



3D food printing: experiences and expectations from long- term care

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Content

- Dutch long-term care
- Huntington's disease and dysphagia
- Current experiences
- Future expectations

Dutch Long-Term Care Act

- Everyone living in the Netherlands
- Dependent on 24/7 care/supervision
- Permanent situation

For?



- Dementia
- Somatic disorder or handicap
- Mental disability
- Psychiatric disorder
- Sensory impairment

Patient groups?



- Nursing staff
- Physician
- Psychologist
- Physiotherapist
- Occupational therapist
- Speech- and language therapist
- Dietician
- Social work

Caregivers?



Huntington's Disease and dysphagia

- Chorea
- Walking
- Balance
- Talking
- Swallowing

Movements



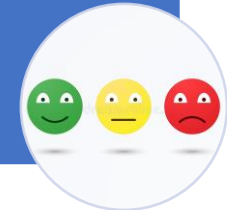
- Cognitive symptoms
- Memory
- Planning
- Concentration
- Fixated
- Lack of insight

Mind



- Behavioural symptoms
- Depression
- Anxiety
- Apathetic
- Easily agitated or aggressive

Mood



Dysphagia

Swallowing problems:
dysfunction of involved
muscles
(lips, cheeks, tongue, jaw,
larynx)

Chewing
Hoarding in cheeks
Food gets 'stuck'
Takes a long time
choking

Appetite ↓
Malnutrition/Dehydration
Pneumonia
Death
Fear of Choking

Managing dysphagia

- ❖ Involvement of speech- and language therapist
- ❖ Supervision, support or complete assistance with eating and drinking
- ❖ Use of assistive devices
- ❖ Safety adaptation of environment
- ❖ Adapted consistencies of food and drinks

Adapted consistencies



Current experiences

Project of 3 HAS green academy students:

Amber Schram, Matthijs Pas, Sara van Kreij,

Better food for people with chewing and swallowing problems

2 test 'tastings' in people with dysphagia

Tasting 1

- Participants are 6 dysphagia patients, who eat pureed food (IDSI 4)
- Comparison between current and desired eating experience: room for improvement
- Rating of components on: appearance, smell, color, taste, texture, aftertaste and an overall rating

Patient ratings

	Mean score	Texture	Comments
Carrot	6	4	Very beautiful, but sticky
Cauliflower	6	4	Beautiful, tasty, sticky
Peas	5	4	To big, sticky
Asparagus	5	4	Really tasty, salt, sticky,
Broccoli	5	3	Sticky, bitter aftertaste
Lasagna	5	3	Dissatisfaction with taste and aftertaste

Scale
1-7

Tasting 2

- Participants are 8 dysphagia patients who eat pureed food (IDSI 4)
- Lessons learned with regard to mental and physical abilities:
 - Shorter questionnaire
 - Fewer response possibilities
 - Fewer products
 - Stickiness is specifically asked for
- The recipes has been modified based on the feedback

Patient ratings

	Mean score	Stickiness	Comments
Carrot	3,8	4	Varying options about smell, tast, appearance, texture and stickiness
Broccoli	3,8	3,5	
Lasagne	3,9	3,5	

**Scale
1-5**

Future expectations

Central Kitchen:

- Increasing number of pureed meals needed
- Added value in terms of taste, nutritional value and presentation
- Switch to another way of heating the meals → logistic challenge
- Nursing staff:
 - When are all meal components available and can we start!
- Research:
 - How affect these products nutritional status, weight, quality of life and acceptance of pureed food

Patient opinions

Nicely presented, but it's all about the taste

Good to know that there is an alternative for the current pureed meal, when I am going to need it someday

When I recognize what is on my plate, I feel like eating



Wat **mijzo**
bijzonder maakt

Thank you for your
attention.

Questions?