Texture-modified foods for people with dysphagia

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A study by the UPV/EHU-University of the Basque Country is calling for an effort to bring various thickeners into line with standard guidelines, which would offer increased clinical safeguards.

Eight percent of the population suffer dysphagia or difficulty in swallowing food, and this could rise to 80 percent among the elderly or in cases of neurodegenerative diseases. The University of the Basque Country's Texture Analysis Laboratory (LaTEX) has published a paper in the *Food Hydrocolloids* journal pointing to the poor standardization of thickened foods.

Led by Prof Olaia Martínez, the UPV/EHU's Texture Analysis Laboratory (LaTEX) has spent the last 10 years developing its research projects in the field of diet adaptation for the group of people who suffer from dysphagia. The prestigious Food Hydrocolloids journal, currently rated sixth in international importance in food science and technology, has just published a piece of research entitled "Sensory perception and flow properties of dysphagia thickening formulas with different composition."

Difficulty in swallowing food is known as dysphagia and is a hugely significant health problem that affects a high percentage of the population (8 percent), which is even higher among the elderly and in the cases of neurodegenerative diseases (30-80 percent). This circumstance is linked to malnutrition, aggravating pathological situations, and may lead to the death of the person affected either through choking or as a

result of respiratory complications.

The paper published describes a study in which a group of volunteers from Vitoria-Gasteiz (Basque Country) participated in a disinterested way. Through tasting sessions, they evaluated the swallowing properties of thickeners the composition of which included edible gums (xanthan, guar), and compared them with the traditional starched-based ones. "These are products that are routinely offered and used as if they were equivalents but which, however, behave very differently in the month, as shown by the study published," said Olaia Martinez. This fact has important implications in connection with the swallowing safety of people suffering from dysphagia. The work, which is in line with other previous pieces of work, reports on the considerable variability and significant gaps that still exist with respect to the standardization of thickened foods.

Firstly, the food for dysphagia requires a texture that is modified to the degree of swallowing difficulty displayed by each person. Recourse is made to crushing solid food until it is turned into a homogeneous purée and to thickening liquids. This is essential so that food is rendered safe for swallowing without causing asphyxia or leaving behind residues that may result in respiratory infections. Secondly, their nutrient content has to be high to prevent malnutrition. Lastly, they need to be pleasant to the senses so that the person affected can accept them as a routine component of his/her meals.

The tasting sessions made it possible to discriminate between changes in consistency that are narrower than those used in commercial products. The difficulty in perceiving these changes is greater in higher concentrations, such as in the pudding-like mixture. So "the instructions for preparing commercial thickeners need to be reviewed," warned the researchers. "The data on the various flow tests confirmed that the instructions on the product do not always correspond to standardized

categories. An effort needs to be made to bring the various types of thickeners in line with the standard guidelines. This would offer increased clinical safeguards and would make for more efficient management by preventing excessive use of the product."

Among other contributions, this research group at the UPV/EHU is working to develop a sensory protocol that will be objective and effective for analysing the degree of adaptation of texture-modified foods to the requirements of each person with dysphagia. "Far from the complex benchmark analytical techniques that are currently used in the scientific field, it would be possible with the right training for both relatives and personnel in the clinical and care sphere to use this sensory protocol to ensure swallowing safety," said the researcher.

Those at LaTEX want to draw the attention of the Administration about the need to consider this serious problem by devoting more resources to this line of research and by furthering multidisciplinary collaboration in this field among food technology specialists, chefs and cooks, nutritionists and health professionals, such as speech therapists and gastroenterologists. "We still have much to do in this field," she concluded.

More information: O. Martínez et al. Sensory perception and flow properties of dysphagia thickening formulas with different composition, *Food Hydrocolloids* (2018). DOI: 10.1016/j.foodhyd.2018.12.045

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