

# Development and implementation of online tools for providing personalized dietary advice at home or in a clinical setting: Eetscore and NutriProfiel

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## Background

A significant proportions of the Dutch population does not meet current Dutch dietary guidelines. This may be explained by a lack of knowledge, or perceived barriers when trying to adhere to the Dutch dietary guidelines. In addition, health professionals, such as physicians, lack solid education in nutrition and dietary advice, which hampers optimal care and prevention in diet or lifestyle related disorders. This is particularly the case for micronutrient deficiencies, which may be caused by either pathophysiological processes or poor dietary habits, and require follow-up of dietary intake. User-friendly online dietary assessment tools may help individuals, physicians and patients to get insight and provide personalized dietary advice to improve dietary habits.

## Objective

- To develop and implement an online dietary assessment tool that provides personalized dietary advice in accordance with the Dutch Food Based Dietary Guidelines of 2015 (*Eetscore*);
- To integrate micronutrient blood concentrations as additional parameters and implement the tool in a clinical setting (*NutriProfiel*).

## Methods

### Eetscore

A tool that assesses adherence of daily intake to the Dutch Food Based Dietary Guidelines (Health Council of the Netherlands, 2015)

**Eetscore FFQ** is a short online food frequency questionnaire

**Eetscore score** by Dutch Healthy Diet (DHD) index

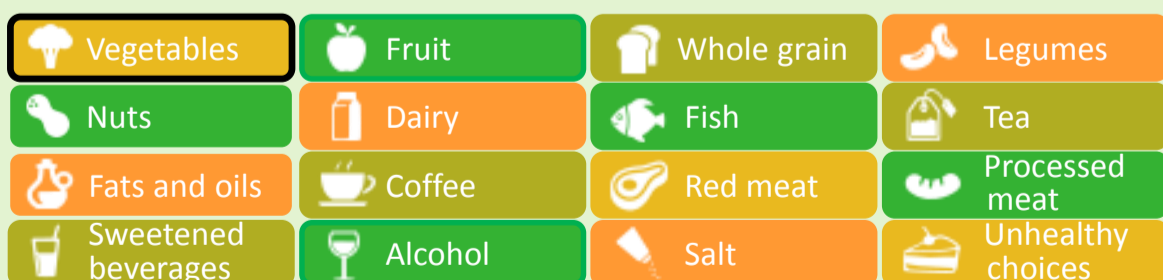
Component	Guideline	Min. score (=0)	Max. score (=10)
1. Vegetables	Eat at least 200 g per day	0 g/d	≥ 200 g/d
2. Fruit	Eat at least 200 g per day	0 g/d	≥ 200 g/d
3. ....			

**Eetscore advice** (example)

Your total score: **90** out of 160

Your diet does not adhere to the Dutch Dietary Guidelines

Your diet completely adheres to the Dutch Dietary Guidelines



Your score for vegetables: **4.9** out of 10

You eat little vegetables or you do not eat vegetables every day. You could do better!

### Advice

There are several ways to increase your vegetable intake. Tips to increase your vegetable intake:

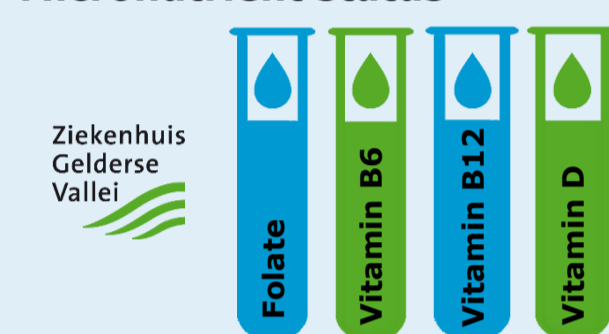
- Add herbs and spices to your vegetables to give more taste. Examples of herbs and spices: basil, nutmeg, and curry.

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## Nutriprofiel

A tool that measures micronutrient status, analyzes diet and gives a personal dietary advice to improve or maintain micronutrient status.

### Micronutrient status



Component	Reference value	Value
1. Folate	7 – 40 nmol/l	6 nmol/l
2. Vitamin B6	51 – 183 nmol/l	90 nmol/l
3. ....		

### Eetscore

Component	ADI*	Score
1. Folate	300 mg	4.9
2. Vitamin B6	1.5 – 1.8 mg	10
3. ....		

\*Adequate Daily Intake

**NutriProfiel advice** (example) → ✉ to patient and physician.



Your score for folate: **4.9** out of 10.

You eat few products that are rich in folate. You could do better! You also have a folate deficiency in your blood.

### Advice

There are several ways to make your diet richer in folate:

- Eat enough vegetables (3-4 serving spoons). Choose, in particular, the green vegetables such as spinach, broccoli, and green beans. To vary you can make a soup or a salad with lots of vegetables or add some extra vegetables to your pasta sauce.
- ....

## Results

- The Eetscore and NutriProfiel tools have been successfully developed and implemented since 2015;
- Increasing number of (clinical) users for both tools, including research projects, eHealth platforms, and lifestyle improvement programs;
- NutriProfiel received positive evaluation by physicians, and is currently available for all incoming blood tests at Gelderse Vallei Hospital.

## Conclusions & perspectives

The Eetscore and NutriProfiel tools have been successfully developed and implemented for use in both home settings as well as clinical settings. Future perspectives include further implementation of the Eetscore for other health care organisations or specific patient populations. For NutriProfiel, future perspectives also include expanding the list of nutrient biomarkers for which a personalized dietary advice can be provided.

## More information

[www.eetscore.nl](http://www.eetscore.nl)

[www.nutriprofiel.nl/english](http://www.nutriprofiel.nl/english)



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