

# Food enhanced with MSG: no effect on intake in Dutch institutionalized elderly.

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## Elderly and flavor preference: status so far

- Increasing age - preference for higher flavor concentration; shown in several studies but not all
- MSG
  - Intensifies flavors, adds full-bodied mouth feel → acceptance and palatability ↑ (of some foods)
  - Effect depends on optimal dose (varies between food items)
- Institutionalized elderly: on average lower energy intake



## Still unclear

- Effect of (an optimal preferred concentration) MSG added to food items on intake in elderly

2 studies



- Study 1. Long term effect MSG on intake and body weight
- Study 2. Optimal dose MSG and its effect on intake



# Study 1. Flavor enhancement, food intake and body weight: 16 wk randomized double blind trial

- Does daily addition of 300 mg MSG and/or 700 mg flavor added to the animal part of a cooked meal increase intake? (based on Mathey et al, 2001)
- Four groups: control (n =23) , flavour (n=19), MSG (N=19), flavour + MSG (n= 19)
- Flavours over meat part; beef/pork (stewed/roasted), chicken (stewed/roasted/soup/fried), lamb
- Control; maltodextrine
- Food intake: 14 consecutive days weighing of left over evening meal



## Study 2. Optimal dose MSG in foods, effect on food intake: 4 wk cross-over single blind trial

- A. What is the optimal preferred concentration of MSG in mashed potatoes, spinach, ground beef?
  - 33 institutionalized elderly, 29 young
  - Pleasantness (10-point scale)
  - MSG range in foods: 0, 0.5, 0.8, 1.3, 2.0 g MSG/100 g
- B. What is the effect of these foods with an optimal dose on intake?
  - 53 institutionalized elderly
  - 1 meal/wk (4 total, at random): 2- MSG and 2+ MSG (0.5% in mashed potatoes, 2% in spinach and ground beef)
  - Food intake: weighing back left over meal

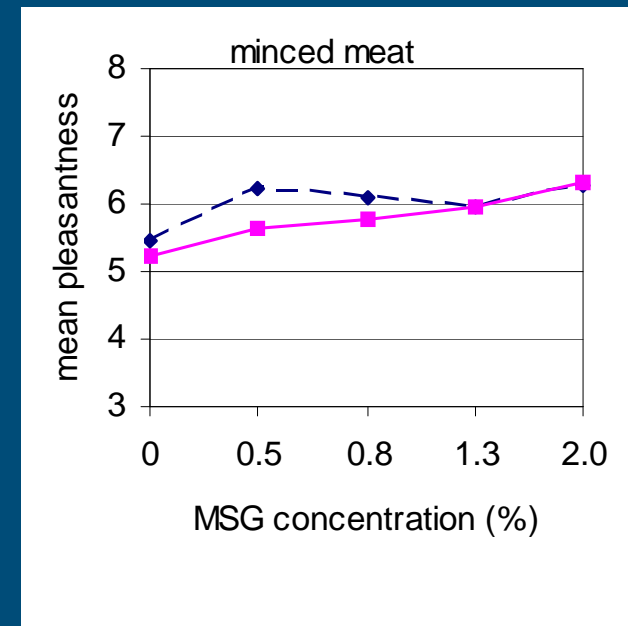
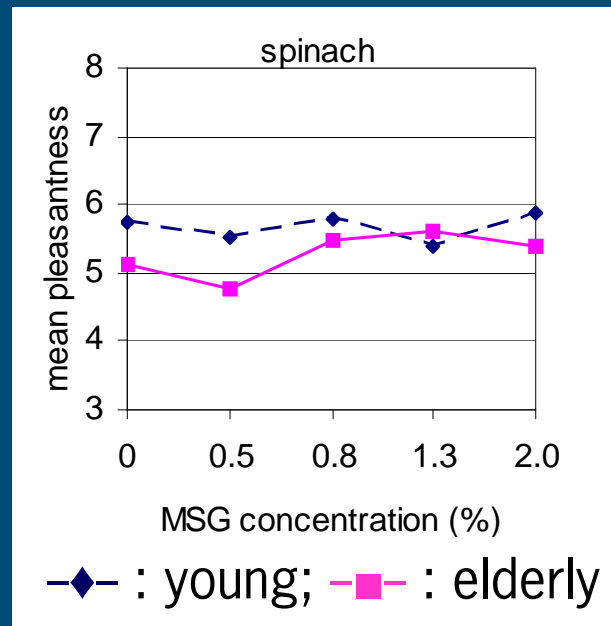
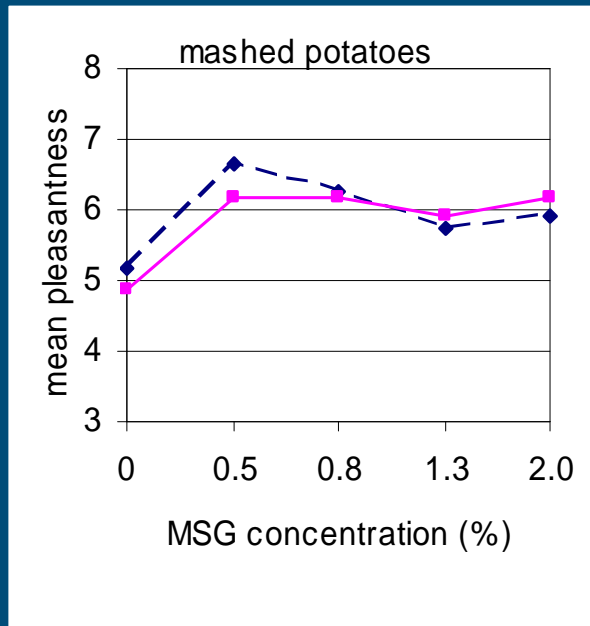


## Results study 1. Essed et al., 2007

	Baseline Energy (MJ)	Change	Baseline Weight (kg)	Change
Control	2.15	0.1	69.4	0.2
Flavor	2.20	0.0	74.3	0.2
MSG	2.27	0.0	71.7	-0.8
Flav/MSG	2.22	0.0	73.3	-0.9



# Results study 2. Optimal preferred dose MSG in foods



**Optimal dose MSG:** 0.5% in mashed potatoes ( $p < 0.05$ ), no clear optimum in spinach and ground beef.



## Results study 2. Optimal dose MSG; effect on food intake (0.5% in potatoes ,2% in spinach and meat)

	Energy (kJ)	
	+ MSG	- MSG
Minced meat	1113 ± 574	1135 ± 602
Spinach	83 ± 44	85 ± 46
Mashed potatoes	559 ± 315	564 ± 322
Total meal	1756 ± 881	1774 ± 905



# Conclusions

- Enhancing the taste of a cooked meal with either 0.3 % MSG during 16 wks or with an optimal concentration of 0.5 to 2.0% MSG every wk during 4 weeks did not increase energy intake (and body weight) among institutionalized elderly
  
- Elderly
  - heterogeneous group
  - denture wear
  
- Flavor enhancement
  - only for specific group of elderly?
  - more individual approach because of sensory diversity in elderly population?



# Recommendation

- More research (long term) is needed to determine the efficacy of flavor enhancement by means of MSG on intake and body weight among elderly people



# Thank you for your attention

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