

A photograph of a glass mug filled with coffee on a wooden table. In the foreground, an elderly person's hand is visible, resting on the table. The background is slightly blurred, showing a red plate. The overall scene is warm and intimate, suggesting a moment of rest or a meal.

Powerfood for seniors

Elderly people living independently often run the risk of becoming undernourished. Wageningen UR is researching how that can be prevented using products and meals enriched with extra protein. But how do you market such products? Most elderly people do not feel old and have no idea of their nutritional status.

TEXT ASTRID SMIT INFOGRAPHIC GLOEDCOMMUNICATIE PHOTOGRAPHY HOLLANDSE HOOGTE



Mrs. Augustin (80) from Haarlem has been living alone since her husband died two years ago. She is doing her best to carry on with her life. She does her exercises every morning, she cycles, she walks, she sings in a choir, she goes to watch her granddaughter play hockey every Sunday and she regularly babysits her great granddaughter. And she cooks for herself most days: endive, beetroot, sprouts or red cabbage, usually with potatoes and a piece of meat or fish. 'I think I'll have kale this evening, with a little sausage from the butcher's. I sit up at the table to eat. I never eat in front of the television.' Not all elderly people do this, however. Some rarely cook for themselves anymore. They might have a cup of soup in the evening, heat up some leftovers or just have a sandwich. Not very wise. If they go on doing this for long, they run the risk of becoming undernourished. And this happens to as many as 17 percent of the over 65 age group receiving home care, as well as to 7 percent of elderly people living at home without home care, according to the LASA (Longitudinal

Aging Study Amsterdam). These elderly people are more prone to sickness and less likely to recover fast. According to statistics from a 2014 national survey of health care problems, 17 percent of elderly patients in residential care are undernourished too. This so-called disease-related undernutrition alone costs the government 1.8 billion euros per year, says SEO Economic Research, affiliated with the University of Amsterdam, in its 2014 report *Undernutrition underestimated*. To this can be added the healthcare costs of those living at home, which the SEO did not quantify for lack of adequate information. Hospitals and care homes began to take

steps to combat undernutrition several years ago, and it has decreased slightly as a result. The hope is that this kind of improvement can now be achieved for those living at home as well – a growing group as the elderly are living independently for longer these days.

LOSS OF TASTE

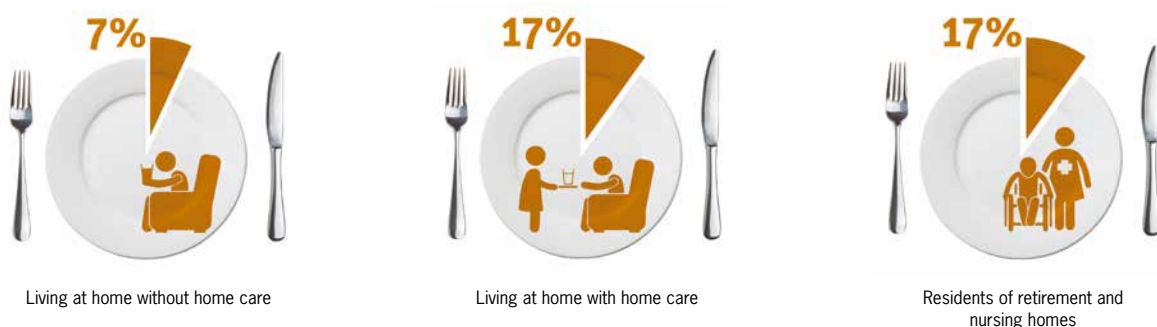
Exactly what leads to undernutrition is not quite clear. It is often related to illness, and sometimes elderly people find daily life so demanding that they do not have the energy to go shopping and cook for themselves. Or their appetites are affected by grief and

‘Extra protein? That is something for pitiful, sick people’

UNDERNUTRITION AMONG THE ELDERLY

Undernutrition in the Netherlands is largely illness-related. Seventeen percent of residents of retirement and nursing homes are undernourished, and the percentage is the same for elderly people receiving home care. Among elderly people living at home without care, 7 percent are undernourished.

Undernutrition percentages



Source: SEO 2014, Ondervoeding onderschat.

loneliness following the death of a partner. Besides which, our sense of taste diminishes as we get older, along with our eyesight and hearing. Many old people enjoy meat, for instance, less than they used to. 'What you often see is a negative cascade of small events,' says Stefanie Kremer of Wageningen UR Food & Biobased Research. 'Old people may have had the flu, which leaves them feeling under the weather and lacking energy. Shopping and cooking get neglected, so they do not eat well and get even weaker.' Elderly people are often slow to notice that they have lost weight, and if they do notice it they do not see it as a problem, showed a survey of 850 members of SenTo, the Seniors network of the future set up by Wageningen UR as a way of obtaining an overview of the causes of undernutrition. 'They think losing weight is just part of old age. And some women who were too fat all their lives are even happy about it: 'Nice slim legs at last.' What they don't realize is that they have lost muscle mass and the strength that goes with it,' says Kremer.

MORE MUSCLE MASS

The nutrient that the elderly particularly tend to go short of is protein. The Dutch Health Council advises 0.8 grams of protein per kilo per day for both young and old – more than many elderly people get. Moreover, scientific research has suggested that the elderly may need 1.2 grams per kilo per day. These proteins are important for the muscles, among other things. If elderly people consume extra protein, they function better physically. If they also do some strength training, the protein helps to increase their muscle mass too, showed Wageningen nutrition researcher Michael Tieland in 2013 in a PhD study of fragile elderly people. In 2011 the Health Council published a highly critical report on undernutrition and the elderly, claiming that there was no evidence yet that supplementary protein delivered any health benefits such as shorter hospital stays or a lower death rate. 'There is a lot of research in this area, but its quality is under par,' says the Health Council. But according >



RESEARCH ON TASTE AND SMELL

Wageningen UR does a lot of research on the nutritional needs of specific target groups such as the elderly. The Senior Network of the Future (SenTo) is one such study, in which more than 800 people fill in questionnaires about the health, weight and social lives, and participate in taste and smell tests at the Restaurant of the Future, the research restaurant in Wageningen.

In the Cater with Care project, Wageningen UR works with the Gelderse Vallei hospital and parties from the food industry on enriched foods intended to prevent undernutrition and improve the health of the elderly and healthcare patients. High-protein menus are developed in collaboration with partner Food Connect. And in a new project called Food4Care, research is planned into how doctors, home care workers, ready meals suppliers and pharmacists can work together to prevent undernutrition among elderly people living at home by combining their medical dossiers with their nutritional status in order to deliver a total package to their doors.



PHOTOS BART DE GOUW

to Lisette de Groot, professor of Nutrition and Ageing at Wageningen University and former member of the committee which wrote the critical report, science has progressed since then. 'A couple of meta-analyses came out in the last few years which show that extra protein intake among the elderly really does deliver health benefits. I think we shall have harder evidence of this in a few years' time - when other results have been published too.'

Meanwhile, the researchers at Food & Biobased Research have already taken the next step. They are researching how to maintain or even raise protein consumption among elderly people, and to do so through their usual meals and foodstuffs. Because

findings show that prescription protein drinks do not usually boost protein consumption because they do not taste good.

WALLPAPER PASTE

SO PhD candidate Canan Ziylan at Food & Biobased Research is developing protein-rich ready meals. Are there ways of making these meals so that they still taste good? This turned out to be harder than expected, says Ziylan, who is working on this project with the company Food Connect. 'The problem is that ready meals get reheated at home. This can cause the extra proteins we add to denature. We made protein-enriched mashed potato, for example, which turned into a kind of wallpaper paste when reheated.'

Ziylan has now solved that problem, and the improved mashed potato was served to 120 members of SenTo two months ago. 'I am now processing the data and seeing whether they liked this enriched mashed potato as much as the standard stuff. I also asked about how full they felt. Because if the protein-enriched mashed potato fills them up for longer, it still won't get us very far. Then the old people will probably skip their protein-rich dessert, or their next meal, and they still won't get enough protein.' Ziylan aims to develop 15 new enriched ready meals and then start an intervention study in which elderly people at risk of undernutrition are offered ready meals for a number of months, some enriched and some not. Then she will see to what extent this intervention has helped. Will it boost the old people's protein status? And do the meals hold their appeal, even when the old people eat them day in day out for months? 'Of course we mustn't have them stopping after a month because they are bored of the meals.'

Meanwhile the Nutrition Alliance, a collaboration between Wageningen UR and the Gelderse Vallei hospital, has launched another project: Cater with Care. The aim of this project is to develop tasty products which fit into people's everyday eating habits, but are either naturally protein rich or enriched with protein. The products include soups, juices and bread. Also collaborating on the project are the NIZO, catering company Sodexo and four food producers (Heinz, Pure4You, Carezzo, and Stichting Promotie Kalfsvlees).

The companies make the products and Wageningen UR tests them among elderly people. Project leader Herman Peppelenbos of Food & Biobased Research: 'We are now working on getting hold of enough test subjects at the hospital. We hope to finish off this intervention study around the summer.' In the study test subjects receive products – some enriched and some not – without knowing themselves which variant they are eating. Then PhD candidate Janne Beelen assesses the effect of the products on the old

people. Do they finish their meals? What do they think of the taste? And do the products change the test subjects' protein status or increase their muscular strength? The test subjects are monitored for 12 weeks after coming out of hospital. The products are not only of interest for hospital patients but also for people living at home. If the trial is a success these products could simply be sold in the supermarkets, to help prevent undernutrition.

STRIKING THE RIGHT TONE

But there is a long way to go before this happens. How do you market these products? It is not easy, says consumer scientist Kreker, precisely because the average elderly person has no idea he or she needs these products. Most elderly people do not feel old and have no idea of their nutritional status. They tend to deny the physiological ageing of their bodies. 'Extra protein? That is something for pitiful, sick people. Not for us active, healthy seniors still in the prime of life': this is how most of them see it, says Kremer. 'So we shall first have to make the public aware of the problem and then we shall have to strike the right tone. Otherwise these products will just stay on the supermarket shelves.' PhD candidate Louise de Uijl, also at Food & Biobased Research, has been studying whether these elderly people can be divided into categories. With this in mind she looked at old people's emotions during mealtimes. Which positive and negative words do they associate with having a meal? She questioned 392 members of the SenTo panel of elderly people. About half of these elderly people had moderate levels of emotion in relation to food. Health and taste are important to them, they try something new now and then but they are not looking for culinary surprises. Den Uijl thought up a fictional exemplar of this group and called her 'Mrs. Jansen'. She is quite different to her counterpart 'Mr. de Jager'. He enjoys his meals and really likes to have something different on his plate. One quarter of the elderly belong to this group. Then there is 'Mrs. de Roos', who represents one eighth

of the participants. She does enjoy her food and care about health, but what matters most to her is the people she eats with. Lastly there is the disinterested critic, 'Mr. Zuurbier', who shows little interest in his meals. He has negative feelings about food and runs the highest risk of becoming undernourished. One eighth of the participants are this type of eater, concluded Den Uijl in an article published in September in the scientific journal *Appetite*.

'We hope to use these results to provide more guidelines for producers of ready meals, as well as for supermarkets,' says Kremer. If they want to get through to Mr. de Jager, they will need different packaging and advertising than they will to appeal to Mrs. de Roos. She likes a nicely laid table with animated people engaged in conversation, and is less interested in the exact ingredients in her meal. Mr. de Jager, on the other hand, will probably go for a piece of salmon with blue cheese or venison with cranberry sauce, and does not care who his fellow diners are.

RIGHT TO GOOD FOOD

Kremer: 'It is really difficult to get it right when you address the elderly consumer. We know now, for instance, that the cereal 'Special K', which targets figure-conscious women between 20 and 40, is amazingly popular with elderly women. We need to find another tone. Especially now the baby boom generation is turning 65. That is a self-confident group of people who think they have a right to good food.'

'It is difficult to strike the right tone with the elderly consumer'

It can also be difficult to identify the elderly people living at home who are at risk of undernutrition. They themselves do not usually notice it in time. And until recently, nor did home care workers, who had neither the time nor the understanding to address the issue. That is changing now and health-care workers have started keeping an eye on their patients' diets. It would be good if GPs and their assistants also checked old people's nutritional status during appointments, thinks Peppelenbos. 'If we made that standard, something could be done sooner.' But it may be that in future, GPs, home care workers, producers of ready meals and pharmacists will all cooperate on preventing undernutrition. Peppelenbos has just had a project proposal accepted for research into this possibility. It was the Bennekom pharmacist Harm Geers who came up with the idea. When pharmacists deliver medicines to people's homes, why not the right nutrition as well? This is going to be done now in the Food4Care project. Medical information about an elderly person living at home will be combined with their nutritional status so that a total package can be delivered to their door: a tasty meal and the right pills.

Mrs. Augustin does not need all this yet. She likes to pick up her medicines and do her shopping herself. 'I hope to be able to keep on doing that as long as possible. Because your own cooking always tastes best.' ■

www.wageningenur.nl/food-nutrition-elderly