What do you want to eat?

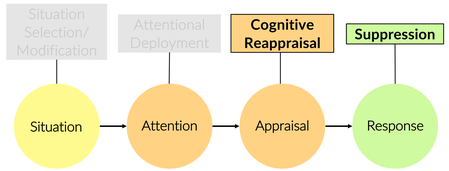
Regulatory strategy effects on choice and neural activation

Daniel J Wilson[1], Cendri Hutcherson[1]

[1]Department of Psychology, University of Toronto

// BACKGROUND

- **Decisions** are often captured as a **weighted sum** over **multiple attributes** [1]: *Summed Value* = $w_1*a_1 + w_2*a_2 + ... + w_n*a_n$
- **Choices** are made by integrating these attributes in a process of context-informed sequential sampling and evidence accumulation.
- **Process Model of Emotion Regulation** suggests we can apply regulation using different strategies: [2,3]



- Can these techniques--specifically Reappraisal and Suppression--be effective tools for improving food choice?

// GOALS

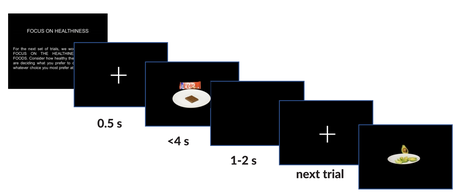
1. **Investigate** both behavioral and neural outcomes of two regulatory strategies--reappraisal and suppression--on choice.
2. **Model** outcomes using DDM to get at underlying processes.
3. **Find** brain regions that map onto model parameters.

// METHODS

1. Fasted subjects (n = 50, F = 34, mean age = 23.1; range = 18– 38) rated a wide range of foods for Liking pre-scan, and then for Liking, Taste and Health post-scan.
2. In scanner, subjects made choices about these foods under two regulatory conditions (Focus on Health and Decrease Desire) and one control condition (Respond Naturally).

Run Structure

Trial Format

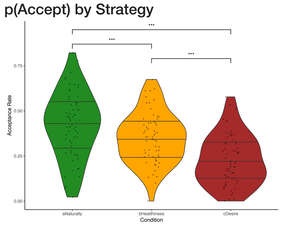


Response

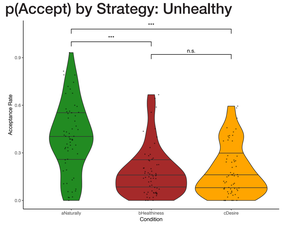
// RESULTS

// Behavioral

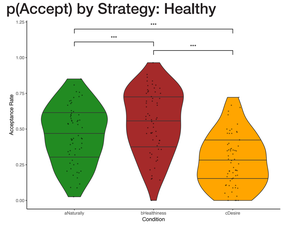
p(Accept) by Strategy



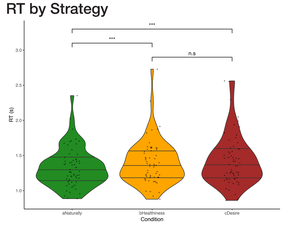
p(Accept) by Strategy: Unhealthy



p(Accept) by Strategy: Healthy



RT by Strategy

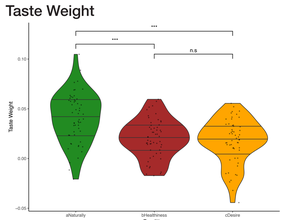


Comment on Behavioral Results...e.g. Acceptance lower in both regulation conditions...but lowest in decrease desire. However, the health condition is a more "effective" regulation in the sense of increasing acceptance of healthy foods. RT slower with regulation.

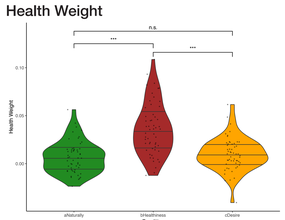
// Drift Diffusion Model

5 Parameter DDM
- threshold
- non-decision time
- starting point
- $drift_{Taste}$
- $drift_{Health}$

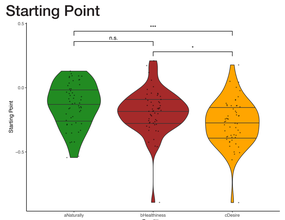
Taste Weight



Health Weight



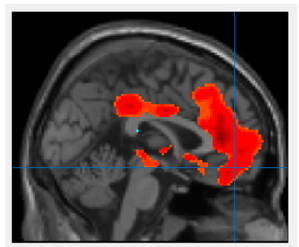
Starting Point



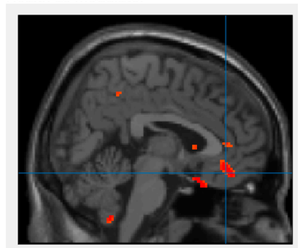
Comment on DDM Results...e.g. Taste weight lower in both regulatory conditions. Health weight higher only in Health condition driving higher acceptance of healthy foods. Starting point bias for Decrease significantly closer to No threshold than other conditions, part of the reason for the lower acceptance rate, along with the low drift on **both** health and taste.

// Neural

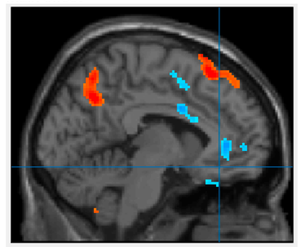
Preference in trial as modulator



Health as modulator



Main effect



Overlap (Health HvN & Main DvN)

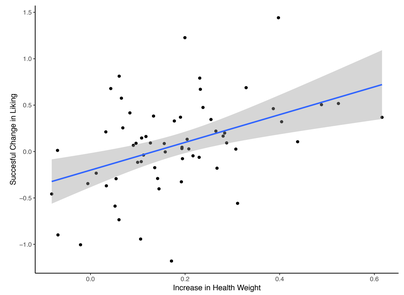
Comment on Neural results

Correlation data?
More brain images

// Lasting Effect?

Health Condition

Successful Change in Liking ~ Change in Health Weighting



1. Success is defined as a subject increasing their Liking rating of a healthy food, and decreasing their Liking rating of an unhealthy food. The change is calculated by:
post-task Liking rating - pre-task Liking rating
2.

// DISCUSSION

1. DFs

// REFERENCES

1. Belton, Valerie. (1986). A Comparison of the Analytic Hierarchy Process and a Simple Multi-Attribute Value Function. *European Journal of Operational Research 26* (1): 7–21.
2. Gross and Munoz, 1995,
3. Gross, 1998,
4. Gross 2002.

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// FURTHER INFORMATION

Corresponding author: Daniel J Wilson
danielj.wilson@mail.utoronto.ca
www.danieljwilson.com