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Food comfortability: a new concept to assess the acceptance of various food textures by elderly people suffering from oral health problems

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Introduction

Ageing is often accompanied by a deterioration in oral health such as tooth loss, decreased muscle strength, hypo-salivation and impaired swallowing induced by disease or drugs (Mioche, 2004, Liu et al, 2012). This oral health deterioration can induce eating difficulties and might have an impact on the perception of food comfortability. The objective of this study is to evaluate the impact of oral health on the perception of food comfortability.

Definition of food comfortability

For elderly people, food comfortability depends on easiness to form bolus when eating and on texture softness. Mouth pain caused while eating the food decreases food comfortability. Food comfortability also decreases when the texture is dry, doughy and not melting. To a lesser extent, a balanced flavour contributes to food comfortability (Vandenbergh-Descamps et al. 2016).

Questionnaire

General question

This food is...

Very uncomfortable Uncomfortable Moderately comfortable Comfortable Very comfortable

Bolus formation

To cut this food with your incisor is...

Impossible Very difficult Difficult Moderately easy Easy Very easy

Same scale for cutting with premolars, masticating, humidification with saliva and swallowing

Mouth pain

Does eating the food bring a burning or spicy sensation?

Extremely A lot Little Not at all

Same scale for muscular pain, articular pain, dental pain and gum pain

Texture and flavour

Is this food sticky?

Extremely A lot Little Not at all

Same scale for stringy, greasy, dry, doughy, melting, firm, hard, intense in taste, salty, sugary, acidic and bitter

Subjects

	n	mean age	sex		Dentition status*		Resting salivary flow**	
			women	men	≥ 7 PDO	≤ 4 PDO	> 0,26 ml/min	< 0,26 ml/min
cereal based products	38	73,8	20	18	23	15	18	20
meat-based products	34	72,3	18	16	21	13	17	16

*PDO : Posterior Dental Occlusion

** 0,26 is the median of resting salivary flow observed on 180 elderly subjects (65-92 year old)

Products



Crispbread

Financier

Madeleine



Milk roll

Protein enriched milk roll

Sponge cake



Beef cheek

Plain beef

Ground beef



Chicken balls

Reconstituted chicken aiguillette

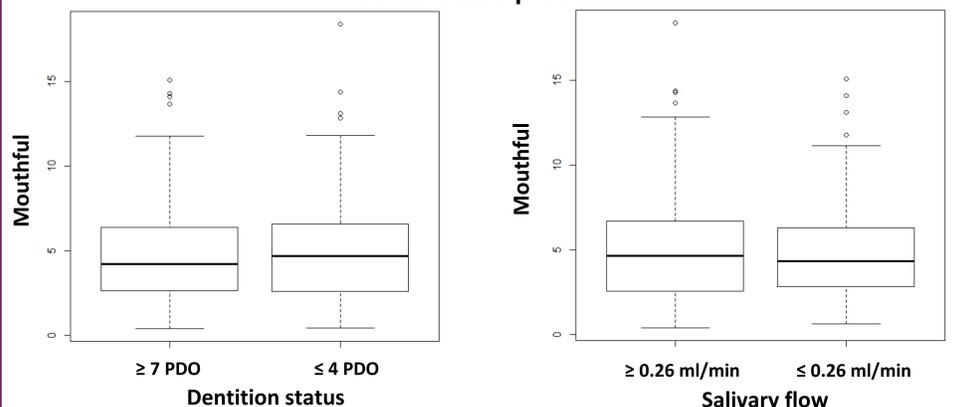
Chicken aiguillette

Results

	variable	Dentition effect		Saliva effect	
Comfort	comfort	NS	NS	NS	NS
	incisor	NS	NS	NS	NS
Bolus formation	molar	NS	NS	NS	NS
	masticate	NS	NS	NS	NS
	humidify	NS	NS	NS	NS
	swallow	NS	NS	NS	NS
	burn	NS	NS	NS	NS
Pain	muscle	< 0.05*	< 0.05*	< 0.05*	NS
	articular	NS	NS	NS	NS
	dental	< 0.05*	NS	< 0.05*	NS
	gum	NS	NS	NS	NS
Texture	sticky	NS	NS	NS	NS
	stringy	NS	NS	NS	NS
	greasy	NS	NS	NS	NS
	dry	NS	NS	NS	NS
	doughy	NS	NS	NS	NS
	melting	NS	NS	NS	NS
	firm	NS	NS	NS	NS
	hard	NS	NS	< 0.05*	NS
Flavour	taste intense	NS	NS	NS	NS
	salty	NS	NS	NS	NS
	sugary	NS	NS	NS	NS
	acidic	NS	< 0.05*	NS	NS
	bitter	NS	NS	NS	NS

Size of mouthful

In parallel, we measured the spontaneous mouthful of each subject for the six cereal-based products



Conclusion

Oral health does not impact on the perception of food comfortability. However few effects of dental status and salivary flow were observed on sub-dimensions of food comfortability, in particular muscle and dental pain.

The size of mouthful does not differ according to oral health.

It may be hypothesized that elderly with a poor oral health got used to dealing with their mouth impairments. Further studies will be needed to verify this hypothesis.



Centre des Sciences
du Goût et de
l'Alimentation

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<https://www2.dijon.inra.fr/senior-et-sens/index.php>

