

1 Introduction

The World Health Organization (WHO) states that obesity is one of the greatest public health challenges of the 21st century (1). In Denmark, as well as in the rest of the World, the prevalence of overweight and obesity among both children and adults has increased dramatically over the last 60 years, and the numbers continue to rise at an alarming rate, particularly among children (1-3). Overweight has been estimated to affect up to one fourth of children in Europe (4). An inappropriate diet, in combination with a lack of physical activity, is believed to be the main element in the development of childhood obesity. In addition to causing various physical disabilities and psychological problems, excess weight drastically increases the risk of developing a number of diseases, including cardiovascular disease (CVD), cancer and type 2 diabetes. Studies also indicate that inappropriate diet affects cognition, learning and behaviour (5,6).

Recommendations for a healthy diet are one of the main challenges for public health today. It seems that we have developed a preference for foods that are rich in fat and sugar, which makes the challenge of recommending a healthy diet even more difficult. Combining health and palatability is crucial in this task – just think what it would mean for the society if the food we preferred also was the healthiest. Concern for the environment and the planet's health has developed to be an equally important challenge, since food production is estimated to count for 20-30% of the total emissions of greenhouse gases (GHG) (7). All the above circumstances call for an update of our food culture.

The traditional Mediterranean diet has for many years been a role model for healthy diets and has proven to reduce the risk of CVD, type 2 diabetes and certain cancers (8-10). Attempts to promote the Mediterranean diet outside the Mediterranean countries has been tried, but it can be questioned whether such a specific regional diet can be recommended all over the world. Many of the foods are not suitable for growing in other climates and require greenhouses and long distance transport on the expense of the environment, or cannot be produced in large enough quantities to meet the demands of the world. The adoption of the Mediterranean diet worldwide would also lead to loss of local food cultures and might not be the preferred diet for all. There seems to be a need for stronger regionally-based food cultures that possess the health benefits of the Mediterranean diet and can be accepted by the local population as being palatable. Such regional tailoring may help to preserve cultural diversity in eating habits and in addition may contribute to more environmentally friendly eating.

The emerging mutual understanding by both gastronomists and nutritionists that there is a shared route to creating regional diets offers an opportunity to develop a healthy diet based on regional food that bridges gastronomy, health and sustainability. This forms the basis for the multidisciplinary, 5 year research project, OPUS (Optimal well-being, development and health for Danish children through a healthy New Nordic Diet), which aims to define and test a New Nordic Diet (NND). The hypothesis is that an optimal diet composition, based on healthy, palatable meals, may not only contribute to the

prevention of excessive weight gain, obesity, and other health disorders, but may also improve quality of life, learning ability, and mental and physical performance in children (5,11).

2 Aim of thesis

The purpose of this thesis is to describe the development of the NND. The hypothesis is that it is possible to develop a healthy, environmentally friendly and palatable diet that can play an important role in promoting health and preventing disease in Denmark. Since this is a theoretical thesis, it will not be possible to evaluate the effect of the NND on the human body based on this specific contribution, but a theoretical evaluation of the pros and cons of the NND will be performed and accessible results from Nordic diet studies will be discussed.

The studies and tasks include:

- Establishment of a new system of dietary guidelines living up to the NND paradigm.
- Identification of a list of dietary components that lives up to the NND guidelines. A theoretical positioning of the dietary components of the NND against the current average Danish diet and the Nordic Nutrition Recommendations (NNR) / Danish Food-based Dietary Guidelines (DFDG).
- An evaluation of the nutritional content of the NND based on the overall dietary components in the NND compared with data from NNR and the intake in the average Danish diet with regard to both macro- and micronutrients.
- A safety evaluation of selected NND foods for ensuring a non-risk intake of the selected foods in the NND.
- Development of specific NND dishes and menus that can gain complete recognition as being palatable, healthy and acceptable by chefs, nutrition- and health experts, and the consumers.