speciation of fish and meat products; detection of undeclared ingredients in processed foods and establishing authenticity of various products, *e.g.* Protected Designation of Origin (PDO).

Dietary intake of anthocyanin, docosahexaenoic acid and oat beta-glucan in a small cohort of European adults with metabolic syndrome: a deterministic exposure analysis at baseline of participants enrolled in the PATHWAY-27 intervention trial.

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Metabolic syndrome (MetS) is the name given to a cluster of conditions that occur together more often than can be explained by chance. In 2009 a joint statement was published by world-leading authorities on cardiovascular disease and diabetes that harmonised the criteria by which MetS is diagnosed [1]. It is estimated that 20-25% of the global adult population have MetS [2] and are three times as likely to suffer a heart attack or stroke and are twice as likely to die from these causes, compared with people who do not have MetS [3]. In addition, people with MetS have a fivefold greater risk of developing type-2 diabetes [4].

The PATHWAY-27 multi-centre, randomized, controlled trial evaluated the effectiveness of bioactive enriched food (BEF) on improving risk factors of MetS in participants at risk, or with, MetS. The bioactive compounds, docosahexaenoic acid (DHA), oat beta-glucan (OBG) and anthocyanins (AC), were selected for their well-reported beneficial health effects and considered as ingredients of BEF in three popular food matrices (dairy, egg and bakery). DHA, AC and OBG enrichment was obtained by adding OVO-DHA® (Applications Sante des Lipides

Sarl- France), Eminol® (ABRO BIOTEC SL – Spain) and SweOat® bran BG28 XF (Swedish Oat Fiber – Sweden), respectively. Pancake and milkshake were manufactured by production plants coordinated by ADEXGO Kft (Hungary), and biscuits by Desarrollos Panaderos Levantinos SLL (Spain).

Dietary exposure to the PATHWAY-27 bioactives from the participants' typical diet was assessed at baseline using a food frequency questionnaire. Participants were asked to estimate the frequency of consumption and portion size of foods known to contain each bioactive over 6-weeks prior to the start of the trial. Bioactive composition information was derived from national and international databases (EuroFIR; Polyphenol Explorer; USDA), literature information and direct analysis of foods. A deterministic exposure analysis was used to calculate dietary exposure for each participant enrolled in the trial according to equation below where E = exposure of individual (j); n = number of portions on day (k) of food commodity (l), w = portion of food, c = concentration of bioactive.

$$E_j = \sum_{l=1}^{n(k)} w_{jkl} c_{jkl}$$

This information maybe important to explain responses to BEF in individuals which vary in their dietary intake.

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