

# SUPPLEMENTARY DATA

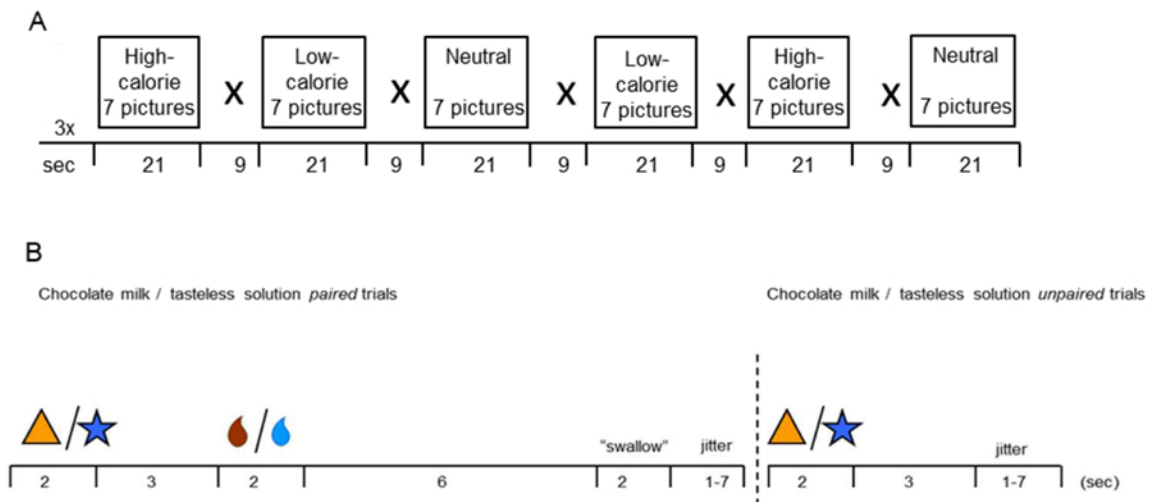
**Supplementary Table 1.** Clinical characteristics before and after RYGB.

n = 10	Before RYGB	4 weeks after RYGB	P - value
Age (yr)	46.5 [40.0, 50.0]	-	-
Weight (kg)	107.8 [101.2, 114.0]	99.3 [92.6, 104.9]	0.005
BMI (kg/m <sup>2</sup> )	39.9 [37.8, 42.5]	36.8 [34.6, 39.1]	0.005
Systolic blood pressure (mmHg)	118 [114, 123]	115 [108, 126]	0.4
Diastolic blood pressure (mmHg)	81 [77, 90]	76 [68, 82]	0.01
Heart rate (beats/min)	72 [65, 79]	65 [60, 71]	0.06
Waist circumference (cm)	118 [111, 121]	113 [107, 116]	0.005
Body fat mass (kg)	52.7 [50.5, 58.0]	49.3 [42.6, 51.4]	0.005
Lean mass (kg)	54.9 [49.9, 57.9]	52.9 [48.9, 54.8]	0.007
HbA1c (mmol/mol)	37 [34, 40]	37 [34, 37]	0.2
HbA1c (%)	5.5 [5.3, 5.8]	5.5 [5.3, 5.5]	0.2
Total cholesterol (mmol/l)	5.1 [4.8, 5.4]	3.8 [3.2, 4.4]	0.005
Triglycerides (mmol/l)	1.0 [0.7, 1.6]	1.0 [0.8, 1.1]	0.1
Glucose fasting (mmol/l)	4.8 [4.5, 5.1]	4.7 [4.4, 4.9]	0.6

Data are median [interquartile range].

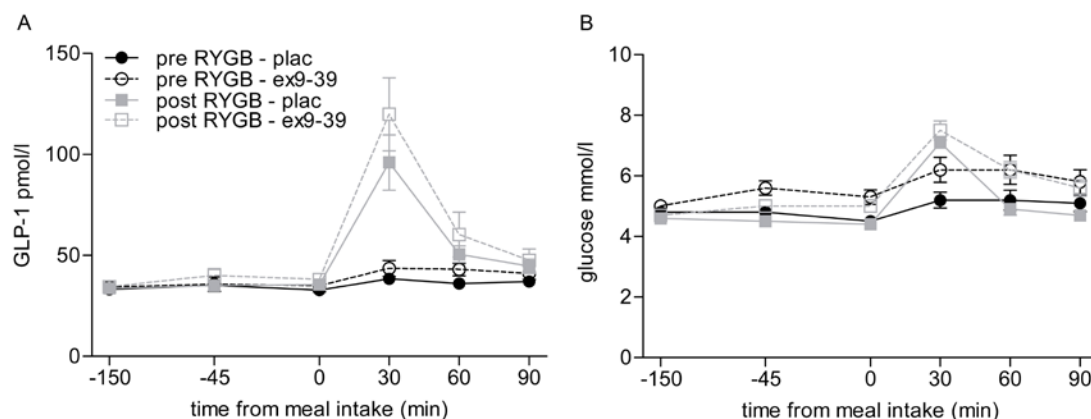
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**Supplementary Figure 1. fMRI paradigms** † A) Visual food cues fMRI paradigm † One run comprised six blocks of each 21 seconds (7 pictures). Within one run, two blocks of each category were presented. The blocks were separated with a 9 second black screen with fixation cross. Each MRI session included three runs, resulting in the presentation of six blocks per category. The order of the categories was randomised per run and per session. † B) Gustatory food cues fMRI paradigm † This paradigm consisted of two types of trials: paired and unpaired trials, which were randomised in order and type. † Paired trials: Subject were presented a picture of an orange triangle or a blue star during 2 sec. The orange triangle was coupled to chocolate milk receipt and the blue star to tasteless solution receipt. After the presentation of the picture, the subjects waited 3 sec., while watching a fixation cross, until receiving the coupled solution (during 2 sec.). The subjects were instructed to keep the solution within the mouth during 6 sec. and to refrain from swallowing until the sign ‘swallow’ was presented afterwards. Between the trials a jitter of 1-7 seconds was used. In total 40 paired trials were presented and half of them included the orange triangle and chocolate milk receipt. † Unpaired trials: These trials were similar to the beginning of the paired trial, however without receiving the coupled solution. Between the trials a jitter of 1-7 seconds was used. At the beginning of the trials, subjects were unaware if it consisted a paired or unpaired trials. In total 32 paired trials were presented and half of them included the orange triangle.



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**Supplementary Figure 2.** GLP-1 and glucose levels† A) GLP-1 levels were significantly higher after RYGB compared to before ( $P < 0.001$  during placebo infusion). GLP-1 levels were higher during Ex9-39 compared to placebo infusion, both before and after RYGB surgery ( $P < 0.001$ ). A significant interaction of RYGB with Ex9-39 infusion was observed ( $P = 0.05$ )† B) Glucose levels differed significantly after RYGB compared to before ( $P < 0.001$  during placebo infusion). Glucose levels were higher during Ex9-39 compared to placebo infusion, both before and after RYGB surgery ( $P < 0.001$ ), but no interaction of RYGB with Ex9-39 infusion was observed ( $P = 0.5$ ).



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**Supplementary Figure 3.** VAS-scores† VAS-scores for hunger, prospective food consumption, fullness, nausea, appetite for sweet and savory food items. Feelings of hunger, prospective food consumption and appetite for sweet and savory food items was significantly decreased after RYGB ( $P < 0.001$ ). Feelings of nausea were significantly increased after RYGB ( $P < 0.001$ ). Infusion of Ex9-39 did not significantly affect the VAS-scores and did not differ before compared with after RYGB.

