

# OBIWAN BEHAVIORAL ANALYSIS

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## Demographics

### Summary statistics:

Table 1: AGE

<b>intervention</b>	<b>mean</b>	<b>sd</b>	<b>min</b>	<b>max</b>
Placebo	40.27	13.74	18	62
Liraglutide	38.61	11.72	22	64

Table 2: BMI

<b>intervention</b>	<b>mean</b>	<b>sd</b>	<b>min</b>	<b>max</b>
Placebo	35.08	2.96	30.5	41.0
Liraglutide	35.74	2.93	31.8	43.5

Table 3: GENDER

<b>gender</b>	<b>intervention</b>	<b>n</b>
Men	Placebo	10
Men	Liraglutide	7
Women	Placebo	16
Women	Liraglutide	16

Table 4: Group

<b>intervention</b>	<b>n</b>
Placebo	26
Liraglutide	23

## Description

## Weight Loss

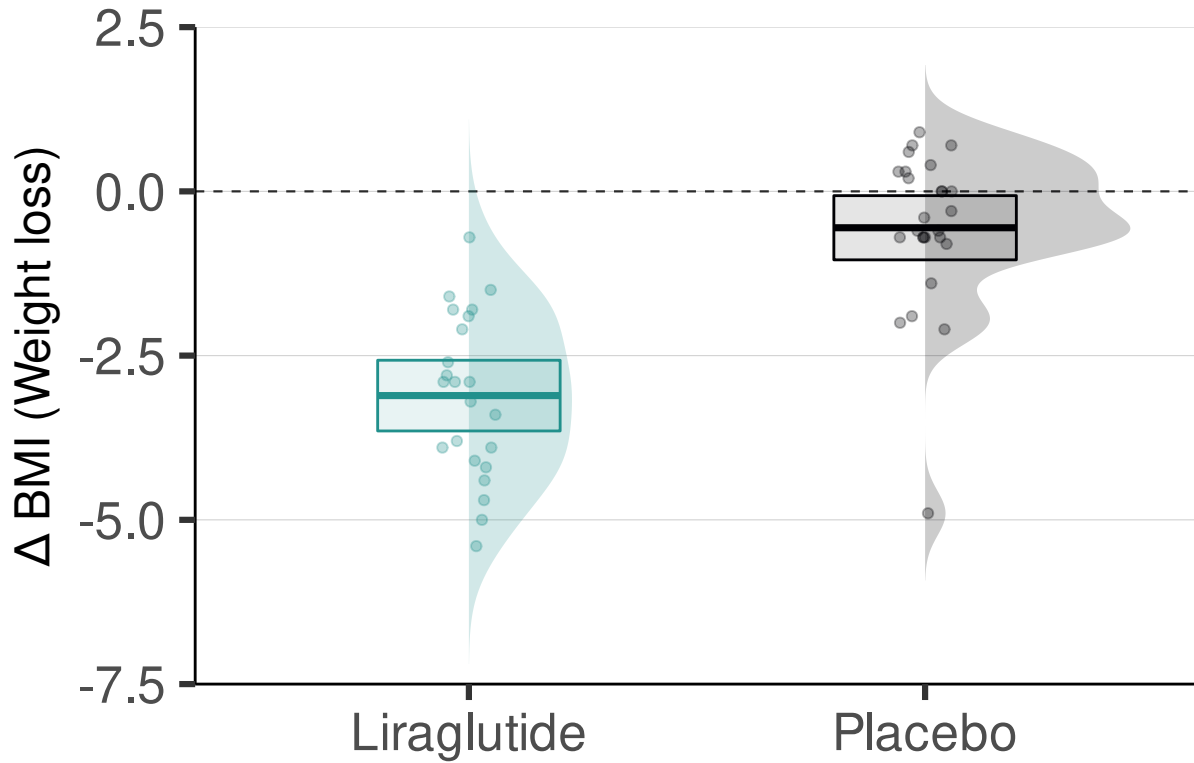
Effect	df	MSE	F	p.value
intervention	1, 16	0.79	20.07 ***	<.001
gender	1, 16	0.79	2.04	.173
age	1, 16	0.79	1.92	.185
BMI_t1	1, 16	0.79	4.03 +	.062
OEA	1, 16	0.79	1.13	.305
PEA	1, 16	0.79	5.18 *	.037
X2.AG	1, 16	0.79	0.92	.352
AEA	1, 16	0.79	1.19	.292
Leptin	1, 16	0.79	0.66	.428
Resistin	1, 16	0.79	1.39	.255
adiponectin	1, 16	0.79	0.06	.808
reelin	1, 16	0.79	1.21	.287
glucagon	1, 16	0.79	1.65	.217
Ghrelin	1, 16	0.79	0.01	.928
obestatin	1, 16	0.79	1.45	.245
GLP1	1, 16	0.79	0.23	.640
insulin	1, 16	0.79	0.10	.753
Fast_glu	1, 16	0.79	0.71	.412

```
## [1] "PES: intervention: Overall lower weight loss for Placebo"
```

```
## Partial eta-squared 90 % CI lower limit 90 % CI upper limit
```

```
##          0.5394568          0.3615859          0.6477978
```

## Weight Loss X Intervention



## Pavlovian Conditioning Task (Analysis: Latency)

Latency = time to detect the target (ms) & condition = CS+ or CS-

Table 5: Latency (ms)

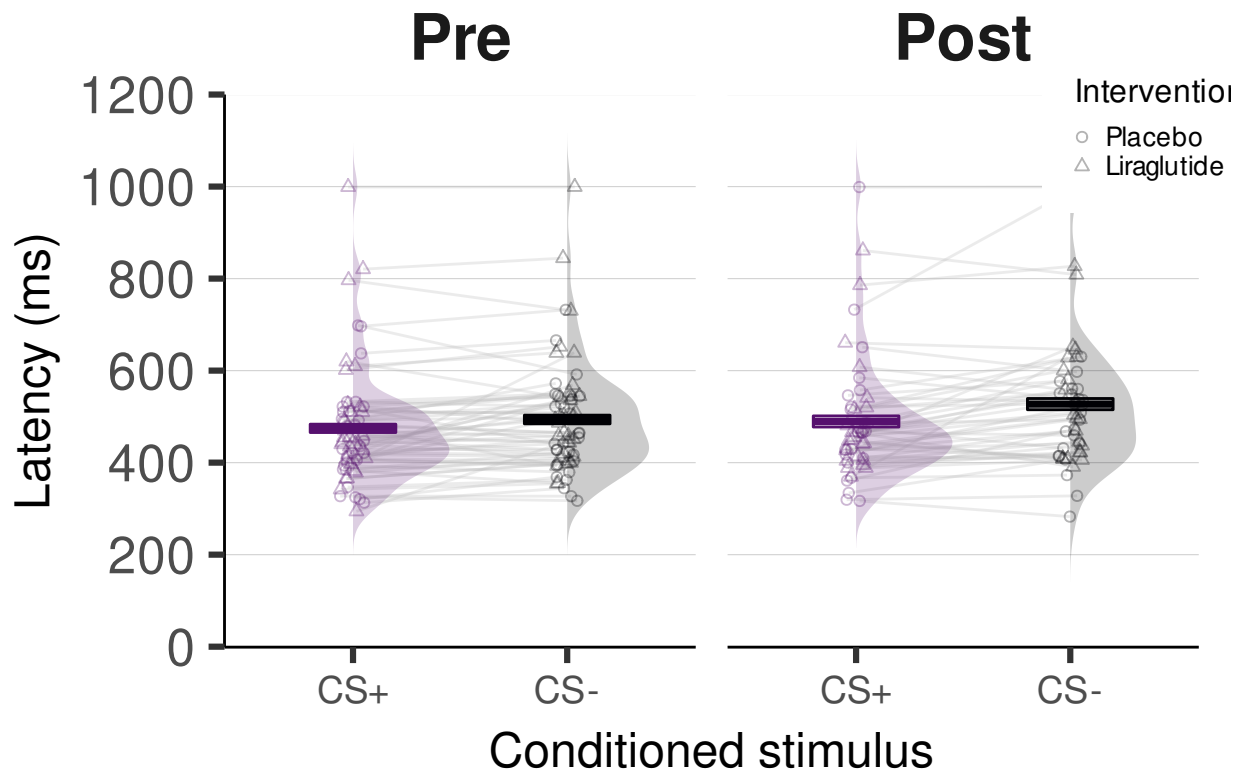
Predictors	Estimates	std. Error	CI
condition [1]	13.64	3.03	7.70 – 19.59
intervention [1]	-16.86	12.81	-41.97 – 8.24
session [1]	-7.87	8.43	-24.39 – 8.64
age	34.41	11.86	11.17 – 57.65
gender [1]	-7.09	12.15	-30.91 – 16.73
BMI_t1	-13.37	11.15	-35.23 – 8.48
thirsty	27.69	11.42	5.30 – 50.08
hungry	-20.30	11.44	-42.72 – 2.11
condition [1] *intervention [1]	-1.45	3.03	-7.39 – 4.50
condition [1] * session[1]	-4.01	2.71	-9.31 – 1.29
intervention [1] *session [1]	-11.80	8.38	-28.23 – 4.64
(condition [1] *intervention [1]) *session [1]	-2.14	2.70	-7.44 – 3.15

ICC	0.44
N id	64
N trialxcondition	20
Observations	3888
Marginal R2 / Conditional R2	0.073 / 0.477

Effect	df	Chisq	p.value
condition	1	17.19 ***	<.001
intervention	1	1.65	.199
session	1	0.87	.351
age	1	6.54 *	.011
gender	1	0.33	.566
BMI_t1	1	1.31	.253
thirsty	1	5.18 *	.023
hungry	1	3.06 +	.080
condition:intervention	1	0.22	.637
condition:session	1	2.12	.145
intervention:session	1	1.90	.168
condition:intervention:session	1	0.62	.432

## [1] "Condition: Overall lower latency for CS+"

Latency by condition

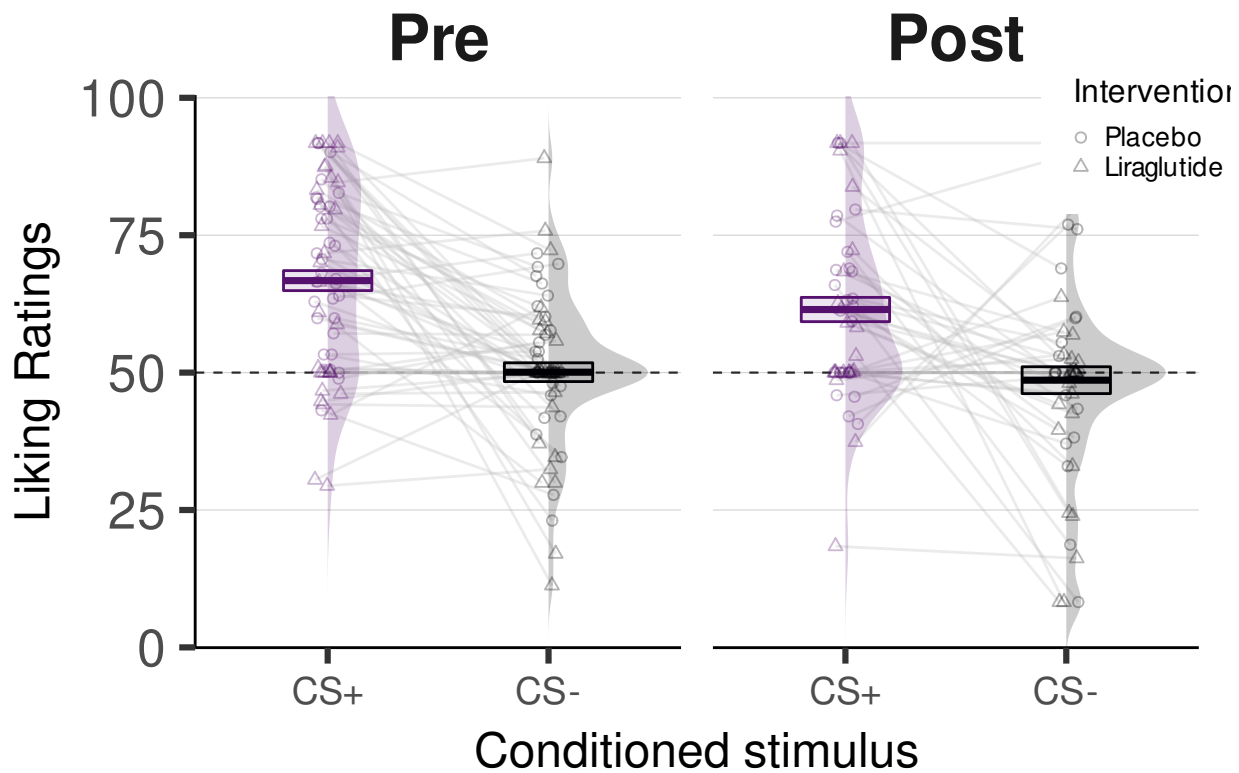


**Analysis: Pleasantness Ratings (Pavlovian Cue)**

Ratings = how pleasant is the clue (0-100, no repetitions) & condition = CS+ or CS-

Effect	df	MSE	F	p.value	PES
condition	1, 43	462.66	16.85 ***	<.001	0.282
intervention	1, 43	330.63	3.21 +	.080	0.069
session	1, 43	174.36	2.82	.101	0.061
age	1, 43	330.63	0.22	.644	0.005
gender	1, 43	330.63	2.48	.123	0.054
BMI_t1	1, 43	330.63	0.03	.862	0.001
session	1, 43	174.36	2.82	.101	0.061
intervention:condition	1, 43	462.66	0.06	.806	0.001
session:condition	1, 43	110.63	0.97	.331	0.022
intervention:session	1, 43	174.36	0.02	.891	0.000
intervention:session:condition	1, 43	110.63	2.23	.143	0.049

### Pleasantness Ratings by condition (Pavlovian Cue)



### Instrumental Conditioning Task (Analysis)

grips = number of times participant exceeded the force threshold to acquire the reward (Milkshake) spline = first 5 trials (1st degree), last 20 trials (2nd degree)

```
## [1] "BF10 for model piecewise regression model "
```

```
## [1] 31.12306
```

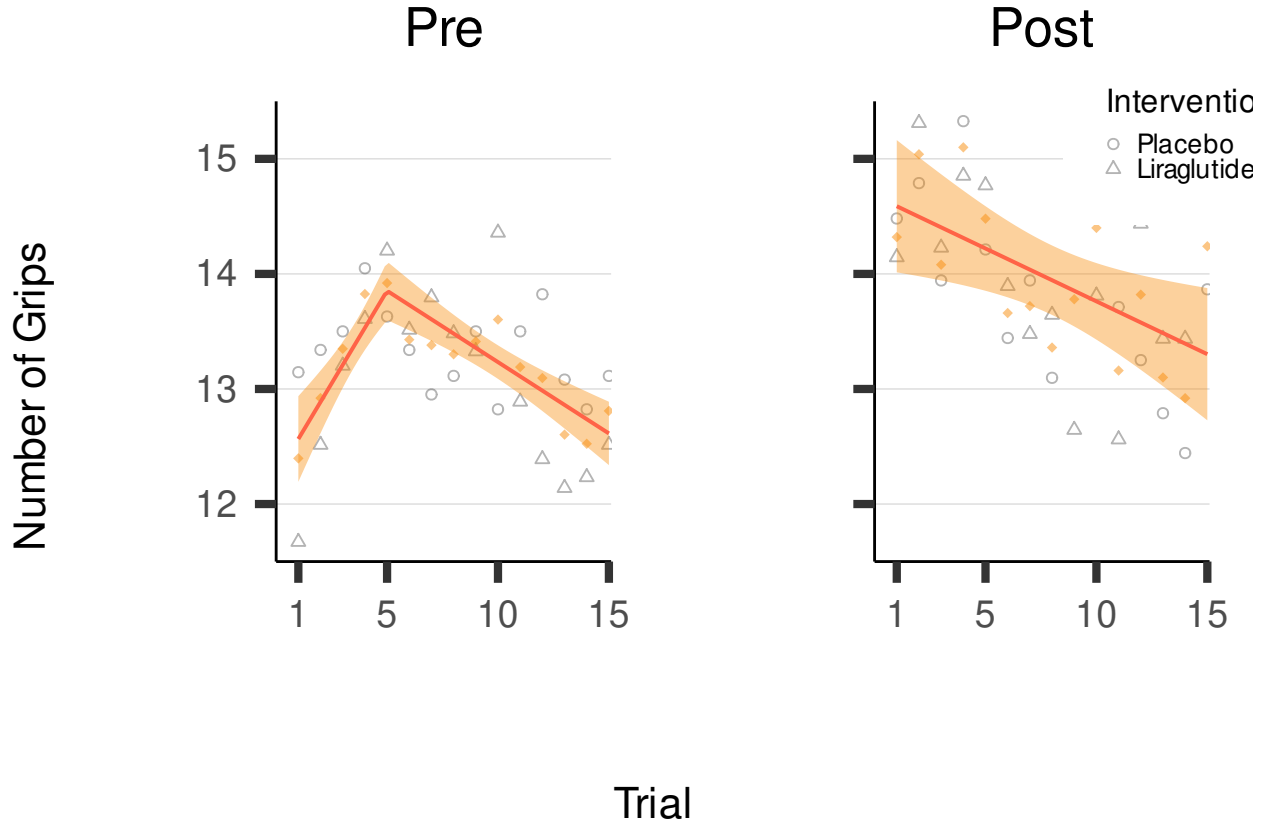
Table 6: Grips

Predictors	Estimates	std. Error	CI
Trial [1st degree]	0.14	0.10	-0.04 – 0.33
Trial [2nd degree]	-0.10	0.01	-0.13 – -0.07
intervention [1]	0.62	0.87	-1.08 – 2.31
session [1]	-1.23	0.45	-2.11 – -0.34
age	-0.46	0.76	-1.95 – 1.04
gender [1]	0.74	0.80	-0.82 – 2.30
BMI_t1	-0.93	0.77	-2.43 – 0.57
thirsty	1.27	0.58	0.13 – 2.41
hungry	-0.78	0.63	-2.01 – 0.46
Trial [1st degree] *intervention [1]	-0.07	0.08	-0.24 – 0.09
Trial [2nd degree] *intervention [1]	-0.01	0.01	-0.04 – 0.01
Trial [1st degree] *session [1]	0.20	0.09	0.03 – 0.37
Trial [2nd degree] *session [1]	-0.02	0.01	-0.04 – 0.01
intervention [1] *session [1]	0.11	0.48	-0.83 – 1.05
(Trial [1st degree] *intervention [1]) *session [1]	-0.09	0.10	-0.28 – 0.10
(Trial [2nd degree] *intervention [1]) *session [1]	-0.01	0.01	-0.03 – 0.02

N id	63
N trial	24
Observations	2640
Marginal R2 / Conditional R2	0.262 / NA

	Effect	df	Chisq	p.value
1	Trial1	1	2.11	.146
4	Trial2	1	30.21 ***	<.001
2	intervention	1	0.49	.482
3	session	1	6.98 **	.008
5	age	1	0.34	.562
6	gender	1	0.82	.364
7	BMI_t1	1	1.49	.221
8	thirsty	1	4.43 *	.035
9	hungry	1	1.35	.246
10	Trial1:intervention	1	0.76	.384
11	Trial1:session	1	4.94 *	.026
13	intervention:Trial2	1	1.29	.256
12	intervention:session	1	0.05	.826
14	session:Trial2	1	1.45	.229
15	Trial1:intervention:session	1	0.86	.355
16	intervention:session:Trial2	1	0.27	.602

## Number of Grips over time



## Pavlovian-Instrumental Transfer (PIT) Task

Mobilized effort = Area under the curve of the force exerted exceeding the delivery threshold during Pavlovian cue presentation condition = CS+ or CS-

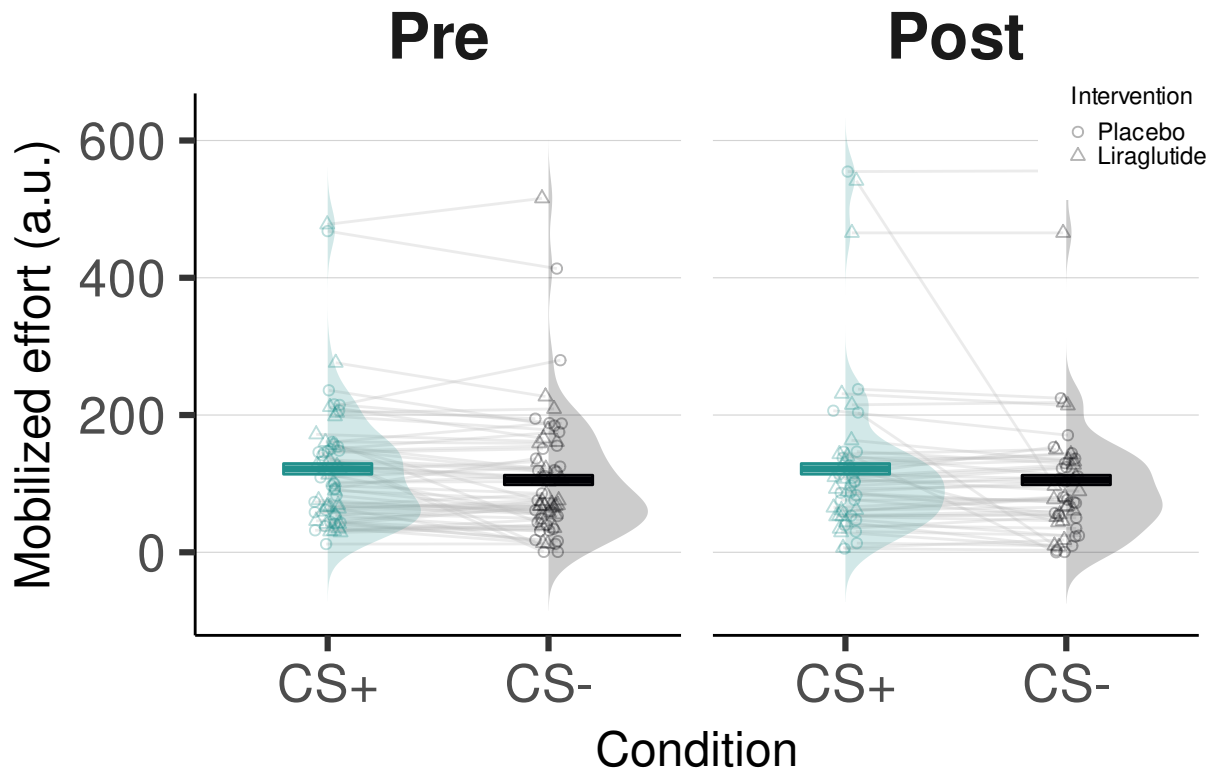
Table 7: Mobilized effort (a.u.)

Predictors	Estimates	std. Error	CI
condition [1]	-7.81	3.19	-14.07 – -1.55
intervention [1]	-5.79	10.01	-25.41 – 13.83
session [1]	-0.36	7.00	-14.07 – 13.36
age	27.75	10.02	8.11 – 47.38
gender [1]	3.62	10.34	-16.65 – 23.90
BMI_t1	-14.06	9.55	-32.78 – 4.67
thirsty	3.25	9.48	-15.33 – 21.82
hungry	5.45	9.86	-13.89 – 24.78
condition [1] *intervention [1]	0.18	3.19	-6.08 – 6.44
condition [1] * session[1]	1.87	2.46	-2.95 – 6.70
intervention [1] *session [1]	3.78	6.99	-9.92 – 17.49
(condition [1] *intervention [1]) *session [1]	-2.24	2.46	-7.07 – 2.59

ICC	0.75
N id	64
N trialxcondition	15
Observations	3300
Marginal R2 / Conditional R2	0.073 / 0.771

Effect	df	Chisq	p.value
condition	1	5.66 *	.017
intervention	1	0.33	.564
session	1	0.00	.959
age	1	7.08 **	.008
gender	1	0.10	.750
BMI_t1	1	2.01	.157
thirsty	1	0.11	.742
hungry	1	0.27	.601
condition:intervention	1	0.00	.956
condition:session	1	0.57	.450
intervention:session	1	0.29	.589
condition:intervention:session	1	0.82	.366

### Mobilized effort by condition



### Hedonic Reactivity Test (Analysis)

Perceived liking = how pleasant is the liquid solution rated (0-100, with repetitions) & condition = Milshake or Tasteless & intensity = how intense the liquid solution were rated



Table 8: Perceived liking

Predictors	Estimates	std. Error	CI
condition [1]	-5.49	1.06	-7.58 – -3.41
intervention [1]	1.33	1.57	-1.74 – 4.40
session [1]	0.97	0.91	-0.82 – 2.76
age	-0.05	1.42	-2.84 – 2.73
gender [1]	-2.39	1.52	-5.37 – 0.60
BMI_t1	0.22	1.39	-2.51 – 2.94
thirsty	-3.26	1.28	-5.77 – -0.74
hungry	1.23	1.26	-1.23 – 3.70
int	2.11	1.26	-0.36 – 4.58
condition [1] *intervention [1]	0.96	1.06	-1.12 – 3.05
condition [1] * session[1]	-0.73	0.68	-2.05 – 0.60
intervention [1] *session [1]	0.09	0.92	-1.70 – 1.89
(condition [1] *intervention [1]) *session [1]	0.27	0.68	-1.05 – 1.60

ICC	0.74
N id	64
N trialxcondition	20
Observations	4400
Marginal R2 / Conditional R2	0.120 / 0.774

Effect	df	Chisq	p.value
condition	1	22.08 ***	<.001
intervention	1	0.71	.400
session	1	1.11	.292
age	1	0.00	.971
gender	1	2.28	.131
BMI_t1	1	0.02	.882
thirsty	1	5.90 *	.015
hungry	1	0.91	.340
int	1	2.51	.113
condition:intervention	1	0.81	.368
condition:session	1	1.13	.287
intervention:session	1	0.01	.919
condition:intervention:session	1	0.16	.688

Perceived liking (Taste) by condition

