Results: In EMG, 10/11 OSAS patients had typical findings indicating motor neuropathy. Mild-moderate pathological findings were present in 12/22 snorers. EMG was normal in 10/10 non-snoring subjects. At the tonsillar pillars, there were significant differences in both vibration and cold thresholds between normals and OSAS-patients. Vibration thresholds were not significantly different between snorers and normals, but they differed concerning cold detection. CDT was easier to test with low variability in normal subjects. Vibration thresholds exhibited considerable variability; two normal subjects could not detect vibrations. Thresholds at other locations showed no group differences.
Conclusions: In snorers, 35% had signs of sensory nervous lesions and 54% of motor nervous lesions. In OSAS-patients, 78% had signs of sensory nervous lesions and 91% of motor nervous lesions. This supports the hypothesis of a progressive oropharyngeal nervous lesion in OSAS. CDT gave more discriminative results than vibration, and is non-invasive and painless in contrast to needle-EMG. It is therefore recommended as a useful clinical method to evaluate the degree of sensory damage. It might also predict whether a snoring patient will develop OSAS, and should therefore receive active treatment.

S1-6
Sleep disorders in children

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Representative sleep disturbances often seen in children have been introduced with special reference to the way of monitoring. Yonaki (sleep-related nighttime crying), restless legs syndrome, narcolepsy, disorders of arousal, and behaviorally induced insufficient sleep syndrome due to inadequate sleep hygiene will be discussed. Sleep-related nighttime crying is called yonaki in Japanese: yo- means night and -naki means crying. Yonaki occurs most often after midnight, when infants are asleep for several hours, in contrast to colic, which peaks in the late afternoon and early evening. In a Japanese survey of parents, yonaki was reported to emerge by 4 to 24 months of age in most children. Although yonaki is a frequent complaint of parents, it is considered by most pediatricians to be a benign phenomenon that disappears naturally over time. Few studies of yonaki, however, have been performed, and it does create sleep deficit for both parents and children in its persistent form. Irritability of both parents and a baby exaggerates the vicious circle of yonaki. Sleep log might be helpful to observe sleep pattern of the baby objectively, which gives relief to parents. Some children with restless legs syndrome are not articulate enough to express their complaints. The symptoms of these children sometimes are misinterpreted as insomnia, but discomfort of extremities are often revealed on closer observation. Handy movies taken by a cellular phone is helpful to make the correct diagnosis. The similar method might also help us to recognize cataplexy in patients with narcolepsy, and to differentiate disorders of arousal from epileptic attacks. For the recognition and prevention of behaviorally induced insufficient sleep syndrome due to inadequate sleep habits among adolescents, to record their own sleep log is known to be effective in addition to the promotion of sleep health.

S2. Working memory and social brain

S2-1
Neural bases of focusing attention in working memory: an fMRI study based on individual differences

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Working memory supports a variety of daily activities that require the storage and processing of information. Most of our daily activities require the dual process of storing information on the one hand then processing information on other hand. This dual process often requires the person to focus attention by inhibiting other information that is unnecessary for the task being performed. This dual process is crucially required for higher cognitive brain functions, such as language comprehension. In this talk, the neural substrates for focusing and shifting attention in executive function are described. Moreover, possible neural bases of focusing and shifting attention underlying individual differences between good and poor performers of cognitive task are discussed. Using fMRI, neural substrates for focusing of attention in working memory were investigated. To explore the focusing effect, two kinds of reading span test (RST), focused and non-focused, were performed. In the focused RST (F-RST), the target word to be maintained was a focus word of the sentence. In the non-focused RST (NF-RST), the target word was not a focus word of the sentence. Under both RST conditions, significant activations were found in three main regions: left dorsolateral prefrontal cortex (DLPFC); anterior cingulate cortex (ACC); and left superior parietal lobule (SPL). In addition, fMRI signal changes increased in the left SPL under NF-RST conditions. These findings suggest that the neural substrates of focusing attention are based on SPL and ACC-DLPFC networks. Furthermore, there were group differences in focusing effect between high-span subjects (HSS) and low-span subjects (LSS). HSS showed superior focusing effects supported by SPL control compared to those in LSS. Focusing attention in the regulatory system of working memory executed by SPL with the aid of ACC and DLPFC allows fine adjustments to cognitive brain function.

S2-2
Working memory in post-traumatic stress disorder

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Post-traumatic stress disorder (PTSD) is a heterogeneous psychological condition that involves breakdown in a number of cerebral information processing systems. One major component of this breakdown is with systems that mediate fear processing; the other and related component involves major disruption to everyday, working memory systems operation. This talk will focus primarily on the latter and discuss evidence implicating the brain systems affected. If time permits, there will also be discussion of non-pharmacological, neurophysiologically based treatments that seek to normalise the related systemic functions.

S2-3
Online information maintenance and impaired primacy effedct in schizophrenia

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Objective: The capacity to maintain information online is greater for the first and/or last items of a sequence of information (architecture). This architecture is dynamic as it is modulated by the retention interval and the type of stimuli. Although working memory deficits in schizophrenia have been widely investigated, how schizophrenia affect the dynamic architecture of working received little attention. We previously shown that schizophrenia patients exhibit normal dynamics but abnormal architecture of working memory (reduced primacy effect). These impairments affected verbal, spatial and object stimuli and was present with implicit and explicit encoding of the serial position. In the present study, we investigate the effect of the strategy of information maintenance on the dynamic architecture of working memory in schizophrenia.
Methods: Schizophrenia patients and matched healthy controls performed a Sternberg recognition paradigm with letter stimuli appearing sequentially. After a delay, subjects had to decide if a probe letter was present or not in 5-letters test-sets. The letters in the test-sets constituted words (W), pronounceable-non-words (P-N-W), and non-pronounceable-non-words (N-P-N-W) with equal probability. Repeated measures analysis of variance (RMANOVA) was applied to reaction time, and percent of correct responses to examine the effect of Group, Condition (W, P-N-W, and N-P-N-W), serial position (SP) (1, 2, 3, 4, 5) and their interactions.
Results: For the present talk the relevant findings were significant Group X Condition and Group X SP interactions were noted. Schizophrenia patient differed across condition to a lesser content than healthy controls and exhibited reduced primacy effect irrespective of the condition.
Conclusion: These data suggest that schizophrenia patients use less efficiently word level semantic and phonetic information for information maintenance and exhibit reduced primacy effect irrespective of the strategy of information maintenance.