Stimulate your nose in the MRI: brain responses to odors in anticipation of food

Sanne Boesveldt. 3T MRI seminar, Nov 2016
Food perception
Food anticipation: sense of smell
Food anticipation in the scanner

Odor administration: olfactometer
Brain responses to odors in anticipation of food

- Dietary intervention study: how diet can alter brain and behavior
- RYGB surgery: explain altered food preferences by brain responses
- Smell and Taste Center: clinical care
Influences of protein depletion on food cue reactivity?

Griffioen-Roose, 2014 Am J Clin Nutr
Protein status modulates behavior and brain reward response to savory food cues

Griffioen-Roose, 2014 Am J Clin Nutr
Patients undergoing gastric bypass (RYGB)

- Morbidly obese patients
- RYGB surgery
- Changes in food preferences: from high-sweet high-fat to low-energy
- Why?? How??
- Changes in reward responsivity? Changes in impulse control?

odors+pics
(f)MRI in Smell and Taste Center (ZGV)

- Patients with (unexplained) smell or taste complaints
- 5-20% of population

Reuk- en smaak Centrum

- Open since July 2015
- ~150 patients so far; 150 on waiting list
- Extensive clinical protocol, including (f)MRI
  - Structural MRI: e.g. size of olfactory bulb
  - Functional MRI: brain responses to odors, link with clinical parameters
Thank you!

Acknowledgments:
CAT-Agrofood
Sanne Griffioen-Roose
Jet Zoon
Elbrich Postma
Wilbert Boek
Paul Smeets
e.a.

NWO
Rijnstate
Ziekenhuis Gelderse Vallei
Alliantie Voeding Gelderse Vallei