HOW CAN CLASSICAL CONDITIONING LEARNING PROCEDURES SUPPORT THE TASTE DEVELOPMENT IN TODDLERS?

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*granted by FWO
UNHEALTHY FOOD CHOICES

Daily intake of most essential food groups: below minimum recommendations

High intake of energy-dense and low-nutritious foods

Strongest barrier for vegetable consumption = preference

Vereecken & Maes (2010); Huybrechts & De Henauw (2009)
DEVELOPMENT OF FOOD PREFERENCES = LEARNING PROCESS

Child characteristics

Context
Research has suggested to take into account a child’s individual Reward Sensitivity (RS) as a biological predisposition that guides human behavior (Beaver et al., 2006).

→ the specific role of RS in the learning process of food preferences?
The development of food preferences takes place within the caregiver-child feeding relation:

- When?
- What?
- How children learn their food preferences?

Evidence for 3 processes:

- Exposure = making food frequently available
- Observational learning = modeling by parents or siblings
- Associative learning: the association of the food with a positive climate (UCS) → underresearched

Birch & Doub, 2014
Focus group study on effective strategies and environmental cues to enhance tasting in young children

3 focusgroups: Parents, nannies and day care assistants

Results: 3 important aspects for context learning:

<table>
<thead>
<tr>
<th>Results of the Focusgroups</th>
<th>Involvement</th>
<th>Involvement/modeling</th>
<th>Positive atmosphere /presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Identify and illustrate the vegetable to be tasted</td>
<td>Safety figure present</td>
<td>Colorfull plates and cutlery</td>
</tr>
</tbody>
</table>
Aims

To compare the effects of

- **context** learning with
- **mere repeated exposure**

⇒ on the intake of vegetables and
⇒ how this is interrelated with individual differences in **Reward Sensitivity**
To compare the effects of
- context learning with
- mere repeated exposure
→ on the intake of vegetables and
→ how this is interrelated with individual differences in Reward Sensitivity (RS)
Children in day care (18-30 months)

paradigm: **Flavour-context learning**

Positive context (UCS) $\Rightarrow$ positive affect (UCR)

Unliked food + Positive context (UCS) $\Rightarrow$ positive affect (UCR)

Unliked food (CS) $\Rightarrow$ positive affect (CR)

Positive context: 3 aspects based on focusgroups
<table>
<thead>
<tr>
<th>Week</th>
<th>Week2</th>
<th>Week3</th>
<th>Week4</th>
<th>Week5</th>
<th>Week 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test liking assessment</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Pre test intake assessment</td>
<td>X</td>
<td></td>
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</tr>
<tr>
<td>Tasting trials (WtT and liking)</td>
<td>Trial 1, 2 &amp; 3</td>
<td>Trial 4, 5 &amp; 6</td>
<td>Trial 7, 8 &amp; 9</td>
<td></td>
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<tr>
<td>Post test liking assessment</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
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<tr>
<td>Post test intake assessment</td>
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<tr>
<td>Follow up liking assessment</td>
<td></td>
<td></td>
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<td>X</td>
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<tr>
<td>Follow up intake assessment</td>
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<td>X</td>
</tr>
</tbody>
</table>

*Table 2: Assessment procedure based on Anzman-Frasca, Savage, Marini, Fisher & Birch (2011)*
RESULTS

pretest

- mere exposure
- positive context

pretest
RESULTS

- Pretest vs Posttest:
  - Mere Exposure:
    - Pretest: Higher score
  - Positive Context:
    - Posttest: Higher score
ROLE OF INDIVIDUAL CHARACTERISTICS

- **low RS**
- **high RS**
Repeated exposure (9 tasting trials) is effective!
  - AND generalization to other unliked vegetable (fennel)

So far, lack of evidence of postive context learning:
  - Positive climate realized?
  - Positive context learning in both conditions?
  - Other positive aspects like social or tangible rewards, encouragement?
  - Only for some children BUT not for others (adverse effect)?

Will be further explored by the REWARD project

Individual characteristics are important!
  - Serving vegetables is a challenging strategy, especially for children with low levels of RS (not easy to stimulate)
THANK YOU FOR YOUR ATTENTION