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Guest Editorial: Translational advancements in applications of pureed food

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Modified texture food, and specifically pureed food, are integrally involved in the management of nutritional intake in patients with oral-pharyngeal dysphagia. Pureed food is also commonly used to provide adequate nutrition for persons with chewing difficulties or any other challenge that affects the manipulation and preparation of solid foods prior to the swallow. The growing number of older adults, combined with increased survival of persons with head/neck cancer, stroke and dementia—all common reasons for dysphagia and oral preparation difficulties—highlight the increased need to better manage these problems with modified solid textures (1-3). Dysphagia specifically has the potential to result in significant negative outcomes including malnutrition, dehydration, aspiration pneumonia, impaired health and quality of life (3). Unfortunately, research to date suggests that inferior nutritional and sensory qualities of pureed food have the potential to contribute to these poor outcomes, as well. Specifically, pureed food is known to be poorer in calories, protein and micronutrients (3-5). Some technological advances have been attempted to improve the nutritional and sensory quality such as formed and shaped food and micronutrient enhancement (6-8). However these advances have yet to lead to changes in practice, potentially due to implementation challenges that cannot be readily absorbed into the small food budgets provided in many care environments (9).

In this special issue of the *Journal of Nutrition in Gerontology and Geriatrics* six original and novel articles further explore how pureed food can be improved upon so as to better meet the expectations of consumers and providers. Two qualitative studies explore the perceptions of consumers and care providers (10,11). These studies are the first of their kind, including diverse sites and participants—thus, yielding varied perspectives on pureed food from unique experiences within different production systems. Several suggestions to help

pureed food meet expectations that are feasible and practicable to implement within current care environments with staffing and budget limitations have been provided. For example, staff needs to be trained on how to handle and present the food in a consistent and respectful manner for consumers wherein modest changes in presentation can improve visual appeal without the expense of re-forming food (10).

Commercially prepared pureed food is a common alternative for many care environments, either as their sole source of this modified texture, or at minimum for key foods that are either difficult to puree or where in-house production to ensure a nutritionally sound product is challenging (9). The first study on commercially prepared food in this special issue compares and contrasts the nutritional, sensory, and textural qualities of vegetable, meat, and bread products (12). This analysis demonstrates the significant diversity on these attributes of popular commercial brands. Standardization of texture and nutritional quality at a minimum will help to improve commercial products. The second study compares the reactions of actual consumers and healthy older adults regarding a selection of these commercial products (13). Results confirm that perceptions of actual consumers are not equivalent to those of healthy older adults. Thus, to test and improve upon products, work with actual consumers is required.

Many care environments, and especially long-term care homes, produce most of their modified textures in-house (9). This may be due to philosophies of care and the desire to provide food consistent with that of typical consumers, or the financial limitations of outsourcing food production (9). The final two papers in this special issue are focused on improving in-house produced pureed food (14,15). In the first study, nutrition managers and cooks in long-term care homes were asked about processes for preparing pureed food (14). Key challenges were identified, including: difficulties with following the standardized recipes as well as governmental guidelines; lack of consistency in terminology, as well as resulting texture; and wanting to make improvements, especially in the visual appeal. Suggestions for making improvements and overcoming these challenges were also offered by cooks and nutrition managers. The final paper demonstrates how making simple, basic changes in recipes and preparation methods can improve the quality of a pureed meat and a pureed vegetable product (15). This analysis is the first of its kind to demonstrate that differences in nutritional and texture qualities can result from modest changes in recipes. Although only two products were tested, the strategies used to improve quality can be transferred to other recipes for in-house production.

This series of articles, all focused on improving pureed food, provides a platform to better support commercial and in-house production of this modified texture. Overarching results suggest that: a) current pureed food, whether produced in-house or commercially, does not meet expectations for sensory and nutritional quality, and b) pureed food can be improved upon, with respect to both nutritional and sensory appeal, with relatively modest changes. Feasible suggestions to upgrade pureed food are provided in each paper. Dedication and perseverance to improving the status quo with respect to pureed food is needed to make these advances. The value difference is noted by consumers who report improved quality of life (10) and by caregivers who feel good about the food they are providing (11, 14). From production to plating, advancements in pureed food can and need to be made.

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