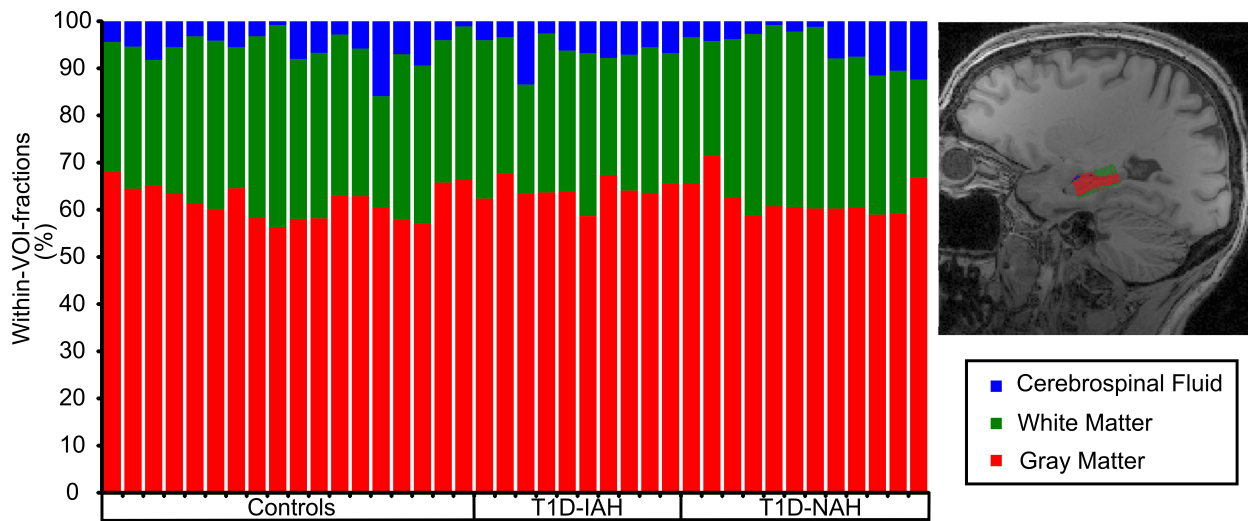
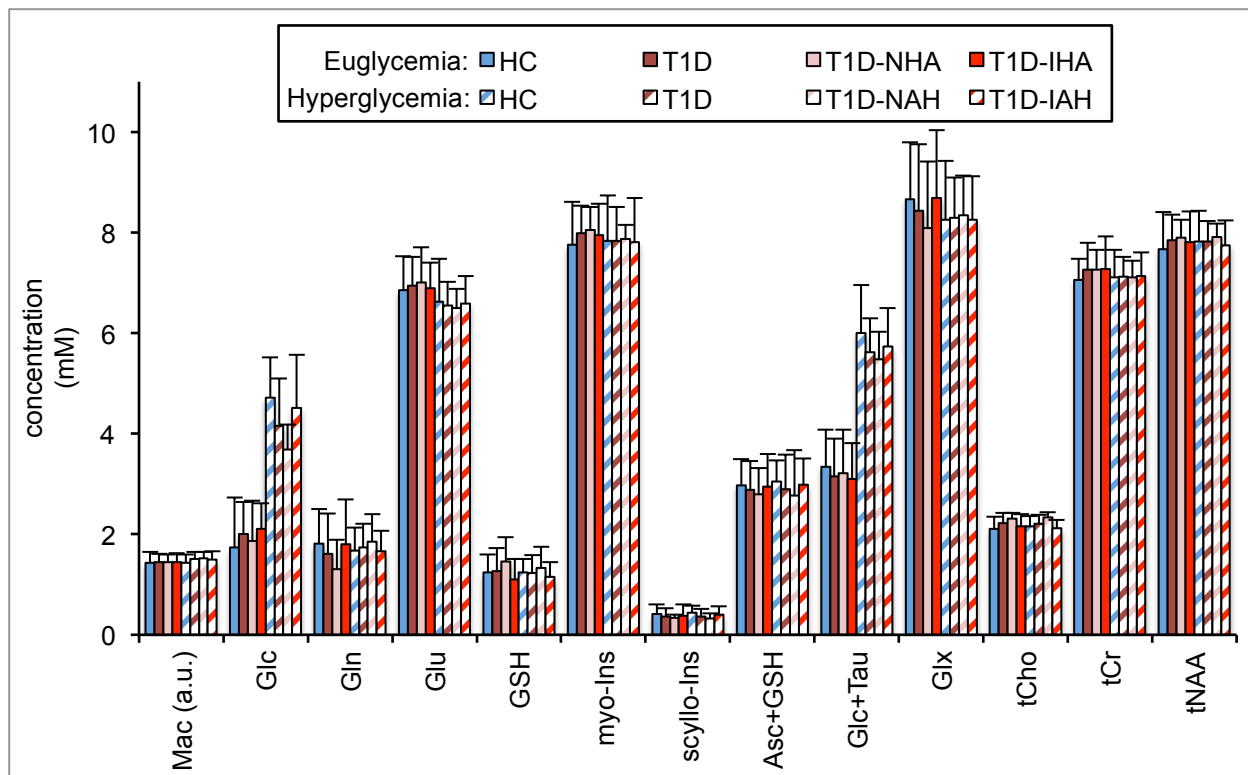


Suppl. Figure 1. LCMoel quantification of a sample spectrum acquired in a single subject during hyperglycemia. Myo-Ins – myo-inositol, scyllo-Ins – scyllo-inositol, Asc+GSH – ascorbate+glutathione, Glc+Tau – Glc + Tau, Glx – glutamate+glutamine, tCr – total creatine, tCho – total choline, tNAA – total N-acetylaspartate



Suppl. Figure 2. Within voxel segmentation. Brain was segmented into 3 tissue classes with SPM8 software package. Resulting probabilistic maps were thresholded with an automatic method and tissue fractions within MRS voxel were calculated.



Suppl. Fig. 3. Comparison of neurochemical profiles during euglycemia and hyperglycemia (glucose transport cohort). Bar plot demonstrates neurochemical profiles in healthy controls, (n=12), subjects with type 1 diabetes (T1D) (n=14) and subgroup of volunteers with T1D and impaired awareness of hypoglycemia (T1D-IAH) (n = 8), and with T1D and normal awareness of hypoglycemia (NAH) (n = 8). Bars represent mean metabolite concentrations, error bars standard deviations.

| | hippocampal volume (mm ³) | normalized hippocampal volume (hippocampal volume/eICV) |
|---------|---------------------------------------|---|
| HC | 4074±433 | 2574±293 |
| T1D | 4275±511 | 2574±319 |
| T1D-IAH | 4146±524 | 2617±365 |
| T1D-NAH | 4382±495 | 2538±287 |

Supplementary table 1. Hippocampal volumetry. Hippocampal and estimated intracranial volumes (eICV) were obtained in Freesurfer segmentation tool.

| | Cramér-Rao Lower Bounds | | | |
|-------------------|-------------------------|------------|----------------|----------------|
| | mean (%) | | | |
| Metabolite | Controls | T1D | T1D-IAH | T1D-NAH |
| Glc | 30.3 | 33.4 | 41.6 | 26.5 |
| Gln | 28.8 | 36.0 | 35.4 | 36.6 |
| Glu | 7.2 | 7.9 | 8.3 | 7.5 |
| GSH | 24.9 | 22.6 | 25.1 | 20.5 |
| myo-Ins | 3.1 | 3.0 | 3.1 | 3.0 |
| scyllo-Ins | 30.2 | 37.8 | 51.9 | 26.0 |
| Asc+GSH | 14.2 | 15.3 | 16.5 | 14.3 |
| Glc+Tau | 10.8 | 11.4 | 11.8 | 11.1 |
| Glx | 5.6 | 6.2 | 6.6 | 5.9 |
| tCho | 4.2 | 4.8 | 5.0 | 4.6 |
| tCr | 2.8 | 3.1 | 3.1 | 3.1 |
| tNAA | 2.7 | 3.0 | 3.2 | 2.9 |

Supplementary Table 2. Cramér-Rao Lower Bounds (CRLB) in relative units calculated by LCModel on spectra collected during euglycemia. All values except those of 999% were used to calculate presented means. Metabolites quantified with average CRLB below 30 % at least in one of the compared groups are shown. Numbers above the 30% threshold are highlighted.
