

MOLECULAR CUISINE FOR THE 'BON APPÉTIT' OF THE ELDERLY

How the PERFORMANCE project makes
mashed food look good

The project: A masterplan for personalised 3D food-printing

A dinner with lamb, beans and chips for a 90 year-old lady? Even elderly people with mastication and swallowing problems will soon enjoy a traditional menu when the result of a new food-processing project enters the market. The EU-funded PERFORMANCE project works on the concept of processing pureed food, which provides appropriate texture, visually appealing shapes and high-nutritional value. Through high-tech processing, the purees look like pieces of real food: red and juicy tomato slices appear naturally, as they are made of real tomatoes prepared with a specific texturing system. Roasted chicken breast is presented on the plate, but in fact it is jellylike, easy to cut with a spoon, providing a smooth texture without any taste differences to the original material. The chicken breast is refined with a nice brown sauce – for the *bon appétit* of the elderly in nursing homes and pensioners in day care at home.

Because these meals normally require immense inputs of time, the PERFORMANCE project aims to develop a technology that allows the manufacturing of convenient, personalised food with a 3D printer. This means personalised smoothfood will be manufactured on an industrial scale and delivered to nursing facilities, allowing molecular cuisine meals to be served on a daily basis to a larger group of people. Renowned chefs have created a variety of recipes for jellified meals, cream desserts and fruit foams. Through the envisaged PERFORMANCE food-printing technology the chefs' recipes can go into personalised manufacturing.

The product: A new food-processing technology for specific consumer groups

As part of the PERFORMANCE concept, the results of the project will comprise a demonstration unit of a 3D food-printer as well as new texturing systems, in order to shape the freshly cooked and pureed food, a new personalised packaging system, and a convenient food preparation solution. All will be complemented by a central software platform, registering key information such as the ordering and recording of the individual meals, the individual requirements and the actual meal consumption.

According to the specific order, personalised meals can be produced, packed and finally delivered frozen. Each individual

meal is identified by a unique identification code, before it is heated and served to the corresponding consumer. All ordered meals will differ in size, texture and nutrient supplementation.

The end-users: Frail and elderly people, nursing homes and industry

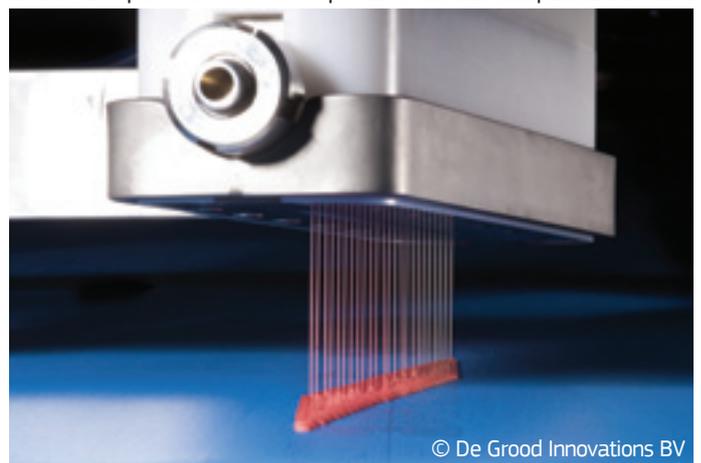
Stroke or dementia can lead to chewing and swallowing difficulties also known as dysphasia, which can have serious consequences such as malnutrition, nutrient deficiencies or dehydration. The most common diets for these people are mash-type food. Malnutrition in elderly people who require a mash-type diet is therefore of particular concern and shall be addressed within the scope of the project.

PERFORMANCE personalised food is mainly targeting frail and elderly people in nursing homes and in ambient assisted-living facilities as well as the elderly living at home. Nevertheless, the concept can be adapted for any other person with mastication and swallowing problems, like young people suffering from dysphasia after an accident or stroke.

As well as the consumers, the food industry will benefit from the research-and-development results. The project will provide an integrated approach fully applicable to SMEs.

The inventors: SMEs, research institutes, care institutions

PERFORMANCE is based on the smoothfood concept commercialised by the project coordinator, Biozoon. This concept is based on handmade meals using fresh ingredients which are pureed. The concept aims at the simplification and



© De Grood Innovations BV



industrialisation of the smoothfood meals. 14 beneficiaries from 5 European countries are involved in the development of the technologies, products and services. PERFORMANCE is an industry-driven research project with the majority of partners (8 out of 14) being Small or Medium sized Enterprises (SMEs) illustrating high innovation potential. The consortium is completed by research institutes in the field of food technology, processing technology, packaging and logistics as well as two nursing homes. This consortium covers all the scientific and technological knowledge needed for the realisation of the integrated approach, covering the whole supply chain.

Development stage: Proof of concept, towards demonstration

The PERFORMANCE concept validation will deal with a proof of concept for the production of personalised foods. The concept integrates newly developed texturising systems for food printing, a technology platform for the realisation of food production and a packaging concept in a holistic approach for a personalised food chain. A software solution will contribute to personalised recording and tracking of dietary requirements for individual clients and will thus allow optimised chain management.

Policy impact: Increase the quality of life in the sunset years, improving health and care status

The ageing society is not a problem which is limited to any borders but rather a global challenge. Due to the size of this challenge and the special needs of this specific group, a lot of societal implications are involved, such as the increase of medical and care costs, needs for special products for the elderly and a decrease in the number of people paying into the welfare system. This requires a European approach for the development of new concepts. The novel approach through texturising and 3D food printing, will contribute towards a better quality of life for the elderly population.

Next steps: Demonstration and marketing phase, consumer acceptance study

An important task of the project is to bridge the gap between the research results (development of a new production process using rapid manufacturing) and the consumer market (industry, nursing homes, and consumer acceptance).

A symposium with a high industrial participation will be organised to communicate the path and the achieved results.

Several demonstration workshops will be carried out to ensure efficient technology and knowledge transfer into the European food industry as well as nursing homes or care home operators to facilitate the later uptake.

Development of detailed exploitation and marketing strategies is the key interest for the participating SME beneficiaries and will ensure that a return on investment will be achieved as quickly as possible.

A final consumer acceptance study will be organised to test the sensory acceptance of the meals in order to illustrate one of the most important success factors besides affordability of these new food products.

Due to the fact that nutrition is strongly correlated with aspects of health, physiological and psychosocial status, especially for elderly people, PERFORMANCE can be seen as a great step forward in social innovation.



PERFORMANCE

Project coordinator: BIOZOOM GmbH

Contact: Matthias Kück

Email: mk@biozoon.de

Website: <http://www.performance-fp7.eu/>