

## The new Australian fatty acid database: a users perspective

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Computerized nutrient databases are an important tool for dietitians and researchers alike. They are used to assess nutrient intake, plan specialized diets, analyse recipes and menus, and develop research aids. In December 2001, the prototype of a new fatty acid database (1) (FADB) was released at the NSA conference in Canberra. As with any food composition table or nutrient database there are limitations and potential sources of error that could contribute to inaccuracies in the final data (2). This paper reports on the limitations and potential sources of error the researcher or clinician should be aware of before using this new database.

In a previous randomised cross-over study examining the effect of soy product consumption compared with dairy consumption, beneficial effects on cardiovascular outcomes was seen. The diet histories of these subjects provided an excellent starting point for examining the intake of individual fatty acids. The diet histories of 23 subjects previously analysed on Foodworks™ (Xyris Software, Brisbane, version 2.10), using the Australian Nutrient Database NUTTAB and AUSNUT, were re-examined using the Australia fatty acid database attached to Foodworks™ (Xyris Software, Brisbane, version 3.0), with regards to the polyunsaturated fatty acid (PUFA) content. Conversion of volume amounts to gram amounts of each food item was completed before data entry was started. Substitution of some food items was required and was based on fat content, and ingredient similarity. Meat items were matched as closely as possible with regards to the area of cut and fat content. Comparison between the original Foodworks™ data and the FADB showed significant differences for total PUFA intake in two of the three areas examined.

|                       | NUTTAB/AUSNUT | FADB         |            |
|-----------------------|---------------|--------------|------------|
| Baseline PUFA (g/day) | 12.89 ± 6.45  | 10.65 ± 5.71 | P < 0.0001 |
| Dairy PUFA (g/day)    | 11.24 ± 5.12  | 9.67 ± 4.15  | P = 0.0003 |
| Soy PUFA (g/day)      | 20.99 ± 5.53  | 21.55 ± 5.20 |            |

<sup>1</sup>Mean ± standard deviation.

Accuracy in final results using a nutrient database is affected by several factors that researchers/clinicians should be aware of. Potential influences can be: the level of detail recorded in the diet histories, substitution of food items, the fundamental detail of foods in the nutrient database, and the nutritional knowledge of the database user (2). Limitations and potential sources of error of the FADB identified in this study include: having to enter the diet histories into NUTTAB first to obtain the gram weights of volume recorded food items, substitution of many food items due to the limited number of analysed foods in the FADB (1044) and extensive food knowledge required to substitute appropriate items. The level of detail contained in the diet histories was also found to be a limitation as important PUFA foods such as fish often did not have enough detail to specifically identify the species consumed. The significant differences seen in the table above are believed to be a direct result in the differences between the databases. It is thought that differences were not seen in the soy arm of the study because the majority of PUFAs would have come from the soy products. Since the fatty acid composition of the soy products was added to the FADB as well as to the original analysis as a 'new food' within the Foodworks™ program the differences between the programs did not appear. At the moment the main limitation to the user of the FADB is the limited number of foods contained in the database. As the foods contained therein are only ones with laboratory analysed data there is a requirement for continued analysis of the fatty acids in Australian foods. Basic food items such as chicken, beef, pork, veal and vegetables need much more analysis in different cooked states (eg BBQ, broiled, baked, boiled, steamed) so they can be included in the FADB. Continued expansion of this database will give Australian nutrition researchers and clinicians a solid platform from which to study the dietary intake of individual fatty acids.

### References

1. Mann NJ, Percival PA, Sinclair AJ, Meyer BJ, Howe PRC, Lewis J. Development of a fatty acid compositional database of Australian foods. Proceedings of the Nutrition Society of Australia (2000) 24: 97.
2. Foote D. Food composition data and clinical dietetics. In: Greenfield H, ed. Uses and abuses of food composition data. Food Australia 1990; 42: s8-s9.

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