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Comprehensive EuroFIR recipe calculation guideline to produce food composition data

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For food composition databases (FCDBs), due to resource limitations, it is accepted that nutrient composition values of composite dishes can be calculated from analysed compositions and amounts of ingredients. During cooking of dishes, there are complex effects of weight changes and nutrient losses and gains which should be considered in the calculation.

Objective To create a comprehensive step-by-step recipe calculation guideline for compilers of a FCDB that considers the losses and gains during preparation of dishes to produce the best estimate of nutrient values.

Methodology Publications related to recipe calculation, especially from EuroFIR, FAO/INFOODS and Max Rubner-Institute, were reviewed and combined into a single document. Inconsistencies, gaps and open questions were identified and solutions developed. Formulas for recipe calculation as well as examples were included. A draft version of the guideline was discussed with experienced compilers.

Main findings The guideline describes in eight successive steps a standardised recipe calculation method. Weight changes during preparation of dishes are considered through weight yield factors which are applied at recipe level. Changes in nutrient content are considered through nutrient retention factors (NRFs) and additionally through fat and salt uptake factors. NRFs are applied for micro- and macronutrients at ingredient level. As no NRFs for the component water (moisture) exists, alternative calculation options together with their advantages and disadvantages are discussed. The calculation method has been implemented in the FoodCASE FCDB management software tool.

Conclusion The revised recipe calculation guideline provides a comprehensive expert approved recipe calculation method, which is accepted as the EuroFIR method for recipe calculation. This standardised method ensures calculated nutrient composition values of composite dishes which are reproducible and comparable within and between European FCDBs.

Key words (3-6): recipe calculation, weight yield factor, nutrient retention factor, food composition database

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