as stated in Chart 11, show that 68% of non breakfast eaters state that they feel fine.

CHAPTER 5

Summary, Conclusions, and Recommendations

Summary

Breakfast perhaps is the most important meal of the day. A healthy breakfast contributes 30 to 40 percent of the recommended daily allowances. Those who establish healthy eating habits at a young age may avoid obesity, eating disorders, osteoporosis, cardiovascular disease, and more. Research has shown that breakfast is the lowest fat meal for young adult women.

The responses of the students in the breakfast survey coincide with research in regard to the percentage of students who regularly eat breakfast. The National Dairy Council reported that 56 % of students age 8-13 eat breakfast every day. This survey of 100 middle school age students indicated that 43 % of students eat breakfast every day, and 15% eat breakfast 5-6 days per week. Another 28% eat breakfast, but not on a daily basis.

Parental habits of eating breakfast and establishing good eating habits at an early age set the tone for lifetime healthy habits. Forty-six percent of breakfast eaters in this survey indicate the presence of a parent in the home during breakfast.

Eighty-one percent of the total breakfast eaters indicated that they prepared their own breakfast. However, 62.5% of the total breakfast eaters had ready-to-eat cereals for breakfast. Ready to eat cereals now have 92%. The analysis of the breakfast food consumed, indicate that the participants exceeded the RDA's for breakfast.

Seven percent of students participated in the School Breakfast Program on the day of the survey. The goal of this program is to provide 25% of the recommended daily allowances.

Conclusions:

Breakfast is the most important meal of the day. It is directly related to the success of students in the classroom. Students who eat breakfast perform better, spend more time on task, and have better attendance. Eating breakfast is a healthy discipline.

The cereal industry has greatly enhanced the nutritional value of their product; thus the consumption of ready-to-eat breakfast cereals increased the likelihood that children would reach their recommended daily allowances.

Mealtime is a family matter. Healthy foods to choose from, along with companionship, greatly enhance the probability of eating breakfast.

The benefits of eating breakfast are tremendous. A person who eats a healthy breakfast feels better, looks better, can produce more cognitively and for a longer period of time. Eating breakfast is a personal discipline that carries over into other areas of one's life.

Eating a healthy breakfast staves off obesity, and other long-term health problems. A person who chooses not to eat breakfast cannot regain the nutritional loss experienced by omitting this meal.

Eating breakfast should be a way of life.

Recommendations:

1. Continue to research the long-term health benefits that result from eating a healthy breakfast.
2. Continue to examine the breakfast eating habits of all school-age children.
3. Research innovative, cost effective ideas to provide nutritious snacks during the school day.
4. Continue to research the relationship of nutrition with success in the classroom and interpersonal relationships.
5. Offer a nutrition course once a year.
6. Place posters throughout the school showing foods rich in various nutrients.
7. Healthy food tips in the school news letter for parents.

8. Maintain the School Breakfast Program.
9. Have a fund raiser with cereal box tops as the means; focus on cereal that is fortified with the essential nutrients.
10. Address young athletes about the importance of starting their day with breakfast.
11. Incorporate calculating RDA's with math skills.
12. Provide an enjoyable eating environment.
13. Provide a cooking class. Make healthy eating fun.

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Appendix A

Breakfast Survey**DIRECTIONS:**

**Please answer the following questions as accurately as possible.
Put a check mark by the answer that best describes you.**

1. Gender
 Male
 Female

2. With whom do you live?
 Both parents (biological, adoptive, or step)
 Mother only
 Father only
 Other _____

3. Who in your household works outside the home?
 Both parents
 Mother only
 Father only
 Other _____

4. When do your parent(s) or guardian(s) leave for work?
 Before I get up in the morning
 Before I eat breakfast
 Same time that I leave for school
 After I have already left for school

5. How often do you eat breakfast during the week?
 1-2 days per week
 3-4 days per week
 5-6 days per week

- Everyday
 Never **(If you check this option, please skip to question #11)**

6. Why do you eat breakfast? **(Please check all that apply to you.)**
- I am hungry in the morning
 I feel better if I eat breakfast
 My parents make me
 I enjoy eating
 I feel it is important to eat breakfast
 Other _____
7. If you skip breakfast occasionally, how do you feel mid-morning (9:30-10:00)? Check **one** that best describes how you feel.
- Fine
 Angry/cranky
 Tired/bored
 Hungry/starving
 Headache/sick
 Nervous
 Other _____
8. If you skip breakfast occasionally, what are the reasons for doing so? **(Please check all that apply to you.)**
- I was not hungry
 I didn't have enough time
 I didn't like what was available to eat
 I didn't want to eat alone
 No one prepared anything for me
 Other _____
9. Who prepares your breakfast? **(Please check all that apply to you.)**
- I prepare my own breakfast
 My Father or Mother
 My Sister or Brother
 I eat at school (how many times per week do you eat at school? _____)
 Other _____

10. Breakfast eaters. What did you have this morning for breakfast?
Please list all of the food and an approximate amount for each.

Example: 1 bowl of cheerios with milk and sugar
1 slice of wheat toast with butter and jelly
6 oz. Glass of orange juice

or

2 scrambled eggs with cheese
one 8oz. Glass of chocolate milk
2 cookies

For any beverage you list, please do the best you can in estimating the number of ounces you drink. A can of pop equals 12 ounces. A half can of pop is equal to 6 ounces. A fourth of a can of pop is equal to 3 ounces. Use this as a guide in determining the ounces.

MENU

Protein Vit A Vit B1 Vit B2 Vit B3 Vit C Calcium Iron

THANK YOU FOR FILLING OUT THIS SURVEY.

11. Non-breakfast eaters. You checked **never** to question number
Why don't you eat breakfast? **Please check all that apply to
you.**

I am not hungry at that time of the morning
 I don't have enough time
 I want to lose weight
 I don't like what's available to eat
 I don't like eating alone
 No one prepares it for me
 Other _____

12. When you skip breakfast, how do you feel mid-morning (9:30 to
10:00)? Check **one** that best describes how you feel.

Fine
 Angry/cranky
 Tired/bored
 Hungry/starving
 Headache/sick
 Nervous
 Other _____

THANK YOU FOR FILLING OUT THIS SURVEY.

Appendix B

April 8, 1999

Dr. Tom Fiedler/ Principal
Northstar Middle School
Eau Claire, WI 54703

Dr. Dr. Fiedler,

I am currently gathering information for my thesis, "Breakfast Habits of Middle School Students." I am doing a descriptive study to determine the number of students who do choose to eat breakfast and the nutritional value of what they eat.

I would like you permission to have approximately 8 to 10 startime classes fill out the breakfast survey on Wednesday, April 21.

I am enclosing a copy of the questionnaire as well as a copy of the letter to the parent(s) for their approval, should this request be granted. The questionnaire will be filled out by the students who have received permission.

Thank you for considering my request.

Respectfully,

Ruth A. Mickelson

Appendix C

April 19, 1999

Dear Parent(s) or Guardian(s),

My name is Ruth Mickelson. I teach Physical Education at Northstar Middle School and at Memorial High School.

I am currently gathering information for my thesis, "Breakfast Habits of Middle School Students." I am conducting a survey to determine the number of students who choose to eat breakfast and the nutritional value of what they do eat.

This study has been approved by Dr. Fiedler, Principal at Northstar. The questionnaire on the back of this letter is a copy of the questions the students will be asked to respond to in a written survey. **The questionnaire is completely anonymous. Students will not have their name anywhere on the survey form or any type of ID number.**

If you agree to have your son or daughter participate in filling out the breakfast survey, please sign this letter at the bottom and have them return it to their startime teacher on Tuesday 4/20 or Wednesday 4/21. The survey will be completed on Wednesday April 21, during startime.

If you have any questions, please call me at Northstar, 839-6181, ext. 241.

Thank you for your cooperation.

Respectfully,

Ruth A. Mickelson

I understand that my participation in this study is strictly voluntary and I may discontinue participation at any time without any prejudice. I understand that the purpose of this study is to investigate Breakfast Habits of Middle School Students. I further understand that all information gathered is strictly anonymous. I understand that at the conclusion of this study all surveys will be destroyed.

Signature of Student _____ Date _____

Signature of Parent _____ Date _____

Note: questions or concerns about participation in the research or subsequent complaints should be addressed first to the researcher or research advisor and second to Dr. Ted Knous, Chair, UW-Stout Institutional Review Board for the Protection of Human Subjects in Research, 11 HH, UW-Stout, Menomonie, WI 54751, Phone (715)-232-1126.

