

Summary of a presentation on the NWO Voedingdagen 10<sup>th</sup> October 2014, Deurne, the Netherlands, Cécile Singh-Povel (FrieslandCampina)

## Dairy in a nutritionally adequate Dutch diet

### Introduction

There are thousands of different foods. Therefore there are many different ways to compose a diet which meets all nutrient requirements. It is general practice that a dietary advice 1) meets all nutrient requirements and 2) is as close as possible to the habitual diet. A food has an important place in a diet, when it is difficult to meet nutrient requirements without this food. This can be difficult, because replacing this food requires many changes compared to the habitual diet. Furthermore the changes needed in order to replace the food, may also affect other determinants of attainability such as e.g. the price of the diet.

Aim of this theoretical exercise was to determine the place of dairy in the Dutch diet. We investigated the difference in consumer attainability between a nutritionally adequate Dutch diet with and without dairy, having regards to 1) distance to the habitual Dutch diet and 2) price. As a secondary aim we also investigated which nutrient requirements were particularly difficult to attain in a Dutch diet without dairy.

### Methods

We compared a general Dutch dietary advice with and without dairy. In order to be able to know the effect on the general Dutch population we composed dietary advises for 4 different people based on the scheme below (Figure 1)

Figure 1: Dietary advises calculated by the Optimeal tool

	<i>General</i>	<i>Dairy (-)</i>	<i>Dairy (-) Fortified (-)</i>
<i>Female, 4-8 y, Active</i>			
<i>Male, 14-18 y, Non-Active</i>			
<i>Male, 31-50 y, Active</i>			
<i>Female, 51-70 y, Non-Active</i>			

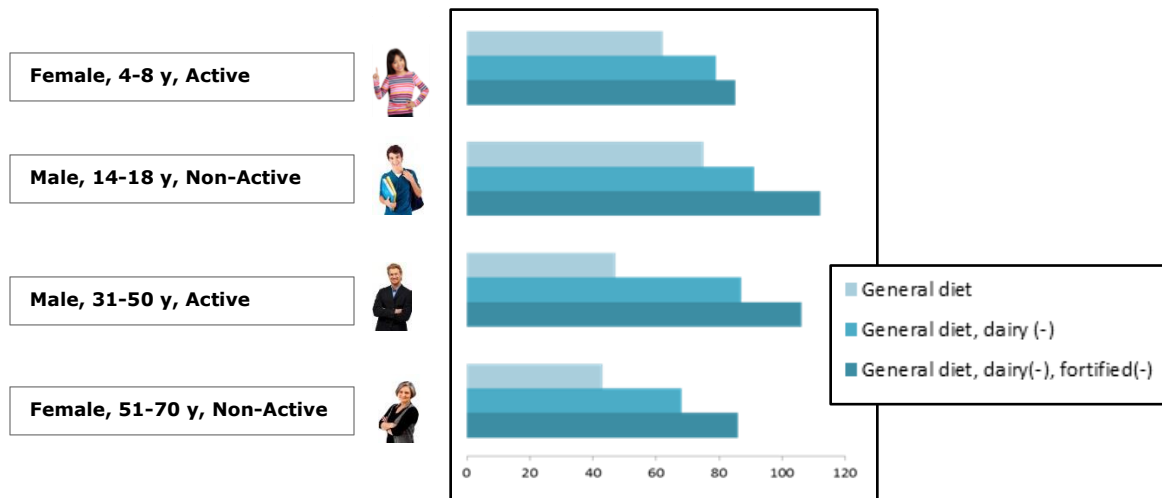
The dietary advises were composed with the Optimeal software. The Optimeal software has been developed by Blonk Consultants and is endorsed by the Dutch Nutrition Centre. Optimeal calculates a dietary advice for a week menu which 1) adheres to the Dutch nutrient requirements (RDA's, UL etc.); 2) adheres to a minimum intake of 200 gram vegetables and 200 gram fruits and 3) is as close as possible to the average Dutch diet (based on food based reference groups of the Dutch Food Consumption survey). Nutrient content of the food products was derived from the Dutch Food Composition table (NEVO). Price was analysed in a subset of 207 products for which the average price of the Dutch Retailer Albert Heijn was available. The different diets were compared with regard to 1) distance to the habitual Dutch diet and 2) price. Furthermore, we investigated for which nutrients the dietary advises were

very close to the lower or upper boundary of recommended nutrient intake, i.e. the RDAs or ULs.

## Results

In order to meet all nutrient requirements the average Dutch person should change between 40-70 servings per week. Compared to this general diet, a diet without dairy and without nutrient fortified food products requires an additional 23-59 changes; accepting the choice of fortified foods a diet without dairy still required 17-40 extra changes (figure 2).

Figure 2: Number of servings changed per week compared to the habitual diet

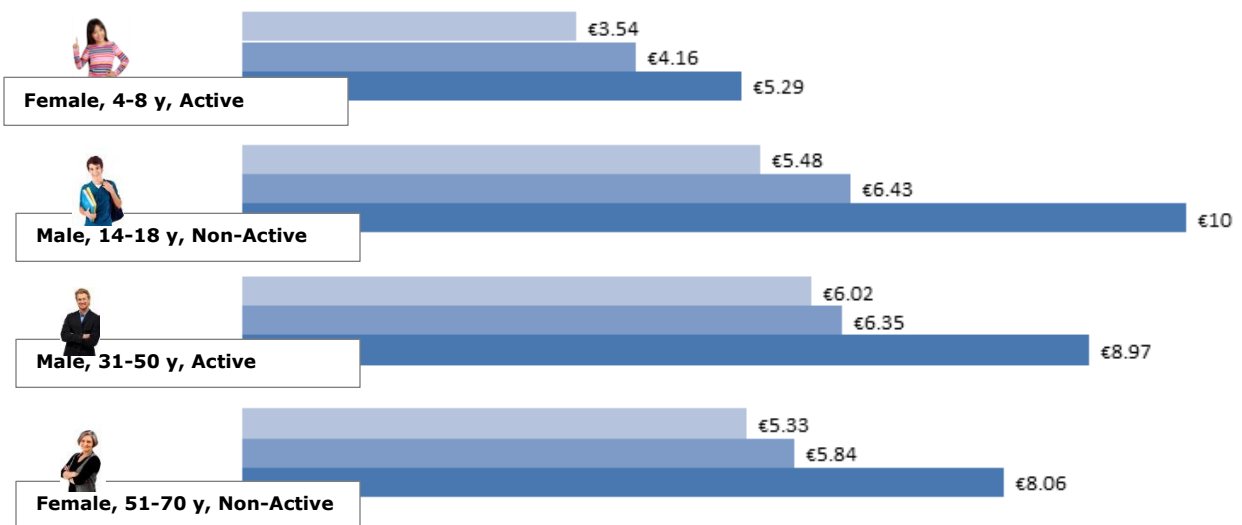


The diets with and without dairy mainly differ with regard to the amounts of meat, fish, soy products, vegetables and fruits advised. In a diet without dairy (but including fortified foods) the amount of meat and the amount of soy products advised was higher. In a diet without dairy and without fortified foods the amount of meat, fish, vegetables, fruits and soy products was higher.

Nutrients which were very close to the nutrient boundary (RDA or UL) in the general dietary advice were fibre, saturated fat, sodium, vitamin D and zinc. In the diets without dairy nutrients close to the nutrient boundary (RDA or UL) were fibre, sodium, vitamin D (only in non-fortified advice) zinc, selenium and iodine.

The diets with and without dairy also differed with regard to price. Nutritionally adequate diets with dairy were cheaper than without dairy (figure 3).

Figure 3: Average price of a diet per day meeting all nutrient requirements



## Discussion and conclusion

We showed that a nutritionally adequate diet with dairy is more close to the habitual Dutch diet, than a diet without dairy. Furthermore a Dutch diet with dairy is cheaper. This suggests that a diet with dairy is more attainable than a diet without. Given the clarity of those results, it is unlikely that the choice of methods would affect conclusions at large. However the methods used (linear programming, absolute difference) and boundaries set (Dutch RDA's, boundaries on fruit and vegetables) could impact the magnitude of the results. We showed that a diet with dairy scored better on two determinants of attainability: habits and price. However we did not experimentally test attainability and also did not include other parameters like availability and cooking time. In order to make firm statements on attainability more research is needed. In conclusion, we showed that dairy is part of a habitual, nutritious and affordable Dutch diet.