



Food for seniors

Final report

Raija-Liisa Heiniö | Saara Pentikäinen | Elina Rusko
| Liisa Peura-Kapanen



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Raija-Liisa Heiniö, Saara Pentikäinen, Elina Rusko

VTT Technical Research Centre of Finland

Liisa Peura-Kapanen

National Consumer Research Centre



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VTT

PL 1000 (Tekniikantie 4 A, Espoo)

02044 VTT

Puh. 020 722 111, faksi 020 722 7001

VTT

PB 1000 (Teknikvägen 4 A, Esbo)

FI-02044 VTT

Tfn +358 20 722 111, telefax +358 20 722 7001

VTT Technical Research Centre of Finland

P.O. Box 1000 (Tekniikantie 4 A, Espoo)

FI-02044 VTT, Finland

Tel. +358 20 722 111, fax +358 20 722 7001

Preface

Food for Seniors project (Seniori-Sapuska) originates from the joint interest of research institutes and companies to develop foods and food packages for seniors. The three-year-project (2011–2014) was financially supported by Tekes – the Finnish Funding Agency for Innovation.

VTT Technical Research Centre of Finland (VTT) and National Consumer Research Centre (NCRC) were the research partners in the project. VTT was the coordinator of the project. Participating companies were Apetit Ruoka Oy, Atria Suomi Oy, HKScan Finland Oy (formerly HK Ruokatalo Oy), Saarioinen Oy, Starfood Finland Oy (formerly Finncatering Oy), Palmia, Espoo Catering, Stora Enso Oyj, Huhtamäki Foodservice Finland Oy and Taloustutkimus Oy. Tasks regarding industrial design were subcontracted to Muotoilun ja Median Palvelukeskus DF Oy. Kuopio Innovation participated to the steering group work as an expert member. International collaboration was conducted together with Wageningen University as a research exchange.

We thank the participating companies for the active contribution in the steering group. We also thank Espoo Catering for delivering raw materials for the model foods that were prepared for product development in sensory evaluation.

11.12.2014

Authors

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Abstract	

1. Introduction

Seniors are currently and especially in the future a very significant consumer group. 19.4% of the Finnish population were over 65 years old in the end of year the 2013. The proportion of seniors in the population is expected to increase up to 26% by 2030. Population is aging in the other OECD countries as well (Figure 1). This progression is especially strong in Japan where the proportion of seniors in the population is the greatest among OECD countries. 24% of the population in Japan were over 65 years old in 2012 while the average proportion of seniors was 15% in OECD countries.

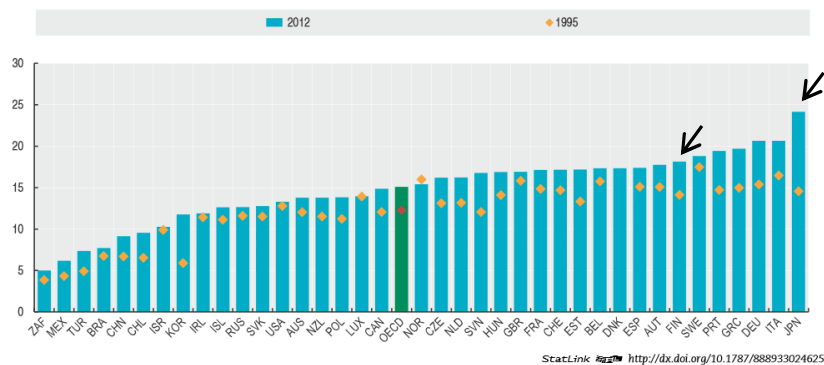


Figure 1 The proportion of people over 65 year old in OECD countries in 2012. The green bar represents the average of all the countries. The bars representing the elderly population in Finland and Japan are marked with arrows (OECD Factbook 2014: Elderly population by region).

There is a strong desire among seniors to live independently at home as long as possible. The possibility to decide about one's own eating is among the last things one would like to give up when getting older. It could be assumed that easy-to-use ready meals would be suitable products for elderly. However, ready meals are not appreciated by all seniors. They do not consider them to fulfil the requirements of a good meal. There is a need to bring to market ready meals that would meet the needs and desires of senior consumers both regarding the meal itself and its packaging.

Currently in Finland foods are not marketed directly to seniors; seniors are not willing to buy products that highlight the senior aspect. However, health and well-being aspects may be utilised in promotion (Business Insights 2011). Maintaining good health and well-being is very important to this consumer group. Seniors are a very heterogenic consumer group including a wide age range, health conditions and lifestyles. According to grouping by Business Insights (2011) seniors can be divided to seven segments (Figure 2).

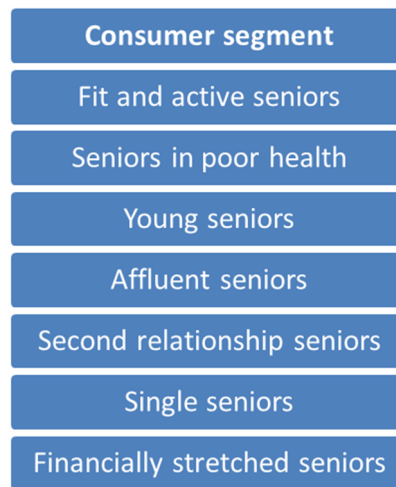


Figure 2 Senior consumer segments (Food Insights: Hot Trends in Food and Drinks Innovation).

In Japan, the markets have already responded to the growth of the senior consumer group. Japan Care Food Association and Japanese Food Companies have created common standards for food hardness/ smoothness which make it convenient for older people to choose a food with a suitable texture (Figure 3).

The sensory and nutritional quality of the food and easiness and clarity of the packaging are in a central role while developing meals for seniors (Winter Falk et al. 1996). The sensitivity to taste and smell as well as the mastication efficiency weakens along with aging (Kremer et al. 2007). Impaired sensory functioning is associated to poor appetite (de Jong et al. 1999). Thus, the weakening of senses can be compensated by enhancing the taste of foods (Schiffmann & Graham 2000) and by modifying the food texture (Hall & Wendin 2008).

The National Nutrition Council has given guidelines of diets for elderly persons in Finland (Valtion ravitsemusneuvottelukunta 2010). The guidelines follow mainly the recommendations that have been given to overall population in Nordic Countries (Nordic Council of Ministers 2004). The adequate intake of energy, protein and other nutrients (especially vitamin D), fibre and water are highlighted. The incidence of malnutrition is below 10% among senior citizens. However, the inci-

dence increases drastically in population over 80 years of age. The malnutrition in the elderly is associated to various disadvantages such as dementia, weakening in daily activities and stroke (Suominen 2007).

Regarding food packaging, the convenience of use (including easiness of opening the packaging and reading the information, tempting design, and suitable portion size) is in central role when designing packagings for seniors.

As discussed, seniors have special needs regarding food and packaging. However, currently there are no products available addressing these needs. *Food for seniors* project studied the views of the seniors regarding current ready meals and their packaging as well as their wishes for future ready meals and packaging. Concepts and prototypes for meals and packages designed for elderly were developed and evaluated. Based on this information food companies, catering companies and packaging companies are able to design suitable products for seniors.



Figure 3 In Japan foods have been classified into four categories according to the hardness of the texture. The same four texture categories are followed in foods that are served in care homes.

2. Goals

The goal of the project was to develop enjoyable foods and meals in convenient packages for older consumers to be used by catering and retail sectors.

Scientific goals were to produce deeper knowledge of the factors affecting the experience of enjoying the taste of food and meals by the older consumer, and to gain experiences on the applicability of the participatory research methods in developing concepts. The technical goal was to develop new food products, including both food and food packages, and food services to respond to the needs of older consumers. The societal goal was to improve the health and wellbeing of older consumers by improving the availability of enjoyable food products and portions in easy-to-use packages, and thus, via enjoyable eating occasions.

Various research methods such as method of empathy based stories, surveys, focus group discussions, sensory research and workshops were applied to reach the goals.

3. Main results

3.1 Development of meals for seniors

3.1.1 Seniors' opinions about a good meal and ready meals

The opinions, needs and expectations of future (55–64 years) and current seniors (65 years and older) towards foods, food packaging and catering services were studied by conducting **surveys**. Altogether 765 respondents from Finland and 457 respondents from the Netherlands (packaging related questions) participated in the internet survey. Additionally, **focus group** discussions were conducted and empathy based stories were collected to deepen the information received from the survey.

The results of the **survey** showed that there is willingness among both future and current seniors to cook their own food themselves. The majority of the respondents reported unwillingness to buy ready meals. However, 53% of the respondents reported to buy ready meals at least once a month. The use of ready meals was more common among men: 61% reported to use ready meals at least once a month. The superiority of home-cooked food, suspicion towards additives used in ready meals, and inferior taste of ready meals were the most frequently mentioned reasons for not using ready meals among those respondents that reported to use ready meals only very rarely. Other reasons included suspicion towards the ingredients used, urge to cook and the high price of ready meals.

The results of **focus group discussions** also showed that there exist seniors wanting to cook all the food by themselves. For these seniors buying the ingredients and preparing food from the first beginning are the highlights of the day. In addition to enjoyment, cooking was considered as one way to maintain good daily functioning. There was also identified a group of seniors who use ready meals in some occasions when cooking is difficult for some reason. Part of seniors used ready meals quite often / regularly. For example, men who live alone or are widowers gladly use ready meals.

Negative attitudes towards ready meals became evident via **empathy based stories**. The majority of the respondents considered home-cooked meal as a good meal and ready meal as a bad meal. Good taste and smell, convenient texture and appealing appearance were characteristics for a good meal. A good meal

should also contain fresh ingredients and other accompaniments as well as some vegetables and a dessert. Lack of taste, too high saltiness and scrappy texture characterised a bad meal. The ready meals do not meet the conception of a good meal.

Taste and unhealthiness were seen as obstacles to using ready meals in focus group discussions. Ready meals were described as tasteless and on the other hand as too salty or too similar to each other. Unclear origin of ingredients, the used preservatives and additives, high fat content and long shelf-life are among things that raise suspicion about the unhealthiness of ready meals among seniors. The texture of ready meals was often described as too mushed and the appearance as unappealing.

Expectations

The **survey** respondents were especially unanimous about that ready meals should contain a considerable amount of the main ingredient (such as salmon in salmon soup). 40% of the respondents, especially those who use ready meals only occasionally reported willingness to fine-tune the ready meal by themselves. Those who are regular users of ready meals wish that ready meal is easy to prepare for example in oven.

Both among future seniors and current seniors the taste and healthiness, clear packaging labels, deliciousness and the “home-cooked taste” were the most important aspects when choosing ready meals. Familiar and recognisable taste is expected. Ready meals should also be healthy and they should contain an adequate amount of protein and fibre. The participants of **focus groups** were not excited about foods targeted to seniors. However, products with increased amount of protein and vitamin D were considered as good options by some participants. The idea of senior compartments in foods stores was disproved.

The impressions about the price of ready meals are contradictory. Some seniors consider ready meals and meals served by catering services as expensive. On the other hand the low price of ready meals is considered as a reason to use ready meals. In these cases the low food quality might be accepted.

The expectations towards catering services were about enhancement of quality (for example by increasing the amount of the main ingredient). The temperature of the meals should also be high enough through the whole supply chain. The appearance and colourfulness are considered as important aspects when trying to increase the appeal of meals.

The possibility to choose the food eaten is important for seniors. Therefore the seniors consider the possibility to choose food should be enhanced in care homes and catering services. Familiar and traditional foods should be served. In care homes spices and sauces could be used to enhance the taste of the foods.

3.1.2 Establishment of trained senior panels

There has existed a trained sensory panel at VTT since 1970's. However, in this study there was an interest to study the sensory properties of developed foods using the target age group. Thus, two senior panels were trained for sensory evaluation. By far these are the **only trained senior sensory panels in the world**.

Candidates over 65 years old were recruited to the Senior panel (Figure 4) and candidates aged 55–64 years to the Future Senior panel. The basic training of the panel candidates included information about general protocols and procedures in sensory evaluation, function of senses and about the methods used in sensory evaluation. All participants took part in basic taste and smell testing, and the participants that passed the tests were accepted to the panel. The final number of participants in the Senior panel was 19 and in the Future Senior panel 17. The panels were trained first to use napping method, but after finding it too challenging for the assessors, they were trained to use the descriptive method (sensory profiling).

The validity of the results of the senior panels were compared in several stages during the project. There were only minor differences between the assessments of the two senior panels and VTT's trained sensory panel. Only slight differences in texture perception were found between +65 years old and younger.



Figure 4 Members of the Senior panel trained in the project by VTT.

3.1.3 Optimisation of sensory properties of senior meals

Traditional Finnish meals – salmon soup and beef stroganoff meal – were chosen as model foods for the study. The trained sensory panels – Senior panel, Future Senior panel and VTT's trained panel – evaluated the sensory characteristics of the model meals by profiling. Special attention was paid on flavour and texture

properties. In addition, a senior consumer panel was used to assess the overall liking and flavour and texture of the model meals. The results were analysed by statistical multivariate analysis, preference mapping, to find out the most salient sensory attributes affecting consumer liking.

Sensory profiling by the trained panels

The recipes and food components of both model foods – salmon soup and beef stroganoff meal - were modified regarding their flavour and texture properties by using different taste ingredients and cooking methods (Figure 5). The salt content, fat content and quality, the amount of cream and spices were modified aiming to enhance or produce differences in flavour. Steam cooking at different times and temperatures, different bite sizes, sous-vide cooking and enzymatic treatment of the food components were used to obtain different textures. Sensory profiles of the meals were created by the Senior panel, Future Senior panel and VTT's trained panel. The results of the panels were very equivalent. However, only significant difference between the panels was that **the Senior panel was slightly more sensitive in evaluating the hardness** of the food components.

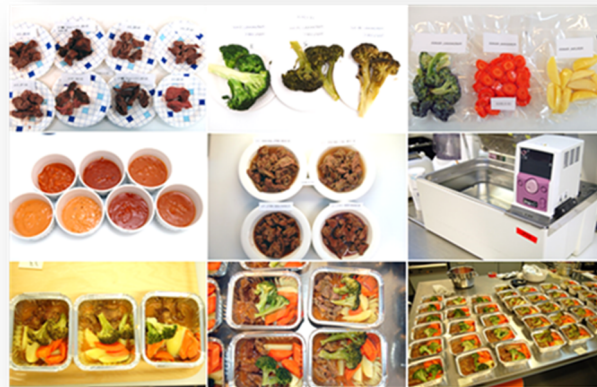


Figure 5 The flavour and texture properties of the model meals (here beef stroganoff meal) were modified using different taste ingredients and cooking methods.

Consumer test and preference mapping

Preference mapping is used to statistically combine the results of descriptive profiling and consumer liking test. By preference mapping the sensory characteristics of the model meals were optimised to meet the consumer preferences. The pleasantness and some perceived attributes of the taste of the salmon soup (n=68) and the texture of the beef stroganoff meal (n=73) were studied by senior consumers at service homes (Figure 6). All participants of the consumer study were over 65 years old, the oldest participant being over 90 years old.



Figure 6 Model meals used in preference mapping.

The senior consumers preferred the salty soup. However, the salt content could be compensated in some extent by increasing spices. **The textures between soft and semi-hard texture were the most preferred** by older consumers, indicating that some but not too big textural challenges are appreciated.

3.1.4 Optimisation of nutritional properties of senior meals

The development of meal concepts targeted at meal prototypes that would meet the needs of senior consumers both regarding sensory quality and nutritional quality. The aim in nutritional optimisation was to develop further the model meal consisting of meat sauce, mashed potatoes and vegetables without altering or at least impairing its sensory characteristics. The nutrient content of 32 commercially available meat-containing meals was screened to find the main obstacles regarding their nutritional quality. The data was collected from the printed information given on the meal packages. The low amount of protein and the poor quality of fat were found to be problematic in many meals. In addition, the fibre content per meal was low. Based on this information, the specified goals of the nutritional development were set to increase the amount of fibre and protein in the meal, and to increase the amount of non-saturated fat in it. The development process consisted of pretests, where various fortifying ingredients were screened and selected for further studies, and of sensory evaluation of enriched components and finally whole meals. The ingredients that were tested were pea fibre, two oat fibres, potato fibre and sugar beet fibre, and wheat protein, whey protein and pea protein, and vegetable margarine and sunflower oil.

The fortifying ingredients were added either to mashed potato or to sauce. Pea fibre in mashed potato, and oat fibre and wheat protein in sauce were most suitable components for enriching the beef stroganoff meal without deteriorating its sensory quality. By using them the nutritional quality of the beef stroganoff meal was successfully improved. **Especially the fibre content was significantly enhanced up to 170%** by the concentrates (1.1 g to 1.9 g/100g). Protein content could not be remarkably enhanced with protein concentrates (6 g to 6.4 g/100 g) because the protein content of the meal was already originally rather high. In addi-

tion, **the quality of fat was improved**: the amount of poly-unsaturated fat was successfully increased in the meal (from 0.6 g to 1.9 g/100 g).

The fortification did not deteriorate the sensory characteristics of the meal. Some changes in sensory profile were observed regarding the mouth feel. Spicy sauce is a good basis for fibre and protein additions, whereas mashed potato is more sensitive for the additions.

3.2 Development of packaging for senior meals

3.2.1 Seniors' opinion about a good food packaging

The needs of senior consumers for meals and packages were studied in the internet **survey** (in Finland and in the Netherlands) and in **focus group** discussions. Traditional aluminium packaging with a carton lid was the most often mentioned example of a good packaging. This kind of packaging is easy to open and close, and these were considered to be the most important criteria for a good food packaging. In addition, easiness to handle and portion out the content was among most often mentioned criteria for a good packaging. The results of Finnish and Dutch respondents were quite similar. However, while the usability of packages was the most important attribute for Finnish respondents recycling was considered as most important attribute by Dutch respondents. The easiness of opening the packaging, the possibility to re-seal and easiness of use were mentioned as criteria for good packaging in **focus group** discussions as well. Other attributes that were considered as important in food packaging by **survey** respondents were clear and easy-to-read markings, the easiness of recycling, protection to the product, the congruence between the given image and reality, the possibility to see the food and the easiness of opening the packaging.

In addition to the above mentioned the participants of the **focus group** discussions considered information about special diets important and the origin of the ingredients was of interest too. The participants noted that the colouring should be designed so that the text is easy to distinguish from the background and that a good packaging does not break easily during transportation or leak.

The most frequent reason for considering a packaging poor by the **survey** respondents was the difficulty to open the packaging. Also recycling issues, difficulties to re-seal the packaging and breaking of the packaging during transportation were mentioned. The participants in **focus groups** described difficulty in opening food packaging. The use of instruments is often necessary when opening by hand is not possible. The weakening of hand compression force, the tremble of the hands and the weakening of eyesight make it difficult to open packaging. Problems occur especially when the tear strip is too small.

The expectations of the current seniors and the future seniors for ready meal packaging were quite similar. The willingness to try new foods was slightly higher among the respondents less than 65 years old compared to those over 65 years old. Women paid more attention to packaging features than men.

3.2.2 Packaging concepts and prototypes

Packaging concepts were developed in consecutive phases described in Figure 7. Literature and market survey as well as consumer studies were conducted in the first phase. Two **workshops** were arranged to develop the concepts. The most important qualities of senior food packages were listed and concepts were ideated in the first workshop. Concept ideation was continued and the concepts to be executed were chosen in the second workshop. “Meal container with several compartments for different food components”, and two sets of small containers for different foods (“tray model” and “choose-yourself model”) were chosen as concepts for further development in focus group discussions.

The participants evaluated the concepts first independently and further in the **focus group** discussion. The “meal container with several compartments for different food components” and “choose-yourself model” were the most preferred concepts of the three suggestions. The participants of focus groups evaluated easiness of reading the information on the package being the most important. Font size, colours and the arrangement of text and figures were emphasised. Especially transparent packages were desired to become more common.

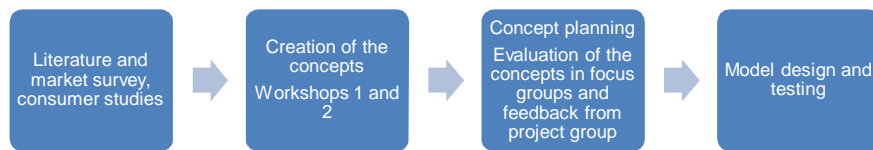


Figure 7 The phases of packaging concept development in the project.

“Multi-compartment container” and “tower packaging” (packaging with many containers packed upon the other) were chosen as case packaging for prototypes based on the focus discussion results (Figure 8). “Muotoilun ja Median palvelukeskus” was responsible for graphic design of the prototype packages.

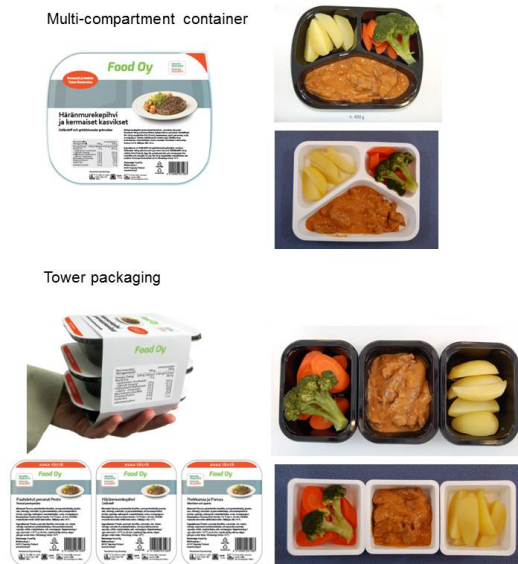


Figure 8 Packaging prototypes: Multi-compartment container and Tower packaging.

The properties of the prototypes were evaluated by senior consumers **in focus** group discussions. Both “Multi-compartment container” and “Tower packaging” were evaluated to outdo current ready meal packages in various properties. Placing the food components in separate compartments was appreciated, as well as the new opening mechanism (possible to have a good grip). The visual appearance and clear markings, the big font of the best before date in the corner, the picture of a meal, and a window to see the food were also appreciated. The usage properties among other properties were evaluated to be better in “Multi-compartment container” compared to “Tower packaging”. The “Multi-compartment container” was considered to be easy to handle, to produce less waste and to have a big window to see the food. The possibility to choose the food components more freely was appreciated in “Tower packaging”.

Although it is possible to eat the meal directly from the packaging, the seniors prefer eating it from a plate. There was a concern about the amount of waste to be produced and the disposal of the packaging. All the seniors were not familiar with the symbols related to recycling. However, the possibility to recycle the product is important for seniors: the product should be recyclable and the markings concerning it should be clear. The black and white colour options were both liked: part of the seniors considered white packaging more beautiful but in the other hand, the black packaging is quite familiar.

Packaging has an important role for the acceptability and use of ready meals. The visibility of the content, picture of the meal and certain markings could be further improved. More variation for the packaging sizes was hoped for. The packaging should not separate the elderly consumers from the other citizens. On the

other hand, the increased demand for nutrients in elderly (e.g. protein) was wished to be neutrally taken into account.

3.2.3 Evaluation of the packaging properties

The usability of packagings was studied by using “Easy to open” and “Easy to read” tests developed at VTT. The Senior panel was trained to use of these descriptive methods. VTT’s trained sensory panel was used as a control. Eight commercially available food packagings with varying materials and opening mechanisms were studied by the sensory panels.

Easy to open test

The Senior panel found significant differences between the packagings in all evaluated properties. The most challenging attributes were **the visibility of the opening mechanism, getting and keeping the grip from the opening mechanism, the need for strength, and non-breaking feature of the opening mechanism.** The familiarity of the packagings may slightly affect the results.

Easy to read test

The senior panel found significant differences between the packages in all the rated properties of the easy to read test. The most challenging properties **were the font size and type and also the visibility of the important information and the easiness to differentiate the information in various languages.**

4. Conclusions

Ready meals are convenient for seniors as well as other consumer groups. However, when asked from senior consumers, they do not appreciate ready meals but rather cook the food themselves. Many seniors consider that ready meals do not fulfil the requirements they have for a good meal.

Sensory evaluation was used to optimise the perceived quality of meals evaluated by seniors in the Food for Seniors project. Senior panels (Senior panel and Future Senior panel) were recruited for sensory evaluation to obtain results from a target group. By far, these are the only senior panels in the world. The validity of the results of the senior panels was followed through the project comparing the results to the results of VTT's trained panel. The results of the panels were very consistent. However, seniors were more sensitive to distinguish textural properties of foods: the hard texture was evaluated harder by seniors than the younger panellists.

Senior consumers preferred a texture of food being in hardness between soft and semi-hard meaning that there has to be some challenge in the texture but not too much. Seniors preferred salty food. However, they evaluated spicy food as being more salty than less spicy salty food. This indicates that the salt content of food could be to some extent compensated by using spices. Sous-vide cooking (85 °C), the use of spices to compensate salt content and the use of fat/oil were found to be efficient means to optimise the sensory characteristics of meals aiming to meet the preferences of seniors.

The amount of food eaten often diminishes along aging. However, there should be enough energy, protein, fibre and vitamins (especially vitamin D) even in small food portion. The addition of selected concentrates is among means to enrich the nutrient content of a meal without increasing the portion size. Fortifying meals by fibre and protein concentrates and fats was studied in this project, and the impact of the enrichments on sensory properties was evaluated. Of the tested concentrates pea fibre and oat fibre together with wheat protein were suitable for enrichment. Especially the fibre content of the meal was significantly enhanced (up to 170%) by using the concentrates. A spicy sauce was a good basis for the enrichments.

Seniors consider a good food packaging to be environmentally friendly and easy to open without tools. The optimal portion size, clarity of the product infor-

mation and safety should be taken into account. The most important attributes for Finnish and Dutch consumers were clear markings which are easy to read, easiness of recycling, protection of the product, congruence between the given image and the actual content and easiness of opening. The most challenging properties in Easy to open test were the visibility of opening mechanism, the possibility to get and keep grip of the opening mechanism, the need for strength and the breaking of the opening mechanism. The most challenging properties in Easy to read test were the font size and type and also the visibility of the important information and the easiness to differentiate the information in various languages. To conclude, there are various properties in current packaging that could be enhanced to meet better the needs of seniors. Special attention should be paid for the convenience of use: easiness of opening the packaging and portioning out the food, the possibility to re-seal the packaging, the clarity of the information, easiness of recognize the product, tempting packaging design and various portion sizes for different needs.

Seniors consider catering services to have many good qualities, such as freedom to choose from various options, supply of traditional meals and freshness of food. Negative qualities associated with catering services are leaking containers, unappealing appearance of meal, and cooling of the meal during transportation. Catering services could offer internet services for the meal delivery. Also using of companies delivering food home would be interesting for senior consumers.

Overall satisfaction, refreshment and good quality of life should be targeted not forgetting the optimal nutritional properties of food for seniors. It's also important to notice that the current seniors are used to cook their food themselves, or they urge at least to "fine-tune" the commercial food according to their preferences. Also the traditions and other cultural factors have a strong role in their eating habits. The senior foods and packages should be designed taking account the needs of this consumer group. However, marketing of these products should be tactful: the products should be easily found by seniors from a food store but they should not stress too obviously the age aspect.

It should be noted that the preferences of the senior generation change in the course of time. Thus, the development of suitable meals for seniors should be a continuous process.

5. Dissemination

International scientific conferences

- Heiniö, R-L. & Pentikäinen, S. 2014. "A trained senior panel – Implication in developing nutritious food for seniors" (9/2014: EuroSense 2014) (oral presentation)
- Rusko, E., Maaskant, A., Kremer, S., Ristiluoma, R., Arvola, A. & Heiniö, R-L. 2014. "Preferences of ready meal packages among senior consumers in Finland and in the Netherlands" (9/2014: EuroSense 2014) (poster presentation)
- Maaskant, A., Rusko, E., Heiniö, R-L., Sallinen, J. & Kremer, S. "Food packages for senior consumers – Preferences on information and labelling" (6/2013: 26th IAPRI Symposium on Packaging) Proceedings of 26th IAPRI Symposium on Packaging 2013. VTT, IAPRI (2013), 260–267 (oral presentation)
- Heiniö, R-L. 2013. "Tailored food for seniors" (5/2013: XV Nordic Workshop in Sensory Science) (oral presentation)
- Tuorila, H. 2013. "Method of empathy based stories" (5/2013: XV Nordic Workshop in Sensory Science) (oral presentation)

Seminar presentations

- Rusko, E. & Heiniö, R-L. 2014: "Pakkaus palvelemissa tulevaisuuden kuluttajia – ikääntyviä" (Pack Print Forum -seminar 6/2014) (oral presentation)
- Maaskant, A., Rusko, E., Sallinen, J., Heiniö, R-L. & Kremer, S. 2013: "Food Packages for Senior Consumers – Preferences on Information and Labelling (European Sensory Network – Elderly Workshop 29.10.2013) (oral presentation)
- Heiniö, R-L. 2013: "Trained senior panel and its implication for developing food for seniors" (European Sensory Network – Elderly Workshop 29.10.2013) (poster)

- Heiniö, R-L. 2012: "Räätälöityä ruokaa ikäihmisille – Seniori-Sapuska -hankkeen esittely" (Elintarviketieteiden Seniorit elintarvikkeiden kuluttajina seminar 1.2.2012) (oral presentation)
- Rusko, E. & Sallinen, J. 2011: "Sapuskaa senioreille" (Aistikas pakkaus seminar 30.11.2011) (oral presentation)

Scientific publications

- Maaskant, A., Rusko, E., Heiniö, R-L., Sallinen, J. & Kremer, S. "Food packages for senior consumers – Preferences on information and labelling". Proceedings of 26th IAPRI Symposium on Packaging 2013. VTT, IAPRI (2013), 260–267

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Title	Food for seniors Final report
Author(s)	Raija-Liisa Heiniö, Saara Pentikäinen, Elina Rusko & Liisa Peura-Kapanen
Abstract	<p>Food for Seniors (2011–2014) is a project, coordinated by VTT Technical Research Centre of Finland, National Consumer Research Centre being the other research partner. The industrial platform of the project consisted of 10 enterprises: four food companies, three catering companies, two packaging companies and one market research company participated. The overall aim of the project was to develop enjoyable meals in convenient packages for senior consumers. Background information for the research was gathered in literature and market surveys, consumer research, and workshops.</p> <p>Based on surveys among senior consumers it became evident that the current ready meals are generally not appreciated by seniors because they are not considered to fulfil the requirements for a good meal. There were seen deficiencies both in foods and packages. There seem to be also a strong desire among many seniors to prepare their food by themselves.</p> <p>There was an interest to study the sensory characteristics of developed meals using the target age group. Thus, senior panels were trained for sensory evaluation. To the best of our belief, these are the only trained senior sensory panels in the world. Model meals and packages were developed in the project. The sensory characteristics of the model meals were optimised by descriptive method by the trained senior sensory panel. The results showed that the trained senior panel is more sensitive to food texture than younger panellists, and thus evaluate hard texture harder than younger. Saltiness is important for taste perception for seniors. However, the amount of salt could be remarkably lowered by adding spices without diminishing the salty perception.</p> <p>Due to rather small dish portions, the meals intended for seniors should be fortified. In the enriched model meals the fibre content was successfully increased (up to 170%) and the quality of fat improved. The protein content of the model meal was also increased in some extent.</p> <p>Regarding the package concepts, seniors considered food packages with separate compartments most convenient. The possibility to see the food through a window on the package, clear markings, and easiness to open the package were considered as important features. In addition, need for improvements in the usability of packages – easiness to open and easiness to read the information – were found in several commercial packages.</p>
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