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WebDASC: A Web-based Dietary Assessment Software for 8-11 year old Danish Children

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Background Assessing dietary intake in children is a challenge. Hence, assessment tools should be intuitive, easy and fast to complete, non-intrusive, engaging, and age-appropriate.

Objective The project developed and evaluated a Web-based Dietary Assessment Software for Children (WebDASC). It was part of the OPUS project¹ measuring dietary change after a school-based intervention.

Methods The development was guided by focus groups, expert input, literature review, and usability tests. Special consideration was given to age-appropriate software design issues with an animated armadillo as a guide.

WebDASC includes:

1. Databases containing 1300 food items and 320 photo series containing 4 images each.
2. Registration tools as five search strategies including a spell check function, and a "type in format" (Figure 1b).
3. Memory enhancers as internal checks for frequently forgotten foods, images, sound and questions.
4. Motivators as a food meter, top 10 list, and a computer game. In the game the armadillo has to catch the correct food in the correct basket/category (Figure 2b). The game uses the same food categories as the browse search, and thereby helps the children using the categories.

Acceptability was measured by a qualitative questionnaire answered by 74 children (8-11 y) who had completed seven consecutive days of dietary assessment using the WebDASC in the OPUS pilot study.

Results All liked the user interface design.

- 90% of the children received help from parents to complete WebDASC (Figure 3).
- 80% found the reporting duration acceptable (30 min. on first day; 15 min. on following days).
- 88% found the task of finding and reporting foods more or less easy. Children preferred the category browse search, whereas adults preferred the free text search.
- 85% found the digital images to estimate portion sizes more or less easy to use.
- 77% liked the game, and it was played on 55% of all reporting days.

Figure 1a and 1b. Screenshots of front page (1a) and reporting screen (1b).

Figure 2a and 2b. Screenshots of high score list (1a) and game screen (1b).

Figure 3. Number of participants getting help from parents while reporting their diet in the WebDASC (n=74).

Conclusion Qualitative testing demonstrated that WebDASC was well accepted among children and their parents. Future improvements includes further adaption to the spelling competences of children (and adults), improved portion size estimation, and adaption to other age groups.

¹Optimal well-being, development and health for Danish children through a healthy New Nordic Diet. The OPUS project is supported by a grant from the Nordea Foundation.