

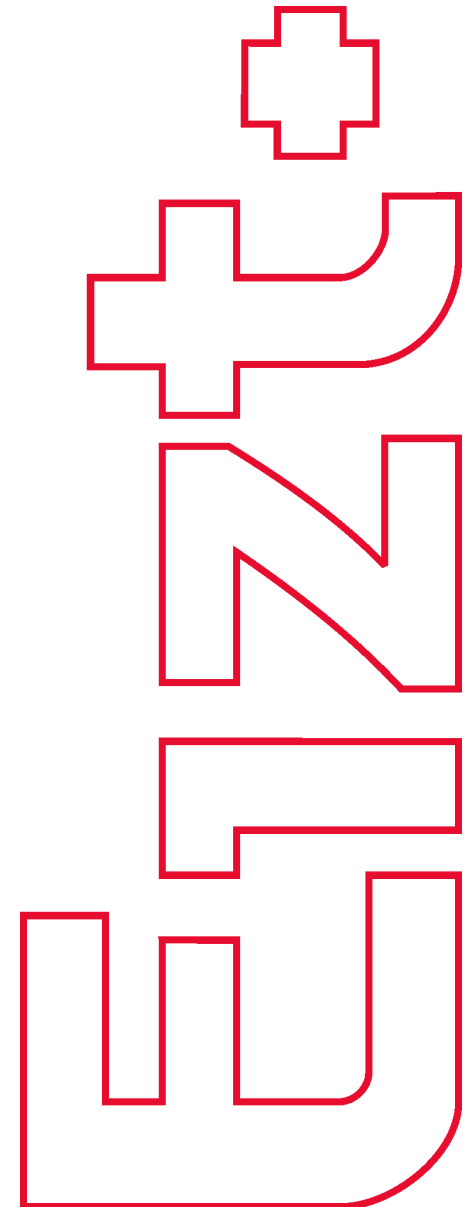
Food printing: Opportunities in long term care

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Long term care

- Intramural setting, e.g. nursing homes, residences for people with intellectual disabilities (ID)
- Extramural setting, e.g. community-dwelling elderly



Overweight in long term care

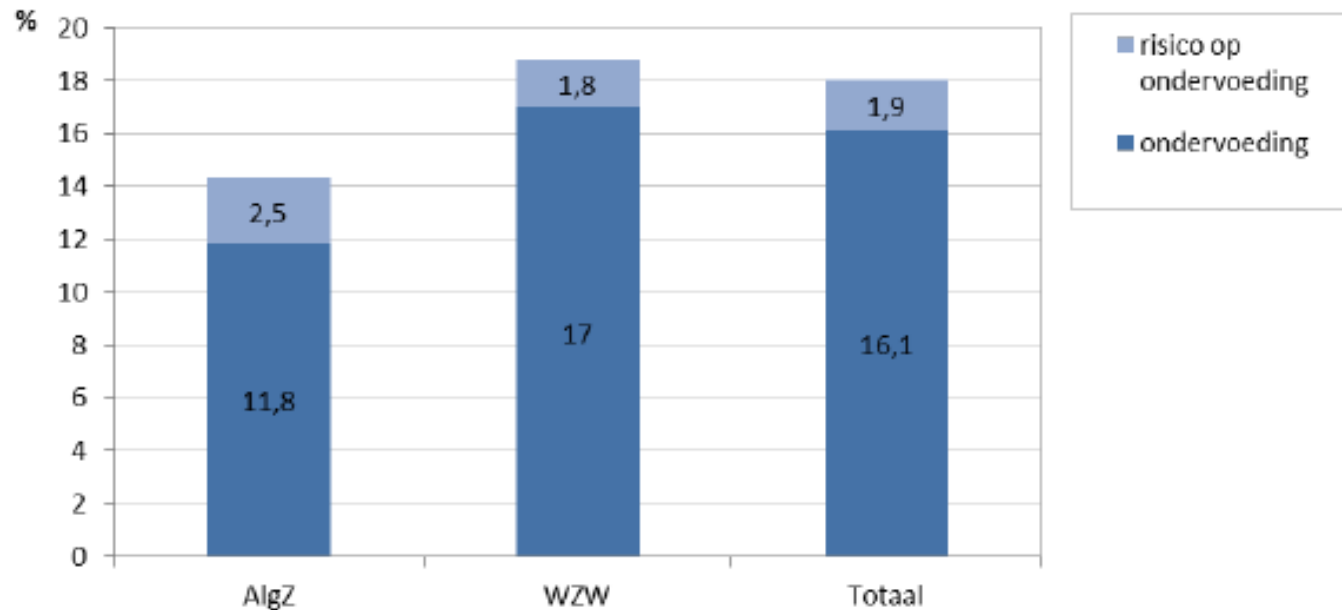
- Besides malnutrition, also overweight in people with ID
 - Overweight/obesity: 45% (*Maaskant, 2009*)
 - Underweight: 6% (*Maaskant, 2009*)



- Mainly mild ID -> overweight
- Mainly severe/profound ID -> underweight

Malnutrition in long term care

- Prevalence chronic care sector: 17% (LPZ, 2014)



Figuur 5.1 Prevalentie (risico op) ondervoeding LPZ in 2014 (%)

- Weight and muscle loss, decreased immune system, risk of infections, decubitus, falls and impaired wound healing (LPZ, 2014)

Malnutrition: causes

- Malnutrition has multiple causes (*Dutch Malnutrition Steering Group, 2010*)
 - Dysphagia
 - External eating behaviour
(decreased/increased influence of smell and taste)
 - Decreased appetite
 - Loneliness and depression
 - Dementia
 - Impairments of the gastro-intestinal tract

Dysphagia

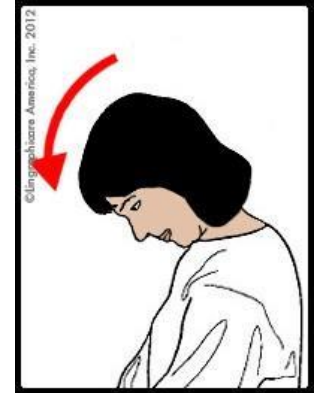
- Dysphagia= swallowing problems and problems with eating and drinking
- Prevalences:
 - elderly population: 10-22% (*Roy et al. 2007*)
 - nursing home residents: 30-75% (*Lopez et al. 2012*), in dementia and CVA: 45-86%
 - people with ID: 42%
- Increased incidences due to growing populations at risk: elderly patients with dementia, Parkinson's, CVA, injuries or cancer in head or neck area

Dysphagia: consequences

- Associated with malnutrition, dehydration, aspiration and pneumonia
- 30% of elderly people with dementie, CVA who have dysphagic problems develop pneumonia
 - high risk of death
 - negative effects on quality of life, general health status and intensity of care delivery

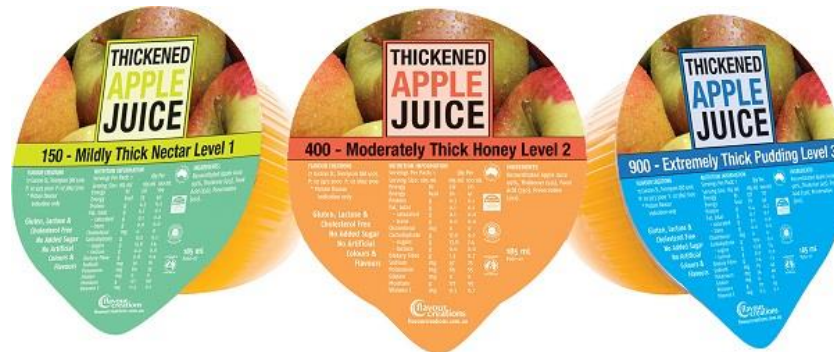
Treatment swallowing problems

- Two main treatments:
 - Training of swallowing (in rehabilitation)
 - Compensation strategies
 - Adaptation of posture
 - Adaptation of food and drinks; e.g Nutillis thickening powder or blending



Supplements & Medication

- Medication or supplement refusal?
- Medication often administered with apple sauce



- Or added to drinks (in powder form)

External eating behaviour (1)

- Eating in response to sensory effects food
- People with ID: enhanced sensory effects food (e.g. smell/taste) (*Van Kordenoordt*,
- Elderly:
 - Decreased smell and taste
 - Appetite suppression
 - Weight loss
 - Malnutrition



External eating behaviour (2)

- The Health Care Inspectorate:
 - Meal choice important for nursing homes residents (autonomy)
- Interviews with clients and support staff of Pergamijn:
 - Taste and meal choice important
- Stichting Diverzio:
 - Every day meals are thrown away, because of tasteless food and too big portions

Application of 3D Food Printing (1)

- Tailor-made food (personalized)
 - Consistencies
 - Structure
 - Nutrients
- Combination with medication delivery
 - E.g. no need for apple juice

Application of 3D Food Printing (2)

- Prevention of swallowing problems
 - Changing consistency food (e.g. smoothening)
 - Bread without crust
 - No need for Nutillis (high in calories)
 - No adding of milk, water, apple juice
- Attractive looking food (of mashed food)

Australian Standards for Texture Modified Foods and Fluids

The provision of thickened fluids and texture modified foods is a routine part of the assessment and management of feeding and swallowing difficulties (dysphagia).

If you need assistance with the level of fluid and food texture modification required, contact your Speech Pathologist.

To find a Speech Pathologist, go to www.speechpathologyaustralia.org.au.

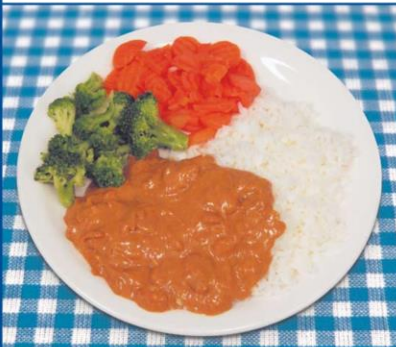


If you require support to determine whether a textured modified diet is meeting nutrition and hydration needs, contact your dietitian.

To find an Accredited Practising Dietitian (APD), go to www.daa.asn.au.

Please contact Novartis on 1800 671 628 or visit www.novartisnutrition.com.au for further information or for copies of this poster.

This poster is proudly supported by Novartis Medical Nutrition as part of the development of the Australian Standards.

Fluid	Mildly Thick Level 150	Moderately Thick Level 400	Extremely Thick Level 900
	<p>Fluid runs freely off the spoon but leaves a mild coating on the spoon</p> 	<p>Fluid slowly drips in dollops off the end of the spoon</p> 	<p>Fluid sits on the spoon and does not flow off it</p> 

Food	Texture A Soft	Texture B Minced and Moist	Texture C Smooth Pureed
	<p>Food may be naturally soft or may be cooked or cut to alter its texture</p> 	<p>Food is soft, moist and easily mashed with a fork; lumps are smooth and rounded</p> 	<p>Food is smooth, moist and lump free; may have a grainy quality</p> 

Application relevant settings

- Intramural care
 - Nursing homes
 - Hospitals
 - Residences for people with ID
 - Rehabilitation centers
 - Etc.
- Extramural care
 - Home care
 - Provision of food services at home



Thank you!

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