

Supplementary material for

Brain insulin sensitivity is linked to adiposity and body fat distribution

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Supplementary Tables

Supplementary Table 1: Participants' characteristics of the longitudinal TULIP study

| Characteristic | Baseline | at 24 months | at long-term follow-up |
|--|------------|--------------|------------------------|
| N | 15 | | |
| Sex (f/m) | 7/8 | | |
| Age (y) | 45 ± 2 | 46 ± 2 | 54 ± 2 |
| BMI (kg/m²) | 30.2 ± 0.8 | 29.7 ± 0.9 | 30.2 ± 0.8 |
| Total adipose tissue (l) | 33.2 ± 2.8 | 29.7 ± 2.8 | 34.7 ± 2.9 |
| Visceral adipose tissue (l) | 4.1 ± 0.5 | 3.5 ± 0.5 | 5.2 ± 0.8 |
| Subcutaneous adipose tissue (l) | 12.2 ± 0.9 | 10.6 ± 1.1 | 12.3 ± 1.0 |

Presented are means ± SEM.

Supplementary Table 2: Participants' characteristics of the cross-sectional cohort

| Characteristic | |
|--|------------|
| N | 112 |
| Sex (f/m) | 53/59 |
| Age (y) | 39 ± 2 |
| BMI (kg/m²) | 28.4 ± 0.5 |
| Total adipose tissue (l) | 31.9 ± 1.3 |
| Visceral adipose tissue (l) | 3.4 ± 0.2 |
| Subcutaneous adipose tissue (l) | 12.6 ± 0.5 |

Presented are means ± SEM.

Supplementary Table 3: Changes in body composition and metabolism during and after 9 years of lifestyle intervention

| | brain insulin resistant (N=8) | | brain insulin sensitive (N=7) | | pManova (brain insulin sensitivity x time) |
|--|-------------------------------|------|-------------------------------|------|--|
| | mean | SEM | mean | SEM | |
| Change in body weight (kg) | | | | | 0.05 |
| after 9 months | -0.94 | 1.37 | -4.46 | 1.42 | |
| after 24 months | 1.44 | 1.32 | -5.80 | 2.80 | |
| after 9 years | 1.63 | 1.39 | -5.06 | 3.59 | |
| Change in BMI (kg/m²) | | | | | 0.08 |
| after 9 months | -0.37 | 0.49 | -1.49 | 0.45 | |
| after 24 months | 0.55 | 0.47 | -1.66 | 0.91 | |
| after 9 years | 0.94 | 0.44 | -1.22 | 1.04 | |
| Change in WHR | | | | | 0.0478 |
| after 9 months | 0.00 | 0.02 | -0.04 | 0.01 | |
| after 24 months | -0.02 | 0.02 | -0.05 | 0.01 | |
| after 9 years | 0.02 | 0.02 | -0.02 | 0.03 | |
| Change in total adipose tissue (l) | | | | | 0.0128 |
| after 9 months | -0.98 | 1.35 | -5.90 | 2.04 | |
| after 24 months | 0.85 | 1.26 | -7.99 | 2.28 | |
| after 9 years | 5.24 | 1.30 | -2.72 | 4.38 | |
| Change in visceral adipose tissue (l) | | | | | 0.0092 |
| after 9 months | -0.24 | 0.17 | -0.86 | 0.30 | |
| after 24 months | -0.03 | 0.26 | -1.08 | 0.30 | |
| after 9 years | 1.18 | 0.35 | 0.29 | 0.65 | |
| Change in subcutaneous adipose tissue (l) | | | | | 0.07 |
| after 9 months | -0,15 | 0,65 | -1,97 | 0,74 | |
| after 24 months | 0,03 | 0,43 | -3,39 | 0,79 | |
| after 9 years | 1,69 | 0,25 | -0,65 | 1,22 | |

The group was stratified by the median brain response to insulin infusion, corrected for response to saline infusion, assessed by MEG as change in theta frequency band. P values are from MANOVAs with theta band response as a continuous variable.