

Paving the way for personalised nutrition to improve population health

April 8 2015, by Adrian Giordani

When the human genome was released in 2003, the Institute for the Future, in Palo Alto, USA, said, "about one third of American adults are likely to make at least some decisions based on a knowledge of personalized nutrition by 2010." Five years on it is clear this has not happened, but recent results from a scientific study by researchers from the European Food4Me project show personalised nutrition works and is more effective to improve a person's health compared to someone who just receives general, population-based eating recommendations.

The internet-based, personalised nutrition study was conducted across seven European countries and results presented at a conference in Brussels: [Personalised nutrition: paving a way to better public health?](#) on 26 February 2015. Other research activities conducted by the four-year EU-funded project on consumer attitudes, cutting-edge technologies, ethical and legal issues and business model concepts of personalised nutrition were also presented; available as a [webinar of presentations](#).

The original hypothesis of Food4Me's research team was the question of whether giving personalised dietary advice to a person motivates them to improve their diet and health. The study was run on the internet and over 1,500 adults took part.

Participants were randomised into groups; one was a [control group](#) of people that received non-personalised dietary advice. The other three groups received personalised advice based on an analysis of participants' current diet alone; or current diet and phenotypic data such as

cholesterol level; or [dietary advice](#), phenotypic and genetic data using gene variants influenced by the food that they ate.

Food-intake goals, for example decreasing salt intake and increasing monounsaturated fat, were selected by ranking all dietary, phenotypic and genotypic markers based on compliance with European guidelines—which were used to derive personalised goals and advice.

After six-months, participants who received personalised dietary and lifestyle advice ate significantly healthier diets, compared with control group participants who received non-personalised, population-based advice. Salt, saturated fat and red meat consumption were considerably lower, and there was increased folic acid intake, in the personalised nutrition group.

Future studies could look at whether these dietary behavioural changes are beneficial for long-term health and wellbeing, and are able to reach larger numbers of individuals. Treatments could be used together with social media, smartphone applications or future e-Health services.

Researchers also looked into European consumer behaviour and preferences in relation to personalised nutrition in nine European countries; Germany, Greece, Ireland, the Netherlands, Norway, Poland, Portugal, Spain and UK. They found that people were willing to pay for different types of personalised nutrition services. Providers would need to communicate the trustworthiness of their services through evidence of health professional training such as with dietitians, nutritionists and nurses.

Consumer acceptance would also depend on transparent and trustworthy regulatory frameworks associated with human genetic technologies. Any framework that is created should improve personal data protection, which will in turn increase trust in the processing of data by providers. If

personalised nutrition is regulated as a conventional business, consumer rights appear protected by current EU legal instruments; but if a personalised nutrition offering is regulated as a healthcare service, patient rights vary from one European member state to another.

Some efforts are required at an EU level to reflect this new category of health-related offerings—an amalgamation of both medicine and nutrition. A service provider would have to use robust systems to handle personal data and maintain user anonymity and privacy; combined public-private partnerships are probably the best way forward for personalised nutrition. Personalised nutrition is also a useful tool to reduce the current pressures on health care budgets. Researchers roughly calculated that advice could cost between 40 to 400 euros and if it appealed to just 10% of the European population, its market value would be worth 6 to 18 billion euros.

With personalised [nutrition](#) services already on the market, it is crucial that ethical issues are dealt with in order for the services to be both effective and safe. Better information, such as how to manage personal health risks, could encourage more informed consumer decision making.

Results, recommendations and policy applications from Food4Me are captured in a White Paper, which is freely available as a PDF on the [project's website](#).

More information: For more information on Food4Me, please visit the project's website: www.food4me.org

Provided by Food4me

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