

NUTRITION

Breakfast: It Really is the Most Important Meal of the Day!

Do We Eat Breakfast?

If you're like many Americans, you don't have lovely breakfasts on the outdoor patio served on silver trays as seen in the old time movies. More Americans are taking breakfast with them as they rush through their stressful lives. In fact, a panel report from National Eating Trends (NET®), which surveys 2,000 households containing 5,200 individuals and has tracked US eating habits since 1981, indicates that "on the go and skipped meals account for 21% of all breakfasts in 1999, compared to 17% in the early 1990s. Arnie Schwartz, vice president of the NET® panel suggests three key things that drive what we choose to eat are taste, convenience and price.¹


What foods are we choosing to consume for breakfast? Fruit tops the list of carry along breakfasts. Packaged breakfast and snack bars as well as cookies and brownies followed fruit as the most popular breakfast foods carried from home according to NET®.



NET's annual survey also reported that more Americans are getting their breakfasts from take-out restaurants. Among take-out breakfasts, the breakfast sandwich was the most popular, followed by donuts and soft drinks.

An even more alarming trend, that of breakfast skipping, appears to be growing especially quickly amongst children under age 12 and young adults ages 18-34 years. NET® reported the annual number of skipped breakfasts per capita has risen from 42 in 1990 to 49 in 1999.

Data from the US Department of Agriculture's CSFII 1994-1996 show a similar trend with approximately 15% of the population surveyed skipping breakfast. The group most likely to skip breakfast being males age 20-29 years old followed by females age 12-19 years.

This issue of Nutrition Realities focuses on why we need to eat breakfast and what type of breakfast will best meet our nutritional needs. 

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QUESTIONS FROM

t h e c l i n i c

Q: What can I do to make my family's breakfast more interesting?

a: For children: Cut foods into different shapes and allow them to decorate their plate with patterns that appeal to them. Try using sliced hard cooked eggs for eyes, sliced tomato wedges for a mouth, cheese slices cut into any shape with toast points and dry cereal. Eating their creation will be half the fun!

For Teens: Set the alarm clock for 15 minutes ahead of the usual wake up time. Ask them to set out clothes the night before. Defrost frozen pancakes or muffins that you prepared the previous weekend so they can be ready in 10-15 minutes. Prepare tortilla or pita with fillings ahead of time so a simple microwaved scrambled egg can be slipped in within minutes.

For the Adult: Use new coffee cups and placemats to make your table setting more appealing. Turn off the radio or television and put down the newspaper to truly enjoy your breakfast.

Use a leftover vegetable from last night's dinner to layer on a toasted English muffin then top with a quick fried egg for a perfect breakfast sandwich. Heat up last night's baked potato topped with a scrambled egg and cheese and salsa sauce.

Q: What foods have a low glycemic index and will keep me from getting hungry so quickly?

a: Carbohydrate containing foods that are less quickly absorbed and more slowly distributed through your body are likely to have a lower glycemic index such as:

- *apples*
- *peaches*
- *plums*
- *yogurt*
- *lentils*
- *kidney beans*
- *figs*
- *chickpeas*
- *milk*
- *peanuts*

Some carbohydrate containing foods that have a high glycemic index are:

- *bagels*
- *crackers*
- *cornflakes*
- *soda*
- *raisins*
- *sports drinks*
- *maple syrup*
- *candy*

Remember that combining a carbohydrate source with a fat or protein source will slow the absorption and distribution of all the nutrients within your body.

Q: What can I eat for breakfast at a fast food restaurant that's healthy?

a: Fast food restaurants offer a variety of different breakfast selections. Try to avoid extra butter or margarine whenever possible. Choose English muffins or hamburger buns instead of biscuits or croissants to lower your fat intake. A simple egg, ham and cheese on a roll selection, when teamed with a fruit juice can be a well-balanced, nutritious meal.

Nutrition Realities welcomes your Questions from the Clinic. If you have questions or comments, please send them by mail, FAX, or e-mail to:

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Realities

why eat **BREAKFAST?**

Defining breakfast is the first step in determining the importance of breakfast. For many, any food eaten shortly after rising is considered breakfast. The USDA Continuing Survey of Food Intake by Individuals (CSFII) 1994-1996 allows respondents to determine which foods they consider breakfast even if consumed in the evening. In a study by Nicklas et al. (1998) breakfast was defined as "a mixture of foods that approximately yields or exceeds the macronutrient values of one serving of milk".² Obviously, what you call breakfast will alter the impact breakfast has on your daily nutrient intake.

Much of the research investigating the effects of eating breakfast has focused on the needs of the growing child. An integrative summary of research articles relating to the effects of breakfast by Ernesto Pollitt and Rebecca Mathews (1998) found that in general omitting breakfast interferes with cognition and learning. The most widely observed cognitive losses were those involving short-term memory. Other important effects include a decline in performance in verbal fluency, arithmetic tasks and stimulus discrimination. When a school breakfast program is introduced into a school, increased school attendance is found to provide greater exposure to a learning environment and higher academic achievement.³

Similarly, Benton and Parker (1998) looked at the effects a morning fast had upon memory function in college students. Their initial study of 33 university students found a significant correlation between memory performance and blood glucose concentrations. Their follow-up study of 137 undergraduate women and 47 men (average age 22 years) who ate their normal routine breakfast or routinely skipped breakfast found that consumption of breakfast improved recall of stories and word lists whereas the intake of a glucose drink did not. The authors concluded "the consumption of breakfast benefits memory."⁴

And the research clearly shows that children and young adults aren't the only ones who benefit from breakfast. Smith (1998) reported that in a study of 205 adults aged 60-79 years, those who consumed breakfast every day had a higher mean score on the National Adult Reading Test which is known to correlate with intelligence.⁵ More recently, Kaplan et al. (2000) looked at the effects of various dietary carbohydrates on cognitive performance in healthy elderly persons. These investigators found that following an overnight fast, 10 females and 10 males (average age 72 years) fed potatoes, barley, or a glucose drink had improved cognitive performance compared to a placebo. In fact, barley which has the lowest glucose index, produced the strongest memory improvement. The authors postulated that energy intake rather than just carbohydrate intake induced an alteration of blood glucose, which may be involved in cognitive improvements in the elderly. In this study, foods with a low glucose index were found to be most effective in improving the memory of elderly people.⁶


The nutritional contributions of a breakfast meal are well documented and are often significant. The USDA, CSFII 1994-1996 reported all age groups benefit from the consumption of a breakfast meal. In fact, although adults age twenty and over receive approximately 15% of many of their nutrient needs

from the breakfast meal, the group that benefits most from eating breakfast are those age 70 and older. Approximately one quarter of their energy intake, 20% of their protein and 34 % of their iron intake is supplied by breakfast.

The breakfast meal is an important contributor to the nutritional adequacy of a young child's diet as well. The CSFII 1994-96 reports that breakfast supplies approximately 20% of the calories, 20% of the protein, and 35% of the iron of a preschool child's daily intake. Research has shown that children who did not consume breakfast had significantly lower intakes of food energy and nutrients compared to those who did consume breakfast, and that children who skipped breakfast did not make up the differences in nutrient intakes at other meals (Sampson et al. 1995).⁷

The findings of many studies have shown the essentiality of breakfast for the growing school child. Subjective as well as objective evaluations from educators indicate that children who eat breakfast are less distracted and more attentive in the classroom. This is one possible explanation why The School Breakfast Program has been shown to improve academic standing and school attendance when provided to poorly nourished children. Researchers Pollitt and Mathews (1998) suggest that the impact that breakfast has on brain function may be the result of two possible biological mechanisms. One involves the metabolic changes that result from availability of nutrients to the central nervous system after an overnight fast. The other relates to the long term beneficial contribution breakfast makes to nutrient intake and nutritional status and their effect on cognitive ability.

The breakfast meal offers many social benefits as well. For the working family, breakfast can be a time to group together and discuss the day's plans. For the family with preschool children, breakfast can be a time to learn about the world of different foods when appetites are at their peak and parental stress is at a minimum. Teens can benefit from family interaction at breakfast when homework and after school activities aren't demanding their constant attention. Seniors are positioned to derive the most benefit from an interactive breakfast meal. Depression and loneliness are often a difficulty faced by adults as they age. Breakfast can offer more than just a conveyance of nutrients; it can provide structure to the day and incorporate opportunities to socialize. Sharing a breakfast with friends and neighbors is a wonderful way to meet nutrient needs while enjoying the company of others. Generally, breakfast foods are well tolerated by older adults and are easily prepared and economical, making them a good choice for social engagements.

Unfortunately, as scientific and technological advances make our lives more convenient, we may overlook some of the beneficial customs and practices that have been lost. All too often we are led to believe that by adding a dietary supplement we can make up for our nutritionally deficient diet. However, as the research cited above clearly shows, the value of eating breakfast for people of all ages is multifactorial. Breakfast starts the day with food energy and supplies a variety of nutrients to help us perform well in our cognitively challenging world. 

Still Hungry?

There are several reasons why you may think you feel hungry. Humans are susceptible to internal and environmental cues that signal hunger. If the smells of baking bread and fresh brewed coffee or the sound of bacon and eggs crackling in the pan makes your mouth water, then you understand the role our senses play in stimulating appetite.

Appetite however is different from hunger. Hunger is an uncomfortable feeling, often accompanied by physical signs of distress such as irritability, chills and weakness. After a person has been asleep for 8-10 hours their blood sugar level begins to fall and they often sense a feeling of hunger.

On a metabolic level, once the blood sugar becomes low and no food is eaten to replenish the supply, stored sugar from the liver is broken down for energy. Once this supply is exhausted and no new energy

source is eaten, then alternative muscle and fat tissue must be used for energy. These are poor sources of energy that produce highly acidic waste products that travel through the blood and add to the load of wastes your kidney must filter and remove.

If at this point a high carbohydrate food like a snack bar or fruit is eaten, your body may over compensate by secreting excess insulin, the hormone needed by the cells to use the new energy source. In this case, you may actually feel hungrier shortly after eating the snack bar rather than feeling satisfied.

The benefit of eating a balanced meal containing a mixture of protein, carbohydrate and fat is a moderate insulin output. The different nutrients are digested and absorbed at a slower, more regulated rate that demand less immediate insulin output. Therefore, eating a breakfast

composed of protein, carbohydrate and fat can keep you satisfied for longer and prevent snacking on less nutritious foods throughout the day.

Some suggested combinations that will keep you from getting those hunger pangs until lunchtime are:

- scrambled egg and cheese in a whole wheat pita with a glass of orange juice
- whole wheat bagel with sliced tomato and fresh basil topped with mozzarella cheese
- lowfat fruit yogurt in which you add some trail mix of nuts and dried fruit
- hard cooked egg with a toasted English muffin spread with honey butter and fresh strawberries.

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The glycemic index is a measure of how quickly glucose from foods you eat are absorbed into your body, enter your blood and stimulate insulin secretion. The foods with the highest index will be those that are most quickly absorbed and are fastest to enter the blood stream.

The glycemic index is a tool that can be effectively used to assist in meal planning. Since glucose from some foods is absorbed more slowly into the body, it is useful to include them when trying to prevent hunger and promote an even supply of glucose in the blood stream.

Foods with more soluble (gel forming) fiber like beans can slow glucose absorption from foods with a higher glycemic index. To prevent hunger try adding some black beans and rice to your morning burrito as many Hispanic families have for centuries.

Including protein and fat with your carbohydrate snack or meal can slow the rate

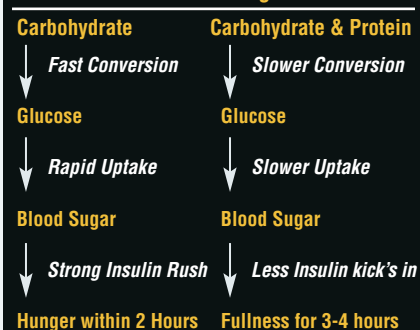
of glucose absorption from all foods consumed and even delay stomach emptying. This is an especially important consideration for people with diabetes who need to maintain an even rate of glucose absorption and insulin production.

Research has demonstrated this beneficial effect directly. Twelve subjects were fed a standardized breakfast of white bread, butter, coffee and sugar to which one of the following foods was added: 2 whole eggs, 2 egg whites, 2 egg yolks, or no egg. Investigators found that those who ate egg yolks or whole eggs with their standardized breakfast exhibited delayed stomach emptying and a lower and more even glycemic and insulin response.¹⁴

Using this information to your advantage in meal planning can mean less distraction from hunger during the day and less craving of empty calorie foods when trying to maintain a healthy body weight. Starting the

day with two whole large eggs supplies only 140 calories and many essential nutrients yet keeps your appetite satisfied and can help prevent indulgence in empty calorie snacks.

Effects of Carbohydrate and Carbohydrate/ Protein on Blood Sugar Levels



NUTRITION realities

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Does breakfast fit your

Lifestyle

Whether or not you eat breakfast is a choice you make daily. Many factors influence that choice and often these factors are unrelated to food. Research tells us that eating breakfast is associated with certain lifestyle factors such as living in a dual-parent household, living in a southern state or living with a female head of household with a college education. If, however, the female head of household is employed outside the home, the likelihood of eating breakfast is decreased. Trends show increasingly large numbers of women are now in the labor force and that the divorce rate and number of out of wedlock births have increased greatly over the last 25 years, all contributing factors which negatively influence breakfast consumption.

For some, skipping breakfast is a way to save money. Nearly one quarter of all children experience hunger or food insecurity persistently. Of that group, 21 percent scored in the impaired region on the pediatric symptom checklist compared with 3 percent of non-hungry children. Studies in inner city Philadelphia and Baltimore show hungry children were significantly more likely to be depressed, anxious, have poorer grades and be absent from and inattentive in the classroom. When breakfast was introduced, it was found that average daily attendance improved, tardiness decreased and students were significantly less likely to be anxious and depressed or have behavior problems in the classroom (Kleinman 1999)⁸. As reported in Nutrition Insights (Dec 1999), a publication of the USDA, children in both low and higher income households who consume breakfast had higher overall Healthy Eating Index (HEI) scores than children who skip breakfast.

Many people erroneously believe that by skipping breakfast they can successfully reduce their body weight. In a controlled study by Schlundt et al. (1992), 52 obese women given 1200 calorie diets were grouped by their breakfast eating habits into a breakfast or no breakfast group. The

major advantage of eating breakfast was found to be a greater reduction of unplanned, impulsive snacks and a larger reduction in calories and fats associated with impulsive snacking.⁹ In another study, Redondo et al. (1996) looked at food, energy and nutrient intake at breakfast in a group of 127 elderly persons between the ages of 65 and 95 years old. These authors conclude, "though some people omit breakfast in an attempt to control bodyweight, this is probably an inadvisable practice." The control of bodyweight might be more efficiently accomplished by taking an adequate breakfast and better distributing total caloric intake across the day, avoiding its concentration into one or two meals.¹⁰

Others may be concerned with the impact that breakfast will have on their risk of heart disease. Resnicow (1991) found breakfast skippers, had significantly higher total cholesterol levels than breakfast consumers, even after controlling for age, gender and body mass index. This finding led the author to conclude, "encouraging chronic breakfast skippers to modify their dietary habits may improve their nutritional status and possibly reduce their risk for future heart disease."¹¹

So, if eating breakfast is so important, why not just grab a snack bar or donut? The answer to that question relates to the growing epidemic of obesity and diabetes mellitus in the US population. More than half of all adults and 11% of children and adolescents in the US are estimated to be overweight or obese by the Center for Disease Control and Prevention.

Of great concern is the increased incidence of Type II Diabetes Mellitus in young children related to the increased incidence of obesity. The relationship between diabetes and obesity is well known although not well understood. Type II Diabetes Mellitus was traditionally considered an illness associated with aging, however recent findings indicate a steep increase in cases of diabetes diagnosed at

younger ages. Some researchers believe the type of foods children consume may influence their ability to control eating behavior. Ludwig et al. (1999) found that when subjects were able to eat without restriction, they consumed approximately 80% more calories after a high glycemic index (GI) meal compared with a low glycemic (GI) index meal. The authors conclude therefore, "the rapid absorption of glucose after consumption of high GI meals induces a sequence of hormonal and metabolic changes that promote excessive food intake in obese subjects."¹² Regulation of glucose absorption is especially important in the control of insulin production and diabetes.

Poor eating habits are also associated with intake of foods that provide inadequate nutrients for the number of calories they supply. These foods not only offer less satisfaction and satiety they often lead to overeating. Foods that supply a balanced mixture of fiber, vitamins and minerals as well as protein, carbohydrates and fat are what constitute a satisfying and healthy intake.

Unfortunately, lifestyles that leave too little time for shopping, preparing or consuming nutritionally adequate meals are costing the American taxpayer dearly in medical care costs and time lost from work. What is still more frightening is the generation of children brought up in households where too often microwave reheated takeout food is the sole source of nutrition. What will these children teach their children about healthy eating habits?

More thought to achieving balance, variety and moderation in meal planning is needed to prevent the serious health consequences associated with popular eating habits. Making meal time a greater priority for family members and giving more thought to feeding our bodies not just our appetites are essential considerations if we are to effectively prevent this eat-on-the-go, no-time-for-nutrition trend in an unhealthy lifestyle.

What's for Breakfast?

If you've gotten into a routine of leaving less time than you need to prepare for the day ahead it's time to evaluate how you spend your time. Preparing a nutritious breakfast the night before you start a new day can be the perfect way to get ready for what lies ahead.

If breakfast at home is preferred, variety and convenience can easily be achieved. Foods that can be prepared the night before then eaten quickly in the morning or carried in one hand are most popular. Suggestions such as deviled eggs and toast, French toast sticks, scrambled eggs in a pocket pita bread or tortilla with a fruit juice are inexpensive, nutritious and easy to prepare and eat. Making a menu and breakfast schedule for the week helps keep breakfast from seeming repetitive and also helps to organize food shopping needs. Generally, breakfast foods should be nutrient dense and include selections from as many of the food groups of the Food Guide Pyramid as possible.



Choosing a nutritious breakfast from fast food outlets can be challenging. Using the Food Guide Pyramid to guide food selection can help. Priority must be placed on meeting nutrient needs while not consuming too many calories. Avoiding the foods

that contain considerable amounts of saturated fats such as bacon, sausage and gravy is healthy advice for people of all ages. Selecting a fruit or fruit juice along with scrambled egg and muffin can be a low fat yet nutrient dense choice. This can make help to get your day off with a healthy and nutritious beginning.



Seniors will find breakfast to be an enjoyable occasion that can add structure as well as nutrition to the day. Planning a breakfast menu and preparing a comfortable and attractive table setting will chase away any sad feelings, especially if friends are invited to join at mealtime. Appetites are often greater at breakfast and meeting nutrient needs can be more easily accomplished when foods are prepared in favorite ways. Soft foods that are easily chewed and can be prepared in individual portions are often best tolerated by seniors. Interesting flavorings such as bacon bits or garlic can add interest to the meal and overcome the diminished sense of taste often associated with aging. Banana bran muffins, Poached eggs over toast or breakfast egg custard are suggestions that most seniors will find easy to consume and provide the adequate nourishment.

Preschool children are usually most patient and willing to learn about foods



at breakfast, especially if they can be included in the selection and preparation of the meal.

This is a great time to teach them about new flavors and textures of foods when their appetites are at their peak for the day. Breakfast for a preschooler can vary between a hard cooked egg which they enjoy peeling or French toast sticks which they can help dip in the eggs before cooking. Adding some low fat milk and cut up fruit makes a kid friendly breakfast that provides nutrients and some valuable lessons.

For the teenager on the go, changing their schedule to allow more time for breakfast is probably not a possibility. Instead, try to have nutritious foods that are easily eaten on the go and readily available to persuade them to include them in their day. Some suggestions include, a breakfast muffin, scrambled eggs and cheese wrapped in a tortilla or even a breakfast pizza. Including a container of low fat milk and dried fruit will have them awake when their first class begins. Encouraging teenagers to take more responsibility for their health by having them evaluate their own intake and make meal plans for themselves is an excellent exercise in guiding them to maturity. Giving teenagers the opportunity to prepare meals especially breakfast will foster

their independence as well as decrease the possibility that they will skip it intentionally.



Lastly, for you baby boomers who never find time to eat right, breakfast can be your time of the day, before the demands begin and the stresses build. Breakfast can be the one nice thing you do for yourself to keep up your health and stamina. A microwave mock eggs benedict can keep you going for quite a while. If you need to eat and run as well, an eggwich sandwich can be the perfect grab and go fare.



Now, when asked, "what's for breakfast?" your answer should be: something inexpensive, nutritious, convenient and satisfying. Make it something that comforts you and prepares you for the demands of the day. Make it something that's delicious, nutritious and affordable.