



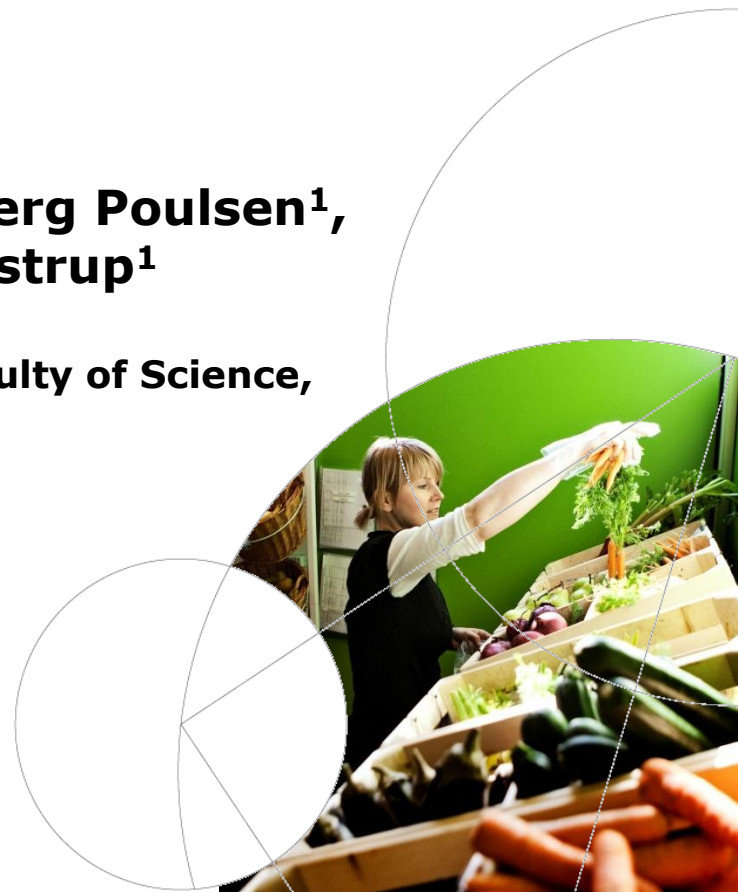
# What are the health benefits of the New Nordic Diet? - the SHOPUS data

**New Nordic Food Conference 2012**  
**November 5-7, The Food Hall, Oslo**

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Fish and seaweed



Foods in season



Nordic fruits and vegetables



Meat and game



Whole-grain

**New Nordic Diet**



Regionally grown

Fresh herbs



Potatoes



75% organic



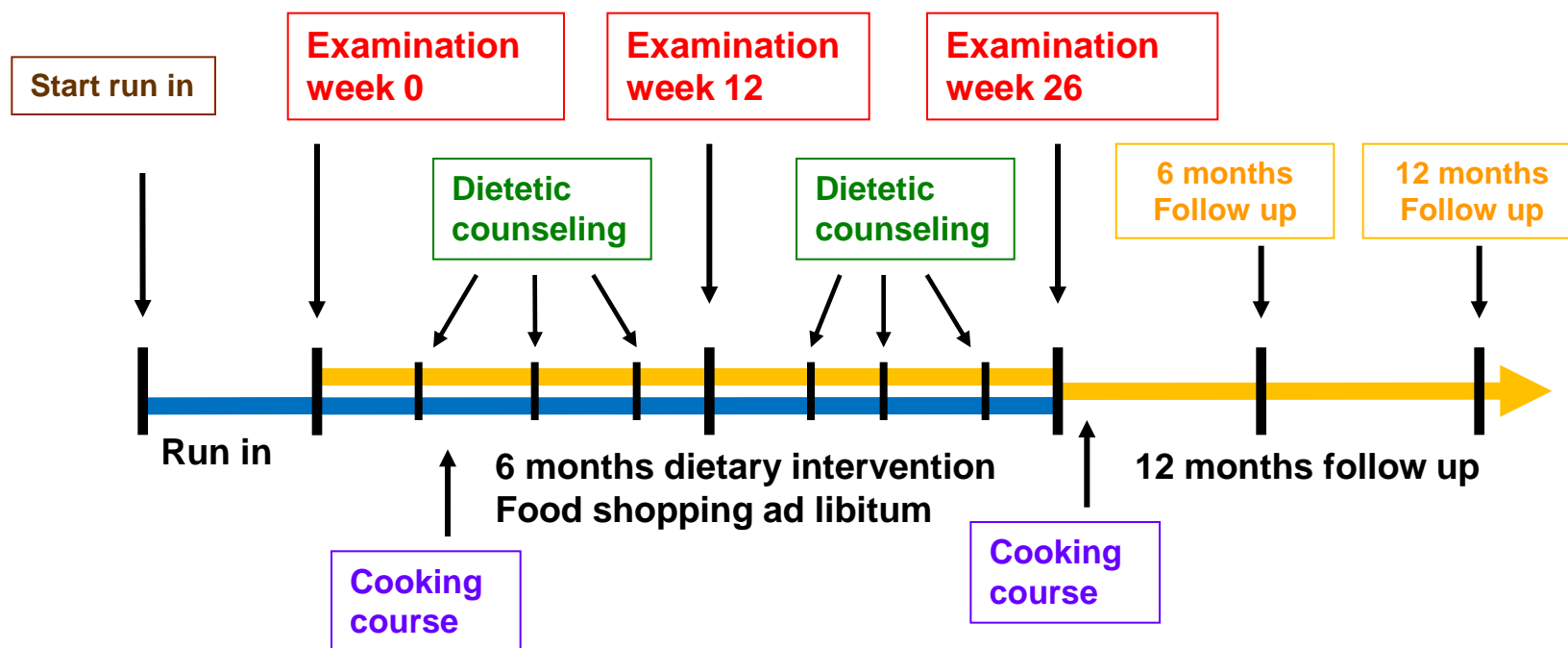
Wild plants and fungi



Nuts and kernels

# SHOPUS – An OPUS project with an RCT-based Shop Intervention with New Nordic Diet in adults

— Average Danish Diet (n=80)  
 — New Nordic Diet (n=120)



## Dietary composition – targets

	NND	ADD
Protein (E%)	18	15
Total carbohydrate (incl. fibre) (E%)	52	50
Added sugar (E%)	< 10	≥12
Total fat (E%)	30	35
SFA(E%)	< 10	15
Nordic food (%)	≥ 95	≤ 50
Organic (%)	> 50	≤ 10
Fruit (g/10MJ)	300	200
Berries (g/10MJ)	75	4
Vegetables (g/10MJ)	400	180
Cabbage (g/10MJ)	30	≤ 10
Root crops (g/10MJ)	≥ 150	30
Pulses (g/10MJ)	≥ 30	≤ 1
Wholegrain (g/10MJ)	≥ 75	35
Meat (g/10MJ)	100	140
Nuts (g/10MJ)	≥ 30	≤ 1
Potatoes (g/10MJ)	150	100
Fish and seafood (g/10MJ)	45	20
Herbs (g/10MJ)	≥1	≤ 1
Plants and mushrooms (g/10MJ)	5	0
Game (g/10MJ)	4	0
Seaweed (g/10MJ)	5	0



# From dietary principles into recipes and menu plans

## New Nordic Diet cookbook

**180 recipes (48 starters, 84 main courses and 48 deserts)**

**3 weekly menu plans for each season (4 seasons/year)**

**In total 12 weeks of menu plans**

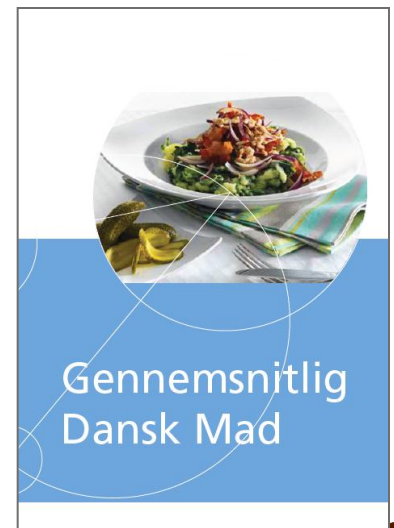
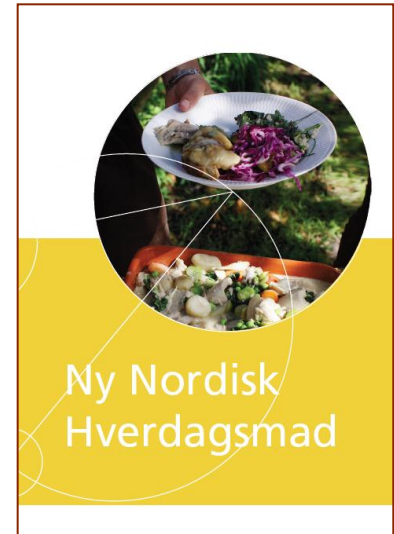
**Rotation of weekly menu plans every 3 weeks**

**Additional inspiration provided for breakfast,  
lunch and snacks**

## Average Danish Diet cookbook

**99 recipes (9 starters, 74 main courses and 16 deserts)**

**Macronutrient composition and food groups defined  
according to the latest survey of dietary habits (2003-8) in  
Denmark.**



# Menu plan spring, week 1

<b>Mandag</b>	<b>Tirsdag</b>	<b>Onsdag</b>	<b>Torsdag</b>	<b>Fredag</b>	<b>Lørdag</b>	<b>Søndag</b>
<i>Forret</i>	<i>Forret</i>	<i>Forret</i>	<i>Forret</i>	<i>Forret</i>	<i>Forret</i>	<i>Forret</i>
<b>Aspargessuppe</b>			<b>Grønne asparges med ramsløgdressing</b>		<b>Slethvar og rygeost på ristet rugbrød</b>	<b>Rejer med groft brød og ramsløgmajo</b>
<i>Hovedret</i>	<i>Hovedret</i>	<i>Hovedret</i>	<i>Hovedret</i>	<i>Hovedret</i>	<i>Hovedret</i>	<i>Hovedret</i>
<b>Frikadeller med kartofler, løg og løvstikke</b>	<b>Kartoffelmad Frikadeller med "surt" Laks med tangpesto</b>	<b>Æggekage med røget makrel og asparges</b>	<b>Brændenælde-suppe med fjordrejer og grillet ostebrød</b>	<b>Slethvar med perlespelt og grønne asparges</b>	<b>Sursødt andebryst med mos</b>	<b>Svinenakke med rug og syltede rødløg</b>
<i>Dessert</i>	<i>Dessert</i>	<i>Dessert</i>	<i>Dessert</i>	<i>Dessert</i>	<i>Dessert</i>	<i>Dessert</i>
	<b>Rabarbergrød med mælk</b>	<b>Rabarbertrifli</b>		<b>Jordbær</b>	<b>Rødgrød med mælk</b>	

## Starters



## Main courses



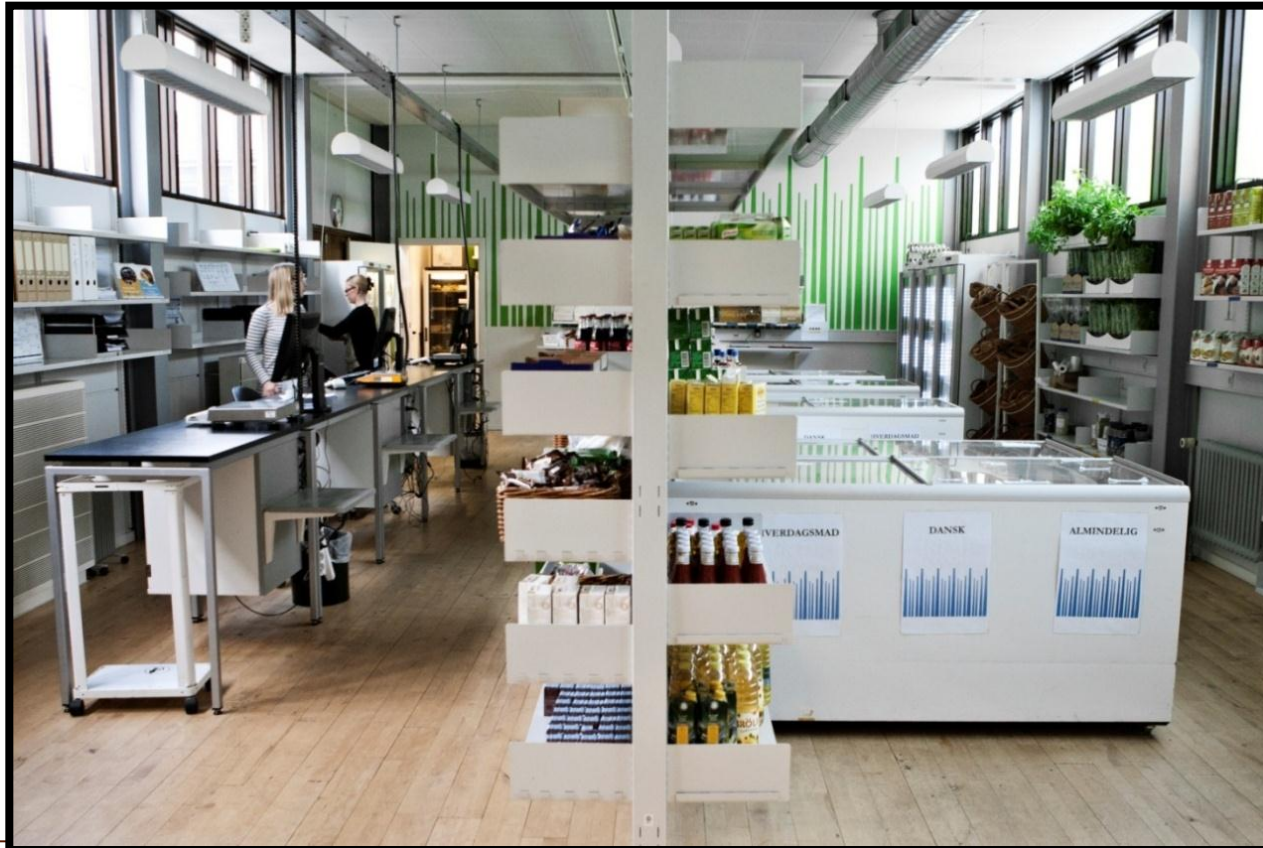
## Dessert



**Some examples of NND**

# Dietary intervention

- All food provided free of charge
- 1-3 weekly visits
- Ad libitum (lowering portion sizes without counting calories)
- Targets for macronutrient and food groups controlled at each visit





# Shopping....



# Inclusion criteria & study end points

**Age between 18 and 65 years**

**Central obesity;  $\text{♂} \geq 94$  cm,  $\text{♀} \geq 80$ cm**

**At least one component of the metabolic syndrome**

- **Raised TG level;  $\text{TG} \geq 1,7$  mmol/L**
- **Reduced HDL level;  $\text{HDL}_{\text{♂}} \leq 1,03$  mmol/L,  $\text{HDL}_{\text{♀}} \leq 1,29$  mmol/L**
- **Hypertension; Systolic  $\geq 130$  mm Hg or diastolic  $\geq 85$  mm Hg**
- **Impaired fasting glucose;  $\text{IFG} \geq 5,6$  mmol/L**

## End points

**Body weight (primary)**

**Body composition**

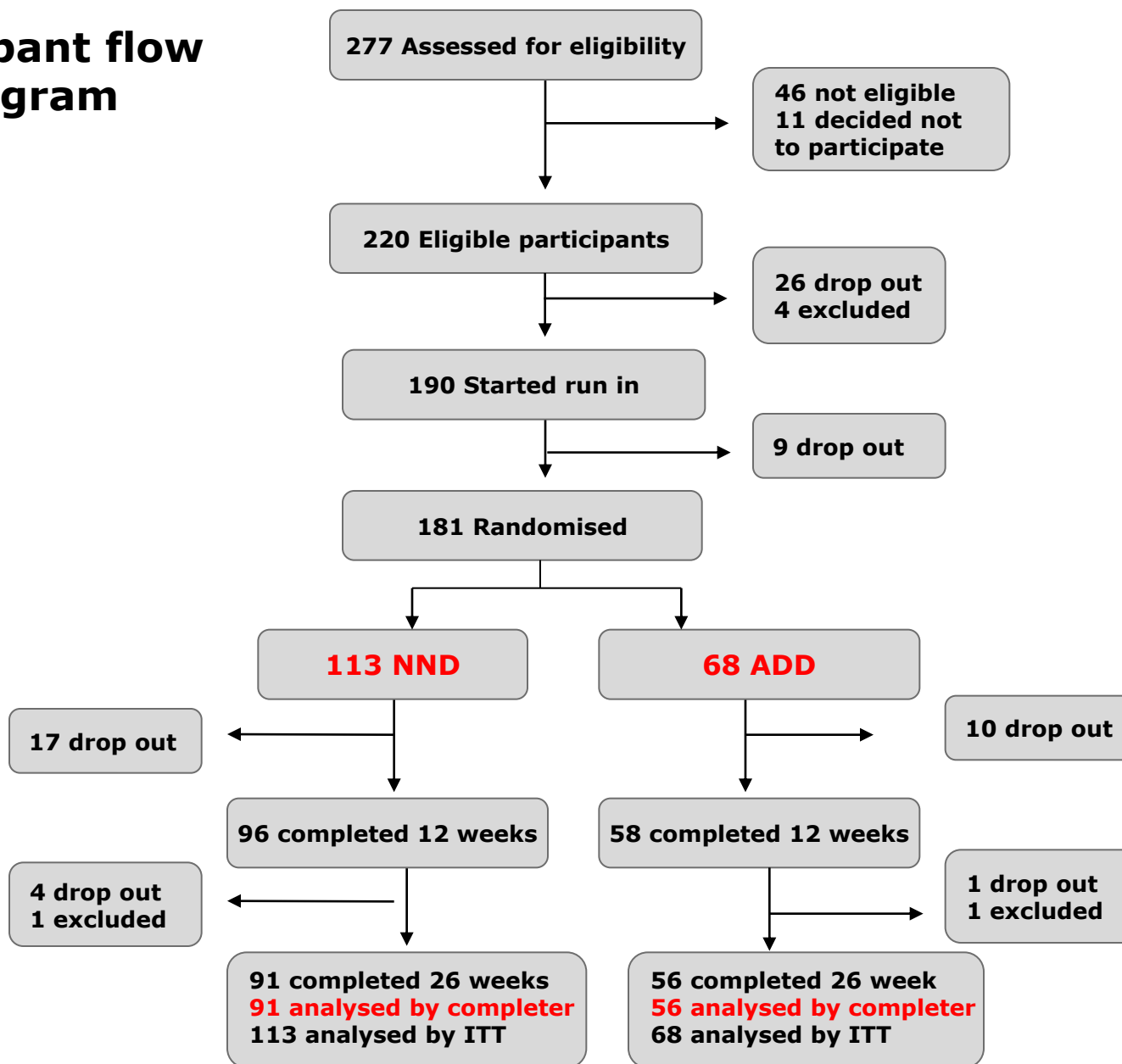
**Risk factors for type 2 diabetes and cardiovascular diseases**

**Compliance with the diets**

**Drop out rate**

**Clinicaltrials.gov ID: NCT01195610**

# Participant flow Diagram



## **Baseline characteristics for 181 randomised participants starting the 6 month dietary intervention period**

***The results of the study can not be disclosed yet, due to the ongoing publication in a scientific journal.***

Dietary intake – macronutrients (food diaries, week 26)

***The results of the study can not be disclosed yet, due to the ongoing publication in a scientific journal.***

**Energy intake based on 3-day dietary records  
at w0, w12 and w26**

***The results of the study can  
not be disclosed yet, due to  
the ongoing publication in a  
scientific journal.***

## Dietary intake – food groups (Shop data)

***The results of the study can not be disclosed yet, due to the ongoing publication in a scientific journal.***

## **Self evaluated compliance to the diets**

***The results of the study can not be disclosed yet, due to the ongoing publication in a scientific journal.***



## **“Objective” evaluation of dietary compliance**

***The results of the study can not be disclosed yet, due to the ongoing publication in a scientific journal.***

## Evaluation of the diets (overall satisfaction level)

***The results of the study can not be disclosed yet, due to the ongoing publication in a scientific journal.***

Change in body weight from screening (**N=181/145**)

***The results of the study can not be disclosed yet, due to the ongoing publication in a scientific journal.***

## **Change in anthropometric measurements from randomization (week 0) to week 26 (Completers only)**

***The results of the study can not be disclosed yet, due to the ongoing publication in a scientific journal.***

**Change in blood pressure from randomization (week 0)  
to week 26 (Completers only)**

***The results of the study can  
not be disclosed yet, due to  
the ongoing publication in a  
scientific journal.***

Change in blood pressure

***The results of the study can not be disclosed yet, due to the ongoing publication in a scientific journal.***

## **Change in diabetes risk factors from randomization (week 0) to week 26 (Completers only)**

***The results of the study can  
not be disclosed yet, due to  
the ongoing publication in a  
scientific journal.***

**Change in diabetic risk factors from randomization (week 0) to week 26 for a sub group (N=19) with pre-diabetes at week 0 (Completers only)**

***The results of the study can not be disclosed yet, due to the ongoing publication in a scientific journal.***



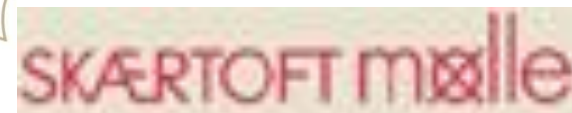
## **Change in CVD risk factors from randomization (week 0) to week 26 (Completers only)**

***The results of the study can not be disclosed yet, due to the ongoing publication in a scientific journal.***

# Preliminary conclusions and interpretation

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# Thanks to our food sponsors



Leverandør til Det Kongelige Danske Hof



Københavns Bagerlaug  
Fælig stolthed og traditioner



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# Acknowledgements

## **Collaborators**

Bente Kiens, Professor, University of Copenhagen

Ken Stark, Associate Professor, University of Waterloo

Steen Stender, Professor, Gentofte University Hospital

Claus Holst, PhD, Copenhagen University Hospital

## **Staff and students involved**

## **The participants and their families**

# Thank you for your attention

# Learn more and try more....

