

Are mobile applications a solution for the assessment of fatty acid intake?

To the editor In their excellent review, Siniarski and Gajos¹ underlined the immense importance of omega-3 polyunsaturated fatty acids (PUFAs) in the treatment of patients with cardiovascular diseases (CVDs) and indicated the potential limitations of the contradictory results of clinical trials. In their conclusions, the authors highlighted actual dietary recommendations for the intake of fatty acids and identified populations that can benefit the most from changes in PUFA intake.

In fact, the profile of consumed fatty acids is more important for the prevention of CVDs than total fat intake.² The risk of coronary artery disease may be reduced by 2% to 3% by replacing 1% of energy intake from saturated fatty acids (SFAs) with PUFAs.³ According to the current guidelines, SFA intake should be reduced to less than 10% of total energy intake, whereas the intake of trans fatty acids should be as low as possible.²

These recommendations should be communicated to all cardiac patients, but the question is: Is there any tool that would enable them to follow these guidelines in practice? And is the information about the dietary source of each fatty acid sufficient without detailed calculation of the fatty acid profile? We may expect that in the future, mobile applications, instead of tedious calculations, will be used to support patients with dietary choices.⁴ Unfortunately, most of the currently available applications have not been validated in clinical settings.

Recently, we performed a comparative validity study of popular mobile applications against the Polish reference method in the assessment of energy and macronutrient content intake.⁵ Our results revealed that the evaluated applications tended to overestimate energy intake, whereas over- and underestimations were observed with regards to macronutrients intake. Thus, we cannot expect that the currently available popular mobile applications will be reliable tools for the assessment of fatty acids intake.

Considering the role and the significance of dietary habits (including fatty acid profile) on cardiovascular risk, there is an urgent need for providing validated, easy-to-use, and widely available tools for nutrition assessment. The development and validation of high-quality mobile

applications is of great importance not only for therapeutic reasons (patients with CVDs) but also due to the limited access to dietary counseling and poor nutritional knowledge of the general population.

ARTICLE INFORMATION

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Authors' reply We would like to thank the authors of the letter for their interest in our review on the impact of polyunsaturated fatty acids (PUFAs) on cardiovascular diseases and the controversies in the results of recent studies.¹

In fact, we agree that the majority of patients without regular dietetic consultations lack knowledge on where they are in cardiovascular prevention in terms of dietary habits. It was demonstrated that patients' knowledge was associated

with their behavior and adherence to the lifestyle changes, which should be recognized in preventive programs.² Of course, the guideline-based recommendations should be communicated to all cardiovascular patients, including suggestions concerning the optimal intake of saturated and unsaturated fatty acids. A simple tool that would help patients establish the levels of fatty acid, as well as other nutrients, is needed and would definitely be beneficial. We agree that most currently available dietary apps were not clinically validated and sometimes could overestimate the energy intake, as Bzikowska-Jura et al³ showed in their paper.

We believe that such a tool might be particularly important in specific populations of patients at very high cardiovascular risk, especially those with concomitant type 2 diabetes. The cardiovascular risk of patients with type 2 diabetes is more than 2-fold higher when compared with nondiabetic individuals.⁴ This group of patients should pay special attention to diet, especially the intake of simple carbohydrates and the glycemic index of consumed meals. However, as we have shown before, the specific PUFAs concentrations, n-3 to n-6 PUFA ratio, or the amount of saturated and unsaturated fatty acids in this high cardiovascular risk group are of vital importance. Moreover, recent large clinical trials focused our attention to the dose of PUFAs used in the treatment of such populations, especially in the secondary prevention of cardiovascular diseases. Certainly, this type of information taken from this nutrition assessment tool for both patients and physicians would be of great clinical importance.

We are looking forward to seeing the work on fatty acid intake. However, the authors will probably face some limitations. It could be challenging to establish an accurate level of specific subtypes of PUFAs, so essential for cardiovascular protection, for example, eicosapentaenoic (EPA) or docosahexaenoic acids. As we described previously,⁵ the levels of total saturated or unsaturated fatty acids may impact the secondary prevention of cardiovascular diseases, but recent large randomized clinical trials focused on specific molecules, especially the EPA.

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