

Nutrition and health advice

Personalised approach more effective
than one-size-fits-all approaches



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Consumers should be better enabled to make food choices that are healthy for them, while companies can help society to become a little healthier. The research project Personalised Nutrition & Health gives valuable insights into what consumers want in personalised nutrition and health advice. Do they accept the advice? And what preferences do they have for technological solutions?

The incidence of non-communicable dietary-related diseases, such as type 2 diabetes, is growing. At the same time one-size-fits-all attempts to turn the tide of obesity have not been very successful. Personalised dietary advice, based on an individual's physiological and psychosocial characteristics, can be more effective. Personalised advice helps people to make healthy choices in a way that best suits them; choices that suit what their bodies need as well as what fits their personality and social environment.

Ground-breaking products and services

In the Personalised Nutrition & Health consortium we are researching the technology and knowledge needed to make personalised dietary advice possible on a large scale. We want to provide the technology, knowledge and insights needed to bring ground-breaking, personalised products and services to the market. With new concepts, organisations can add new value to their products and services and help consumers focus on improving their health.

In addition, we have initiated a process to raise awareness on the potential of personalised nutrition, which will lead to further innovations in the field of personalised nutrition and health. This is a process through which we can realise the ideal of creating a society in which each individual is able to follow an eating pattern that precisely meets their needs.



Customisation has enormous potential

As customisation can help people learn healthy behaviour patterns it has enormous potential for avoiding and combating weight problems, diabetes and other 'lifestyle' disorders. Each individual is different. People differ not only genetically, physically and mentally but also in terms of their knowledge, habits, preferences and the social environment in which they live. The advice given to one person does not necessarily suit another.

ICT developments enable momentum for personalised nutrition, with smart wearables, health parameter monitoring, big data handling, and the high penetration rate of the smartphone in the Western population. What should be the design of personalised nutrition advice to stimulate consumer acceptance of these personalised services? Several studies in the Personalised Nutrition & Health

project provide more knowledge about the acceptance by consumers and provide insights into consumer preferences for different formats of personalised nutrition and health services.

Within the Personalised Nutrition & Health programme, human intervention studies were also performed to validate the effectiveness of the developed personalised dietary advice. Even though generation and provision of the advice tool is still in development due to advancing knowledge, these studies show that personalised dietary advice, taking into account both physiological and psychosocial characteristics, is more effective than one-size-fits-all approaches.

Consumers want feedback

The most important goal of personalised nutrition for consumers is to improve their health, to lose or maintain weight or to get or feel fitter. Research shows differences in different groups. Older people are relatively more interested in advice regarding health solutions (losing weight or avoiding illness), whereas younger people are relatively more interested in improving their lifestyle (feeling fitter or gaining more energy).

Consumers generally want to receive feedback about their health status or eating habits. They prefer advice on what nutrients they should consume or what products they should eat or how to replace ingredients with healthier alternatives. Advice should also be cheap and easy to follow. Ideally, the advice should take into account what they like to eat.

The extra option to have a personal consultation with a dietician is also valued: via email or in a personal, face-to-face meeting. Younger people and office workers prefer options involving their social network, where people who worry about their weight (i.e., 'weight worriers') significantly more often prefer to have a personal consultation with a dietician or receive encouragement from an expert.



Preferences for different formats

- 1 Consumers prefer a digital platform like a website or smartphone app in which they can look up the advice themselves.
- 2 The majority likes to receive daily or weekly advice in the morning, at home.
- 3 Most people want to start changing their dietary pattern by focusing on a single meal moment; advice should be brief and have a neutral or motivating tone, with a positive framing.
- 4 The majority also wants feedback on their dietary pattern and health status by means of a score with explanation, displayed in a combination of text and graph.
- 5 The preferred design of personalised nutrition and health services can be related to personal characteristics, such as a need for knowledge on healthy eating. Consumers with such a higher need for knowledge can best be provided with more - and more detailed - information on their own health status and current dietary patterns. They also want to receive the information more frequently.

Insights suitable for multiple use

The scientific data from our research can be interesting for different organisations with different purposes. Companies can either start giving personalised nutrition and health advice or improve the technology they already use. For instance, supermarkets with an existing shopping app can easily expand this technology with the possibility to offer personalised information about dietary options based on their shopping behaviour. App users pass on a number of characteristics of themselves, for example about what they eat. Supermarkets can provide tips on what consumers can buy via algorithms in the app. Tech companies that know how to harmonise and combine data can help with the development of these underlying algorithms. Organisations in the field of nutritional advice can make consumers more aware of their eating behaviour and health with a personalised app.

When developing applications, companies must take into account important preconditions, like the assurance of privacy by the providers of personalised advice. The research data are also interesting for governmental organisations to make general policies to broaden public access to personalised nutrition and health services and to create regulations and preconditions for these initiatives.



Want to know more?

Are you interested and do you want to know more about the possibilities to access the data from these studies or start a new research project related to personalised nutrition and health? Get in touch with:



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The Personalised Nutrition & Health consortium is an initiative of TNO and Wageningen University & Research. The following companies have been partners in the project: Philips, Jumbo, FrieslandCampina, Albron, Maag-Lever-Darm-Stichting (MLDS), PS in foodservice, Noldus Information Technology, SmartWithFood, Marks & Spencer, NIPED, Vital 10, BASF and OME Health.

As a public-private partnership we dream of a society in which every individual is ready and able to make a conscious choice to adopt an eating pattern precisely attuned to their needs. Together we are researching which technologies and knowledge are needed to arrive at tailored, scientifically grounded products and services in personalised food and health advice on a large scale. Our partners can use these insights to develop apps with which people can keep a close eye on their health. The consortium has an integrated approach that is unique in the world and involves various disciplines working closely together.

The research programme started in July 2016 and consists of sub-projects lasting two to three years. Once a sub-project is completed, the results are put into practice and used as the basis for subsequent projects, ensuring that you can continue to build upon the knowledge gained.

Please visit www.personalisednutritionandhealth.com for more information.

The mission of Wageningen University & Research is "To explore the potential of nature to improve the quality of life". Under the banner Wageningen University & Research, Wageningen University and the specialised research institutes of the Wageningen Research Foundation have joined forces in contributing to finding solutions to important questions in the domain of healthy food and living environment. With its roughly 30 branches, 5,000 employees and 10,000 students, Wageningen University & Research is one of the leading organisations in its domain. The unique Wageningen approach lies in its integrated approach to issues and the collaboration between different disciplines.