

Puréed Foods: Texture Testing with the Slump Test¹

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What is a slump test?

The slump test is a method to assess the texture of foods (Bourne 2002). This test has traditionally been used to evaluate the quality of canned foods such as pumpkin pie filling, squash, creamed corn, and applesauce.

How is a slump test performed?

The slump test is quick, easy, and inexpensive to perform. To perform the test, a hollow cylinder, a laminated sheet of paper marked with concentric circles, and a flat surface are required (see Figure 1). The hollow cylinder is filled with the food to be tested. The cylinder is then lifted, and the food is allowed to "slump" for a designated time period (e.g., 30 seconds). For stiff foods such as pumpkin, the height of the food sample before and after it slumps can be measured and compared (see Figure 2). For thinner foods such as applesauce, the diameter of the slumped food (line spread) can be measured (see Figure 3).

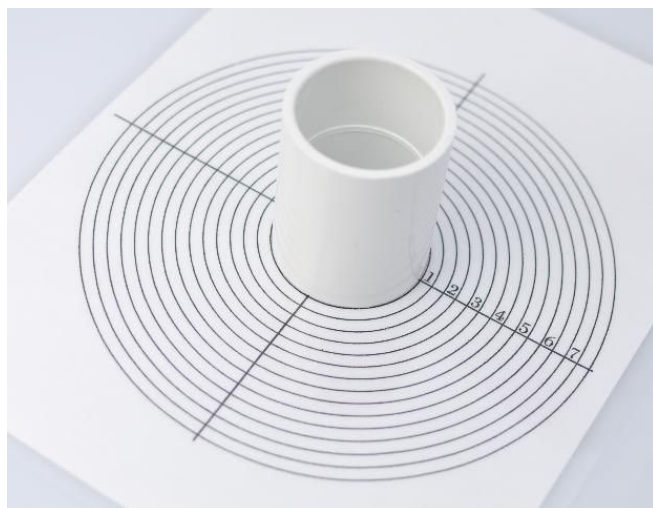


Figure 1. A hollow cylinder and a laminated sheet of paper marked with a diagram of concentric circles. (Note: a 1½" PVC coupling is shown, and costs less than \$1; a tomato paste tin with both ends removed is another inexpensive option.)

Credit: Lincoln Zotarelli, UF/IFAS



Figure 2. Canned pumpkin demonstrating little slumping (cylinder filled to 2" marking).

Credit: Lincoln Zotarelli, UF/IFAS

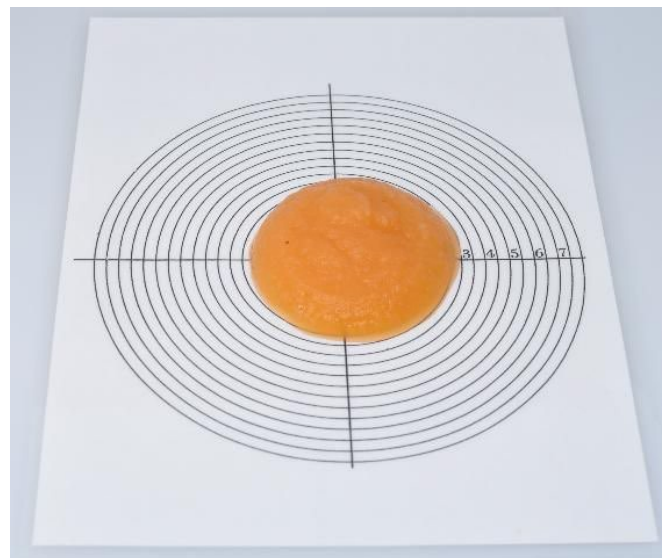


Figure 3. Mango applesauce demonstrating "line spread" (cylinder filled to 2" marking).

Credit: Lincoln Zotarelli, UF/IFAS

Can the slump test be used to evaluate puréed foods?

Although the slump test has been used to assess the texture of certain canned foods, it can also be used to evaluate the consistency of puréed foods (<https://ask.ifas.ufl.edu/publication/FS168>) prepared for individuals with swallowing problems, known as dysphagia. Puréed foods may exhibit a wide range of

consistencies. A puréed food prepared for people with swallowing problems should not be too thin or too thick.

Puréed foods that are thin and runny may be unappetizing and difficult to eat, especially for those requiring assistance with eating. Puréed foods that are too thin may pose a risk for those who have difficulty swallowing thin liquids.

Figure 4a shows a puréed tomato salsa that may be too thin to be acceptable. The addition of a small amount of tomato paste and puréed beans can be used to thicken a puréed salsa (Figure 4b). Note that the amount of thickener added will depend on both the volume of puréed food prepared and the target consistency desired.

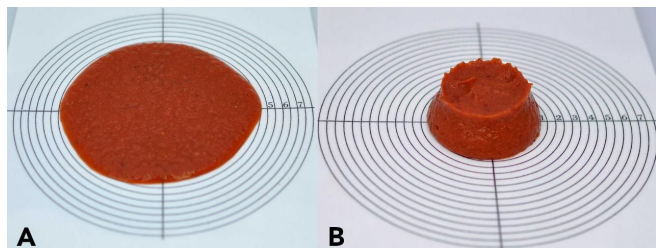


Figure 4. A) Puréed spicy salsa (not thickened); B) Puréed spicy salsa thickened to "pudding consistency" by the addition of puréed kidney beans and tomato paste (cylinder filled to 2" marking).

Credit: Lincoln Zotarelli, UF/IFAS

Mashed potatoes are an example of purée-textured food that can be so thick that no slumping occurs. Depending on the needs of the individual with a swallowing problem, some puréed foods that do not slump may be too thick for safe swallowing. Puréed meat is another example of a food that, depending on how it is prepared, may be too thick to slump (Figure 5). Gravy can be added to puréed meats that are too thick.

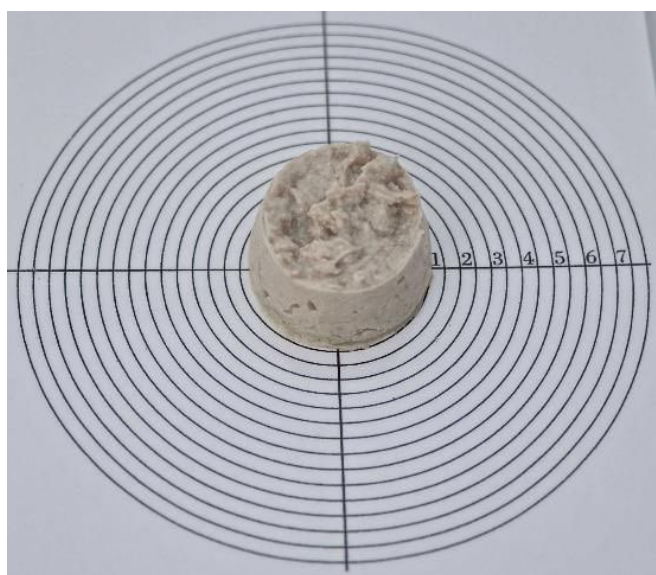


Figure 5. Puréed canned chicken with no slumping (cylinder filled to 2" marking).

Credit: Lincoln Zotarelli, UF/IFAS

The slump test can also be used to evaluate puréed foods for water separation. Water seeping from the puréed food may decrease acceptability. In addition, some people with swallowing problems have trouble safely swallowing foods with water separation, as these foods have both a liquid and a solid phase. Puréed foods are most acceptable and safest to swallow when they do not exhibit water separation. Some puréed vegetables, due to their high water content, exhibit water separation (Figure 6a). The addition of a thickener, such as a small amount of puréed canned beans, can reduce water separation (Figure 6b).

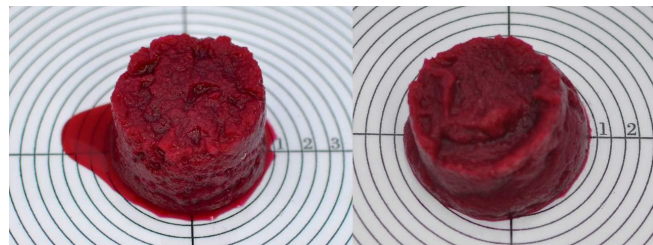


Figure 6. A) Puréed canned beets with water separation; B) Puréed canned beets with the addition of a small amount of puréed kidney beans and showing no water separation (cylinder filled to 2" marking).

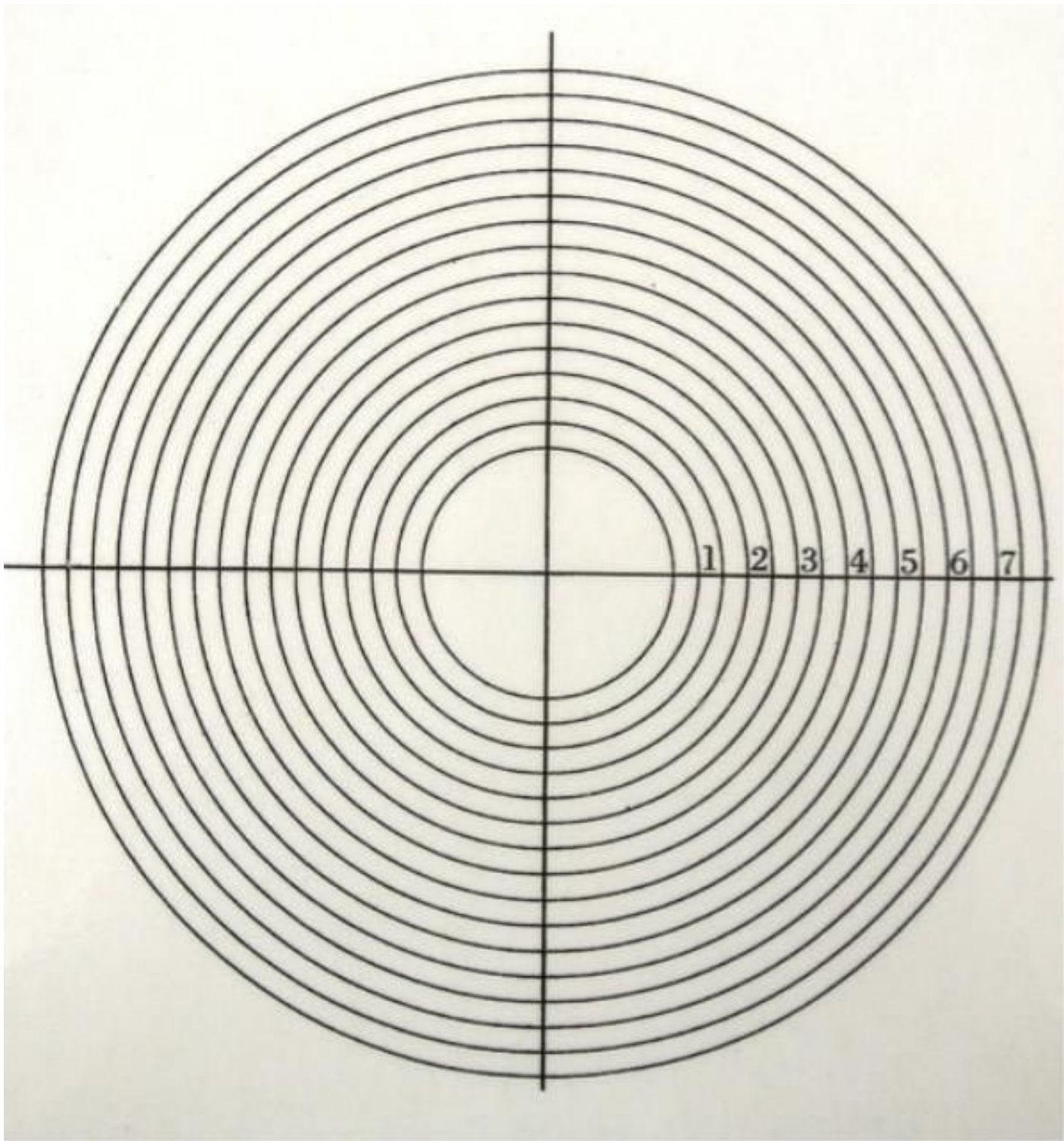
Credit: Lincoln Zotarelli, UF/IFAS

The slump test is a quick and easy method for evaluating the texture of puréed foods, particularly large batches. Many puréed foods become thinner when heated, so if this test is used as a quality control method for puréed food production, foods need to be tested at a consistent temperature, such as room temperature, refrigerator temperature, or serving temperature. When preparing small amounts of puréed foods, such as 1 to 2 servings, the "spoon test" may be the preferred method for evaluating consistency. See

<https://ask.ifas.ufl.edu/publication/FS204>.

How much should a puréed food slump?

No standards have been established for the use of the slump test in evaluating puréed foods intended for individuals with dysphagia. As the needs of individuals with swallowing disorders vary, it is important to consult with health professionals trained in dysphagia management to assist with the setting of texture goals.



Reference

Bourne, MC. 2002. *Food Texture and Viscosity: Concept and Measurement*. Second Edition. Academic Press, New York.

¹ This document is FSHN15-12, one of a series of the Department of Food Science and Human Nutrition, UF/IFAS Extension. Original publication date December 2015. Revised July 2022 and December 2025. Visit the Ask IFAS website at <https://ask.ifas.ufl.edu/> for the currently supported version of this publication.

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