band estimated using detrended fluctuation analysis; iv) entropy or the amount of "broken detailed balance." A random forest classifier was trained to predict clinical outcome using EEG features for data around 12, 24, 48, 72, and 96 hours after the trauma. Age and gender were also included as features, and we performed k-fold cross-validation with k=10.
Results: We included 110 patients. After exclusion of 19 patients (absence of outcome data), we divided our data into a training (n = 74) and a validation set (n = 18). For our validation dataset, we obtained a sensitivity of 85% (CI = [0.74 – 0.98]) and a specificity of 78% (CI = [0.6 – 0.95]). Strongest predicting features for good outcome were change in entropy and change in temporal autocorrelation in the alpha band.
Conclusion: Hence, our study shows that EEG measures could have potential use in the prediction of clinical outcome and clinical decision making in patients with severe traumatic brain injury.

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WE-191. Information flows from hippocampus to cortex during replay of verbal working memory items

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Introduction: The maintenance of items in working memory (WM) relies on a widespread network of cortical areas and hippocampus where synchronization between electrophysiological recordings reflects functional coupling.
Methods: We investigated the direction of information flow between sensory areas and hippocampus during encoding and maintenance of WM items. Participants (n = 14) performed a WM task where a string of letters was presented all at once, rather than sequentially, during the encoding period. Participants mentally replayed the letters during the maintenance period. We recorded sEEG from the hippocampus, scalp EEG and, additionally in 3 participants, cortical electrodes (ECoG). We computed the information flow between hippocampal sEEG and cortical ECoG by means of Granger causality. For scalp EEG, we reconstructed the sources using beamforming and computed the Granger causality between the source activity and hippocampus.
Results: When analyzing the information flow to and from auditory cortex, the flow was from ECoG over auditory cortex to hippocampus with a peak in the 4-12 Hz range while letters were presented. This flow was subsequently reversed during maintenance while letters were maintained in memory. The same pattern appeared to and from hippocampus with ECoG over occipital-parietal cortex. Regarding the scalp EEG sources, the reconstruction pointed to significant activations during encoding and maintenance over primary auditory cortex with respect to the pre-stimulus period. We then found the same bidirectional pattern between the auditory sources and hippocampal sEEG in the theta-alpha range (4-12 Hz).
Conclusion: The functional interaction between hippocampus and cortex and the reversal of information flow provides a physiological basis for the encoding of memory items and their active replay during maintenance.

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WE-192. Are naming impairments evoked by focal cortical electrical stimulations in the basal temporal language area related to increased functional connectivity?

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Introduction: High-frequency cortical electrical stimulations (HF-CES) in the dominant ventral temporal cortex (VTC) can elicit transient naming impairment (eloquent sites), defining a basal temporal language area (BTLA). Whether naming impairments induced by HF-CES within the VTC are related to a specific pattern of connectivity of the BTLA within the temporal lobe remains unknown.
Method: We addressed this issue by comparing the connectivity of eloquent and non-eloquent sites from the VTC using cortico-cortical evoked potentials obtained from low frequency cortical electrical stimulations (LF-CES) in nine individual brains explored with stereo-electroencephalography.
Results: Overall, within the VTC, eloquent sites were associated with increased functional connectivity compared to non-eloquent sites. Among the VTC structures, this pattern holds true for the inferior temporal gyrus and the parahippocampal gyrus, while the fusiform gyrus specifically showed a high connectivity comparable between non eloquent and eloquent sites.
Conclusion: Our findings support the hypothesis that the cognitive effects of focal HF-CES are related to the functional connectivity properties of the stimulated sites, and therefore to the disturbance of a wide cortical network. From a theoretical point of view, this argue that functional specialization of a cortical region emerges from its specific pattern of functional connectivity.

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WE-193. Six-dimensional dynamic tractography atlas of language connectivity in the developing brain

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During a verbal conversation, our brain moves through a series of complex linguistic processing stages: sound decoding, semantic comprehension, retrieval of semantically coherent words, and overt production of speech outputs. Each process is thought to be supported by a network consisting of local and long-range connections bridging between major cortical areas. Both temporal and extratemporal lobe regions have functional compartments responsible for distinct language domains, including the perception and production of phonological and semantic components. This study provides quantitative evidence of how directly connected inter-lobar neocortical networks support distinct stages of linguistic processing across brain