

Getting the most out of our senses as we age

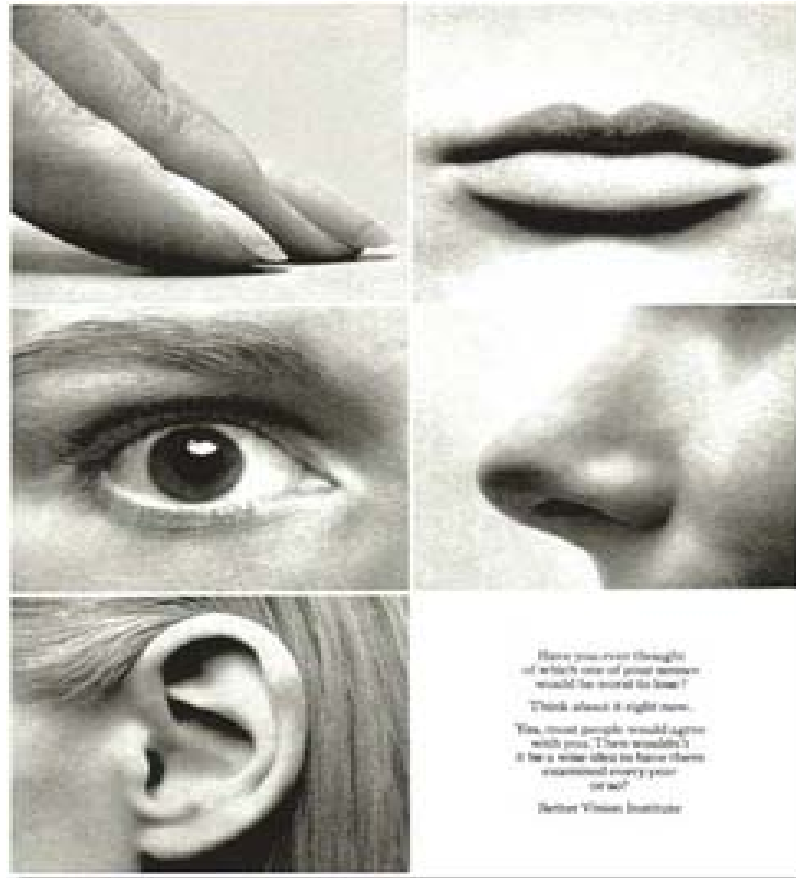
Dr Lisa Duizer

Department of Food Science, University of Guelph
Research Scientist, Agri-food for Healthy Aging

November 11, 2009



Our senses.....



An integration....



+



+



+



Tastes

Odours

Chemical
senses

Textures



Factors affecting our sensory responses

- Taste & Smell
 - Environmental insults
 - Genetics
 - Health
 - Medications
 - Saliva production
 - Oral hygiene
 - Dentures
- Texture
 - Saliva production
 - Oral hygiene
 - Dentures
 - Muscle weakness
 - Arthritis

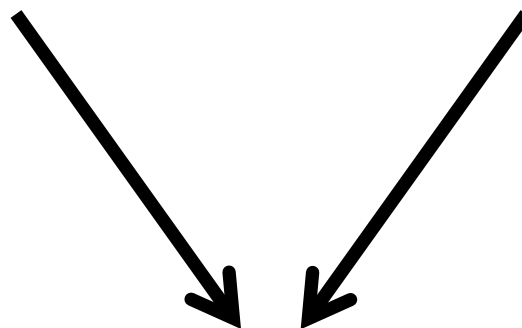


Smell

Orthonasal

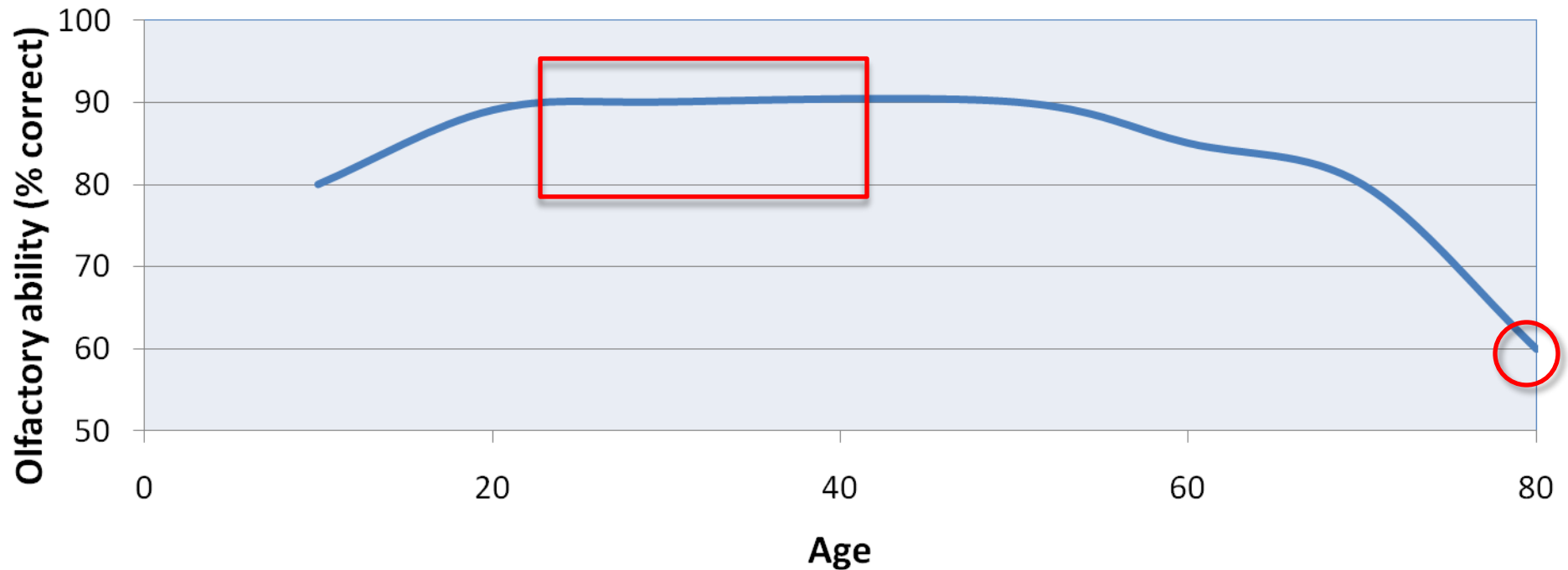


Retronasal



Odour

Olfactory changes as we age



Chemosensory testing for anosmia

- Sniffin' sticks
- University of Pennsylvania Smell Identification Test (UPSIT)



Effects of anosmia on food intake

- Can lead to:
 - depression
 - loss of appetite
 - reduced enjoyment of food



Taste thresholds as we age



	Early adulthood-middle age	Middle age-older age	Older age
Salty	Generally no change in perception		
Sweet	Generally no change in perception		
Umami	Slight decrease		
Sour	Decrease in perception		
Bitter	Decrease in perception		

Mojet et al., 2003)

How important are genetics?



“Supertasters”

- Experience more chemical irritation
- Eat less fatty foods
- Eat less bitter vegetables
- “...nontasters of quinine and PROP were short, soft, round and fat while those with low thresholds to these compounds, tall and lean...” (*Fischer et al., 1966*)



Genetics and aging

- Genetic influences are modified by age
 - Individuals with the bitter receptor genotype lose sensitivity to bitter
 - Liking of other tastes changes (*Monell news, Feb 7, 2005; Navarro-Allende et al., 2008*)



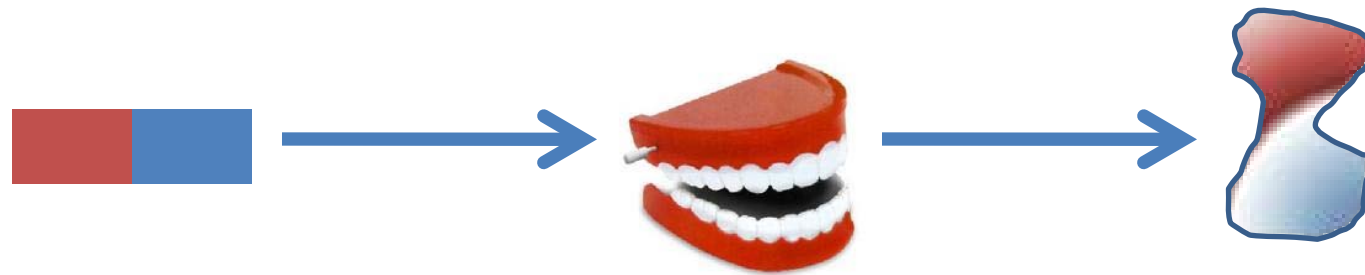
Texture

- ISO (1981)
 - “All the rheological and structural (geometric and surface) attributes of the product perceptible by means of mechanical, tactile and, where appropriate, visual and auditory receptors”



Changes in physiology as we age

- Reduced salivary flow
- Reduced chewing efficiency



- Swallowing impairment



Strategies for improving foods for older adults

- Enhancement
 - Addition of herbs, spices, salts
 - Intensification of flavour
 - MSG, added flavourants (*Schiffman 2000*)
- Compensatory
 - Irritant addition - capsaicin (burn!)
 - Change the mouthfeel



Sensory changes and food liking

- Sensory capabilities and liking are not always correlated
 - Older adults appear to prefer higher stimuli in solutions but in actual products liking is similar to younger adults.
- Non-sensory factors are also important



To get the most out of our senses...

- Look at the individual
 - Person
 - Product
- Find the strategy that works best
 - Compensatory?
 - Adaptive?
- Look at ALL factors affecting changes in food consumption



More information/ questions

Lisa Duizer

Department of Food Science

University of Guelph

lduizer@uoguelph.ca

Phone 519-824-4120 ext 53410

