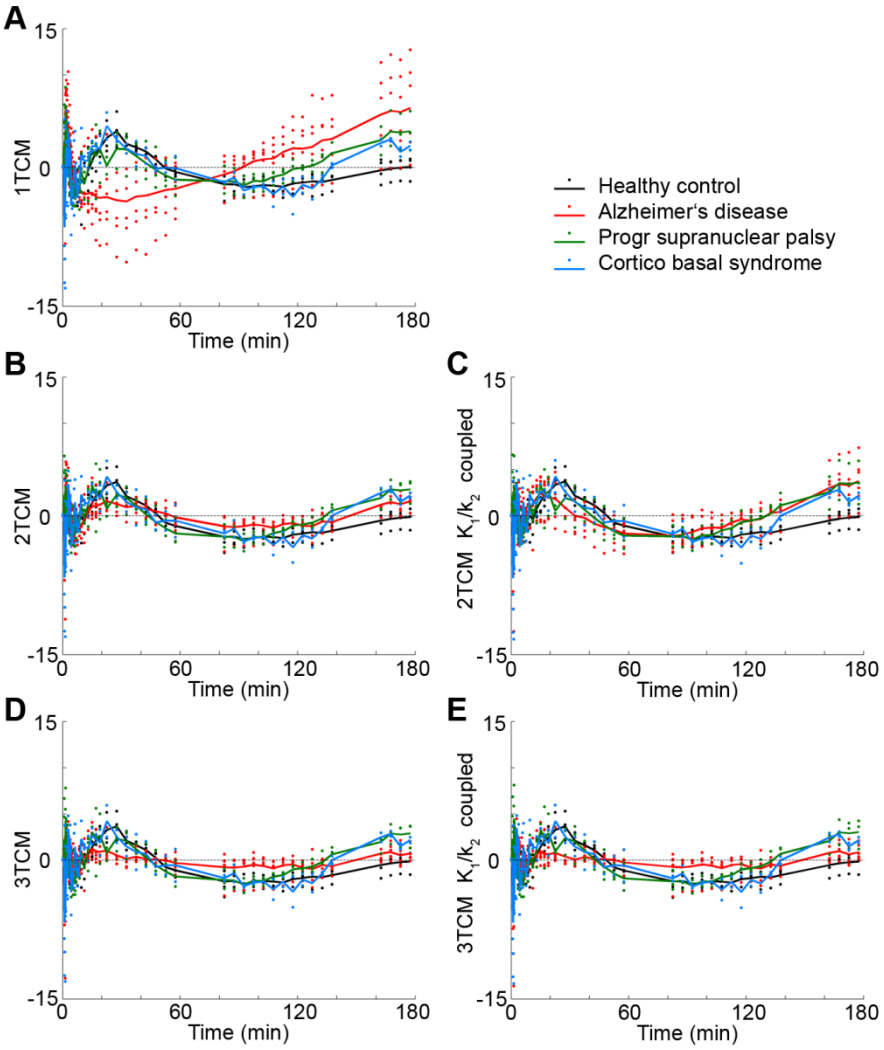
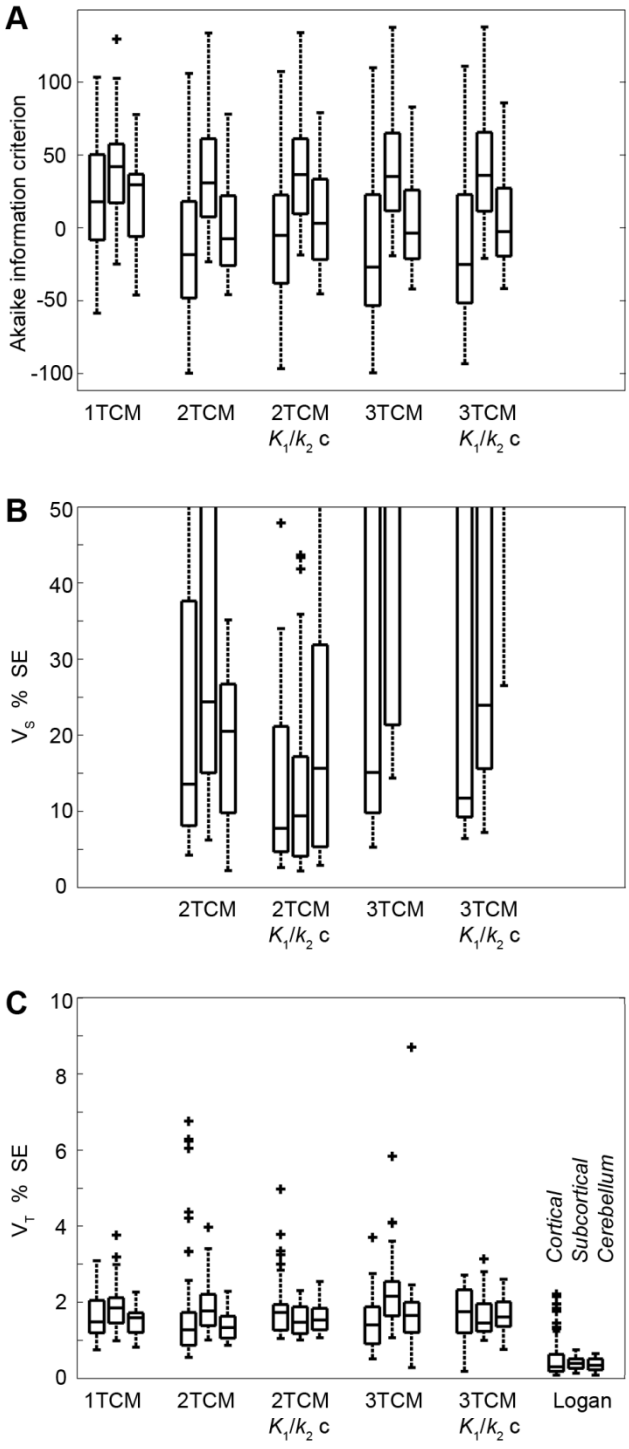
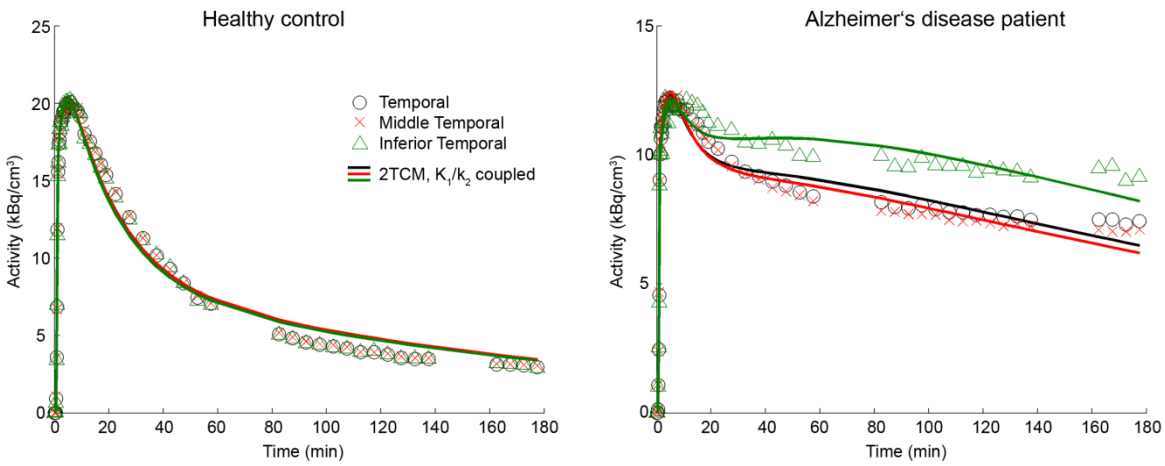


Supplemental figure 1: Weighted residuals obtained from the compartment model fits exemplarily shown for the temporal cortex. Residuals were obviously structured indicating that the models could not describe the data adequately. This was true for all compartment models and population groups except AD patients when using the 3TCM with or without K_1/k_2 coupled. Each dot represents one subject, lines represent mean values.



Supplemental figure 2: Modeling results obtained with arterial-based data. Boxplots represent cortical regions plus hippocampus (left), subcortical regions such as thalamus, putamen and caudate (middle) and the cerebellum (right) across all subjects. **(A)** Goodness of fit was determined with the Akaike information criterion for compartment models. Compartment model fits were better for cortex and cerebellum than for subcortical regions but little improvement was obtained with the 3TCM. **(B and C)** Variance of outcome parameters was given by % standard error (SE). Best results were obtained with the 2TCM, K_1/k_2 coupled for V_S **(B)** and with the Logan plot for V_T **(C)**.



Supplemental figure 3: Time activity curves and corresponding model fits obtained with the 2TCM, K_1/k_2 coupled for subregions of the temporal cortex with presumably high and homogenous radioligand uptake (same subjects as in figure 3). **(A)** For the healthy control subject, subregions did not show a relevant difference. **(B)** For the Alzheimer's disease patient the uptake was indeed highest in the inferior temporal cortex, which may be relevant for clinical applications. However, ROI refinement did not improve the model fits.