

Compumedic's Neuroscan users, the Clinical Cognitive Neuroscience Center at Seoul National University Hospital establish an International name in Brain Research



The Clinical Cognitive Neuroscience Center (CCNC) officially opened in the Seoul National University Hospital on 15th May 1998. The center studies normal cognitive function and the associated mental disorders such as schizophrenia and obsessive-compulsive disorders with brain imaging methods.

The center is equipped with the latest electrophysiological systems from Compumedics Neuroscan for analyzing EEG, ERP, and electrophysiological source localization (using Compumedics "SynAmps" and "Curry"). Using these facilities, CCNC has published nearly one hundred peer reviewed papers and has won international acclaim. These investigations focus on brain activities during cognitive processing, such as selective attention, response inhibition, language, and memory especially in obsessive-compulsive disorder and schizophrenia.

CCNC performed frequency analysis of EEG in these psychiatric disorders and compared latency and amplitude of ERPs between healthy controls and the patients using various cognitive tasks such as continuous recognition, lexical decision, N-back, Go/NoGo, and Stroop as well as traditional oddball paradigm. CCNC has developed Cdr-SPM for statistical analysis of current density across subjects with individual MRI.

Currently, CCNC is investigating high risk schizophrenia subjects with MEG to see the abnormalities of magnetic sources CCNC are continually adding to their already impressive list published papers in various renowned international scientific journals.

CCNC's most recent development is the set up of simultaneous ERP/fMRI recording using the Compumedics state of the art "MagLink" system and a Siemens' 1.5-T MRI scanner. CCNC aims to obtain more accurate information of brain activity with higher temporal and spatial resolution. This latest acquisition positions Seoul National University's CCNC to become one of the leading brain research centres in the region and indeed the world.

A list of papers published by CCNC using Compumedics Neuroscan equipment can be viewed on page 4.



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Progressive Changi General Hospital leaps ahead becoming the region's first nexus site.

Changi General Hospital (CGH) has long been praised for its innovative and progressive approach to information technology and enabling networks. The latest addition to the hospital is no exception.

CGH will now be equipped with Compumedics high-end Sleep technology and it also will become the region's first **proFusion neXus** site. Compumedics' new Nexus laboratory management and networking system has enjoyed considerable successes in USA and Europe but CGH will lead the way for Asia.

The Compumedics installation will position CHG as one of the most progressive sleep facilities in the region. It will equip the hospital with high-end Sleep diagnostics technology including the innovative **Wireless Siesta PSG** system and the aforementioned proFusion nexus.

Changi General Hospital is a 797 bed hospital with a comprehensive range of medical services, caring for the healthcare needs of Singapore's community in the eastern region.

The sleep lab was set up in 2002, and operated 2 beds per night but due to heightened public awareness and OSA seminars conducted for General Practitioner around the region, there has been an increase in demand for sleep testing services and the waiting lists for sleep studies have increased to as long as 4 months.

In September 2006, a decision by the hospital was made to expand the sleep testing facilities to 5 beds to shorten the patient's waiting time. A public tender was called and 5 international sleep equipment suppliers participated. CGH's tender committee comprising of buyers, doctors, biomedical engineer and sleep technicians evaluated each proposal with the winning bid going to Compumedics.





Somté PSG

Full PSG ... absolutely anywhere

Whether you are looking for a sleep recorder for ambulatory studies or attended in-lab studies, **Somté PSG** could be just what you are looking for. Designed to be small, compact and easy to use, but fulfilling all the requirements for full level 1 or level 2 PSG, the **Somté PSG** is the newest addition to the Compumedics family of sleep recorders. Building on the legacy of the Compumedics **P Series** recorder (as used by the SHHS), **Somté PSG** offers maximum patient comfort and convenience by leaving them free to move around, even in the sleep lab. Bluetooth technology is used to transfer the data from the recorder to the computer so that the patient has no cable tethering them to a bedside unit.

The **Somté PSG** uses only recommended technologies (nasal pressure and/or thermistor for airflow, Respiratory inductive plethysmography for effort) and can record up to 27 channels of data for up to 24 hours. True differential amplifiers will record the best possible signals in the less than ideal conditions that may be found in the home, ward or ICU.

When used in the lab you can do everything you would expect in a sleep study, monitor the patient data, add annotations, record synchronised digital video, even score as you record.



When used in the home or ward, the **Somté PSG** can be set to start and stop recording automatically, and no computer is needed to start recording studies or even to check the signal quality. All signals can be checked on the integrated LCD screen when the patient is set up and before recording starts, and the unique signal status display will indicate which signals require attention.

Note: For more information and to check availability of products in your region please contact your local sales representatives.



Quik Tips & Shortcuts

Tips 'n' Tricks for Profusion PSG2

1. Studies open by default in the layout under which they were initially recorded. To permanently change the default layout for a given study, arrange the layout to your preference and press F4 (Polygraph properties). Click the "Save as Default" button to set the current layout as the new 'default'. The study will now open under this layout.
2. If PSG misses associating events with a desaturations, consider increasing the Lag Time setting found in /Options | Input Assignments | Respiratory | SpO2/. Note that a dip in SpO2 must start to rise again before the Lag Time has expired in order to be considered a desaturation.
3. If arousals are not being automatically associated with events to your preference, consider altering the event association times in /Analysis | Automatic Analysis | Arousal Analysis | Parameters/. Increasing event association times will increase the duration during which a marked event 'looks' for an arousal to associate, and will generally result in an increase in the number of associations made during a study.

CHOICE SLEEP PAPERS

- Cunnington, John Menagh, Gaye Cherry, Harry Teichtahl
ACCURACY AND UTILITY OF A NEW PORTABLE MONITORING DEVICE FOR THE DIAGNOSIS OF SLEEP BREATHING DISORDERS
- W R RUEHLAND
ACCURACY OF SLEEP AND AROUSAL SCORING USING ABBREVIATED SIGNAL MONTAGES
Sleep and Biological Rhythms 2006; 4: A42–A43
- David Cunnington, John Menagh, Gaye Cherry, Harry Teichtahl
COMPARISON OF FULL IN LABORATORY POLYSOMNOGRAPHY TO A PORTABLE SLEEP DATA ACQUISITION DEVICE
- John Menagh
THE UTILITY OF UNATTENDED, AT HOME DIAGNOSTIC SLEEP STUDIES USING A NEW PORTABLE SLEEP DATA ACQUISITION DEVICE.
- T.J. CHURCHWARD
DIAGNOSTIC ACCURACY AND COST EFFECTIVENESS OF HOME-BASED PSG IN OSA
Sleep and Biological Rhythms 2006;
- Andrew Thornton
LABORATORY VALIDATION OF A MODIFIED POLYSOMNOGRAPHY DEVICE
Sleep Medicine Volume 7, Suppl. 2, September 2006
- PD ROCHFORD
EVALUATION OF AUTOMATED VERSUS MANUAL SCORING OF POLYSOMNOGRAPHS IN SLEEP DISORDERED BREATHING
Sleep and Biological Rhythms 2006; 4: A41

STORY CONTINUED FROM PAGE 1...

List of papers published by CCNC (Seoul National University Hospital)

Lee DY, Lee KU, Kwon JS, Jang IJ, Cho MJ, Shin SG, Woo JI. Pharmacokinetic- pharmacodynamic modeling of risperidone effects on electroencephalography in healthy volunteers.

Psychopharmacology 1999;144:272-278

Kwon JS, O'Donnell BF, Wallenstein GV, Greene RW, Hirayasu Y, Nestor PG, Hasselmo ME. Potts GF, Shenton ME, McCarley RW. Gamma frequency range abnormalities to auditory stimulation in schizophrenia.

Arch Gen Psychiatry 1999;56:1001-1005

Kim MS, Kim JJ, Kwon JS.

The effect of immediate and delayed word repetition on event-related potential in a continuous recognition task.

Cogn Brain Res 2001;11:387-396

Kim MS, Kim JJ, Kwon JS.

Frontal P300 decrement and executive dysfunction in adolescents with conduct problems.

Child Psych & Human Develop 2001;32:93-106

Park HJ, Kwon JS, Youn T, Pae JS, Kim JJ, Kim MS, Ha KS. Statistical parametric mapping of LORETA using high density EEG and individual MRI: Application to mismatch negativities in schizophrenia.

Hum Brain Mapp 2002;17:168-178

Kim MS, Cho SS, Kang KW, Hwang JL, Kwon JS.

Electrophysiological correlates of personality dimensions measured by Temperament and Character Inventory (TCI).

Psychiatr Clin Neurosci 2002;56:631-635

Youn T, Park HJ, Kim JJ, Kim MS, Kwon JS.

Altered hemispheric asymmetry and positive symptoms in schizophrenia: equivalent current dipole of auditory mismatch negativity.

Schizophr Res 2002;59:253-260

Kim MS, Kang SS, Youn T, Kang DH, Kim JJ, Kwon JS.

Neuropsychological correlates of P300 abnormalities in patients with schizophrenia and obsessive-compulsive disorder.

Psychiatr Res:Neuroimage 2003;123:109-123

Ha KS, Youn T, Kong SW, Park HJ, Ha TH, Kim MS, Kwon JS. Optimized individual mismatch negativity source localization using a realistic head model and the Talairach coordinate system.

Brain Topogr 2003;15:233-238

Ahn KH, Youn T, Cho SS, Ha TH, Ha KS, Kim MS, Kwon JS.

N-methyl-D-aspartate receptor in working memory impairment in schizophrenia: event-related potential study of working memory process.

Prog Neuro-Psychopharmacol Biol Psychiatry 2003;27:993-999

Pae JS, Kwon JS, Youn T, Park HJ, Kim MS, Lee B, Park KS. LORETA imaging of P300 in schizophrenia with individual MRI and 128-channel EEG.

Neuroimage 2003;20:1552-1560

Shin YW, Ha TH, Kim SY, Kwon JS.

An association between EEG alpha power and visuospatial function in obsessive compulsive disorder.

Psychiatr Clin Neurosci 2004;58:16-20

Youn T, Park HJ, Kwon JS. Response to Rosburg: A voxel-based statistical parametric mapping of MMN current densities.

Hum Brain Mapp 2004;21:46-48

Kim MS, Kang SS, Kang KW, Youn T, Kwon JS.

Impairment of recognition memory in schizophrenia: ERP study using a continuous recognition task.

Psychiatr Clin Neurosci 2004;58:465-472

Kim YY, Lee B, Shin YW, Kwon JS, Kim MS.

Activity of left inferior frontal gyrus related to word repetition effects: LORETA imaging with 128-channel EEG and individual MRI.

Neuroimage 2006;29:712-720

Kim YY, Yoo SY, Kim MS, Kwon JS.

Equivalent current dipole of word repetition effects in patients with obsessive-compulsive disorder.

Brain Topogr 2006;18:201-212

Kim MS, Kang SS, Shin KS, Yoo SY, Kim YY, Kwon JS.

Neuropsychological correlates of error negativity and positivity in schizophrenia patients.

Psychiatry Clin Neurosci 2006;60:303-311

Kim MS, Kim YY, Kim EN, Lee KJ, Ha TH, Kwon JS.

Implicit and explicit memory in patients with obsessive-compulsive disorder: An event-related potential study.

J Psychiatr Res 2006;40:541-549

Kim MS, Kim YY, Yoo SY, Kwon JS.

Electrophysiological correlates of behavioral response inhibition in patients with obsessive-compulsive disorder.

Depress Anxiety. 2006;24:22-31

Kim E, Yu KS, Cho JY, Shin YW, Yoo SY, Kim YY, Jang IJ, Shin SG, Kwon JS. Effects of DRD2 and CYP2D6 genotypes on delta EEG power response to aripiprazole in healthy male volunteers: a preliminary study.

Hum Psychopharmacol:Clin Experimen (in press)

Largest ever Curry School hosted by Compumedics in Taiwan

“Curry”, the industry’s leading, high-performance, source reconstruction tool for integrating EEG, MEG, and fMRI neuroimaging data, is a user friendly system but it is necessarily sophisticated and requires significant initial training and ongoing education for optimum user performance.

Compumedics hosted one of the largest Brain research - Source Reconstruction Courses in the region in November 22-23, 2006. Held at The Institute of Linguistics, Academia Sinica, Taiwan, over 75 participants from 30 different labs around the country attended the “Curry” Course. Of note, were participants from the country’s eminent brain research centres such as Yang Ming University Institute of Neuroscience and The Laboratory of Integrated Brain Research (Taipei Veterans General Hospital). The participants came from areas of Cognitive research of Psychology, Brain Research units and Brain computer interface faculties.

The two-day, hands-on course was conducted Dr. Michael Wagner, a senior faculty of the Compumedics Education programme. Dr. Wagner’s main field of work is with the “Curry” software and is involved with the research, software development, training and helpdesk.



Italy’s Cardio and Pulmonary Specialists Meet



For the second consecutive year, our Italian partner, Medigas Italy has successfully brought together Cardiologist and Pulmonary physicians at an education course on Sleep Respiratory Disorders. Held in Rimini this year from October 16th to the 18th, it is the second time such a course was ever held. This year’s course is based on the success of the inaugural course held in Turin last year.

The aim of this event was to promote the collaboration between Cardiologist and Pulmonary physicians for an integrated management of patients who are usually diagnosed separately by these two branches of medicine.

The course was structured to be more personalized by limiting the number of participants – 24 physicians were selected from all over Italy comprising 12 pairs of Cardiologists and pulmonary physicians from each hospital. The course had both theoretical and practical content which included clinical case discussions.

Sessions were conducted using Compumedics **Somt ** with the **Somt  ECG** holter analysis software. **Somt ** is Compumedic’s cardio-respiratory system for the recording and analysis of Sleep and ECG.

DATE	AREA	PLACE	WEBSITE
JAN-07 Arab Health	28 - 31 Jan G	Dubai, UAE	www.arabhealthonline.com
FEB-07 World Association of Sleep Medicine	4 - 8 Feb S	Bangkok, THAILAND	www.wasm2007.org/
Melbourne Profusion 3 Sleep School	20 - 21 Feb S	Melbourne, AUSTRALIA	www.compumedics.com
Adelaide Profusion 3 Sleep School	27 - 28 Feb S	Adelaide, AUSTRALIA	www.compumedics.com
MAR-07 Thoracic Society of Aus & NZ, Annual Scientific Meeting (TSANZ)	23 - 28 Mar S	Auckland NEW ZEALAND	www.thoracic.org.au/
DGKN Giessen	21 - 25 Mar S	Munich, GERMANY	www.akmcongress.com/dgkn2007
Auckland, NZ Profusion 3 Sleep School	27 - 28 Mar S	Auckland, NEW ZEALAND	www.compumedics.com

Asia Technology Showcase

In November, Compumedics showcased the current and up-coming Sleep and EEG technologies in Malaysia, Thailand and Singapore. With the assistance of local business partners, the events included key speakers from local professionals who presented on areas of sleep medicine and live product demonstrations.



THE COMPUMEDICS DIVISIONS *Defining Life's Signals*

Compumedics' operations consist of five divisions - each with its own product focus



Compumedics Sleep
Clinical Diagnostic Systems for Sleep Disorders



Compumedics Neuroscan
Clinical Diagnostic Systems for Neurophysiology



Compumedics Neuroscan
World-leading Research EEG/ERP systems



Compumedics Neuromedical Supplies
Electrodes, sensors and supplies for Neurology and Sleep laboratories



Compumedics DWL
Ultrasound Doppler Systems

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