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Selection of Nutrients and other Components

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Can a FCDB contain all food components?

The archival and reference databases → yes

The user databases and tables → No

- **too many missing values**
- **too many of them**
- **too expensive**
- **too time consuming**

But sometimes compiler unaware of obsolete nutrient definition and user requirement

→ Selection criteria are needed

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Prioritize food components to be included in FCDB

In descending priority

- "Minimal" components (energy, water, fat, protein, carbohydrates, dietary fibre) and ash if CHO by difference
- Macronutrient fractions, vitamins and minerals
- Conversion factors and all contributing nutrients
- Phyto-chemicals
- Antinutrients, contaminants
- Glycemic index (GI)

Other selection criteria

- Nutrients with RDI (and UL)
- Components with public health or research interest
- State of current thinking in the nutritional and toxicological sciences
- Availability of existing data
- Existence of adequate analytical methods
- Feasibility of analytical work
- Availability of funds
- National and international labelling requirements

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Food component and conversion factors needed in reference database to calculate equivalents

Total vitamin A activity expressed in retinol equivalent (RE in mcg) = retinol + 1/6 beta-carotene + 1/12 other provitamin A carotenoids (or + 1/6 mcg beta-carotene equivalent)

- Retinol activity equivalent (RAE)
- Retinol
- Beta-carotene equivalent and conversion factor
- Beta-carotene and conversion factor
- Alpha-carotene and conversion factor
- Beta-cryptoxanthin and conversion factor

Contaminants

- Mycotoxins
- Heavy metals, e.g. cadmium, Pb, Hg
- Herbicides
- Pesticides
- Dioxins
- Polychlorinated biphenyls (PCBs)

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Inclusion of contaminants and antinutrients

Pro

- to combine the intake of nutrients, antinutrients and contaminants
- foods contain nutrients and contaminants
- database can hold all values

Contra

- not aware of user needs
- food sampling design is different
- users of nutrient data and contaminant data are different
- analysis of contaminants are expensive and carried out by different organizations

Antinutrients

- Goitrogens
- Haemagglutinins
- Antivitamin factors
- Trypsin inhibitors
- Oxalic acid
- Phytic acid (phytates)

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Bioactive food components or phyto-chemicals

- Flavonoids
- Isoflavones
- Coumestan
- Lignans

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Who should discuss selection of components in FCDB?

- Compilers
- Analysts
- Users
- Government
- Industry

Reasons for selecting some nutrients

- Water
  - serves as a reference point for the other food component values
  - to identify foods correctly → correct matching and adjustment of other NVs if necessary
- Ash
  - calculate total or available carbohydrates by difference
  - check if the sum of the proximates is equal to 100g (acceptable range 97-103 g)
  - check if the sum of minerals are close to the ash value
- Nitrogen
  - analytical value to calculate the protein value

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Minimum nutrients in FCT/FCDB

- All macronutrients and those vitamins and minerals having a RDI in the country/region in the **same** definition as in RDI + edible portion. Ex. If RDI of vitamin A is in retionol equivalent (VITA), then in FCT also in VITA
- Minimum list: Edible (Refuse), Energy, Water, Protein, Fat, available carbohydrates, Dietary fibre, Iron, Zinc, Calcium, Vitamin A, Vitamin C, Vitamin B1, Vitamin B2, Vitamin B12, Folate

For more on food composition, visit www.fao.org/infoods