What equipment do you use?

In recent years, most homes have been able to provide better quality pureed food, due in part to the use of powerful food processors, like the Robot-Coupe Blixer. This brand of food processor is used in many LTC kitchens. Dietary staff stated that the advantage of using this food processor was the ability to puree food to a smoother texture in less time. This may be due to the high RPM of the Blixer. While conventional food processors and blenders operate at speeds of up to 1750rpm, the Blixer operates at speeds as high as 3450rpm.

To learn more about Robot-Coupe Blixers, visit www.robotcoupeusa.com/products.

Did you know?

At the present time, there are no guidelines for standardized texture modified foods (TMFs) in Canada. The lack of common language can lead to inconsistencies in preparation and outcomes. Qualitative descriptors have been developed for TMFs in other countries. These guidelines provide examples of acceptable & avoidable food items to puree. You can access these guidelines by following the links below.

<table>
<thead>
<tr>
<th>Country</th>
<th>Organization</th>
<th>National TMF Guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>The British Dietetic Association</td>
<td>Dysphagia Diet Food Texture Descriptors <a href="http://www.bda.uk.com/publications/statements">www.bda.uk.com/publications/statements</a></td>
</tr>
<tr>
<td>USA</td>
<td>American Dietetics Association</td>
<td>National Dysphagia Diet <a href="http://www.asha.org/SLP/clinical/dysphagia/Dysphagia-Diets">www.asha.org/SLP/clinical/dysphagia/Dysphagia-Diets</a></td>
</tr>
</tbody>
</table>

Qualitative descriptors for texture modified food from various countries

Bringing the benefits of Ontario agri-foods to long term care

Nila Ilhamto, a Master’s student, and Dr. Lisa Duizer from the Food Science Department at the University of Guelph have been working on designing pureed foods for older adults with dysphagia. Their goal was to develop foods that have acceptable sensory properties and are made from local foods.

Funding from the Canadian Agricultural Adaptation Program was provided to Schlegel-UW Research Institute for Aging (RIA) for completion of this work. Contributions from the Turkey Farmers of Ontario (www.ont-turkey.on.ca) and the Ontario Fruit and Vegetable Growers Association (www.ofvga.org) gave the researchers the opportunity to work with Ontario grown turkey, carrots and squash for recipe development.

The first stage of the research involved investigating preparation methods currently being used in the long term care (LTC) setting. Interviews were conducted with dietary staff (nutrition managers and cooks) from various LTC homes. The Ontario Society of Nutrition Management (OSNM) helped in the recruitment of participants for this stage of the work by circulating an announcement about the research. The team is grateful to OSNM and all of the participants for their help.

The next step was to formulate pureed foods for preparation in-house. These formulations were then tested using a trained sensory panel to determine the sensory profile of the developed foods. Acceptability testing was also conducted using individuals with dysphagia currently living in LTC homes.
Did you have the right thickener?

Choosing the right thickener is important. Modified corn starch is most commonly used in LTC homes, however, many cooks and nutrition managers want more variety in thickener options. Instead of using corn starch, cooks have explored a number of different types of thickeners. These include flax flour, bread, crackers, potatoes, gravy and even the pastry shell of chicken pot pie.

If properly selected, thickeners can not only help with improving the texture of a food but could also enhance its nutrient density. Refer to the table for a discussion of the pros and cons of some thickeners used in research studies.

List of thickeners that may be used to improve texture and nutrition in pureed food

<table>
<thead>
<tr>
<th></th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modified corn starch</td>
<td>Nutrition: Source of carbohydrates. Thickening ability: Excellent. Sensory: At 1.6% (w/w) addition, makes pureed carrots shinier &amp; smoother in appearance and results in a slippery but more firm bolus that is easier to swallow. Other: Easy to source.</td>
<td>Aside from basic carbohydrates (sugars), not a major source of macro or micronutrients. Contain milk, egg &amp; wheat products; not recommended for those with allergenicity to these ingredients.</td>
</tr>
<tr>
<td>Skim milk powder</td>
<td>Nutrition: Great source of protein, calcium and vitamin D. Thickening ability: Good. Sensory: At 1.6% (w/w) addition, no changes in colour or flavour.</td>
<td>Not recommended for those with lactose intolerance. May be more expensive. If excess amounts are added, may result in pureed food being more bitter or colour dullness/reduced vibrancy.</td>
</tr>
<tr>
<td>Infant-based rice cereal</td>
<td>Nutrition: Great source of iron, calcium, B-vitamins, moderate source of folate, protein and fat. Thickening ability: Good. Sensory: At 1.6% (w/w) addition, no changes in colour or flavour. Others: Low allergen profile, cost-effective; easy to source.</td>
<td>If excess amounts are added, may result in flavour changes or colour dullness/reduced vibrancy.</td>
</tr>
<tr>
<td>Peahull fibre</td>
<td>Nutrition: Great source of dietary fibre, protein and micronutrients. Thickening ability: Good. Sensory: At 1.6% (w/w) addition, no changes in colour or flavour. Other: 1–3g/serving to 3–4 foods per day can improve bowel function.</td>
<td>Any functional food ingredient that may act as a bulking agent should be used in moderation. Please consult your dietitian. May impart gritty mouthfeel. Not as readily available.</td>
</tr>
<tr>
<td>Flax flour*</td>
<td>Nutrition: Great source of dietary fibre, protein and fat; great source of ALA, precursors of beneficial omega-3s (EPA &amp; DHA). Thickening ability: Good. Sensory: Have not yet been conducted in pureed food but tend to have nutty flavour. Other: Gluten-free; may improve bowel function.</td>
<td>Any functional food ingredient that may act as a bulking agent should be used in moderation. Please consult your dietitian. May impart gritty mouthfeel.</td>
</tr>
</tbody>
</table>

*No publications exist to study the addition of flax flour to pureed foods. However, this flour has been used by cooks in the preparation of pureed food.

**Did you know?**

Older adults show common nutritional deficiencies such as protein, carbohydrate, fat, vitamin B12, vitamin D, folate, calcium and iron. These deficiencies may be exacerbated for residents on a pureed diet.

Fibre is of particular concern. Since grains/seeds are restricted in pureed diets and stringy, high fibre vegetables are hard to process, residents on a pureed diet may not be getting enough fibre in their diet.

Adequate intakes of fiber in adults age 51+ is 21 grams/day for females and 30 grams/day for males but residents in LTC (on normal and TMF diets) are getting only about ½ of the daily requirement.

Using a thickener such as flax flour or pea hull fibre may help increase fiber intake.
**Simple pureed carrots**

**Serving size: 5**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh, steamed Ontario carrots</td>
<td>800 g</td>
</tr>
<tr>
<td>Salt</td>
<td>¼ tsp</td>
</tr>
<tr>
<td>Sugar</td>
<td>¼ tsp</td>
</tr>
<tr>
<td>Pepper</td>
<td>⅛ tsp</td>
</tr>
<tr>
<td>Thickener*</td>
<td>9 tsp</td>
</tr>
</tbody>
</table>

*Three different thickeners can be used in this recipe: modified corn starch, skim milk powder and rice cereal. For each thickener, 9 tsp was added to 800g of steamed carrots.

**Preparation**

1. Peel the outer skin of ~1 kg of raw carrots using peeler and cut into one inch pieces.
2. Place carrots in a pot with a strainer and steam for 30–45 minutes or until soft & tender (fork should pierce effortlessly into carrots).
3. Puree the steamed carrots with a Robot-coupe Blixer 3 for one minute and stir with the lid stirrer*.
4. Add measured seasonings and thickener and puree for another minute while stirring.

* Note: pureeing times may vary depending on food processor used. If lid stirrer is not available, increase the time to puree to 4 minutes.

**Garnishing Tips**

Since pureed food must be identifiable to be enjoyed by residents, garnishing may help. Try the following suggestions the next time you serve a pureed food item from the list below.

- Pureed bread: Jams
- Pureed hot dogs, burgers: Ketchup, mustard
- Pureed meat or pureed potatoes: Thick Gravy
- Pureed salad: Salad dressing (low fat)
- Pureed fish: Puree cream of celery soup (to replace tartar sauce)
- Banana bread pudding: Puree maraschino cherries

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**Roasted pureed turkey**

**Serving size: 4**

Pureed meats, especially lean/drier cuts of meats (chicken or turkey breast) are harder food items to puree because of the network of muscle fibers and connective tissue that need to be broken down. One problem with pureed meats is the oral perception of coarseness/grittiness. This coarse/gritty mouthfeel can be avoided by processing the meat for longer periods of time.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooked, boneless &amp; skinless Ontario turkey breast</td>
<td>210 g</td>
</tr>
<tr>
<td>Cooked, boneless &amp; skinless Ontario turkey thigh</td>
<td>140 g</td>
</tr>
<tr>
<td>Turkey or Chicken Bouillon</td>
<td>287mL</td>
</tr>
<tr>
<td>Poultry seasoning (thyme, sage, marjoram, oregano)</td>
<td>1.5 tsp</td>
</tr>
<tr>
<td>Salt</td>
<td>¼ tsp</td>
</tr>
<tr>
<td>Cumin</td>
<td>⅛ tsp</td>
</tr>
<tr>
<td>Pepper</td>
<td>⅓ tsp</td>
</tr>
<tr>
<td>Garlic</td>
<td>¼ tsp</td>
</tr>
</tbody>
</table>

If residents find this puree to be too gritty, puree food longer (while stirring) and add thicker sauces such as gravy, creamy sauces or creamy soups. This recipe is also described as being very flavourful. You may adjust seasonings accordingly, to adjust to residents’ liking. If residents find it overly-seasoned, reduce seasoning measurements by half.

**Preparation**

1. Chop turkey meat into 1 inch cubes.
2. Weigh all seasonings in small bowl and mix.
3. Put turkey pieces in an extra large ziploc bag, apply seasoning as evenly as possible and shake bag until seasonings are well mixed.
4. Roast turkey in a convection oven at 160°C/320°F for about 90 minutes. Ensure the internal temperature is at least 74°C/165°F.
5. Heat turkey or chicken bouillon in a medium-sized pan.
6. Using a Robot-Coupe Blixer 3, mince turkey dry in food processor for one minute, while constantly stirring.
7. Add chicken or turkey bouillon while stirring, for two minutes or until desired consistency is reached.
A-HA
AGRI-FOOD for Healthy Aging

The Agri-food for Healthy Aging (A-HA) initiative is a collaborative research group created through the efforts of the Schlegel-UW Research Institute for Aging (RIA), University of Guelph, University of Waterloo and MaRS Landing. By exploring linkages between agriculture, food, nutrition and human health, A-HA aims to realize innovative opportunities for Ontario’s agri-food and health sectors to improve health and wellbeing of older adults.

Stay connected with A-HA’s social media
To date, A-HA has over 60 blog postings, 900 tweets, 350 Twitter followers and 80 “likes” on the A-HA Facebook page. Here’s how you can stay connected:
- Follow us on Twitter (@foodhealthaging)
- Like us on Facebook (Agri-food for Healthy Aging fan page)
- Check out the A-HA blog (aha.the-ria.ca/blog)
- Visit our website (aha.the-ria.ca)

Standardizing texture outcomes

Although there are no Canadian standards for pureed foods, other countries have described what makes a pureed food safe to consume. The next time you are preparing a pureed food item, follow this checklist to ensure you have the proper texture.

- Forms a cohesive bolus.
- Holds its shape on a plate when scooped; does not bleed into other food items.
- Holds its shape on a spoon without running down the sides.
- Similar consistency to pudding.
- Can’t be poured.
- Is not sticky (like peanut butter).
- There is no liquid separation (only one consistency exists).
- Smooth, lump-free (may have a little bit of a grainy quality).
- Can be eaten with a fork because it does not drop through the prongs.
- Fork prongs make clear pattern on surface.
- It can be piped, layered or molded.

Note: This checklist has been compiled from the UK and Australian national standards.

Schlegel-University of Waterloo Research Institute for Aging (RIA)

A-HA represents one of nine research areas within the RIA, a not-for-profit organization that enhances care for older adults through research and training partnerships. The RIA focuses on practice-relevant research as a driving force behind innovation and quality care. Through partnerships with the University of Waterloo, University of Guelph, and Conestoga College, the RIA is building capacity for practice-relevant research in aging, retirement living and LTC. Research is then translated into practice through the development of evidence-based programs and training for widespread dissemination. Learn more at www.the-ria.ca.