

What's for Lunch? It's in the Bag!

Tips for Healthy, Fun Lunches

- 1 Involve your child with the shopping and preparation of his or her lunch; your child will be more likely to eat the whole lunch.
- 2 Include the vegetables your child likes at home in packed lunches.
- 3 Go beyond sandwiches; try new food combinations to avoid monotony. (See Lunch Bag Menu Ideas.)
- 4 Make lunches colorful—kids eat with their eyes.
- 5 Include foods with different shapes and textures.
- 6 Cut sandwiches in appealing designs — an X, vertical halves, or cookie cutter shapes.
- 7 Avoid convenient, pre-packaged meals and food items; they tend to contain more fat, sodium, and sugar with limited nutritional value.
- 8 Make the sandwich the night before and refrigerate or freeze it overnight; use ice packs to be sure it stays cool during the day.

Refusing to eat certain foods is a sign of growing independence in a child.

Although the National School Lunch and Breakfast Programs try to offer “kid friendly” items, they cannot meet every child’s food preferences every day. Remember though, the National School Lunch and Breakfast Programs are nutritious, reasonably priced, and make a positive contribution to a child’s health.

On days when your child may not like or want to eat what’s offered on the school lunch menu, choose options to provide your child with food that is safe and nutritious. One option is to pack a lunch at home. Packing healthy foods your child likes in temperature controlled containers will provide your child the nutrition needed to be a good learner without becoming sick from a foodborne illness. The following information provides ideas and tips to pack lunches that are healthy and safe.

What can you do?

To keep your kids healthy – prepare nutritious lunches and pack them safely. One trial (see page 4) showed the BEST way to be sure a meat sandwich stayed cold over a typical 4- to 5-hour period between leaving the house and eating lunch at school was to freeze the sandwich overnight and pack in an insulated carrier with ice packs.

Here are some tips to keep food cold:

- Schedule a time, perhaps after dinner, to prepare a sandwich and refrigerate or freeze it. Or consider making a week of sandwiches during the weekend and freeze (just the bread, meat, cheese, and spread — not any produce.)

Lunch Bag Menu Ideas

- Whole wheat tortilla, peanut butter, and banana roll up; carrots and celery sticks; and low fat or fat-free milk
- Chicken enchilada (made with whole wheat tortilla), apple slices, whole grain cookie, and low fat or fat-free milk.
- Chicken or turkey pita (whole grain) sandwich with cheese, tomato, and spinach; low fat yogurt; strawberries and grapes; broccoli florets with ranch dressing (limit to 2 tablespoons); and 100% fruit juice
- Grilled chicken salad made with a variety of leaf lettuces and veggies, and ranch dressing (limit to 2 tablespoons); sliced berries; 100% fruit juice



- Keep freezer gel packs ready to go — have extras on hand in case one gets left behind at school. These are not expensive and worth the cost if they prevent a foodborne illness.
- Frozen fruit cups without added sugar can substitute as an ice pack.
- Keep extra insulated carriers at home to serve as back-ups (or take your own healthy lunch to work!).
- Invest in an insulated carrier with gel pack lid.

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Fresh and Nutritious— It's in the Bag!

A healthy lunch can include many different foods that provide nutrients needed for growing children. Here are some ideas of what might be part of a lunch from home and how to pack it.

■ Grains/ Breads

When using breads, use whole grains. This means the entire grain is used—the bran or outer shell, the endosperm, and the germ (small kernel inside the endosperm). Whole grains are a significant source of fiber, which reduces the risk of chronic diseases such as heart disease, certain types of cancer, and diabetes. Along with dietary fiber, whole grains are a source of thiamin, riboflavin, niacin, folate, and iron.



Common Whole Grains: Common whole grains are barley, buckwheat, corn, quinoa, brown rice, rye, wild rice, oats, and wheat. Look for terms such as 100% whole wheat flour or products that have a whole grain (whole wheat, corn, brown rice, popcorn) listed first on the ingredient list.

Lunch Bag Ideas: Try something other than white sandwich bread. Think about using whole wheat, cinnamon, raisin, herb, Boston brown, and French breads. Perhaps a whole grain thin bun/rounds, whole wheat pita, Kaiser roll, whole grain hard roll, whole wheat hamburger bun, or an English muffin could be used as part of the lunch. Making a wrap using tortillas or flatbread provides variety to the traditional sandwich. Mix it up!

■ Fruits

Fruits are a valuable source of potassium, dietary fiber, vitamin C, and folate. They are naturally low in fat, sodium, and calories, which make them a great addition to any meal or snack. Like whole grains and vegetables, eating fruit can reduce the risk of common chronic diseases such as type 2 diabetes, cancer, and heart disease.

Lunch Bag Ideas: Fresh, dried, or packaged fruits such as apricots, oranges, peaches, cherries, grapes, pears, bananas,

plums, kiwi, apples, melon cubes, pineapples, strawberries, no sugar-added applesauce, and fruit cups are all enjoyed by kids. Including fruits in season can help kids better understand where and how food is grown.

Preparation/Packing Tips: Wash under cool running water before packing. If the fruit is not a fragile item, rub well while washing. Smaller children may prefer cut fruit rather than whole; be sure cut fruit is packaged and kept cool.

■ Vegetables

Vegetables are loaded with nutrients but have few calories. They are a great source of nutrients such as potassium, folate, vitamin A, vitamin E, vitamin C, and fiber. Eating more vegetables increases the intake of three of the four nutrients commonly lacking in the American diet (fiber, potassium, and calcium).



Lunch Bag Ideas: Variety is key—in addition to miniature carrots, slices of red, yellow, and orange pepper; broccoli florets; cherry or grape tomatoes; cucumber or zucchini slices; and jicama pack well. When in season, try to include veggies from your own garden or the nearest farmers' market. Outside the growing season, let your kids help select veggies at the grocery store to include in their lunches.

Preparation/Packing Tips: Use skinny baby carrots, make ants on a log (peanut-butter-filled celery stick with raisins), use spinach leaves in a wrap, or pack a healthy dip such as hummus. Keep cut veggies cool.

■ Protein

Protein can come from many different types of foods: meat, poultry, fish, dried beans, eggs, nuts, and seeds. Protein is used as a building block for bones, muscles, cartilage, skin, and blood. When choosing a protein food, consider the amount and type of fat it contains, as well as sodium content. Consider the storage environment of the protein source and whether it needs to be cold to avoid bacterial growth.

Lunch Bag Ideas: Turkey, ham, roast beef, chicken or tuna salad, nuts and peanut butter, cheese sticks with crackers, hard cooked eggs, and hummus are all popular with most kids.

Preparation/Packing Tips: Some protein foods (e.g., peanut butter) are shelf stable so temperature controls are not needed. But most meats, dairy, eggs, or prepared legumes do need to be kept cold. Make meat sandwiches the night before and place in the refrigerator or freezer.

■ Beverages

Many popular beverages, even some labeled as juices, have high amounts of sugar. By consuming sugary drinks, a child may not eat the more nutritious foods because he/she is too full too soon. When choosing a drink, look at the sugar content (4 gm of sugar = 1 tsp) and the juice content (look for 100% fruit juice).

Sports and energy drinks can contain about as much sugar as a 12-ounce can of soda. Recent research clearly shows excessive consumption of these drinks by younger children can have negative effects.

Lunch Bag Ideas: Low fat or skim milk, 100% fruit juices, low sodium juices or smoothies, and water are all smart beverage choices. Children should be offered non-milk beverages only after their optimal calcium intake has been reached for the day. Because of the high sugar content, flavored milks such as chocolate and strawberry should be offered occasionally rather than daily.

Preparation/Packing Tips: Milk can be purchased at school for a very low cost. This is the best bet to be sure the milk is kept cold and the product is safe.

■ Snack/ Dessert

Dessert is often a child's favorite part of lunch, but too many treats can contribute to consumption of extra calories. Offer a sweet snack occasionally but not every day. An occasional cookie that includes some nutrients, like an oatmeal cookie, could be included in the lunch bag. Also, don't overdo dried fruits, even though kids like them, as they are concentrated in sugars.



Lunch Bag Ideas: Raisins, dried fruit, popped popcorn, dry cereals such as granola or cheerios, nuts like almonds and cashews, sugar-free gelatin cups, no-sugar-added applesauce, and yogurt are all good endings to the lunch. Occasionally, pack a sweet snack like fruit rollups, trail mix, or a homemade oatmeal raisin cookie made with applesauce.

■ Other Entrée Options

Nutritious lunches can be made from leftover dinner meals. Some schools have microwaves available for students to use. If that is the case at your school, try putting a small portion of the leftover dinner in a small container in the refrigerator with ice packs to send to school with your child.

Lunch Bag Ideas: Beef and vegetable stew, low-sodium chicken noodle soup, stir-fry, and chili.

Preparation/Packing Tips: Put prepared or leftover items in a well-sealed plastic container and refrigerate it until morning. Then pack it in an insulated bag with two ice packs lining the container. Be sure to give your child microwaving instructions. Some thermal containers may keep hot food hot for a short period of time, but given the length of time between a child leaving home and eating lunch could be 4 or 5 hours, it is better to reheat on site rather than try to keep warm.

What's in the Bag: Keep it Safe!

To reduce the risk of food poisoning, it is extremely important to use good handling practices when preparing the food and adequate cooling methods to keep food at its proper temperature.

■ At Home Prep

1. When preparing the lunch, ALWAYS wash hands with warm water and soap (lather up!) before handling food. Kids should be encouraged to wash their hands before eating; include hand-wipes in the lunch bag, in case they forget. Failing to wash hands can transmit a variety of disease causing viruses including Norwalk virus and common cold virus as well as bacteria.

2. Keep counter tops and utensils at home clean. Use hot, soapy water and rinse well to be sure counters are clean. Keep food packages away from food preparation surfaces because the outside of food containers have touched a lot of dirty surfaces. Clean hands and counters go a long way toward preventing illness.

3. Wash fruits and vegetables well before packing the lunch bag. Use cool running water and rub exteriors of firm foods to remove any dirt, pesticide residues, or other contaminants.

4. Pack each type of food item separately to avoid cross-contamination. Keep items needing refrigeration separate from those that don't.

Keeping it Cold

Carried lunches are often packed in the early morning and held in a school locker until noon. If foods that do not need refrigeration are in the lunch (for instance, peanut butter and jelly sandwich with an apple and raisins), this is not a problem. But if the lunch contains meat or cheese, or even some types of sliced fruit or vegetables (melons, tomatoes, and lettuce for instance), room temperature promotes growth of illness-causing bacteria.

The best way to keep bacteria from multiplying is to keep the temperature below 41°F (this is the same as your refrigerator). To accomplish this:

- Make sandwiches the evening before and refrigerate or freeze until morning.
- Use freezer gel packs, frozen juice boxes, or frozen fruit items.
- Carry an insulated lunch box.



For the best cold holding results, wrap the ice packs around the frozen sandwich. Place foods that do not need refrigeration on top.

What Cooling Method Works Best?

A study of day care lunches brought from home showed only 22 of 1361 perishable items were at safe temperatures. (Almansour, Sweitzer, Magness, Calloway, McAllaster, Roberts-Gray, Hoelscher, and Briley, 2011.)

Researching the Question

ISU Extension and Outreach partnered with a 5th grade class FIRST LEGO League Team in Michigan to conduct a study to answer the question, "How long can a sandwich in a lunch stay safe?"

How bacteria grow

Foodborne bacteria need ingredients of moisture, nutrient or food source, and warmth for a long time in order to grow and reproduce to harmful levels. Acidity levels of food can inhibit bacterial growth, but proper controls are still important. If there are high levels of bacteria on the food that is eaten, a foodborne illness is likely.

Moisture — is present in most foods, particularly fruits and vegetables

Nutrient source — protein and carbohydrates are good sources

Warmth — The temperature danger zone (TDZ) is between 41°-135°F (room temperature is usually about 68° – 70°F). The TDZ is the range in which "speed growth" will occur.

Time — Foods with nutrient or water source kept for more than 2 hours in the TDZ will likely have high enough levels of bacteria to make someone sick.



Time



Temperature

Trials were conducted with a variety of different preparation times, packing methods, and containers for a bologna sandwich. The students identified this as a typical lunch. The sandwich consisted of bread, mayonnaise, bologna, and tomato. (Note that freezing of tomatoes is not recommended as there will be marked loss of quality; included for purposes of trials only).

A calibrated digital thermometer was used with temperatures checked at 7:30 a.m., 9 a.m., and each subsequent hour until noon. Sandwiches were stored in a metal file cabinet (to replicate conditions of a school locker) or in an actual school locker. Artic Zone™ packing containers were used. Following are findings from treatments that were tested. The highlighted treatment is recommended because it kept foods

exposed to the temperature danger zone for less than two hours. Selection of pack method will depend on how long the lunch is held before eating.

Did you know?

- Studies conducted by the Centers for Disease Control and Prevention in 2009 confirm that compared to adults, children younger than 4 years have 4.5 times more bacterial infection incidents transmitted through food.
- Another study found children under the age of 10 have higher rates of foodborne illnesses compared to other age groups (Buzby, 2001).

For more information, visit the following websites:

Iowa State University Extension and Outreach

- *Nutrition and Wellness Resources*
www.extension.iastate.edu/humansciences/child-nutrition-families
- *Spend Smart. Eat Smart.*
www.extension.iastate.edu/foodsavings
- *Online Store*
store.extension.iastate.edu
- *Food Safety Project*
www.iowafoodsafety.org

www.choosemyplate.gov

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No endorsement of products is intended nor is criticism implied of those not mentioned.

Treatment	Temperature				
	7:30AM	9:00AM	10:00AM	11:00AM	12:00PM
1. Prepared sandwich night before, refrigerated, and placed in paper sack without ice pack	43	55	63	65	67
2. Prepared sandwich night before, refrigerated, and placed in insulated container (with gel top lid frozen).	38	43	53	56	58
3. Prepared sandwich in morning and placed with ice pack in paper sack.	43	51	54	61	64
4. Prepared sandwich in morning and placed without ice pack into paper sack .	43	55	63	68	NA
5. Prepared sandwich night before and froze; in morning placed in Artic Zone insulated bag without ice pack and unzipped.	11	36	50	62	66
6. Prepared sandwich night before and froze (without tomato) and placed in paper sack without ice pack.	12	47	53	62	67
7. Prepared sandwich night before, refrigerated, and in morning placed in Artic Zone insulated bag with ice pack and zipped.	37	44	49	52	54
8. Prepared sandwich night before and froze (without tomato) and placed in Artic Zone insulated bag with two ice packs and zipped.	9	16	30	37	43

*Sandwiches consisted of bread, commercial mayonnaise, bologna, and tomato. Tomato slices were included in sandwiches frozen for the trials; inclusion is not recommended due to loss of quality.

... and justice for all

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