Blenderized Tube Feeding

You may want to make your own homemade liquid meals for your child’s tube feeding.

Blenderized tube feeding is made by blending foods into a liquid meal that you can put through your child’s tube. You can do this by adding food to a standard formula or by making a homemade feeding from scratch.

<table>
<thead>
<tr>
<th>Are blenderized tube feedings right for my child?</th>
<th>Before you decide to make changes to your child’s feeding plan, it is important that you talk to your child’s doctor and medical team.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blenderized tube feedings are a good option for many children. You might prefer to make your own blenderized tube feedings for your child because this may:</td>
<td></td>
</tr>
<tr>
<td>• Be less expensive than commercial formula.</td>
<td>• Their immune system is weakened. This can make it easier for your child to get an infection from bacteria in food. The blender can also be a source of bacteria. Commercial, ready-to-feed formulas are free of bacteria and may be the safest choice for your child.</td>
</tr>
<tr>
<td>• Allow for a variety of foods and meals to be used.</td>
<td>• They are on continuous tube feedings and cannot tolerate bolus feeds. Blenderized feedings cannot be left unrefrigerated for more than 2 hours, so they are not safe for continuous tube feedings. You may hang the feeding for up to 4 hours if cooled with ice. Additionally, feeding pumps are not made to be used with anything but commercial, ready-made formula. So it is possible for the pump to malfunction or break, and use of a pump with blenderized feedings is at your own risk.</td>
</tr>
<tr>
<td>• Give older children a chance to choose what foods they would like to have in their tube feeding.</td>
<td>• They have volume intolerance. Blenderized feedings may require more volume to meet your child’s nutrient needs than a commercial, ready-to-feed formula.</td>
</tr>
<tr>
<td>• Help with problems like reflux, constipation and diarrhea.</td>
<td>• They have a smaller feeding tube (less than 10 French). Blenderized food may be too thick to flow through these smaller tubes.</td>
</tr>
</tbody>
</table>

Blenderized tube feeding may not be right for your child if:

• Be less expensive than commercial formula.
• Allow for a variety of foods and meals to be used.
• Give older children a chance to choose what foods they would like to have in their tube feeding.
• Help with problems like reflux, constipation and diarrhea.

Blenderized tube feeding may not be right for your child if:

• Their immune system is weakened. This can make it easier for your child to get an infection from bacteria in food. The blender can also be a source of bacteria. Commercial, ready-to-feed formulas are free of bacteria and may be the safest choice for your child.
• They are on continuous tube feedings and cannot tolerate bolus feeds. Blenderized feedings cannot be left unrefrigerated for more than 2 hours, so they are not safe for continuous tube feedings. You may hang the feeding for up to 4 hours if cooled with ice. Additionally, feeding pumps are not made to be used with anything but commercial, ready-made formula. So it is possible for the pump to malfunction or break, and use of a pump with blenderized feedings is at your own risk.
• They have volume intolerance. Blenderized feedings may require more volume to meet your child’s nutrient needs than a commercial, ready-to-feed formula.
• They have a smaller feeding tube (less than 10 French). Blenderized food may be too thick to flow through these smaller tubes.

To Learn More
• Nutrition
  206-987-4758
• Your child’s dietitian
• Ask your child’s healthcare provider
• seattlechildrens.org

Free Interpreter Services
• In the hospital, ask your nurse.
• From outside the hospital, call the toll-free Family Interpreting Line, 1-866-583-1527. Tell the interpreter the name or extension you need.
How should I get started?

1. Talk to your child’s healthcare team and then decide if blenderized tube feedings seem right for your family. Once your family and your child’s healthcare providers agree to blenderized tube feedings, your child’s dietitian will work with you to develop a safe nutrition plan.

2. Discuss how much blenderized tube feeding you would like to give your child – you can give a lot or a little. For example, you can give blenderized tube feeding for dinner and standard formula at other meal and snack times or you can give blenderized tube feedings for all meals and snacks. If you choose to give only blenderized tube feeding, then your child’s dietitian will help you make a complete recipe that includes foods from all of the food groups.

3. Your child’s dietitian can help you decide how to introduce blenderized feeds. If your child has never had solid foods before, it is good to start slow. If your child had been eating solid foods before and does not have allergies, you can introduce blenderized tube feedings faster.

4. If your child goes to school, you can work with your child’s dietitian to make a feeding plan for the times your child is there.

5. Have a back-up plan in case your child has a bad reaction to the new recipe or when you are not able to make it (like on vacation or in an emergency). Examples of bad reactions are throwing up (vomiting), diarrhea, constipation, stomach pain or allergic symptoms, like hives or swollen lips.

There are commercial formulas made from blenderized foods but sold as ready-made. This might also be a good choice for your family instead of making your own feedings. It could also be a good back-up in case you are not able to make blenderized tube feedings. At this time, Seattle Children’s does not carry commercial blenderized tube feeding formulas.

How can I make sure my child gets all the nutrients they need from blenderized tube feeding?

If you choose to use blenderized tube feeding instead of standard formula, it is important to work with a dietitian to make sure all of your child’s nutrient needs are met.

These are some nutrition considerations for blenderized tube feedings:

- **Fiber**
  
  Try to choose foods for your blenderized recipes that provide adequate fiber. Talk with your child’s dietitian about adding extra fiber to blenderized feedings if needed.

- **Vitamins and minerals**
  
  A multivitamin may be needed for blenderized tube feedings. Look for a children’s chewable multivitamin that has 100% of the RDA (recommended dietary allowance) for most vitamins and minerals. You can crush or grind vitamins in a pill grinder and add them to your child’s blenderized feeds. Check with your child’s healthcare provider first before giving any type of vitamin or supplement to your child.
Fluid

Your child's dietitian can calculate how much fluid your child needs to take in each day. Your child may need more fluid than the tube feeding will give them. Extra fluid may need to be added daily through your child’s tube. Fluid helps to prevent dehydration, constipation, headache, dry skin and tiredness.

How can I prepare my child's homemade tube feedings safely?

If you make blenderized tube feedings at home, it is very important to prepare them safely to prevent illness. Cleanliness is very important.

Here are some tips to safely prepare, serve and store blenderized tube feedings:

Preparing the recipe

• Start with a clean kitchen. Clean all surfaces by using a mixture of 1 Tablespoon of bleach added to 1 gallon of hot water and a clean cloth to wipe kitchen counter tops and cutting boards, before and after use.

• Use clean equipment. You will need:
  • Blender. Follow the manufacturer's instructions for cleaning your blender. Regular home blenders may not thin feedings enough to prevent feeding tube clogs, especially when using NG tubes. Two industrial strength blenders that are known to blend to the right consistency are Vitamix and Blendtec.
  • Measuring cups and spoons
  • Containers to store tube feeding (use a non-porous plastic or glass container, such as Tupperware or Rubbermaid pitchers)
  • Dish rack to air dry utensils, blender and container. Do not towel dry.
  • Meat and refrigerator thermometers

• Wash your hands before starting a recipe, after touching raw food (like meat or eggs) and after touching hair or face. Use soap and warm water. Create lather and rub hands together, cleaning under fingernails too. Do this for at least 20 seconds and then rinse with warm water. Dry hands with a new clean paper towel each time.

• You may blend your recipe from fresh foods daily. Or you may use frozen ingredients. You may also choose to blend your recipe in advance and freeze for later use. Milk, soy milk, yogurt and formula do not freeze well. It is best to add them after thawing other ingredients and blend in slowly.

• Thaw frozen foods overnight in the refrigerator. Frozen foods should never thaw at room temperature because bacteria can grow quickly between 40° and 140° F. When cooking fresh meats, check the temperature with a meat thermometer. The internal temperature needs to reach these temperatures to be safe:
  • Chicken and turkey: 180° F
  • Pork: 170° F
  • Beef: 160° F
• Use separate cutting boards for meat and vegetables. Clean cutting boards as soon as possible after cutting raw foods on them.
• Keep raw foods apart from cooked foods. Clean utensils that touch raw foods before using them on cooked foods.
• Wash the tops of canned foods with water and dry them with a clean paper towel before opening.
• Wash fruits and vegetables well in running water before peeling and slicing.
• Always cook eggs thoroughly, with both the yolk and white well done (not runny or wet).

Feeding blenderized tube feedings to your child

• If you choose to warm the feeding before giving it to your child, do not put it in the microwave. This can heat food unevenly. Instead, place one serving of prepared feeding in a sealed container and warm in warm water. If your blender has a heating element, use it to warm the feed.
• Always flush the tube with water after bolus feeding. Your child’s dietitian can tell you how much water to use.

Storing unused tube feedings

• You can keep feedings in the refrigerator to use later for up to 24 hours. Put the feeding in a glass or plastic container and cover tightly with a lid. After 24 hours, it is important to throw away unused feeding.
• Do not leave blenderized tube feedings out of the refrigerator for more than 2 hours.
• Do not freeze standard formula or blenderized tube feeding made with standard formula, milk or yogurt. Add the formula, milk or yogurt after thawing. Some recipes do not blend well after freezing and thawing. You might choose to freeze food for blended feedings in ice cube trays. Then, thaw overnight in the refrigerator and blend them together with standard formula or milk when it is time to feed your child.
• Frozen blenderized foods should be kept at -4°F for no longer than 3 months. If your freezer cannot stay this cold, consider making only enough formula for 1 day.

Recipe basics

Different foods will have different effects on the blended tube feeding formula. Some foods may make the formula thicker (for example, banana or grains), while foods with seeds or strings may cause the feeding tube to clog (for example, berries). This table gives examples of foods from each group that work well in blenderized tube feeds:
## Blenderized Tube Feeding

<table>
<thead>
<tr>
<th>Starches, grains and cereals</th>
<th>Cooked cereal (iron-fortified rice or barley cereal, Malt-o-meal, oatmeal), well-cooked pasta, well-cooked boiled brown rice, quinoa, oats, or soft and whole grain bread.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruits</td>
<td>Applesauce, pear, peach, banana, papaya, mango, plums, blueberries, 100% fruit juices.</td>
</tr>
<tr>
<td>Vegetables</td>
<td>Boiled squash, mashed yam, pureed pumpkin, boiled carrots, steamed spinach, well-cooked broccoli, low-sodium tomato juice or puree.</td>
</tr>
<tr>
<td>Meat and protein</td>
<td>Chicken, turkey, ham or beef, jarred baby food meats, lentils or other legumes, soft tofu, smooth 100% peanut (or other nut) butter, cooked egg (scrambled, well done), canned tuna or other fish without bones. Molasses: while not a source of protein, is a good source of iron, an essential nutrient found in meat.</td>
</tr>
<tr>
<td>Milk and calcium</td>
<td>Cow's milk, calcium-fortified beverages (like soy, rice, almond or oat milk), yogurt and non-fat milk powder.</td>
</tr>
<tr>
<td>Fats</td>
<td>Oils (like canola, flax seed, hemp, coconut, or corn), avocado, almond or cashew butter, and fish oil.</td>
</tr>
</tbody>
</table>

### Sample recipes

These sample recipes are not for use with NG feeding tubes. And, they will not meet your child’s nutrition needs if used exclusively. It is important to work with your child’s dietitian to come up with a recipe or a variety of recipes that will work for your child.

### Recipe #1: Low cost

**Ingredients**
- 16 ounces reconstituted instant non-fat dry milk powder (⅔ cup non-fat milk powder + 2 cups water)
- 1 scrambled egg (cooked well)
- 1 cup enriched macaroni (cooked tender)
- ½ cup mashed yam
- 1 cup apple sauce (sweetened, canned)
- 2 Tablespoons corn or vegetable oil

**Directions**

Prepare milk, egg, macaroni, and yam. Add all ingredients to blender. Blend well, until about the consistency of milk or formula.

**Calories:** 955, **Protein:** 31 g, **Carbohydrate:** 135 g, **Fiber:** 7 g, **Fat:** 34 g, **Volume:** 1000 cc = 1000 ml (about 33 ounces), 29 kcal/ounce
Recipe #2: Fun with variety

Ingredients
- 3 packets instant oatmeal, cinnamon spice
- ½ cup fresh papaya
- 16 ounces reduced fat (2%) milk
- 5.5 ounces low-sodium V8 juice
- 4 ounces tofu, soft, silken
- 1 Tablespoon flaxseed oil

Directions
Prepare flavored instant oatmeal with water as directed on label. Place in blender and blend for one minute. Be careful to remove all papaya seeds and strings. Spoon out ½ cup papaya flesh (about ½ of whole fruit) and add to blender. Then add other ingredients and continue blending.

Calories: 995, Protein: 34 g, Carbohydrate: 148 g, Fiber: 6 g, Fat: 32 g, Volume: 1300 cc = 1300 ml (about 43 ounces), 23 kcal/ounce

Resources for families

Support group
Seattle Children’s Hospital: Parents of Children with Feeding Issues Support Group welcomes parents who are faced with a variety of feeding issues such as tube feeding, reflux, oral sensitivities and challenging meal times. Call 206-987-1119 to learn more.

Books and websites
- Get Permission website and products by Marsha Dunn Klein, pediatric occupational therapist. Her video series created for parents and families explores tube-feeding issues and solutions and transitioning to oral feeding. Find more information at: getpermissionapproach.com/tube-feeding
- Food for Tubies is a blended food resource group: www.foodfortubies.org
- Feeding Tube Awareness Foundation is a tube feeding resource group: feedingtubeawareness.org/blended-diets/
- Fight BAC! Consumer education website about food safety: www.fightbac.org

Seattle Children’s offers interpreter services for Deaf, hard of hearing or non-English speaking patients, family members and legal representatives free of charge. Seattle Children’s will make this information available in alternate formats upon request. Call the Family Resource Center at 206-987-2201. This handout has been reviewed by clinical staff at Seattle Children's. However, your child’s needs are unique. Before you act or rely upon this information, please talk with your child’s healthcare provider. © 2020 Seattle Children’s, Seattle, Washington. All rights reserved.