



# Nutrition guidelines for healthy aging

## Examples from Denmark

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# Danish population 1994-2014

**Tabel 1. Befolkningens alderssammensætning 1994 - 2014**

Alder	Antal				Procentandel			
	1994	2004	2013	2014	1994	2004	2013	2014
<b>I alt</b>	5.196.642	5.397.640	5.602.628	5.627.235	100,0%	100,0%	100,0%	100,0%
<b>0 - 19</b>	1.228.728	1.312.672	1.335.820	1.325.416	23,6%	24,3%	23,8%	23,6%
<b>20 - 64</b>	3.166.828	3.280.390	3.267.007	3.275.085	60,9%	60,8%	58,3%	58,2%
<b>65+</b>	801.086	804.578	999.801	1.026.734	15,4%	14,9%	17,8%	18,2%
<b>65 - 69</b>	229.316	235.749	352.035	356.312	4,4%	4,4%	6,3%	6,3%
<b>70 - 74</b>	209.061	189.903	241.994	255.367	4,0%	3,5%	4,3%	4,5%
<b>75 - 79</b>	160.384	160.561	173.089	180.164	3,1%	3,0%	3,1%	3,2%
<b>80 - 89</b>	176.927	184.410	192.051	193.366	3,4%	3,4%	3,4%	3,4%
<b>90+</b>	25.398	33.955	40.632	41.525	0,5%	0,6%	0,7%	0,7%

Kilde: [www.statistikbanken.dk](http://www.statistikbanken.dk), BEF5

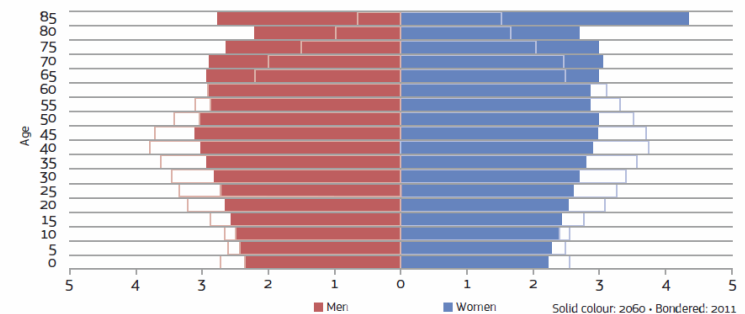
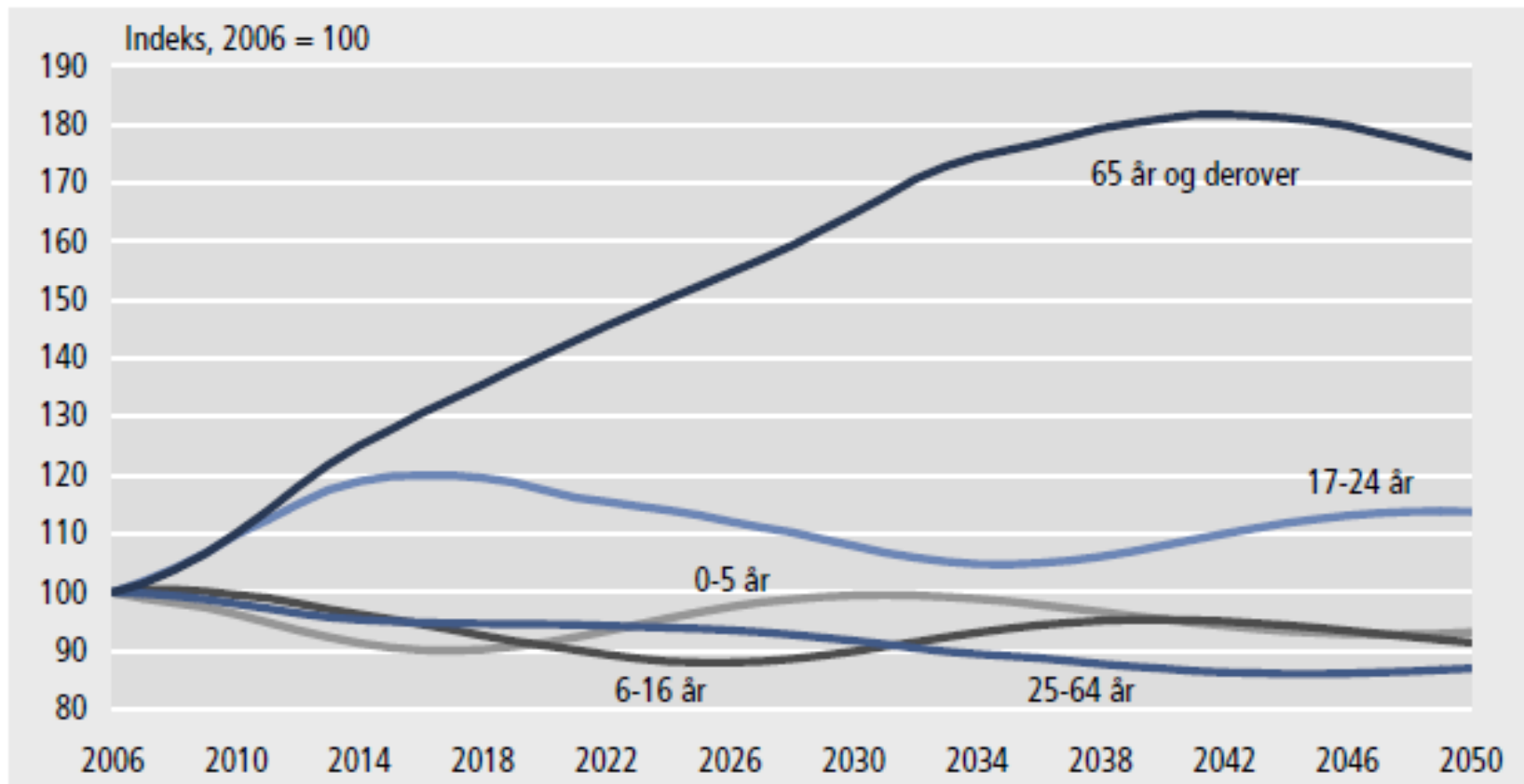


Figure 1.1. Population pyramids in EU-27, comparison between 2011 data and projection in 2060. X-axis: percentage of the total population. Source: Eurostat [3]

# Expected changes in population from 2006-2045 depending on age



# For healthy older adults

Evidensgrundlaget for danske råd  
om kost og fysisk aktivitet



Same 10 dietary guidelines as for all healthy adults

**Eat a varied diet, not too much, be physical active**  
**Eat fruits and plenty of vegetables**  
**Eat wholegrains**  
**Eat more fish**  
**Choose lean dairy products**  
**Choose lean meat and meat products**  
**Eat less saturated fat**  
**Eat less sugar**  
**Eat food with less salt**  
**Drink water**

September 2013

Corresponding to (NNR2012)  
10-20% from protein  
25-40% from fat  
45-60% from carbohydrates

# Evidence for the Danish dietary guidelines



Matrice 4.1: Frugt, bær, grøntsager, rodfrugter, bælgfrugter, nødder og frø, krydderurte  
kroniske sygdomme. Konklusioner fra systematiske vidensopsummeringer.

Dokumentation for årsagssammenhæng	Reduceret risiko		Øget risiko
	Eksposering	Sygdom	Eksposering
Overbevisende årsagssammenhæng	Frugt, bær og grøntsager (2)	Koronar hjertesygdom, slagtilfælde og forhøjet blodtryk	
	Kalium fra frugt, bær og grøntsager (2)	Hjertekarsygdom	
	Fødevarer med kostfibre som bælgfrugter, fuldkornsprodukter, (frugt, bær) og grøntsager (3)	Kræft i tyk- og endetarm	
Sandsynlig årsagssammenhæng	Grøntsager (3)	Kræft i mund, svælg, strubehoved, spiserør og mavesæk	Drikke med lav pH (2)
	Frugt og bær (3)	Kræft i mund og svælg, strubehoved, spiserør, lunge og mavesæk	
	Grøntsager i løgfamilien (3)	Kræft i mavesæk	
	Hvidløg (3)	Kræft i tyk- og endetarm	
	Fødevarer med folat (3)	Kræft i pancreas	

## Evidensgrundlaget for danske råd om kost og fysisk aktivitet



# For older adults with poor appetite

**High energy density (high fat /low CHO)**

**15-20% Protein**

**Vitamins and minerals: NNR+ suppl**

**Very small portion sizes**

**Frequent meals (6-8 incl energy and protein supplements)**

**Individually adapted to chewing/swallowing abilities**

**15-20% from protein  
50% from fat  
30-35% from carbohydrate**

# A good case

## Delights of Herlev Hospital

Small, delicate and tasty meals  
Free choice between different meals

Less expenses  
Less wasted food

The number of complications reduced by 40%  
Infections reduced by 45%  
Mortality reduced by 30%  
Length of hospitalization shortened



At retirement homes 60% get food from centralized kitchens,  
only 40% get home-made food





# Municipalities are responsible for public meal service

500.000-750.000 public meals produced daily ~ 5-7 bill DKr (15-20% of foods bought in DK)

The intentions are good, but the result?



Incl. meal service at home, retirement homes, hospitals (and kindergardens)

Portion sizes and nutritional content aimed at the healthy adults and older adults



Commercial ready-made food is cheaper and have a more beneficial content of fat and protein for people with poor appetite



We lack scientific based knowledge  
about costs and health effects of a  
good, nutritious, culinary public food  
service

Hvidbog on nærende måltider med kulinarisk kvalitet til ældre

## White paper on nutritious meals with culinary quality to older adults

Collaboration between Madkulturen (Foodculture) and U-CPH

Sept 2014-January 2015

+5 years?

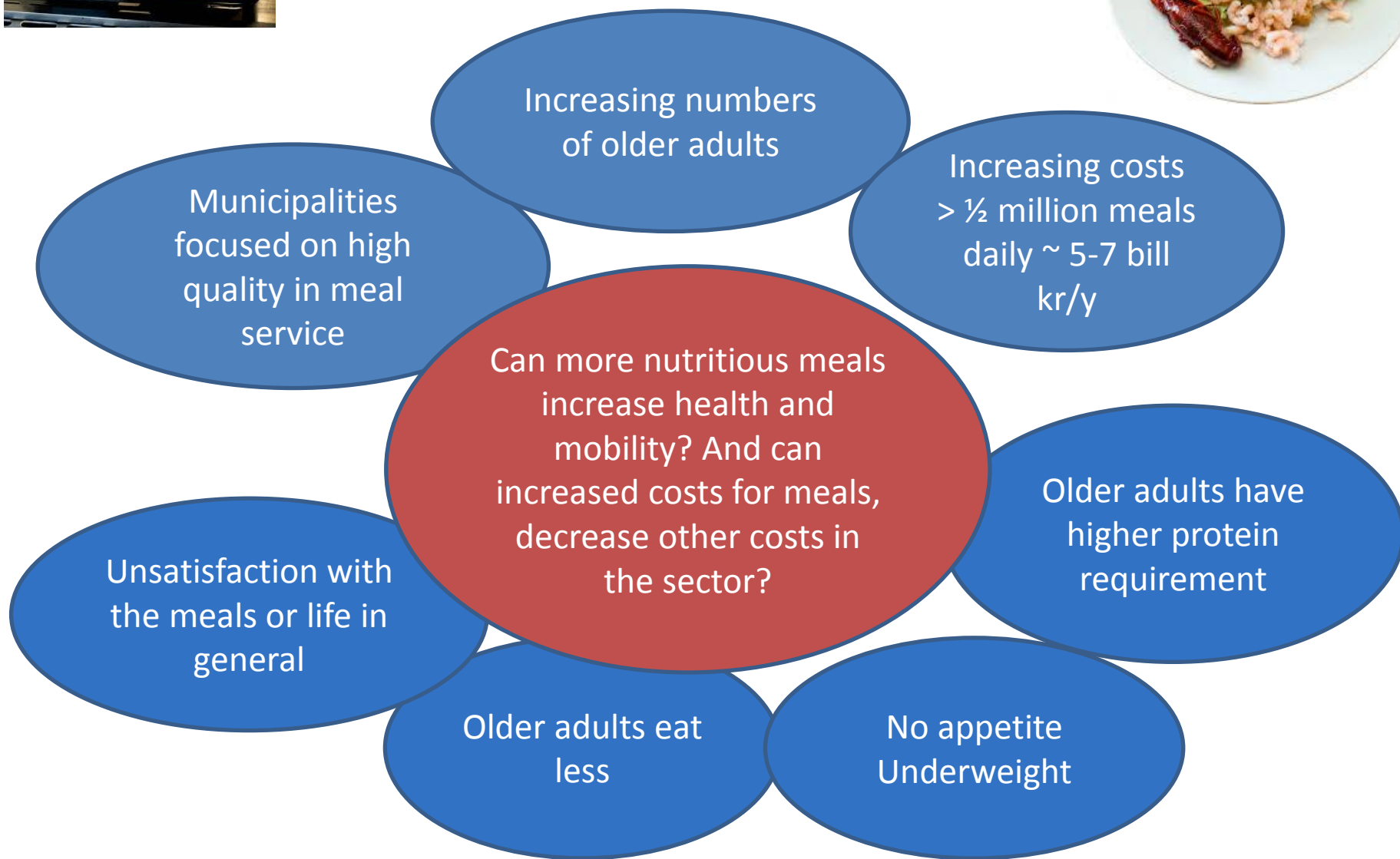


# Whitepaper on nutritious meals

- Collaboration between "Madkulturen" and University of Copenhagen
- The Liaison committee: Arne Astrup (NEXS), Henrik Zobbe (IFRO) og Bjarke Bak Christensen (FOOD) from U-CPH and Judith Kyst from "Madkulturen"
- The working group: Susanne Bügel (NEXS), Jørgen D Jensen (IFRO), Wender Bredie (FOOD), Andreas Buchhave Jensen og Christine Petersen (Madkulturen).
- General secretaries: Jerk Langer and Anne Marie Beck
- Deadline primo January 2015. Presentation of the white paper 22. January at "Velfærdens Innovationsdag" (innovation day for welfare)



# Why a (Danish) white paper?



# The mandate of the working group:

- To perform a literature review including the following research areas:
- Knowledge about nutrition physiology at optimized nutrient content (protein, vitamin D, magnesium), efficacy and synergy with physical activity
- Association between meal quality, nutritional quality and costs
- Association between culinary quality, physical environment, process organization and psychosocial determinants for food intake and nutritional status and socioeconomic costs associated with hospitalization, transfer to retirement homes and visitation to meal service at home.
- The review will include a summary of existing knowledge focusing on areas with well documented evidence and areas with none or little evidence.

# The target groups

1. Decision makers (politicians, civil servants, managers (hospitals and nursing homes))
2. Social workers (nursing- and kitchen staff)
3. Patient organisations, media, general population



Thank you for  
your attention

**“You do not stop living because  
you get old, you get old because  
you stop living”** (Lone Kühlman,  
writer of the book “Eliminate Age –  
stay in adulthood”)

