

Chapter 1 : WOEXT: - Relaxation meditation

This chapter introduces the study of meditation as a vehicle for discovering the neural correlates of the self. It begins with a thorough introduction to experiments designed to isolate the neural components of meditation.

Lou and John F. Using ¹¹C-raclopride PET we demonstrated increased endogenous dopamine release in the ventral striatum during Yoga Nidra meditation. Yoga Nidra is characterized by a depressed level of desire for action, associated with decreased blood flow in prefrontal, cerebellar and subcortical regions, structures thought to be organized in open loops subserving executive control. In the striatum, dopamine modulates excitatory glutamatergic synapses of the projections from the frontal cortex to striatal neurons, which in turn project back to the frontal cortex via the pallidum and ventral thalamus. The present study was designed to investigate whether endogenous dopamine release increases during loss of executive control in meditation. Participants underwent two ¹¹C-raclopride PET scans: The tracer competes with endogenous dopamine for access to dopamine D2 receptors predominantly found in the basal ganglia. During meditation, ¹¹C-raclopride binding in ventral striatum decreased by 7%. The reduced raclopride binding correlated significantly with a concomitant increase in EEG theta activity, a characteristic feature of meditation. All participants reported a decreased desire for action during meditation, along with heightened sensory imagery. The level of gratification and the depth of relaxation did not differ between the attention and meditation conditions. Here we show increased striatal dopamine release during meditation associated with the experience of reduced readiness for action. It is suggested that being in the conscious state of meditation causes a suppression of cortico-striatal glutamatergic transmission. To our knowledge this is the first time in vivo evidence has been provided for regulation of conscious states at a synaptic level. Neural basis of behavior Topic: Monoamines and behavior Keywords: Meditation; Dopamine; Raclopride; Consciousness; Positron emission tomography; Electroencephalography There are two main, complementary aspects of consciousness associated with a change in emotional state or willpower. He experiences the equally important consciousness of action [12]. Yoga loss of conscious control of his actions and experiences an Nidra is a relaxed meditative state in the meditation enhancement of sensory stimulations or imagination [3,9]. This state is not meditation techniques, as concluded from a factor analysis of the subjective accounts of persons performing a variety of relaxation techniques [16]. The study revealed Abbreviations: S O1 T. An initial cerebral blood flow activation pattern during Yoga Nidra transmission scan used for attenuation correction was meditation with the normal restful state in order to localize performed. Participants were guided for 72 min by auditory stimulation - the neural structures differentially active in the two aspects ory CDs to either follow a standard relaxation meditation of consciousness " imagery and attention towards action. Seven minutes after initiation - vivid imagery and decreased attention towards action. We tion of the auditory stimulation, ¹¹C-raclopride was injected - found a corresponding relative flow increase in occipital jected intravenously and scans with a reconstructed spatial and anterior parietal cortical regions known to be active in resolution of 4. The auditory stimulation was the so-called executive system: The anterior cingulate, and orbital frontal cortices, striatum, early termination was due to the limited duration of the thalamus, brain stem and cerebellum [12]. The prefrontal meditation procedure and was the same in both the regions, striatum and thalamus, are thought to be organized meditation condition and the attention condition. Parametric in re-entrant loops, of which three seem to be responsible ric images of ¹¹C-raclopride binding potentials BP were for behavior and cognition [5]. Recent evidence suggests generated. The A T 1 -weighted volumetric MRI brain scan was performed - loops pass through the striatum in an anatomically segmented - formed on each participant. The ¹¹C-raclopride BP and gated manner [7], although striatal cholinergic interneurons MR images were coregistered and five regions of interest may serve the purpose of synaptic integration [10]. The were traced on the MRI: MSNS able in the laboratory. Recent recording device Medtronic was brought into the lab. Dopa- five of the eight participants had successful EEGs in both minergic activity modulates the postsynaptic potentials of of the two conditions. These 10 EEGs were

analyzed with glutamatergic neurotransmission in the prefrontal-subcortical spectral analysis using fast Fourier transform on segments cal loops [18,14]. The average power in the theta frequency We, therefore, hypothesized that the voluntarily induced band 4–7 Hz and alpha frequency band 8–13 Hz was suppression of the executive system during relaxation calculated. This hypothesis would predict reduced binding of questionnaire with respect to pleasure, relaxation, awake- 11 C-raclopride to D 2 dopaminergic receptors during relaxation, and awareness. Following scans in the meditation meditation, due to increased endogenous dopamine condition, the quality, depth and success of the meditation release. In particular, the ventral striatum would be a target were assessed. The aim of the present study was to plified reference tissue model with a cerebellar input test this prediction. The were highly experienced, and had practiced meditation for nominal scores from the interview were evaluated using 7–26 years on a daily basis. Six out of eight were strongly the signed rank sum test. All There was a significant 7. The protocol was ventral striatum. The average decrease in binding potential approved by the Ethics committee, Hammersmith Hospital. BP during meditation is summarized in Table 1, and Permission to use radio-ligands was obtained from the illustrated by example in Fig. The reported earlier [19]. The major finding of the present study has been the The fact that the ventral striatum was the only region in demonstration of increased dopaminergic tone in the which the decrease in dopamine receptor availability ventral striatum during an altered conscious state, as reached statistical significance is of interest. Two of the evidenced by decreased D2 receptor availability to 11 C- three frontal-subcortical circuits regulating behavior in- raclopride. The state of relaxation meditation has previous- clude structures in the ventral striatum. One originates in ly been shown to be characterized by suppression of the lateral orbital frontal cortex, passes through the ven- prefrontal-subcortical activity regulating the executive tromedial frontal cortex, ventral striatum, medial and system along with consciousness for action [12], while dorsomedial globus pallidus, ventral anterior and medial brain regions responsible for a complementary aspect of dorsal thalamus, and back to the orbitofrontal cortex. Subjectively, the meditative syndrome with lack of interest and initiative. The other state is characterized by a marked decrease in readiness for circuit passing through the ventral striatum originates in action and a corresponding increase in the experience of the anterior cingulate gyrus. It passes through the nucleus imagery, as seen in Fig. The 11 C-raclopride binding potential images at the level of the striatum for one participant No. The reduced 11 C-raclopride binding potential in ventral striatum is evidence of increased endogenous dopamine release during meditation. The reported readiness for action and degree of sensory imagery during meditation compared to normal rest. Each star indicates the response of one subject. Readiness for action was significantly reduced and sensory imagery was significantly increased during meditation P, 0. Our earlier finding of a relatively increased blood flow in the cerebellum compared with striatum during meditation could lead to an overestimate of the non-specific activity of the reference region and thus underestimate the endogenous dopamine release during meditation. In spite of this potential bias we demonstrate a significant 7. In the striatum, glutamatergic-gated ion channels mediate excitatory responses during synaptic transmission from cortical afferents to the striatal GABAergic spiny neurons. Hence, cortical glutamatergic afferents provide the main excitatory drive for the striatum. In recordings of propion- Fig. Correlation between changes in raclopride binding and changes in ate and kainate-type glutamate receptor-mediated com- EEG activity. A The correlation coefficient between the relative change ponents of excitatory postsynaptic currents EPSCs , incu- of activity in the theta band 4–7 Hz and changes in raclopride binding BP was r The slope of the regression line is significantly greater bation of brain slices in 10 mM dopamine resulted in a than 0. The large vari- activity in the alpha band 8–12 Hz and changes in raclopride binding ability may reflect activation of different receptor subtypes was r The slope of the regression line is significantly smaller with opposing effects. In an earlier study, goal-directed than 0. Thus there is a significant correlation between changes in behavior a videogame was also found to release dopa- raclopride binding and changes in activity of these two frequency bands. It has previously been shown that Yoga Nidra meditation is associated mine in the ventral striatum [11]. At first glance this with increased activity in the theta band. How- ever, the selection of goal-directed

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actions involves suppression of irrelevant signals from a great number of pallidus, the medial dorsal thalamus and back to the sources, and the enhancement of only one set of signals. Dysfunction in this loop may result in an is now believed that the basal ganglia may play a primary anterior cingulate syndrome, characterized by apathy, role in the selection of context-dependent actions. This poverty of speech and movement, and no display of focusing and filtering function is carried out by enhance- emotions. Response inhibition on the go- no go test is ment of the relevant signals through a direct striatal- impaired [2]. The phenomenology of relaxation meditation thalamic pathway, and by the suppression of irrelevant with loss of will, emotional disinterest and withdrawal is in signals through an indirect pathway. The indirect pathway fact very similar to the experience of lack of readiness for runs from the striatum through the external segment of the action cf. Functions attributed to a third be- pallidum GABAergic , subthalamic nucleus GABAer- havioral loop, the dorsolateral prefrontal loop passing gic , internal segment of the pallidum plus substantia nigra through the dorsal striatum, are working memory and glutamatergic , and thalamus GABAergic [1,15]. USA 94 of meditation [12,17]. In the present study, EEG moni- â€” In spite of this [5] J. Cummings, Frontal-subcortical circuits and human behaviour, shortcoming the decrease in 11 C-raclopride binding during Arch. Kimura, The basal tone and the characteristic theta activity increase in medita- ganglia and motor control, Science â€” Cunningham, In conclusion, the results of the present study have Parametric imaging of ligandâ€”receptor binding in PET using a shown increased dopamine release in the ventral striatum simplified reference region model, Neuroimage 6 â€” This increase in dopaminergic [10] S. Nakanishi, Synaptic integration by striatal reduction in readiness for action during meditation. To our cholinergic interneurons in basal ganglia function, Science knowledge this is the first time evidence has been provided â€” Grasby, Evidence for striatal dopamine release during a videogame, Nature â€” Kalivas, Glutamatergic and dopa- Carlsberg Foundation, British Council and Lundbeck Phar- minergic afferents to the prefrontal cortex regulate spatial working maceutical Company. Schmidt, Balance of transmitter activities in the basal ganglia loops, J. Delong, Basal gangliaâ€” [17] B. Moth, EEG findings during Mantra thalamoâ€”cortical circuits: A controlled, quantitative study of experienced medi- prefrontal and limbic functions, Prog. Raymond, Dopaminergic modulation of excitat- [2] G.

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Chapter 2 : Publications Authored by Troels Kjær | PubFacts

Troels W. Kjaer, Camilla Bertelsen, Paola Piccini, David Brooks, Jørgen Alving, a, a b b c Hans C. Lou a a John calendrierdelascience.comy Institute, Gl Landevej 7, Glostrup Denmark.*

Troels W Kjaer H. Lou r H uman Brain Mapping 7: The aim of the present study was to examine whether the neural structures subserving meditation can be reproducibly measured, and, if so, whether they are different from those supporting the resting state of normal consciousness. Cerebral blood flow distribution was investigated with the ^{15}O -H $_2\text{O}$ PET technique in nine young adults, who were highly experienced yoga teachers, during the relaxation meditation Yoga Nidra , and during the resting state of normal consciousness. In addition, global CBF was measured in two of the subjects. Spectral EEG analysis was performed throughout the investigations. In meditation, differential activity was seen, with the noticeable exception of V1, in the posterior sensory and associative cortices known to participate in imagery tasks. In the resting state of normal consciousness compared with meditation as a baseline , differential activity was found in dorso-lateral and orbital frontal cortex, anterior cingulate gyri, left temporal gyri, left inferior parietal lobule, striatal and thalamic regions, pons and cerebellar vermis and hemispheres, structures thought to support an executive attentional network. It is concluded that the HO PET method may measure CBF distribution in the meditative state as well as during the resting state of normal consciousness, and that characteristic patterns of neural activity support each state. These findings enhance our understanding of the neural basis of different aspects of consciousness. If this is the Regional neural mechanisms supporting meditation case the data might contribute to the understanding of have not previously been investigated. The aim of the the neural mechanisms of consciousness. There are present work was to examine whether this can be done two major aspects of consciousness [Flanagan,] reproducibly with the ^{15}O -H $_2\text{O}$ PET method, and if so, which seem complementary: Lou, Kennedy Institute, Gl. Landevej 7, ness of action, or the fact or illusion of voluntary DK Glostrup, Denmark. Yoga Nidra is a meditative state in the Yoga Received for publication 18 February ; accepted 2 September tradition where these aspects are dissociated: The meditator auditory stimulation, and four during meditation, becomes a neutral observer. He experiences the loss of induced and maintained by similar auditory stimula- conscious control and an enhancement of sensory tion. The tracer was administered by an Automatic quality [Janakanda, ; Ballantyne and Deva,]. Water Injection System AWIS via the left brachial These experiences seem to be common to a number of vein over 30 sec followed by 10 ml of isotonic saline for meditation techniques. In a factor analysis on the flushing. Data acquisition was triggered by total count subjective accounts of persons performing a vari- rate build up and began approximately 40 sec after ety of relaxation techniques, Smith et al. In two subjects global CBF was quantified. A and continuously sampled each second. These two related dissociation is in psychoanalysis as noted by subjects received MBq tracer and the data acquisi- Epstein []: Quantita- attentional stance or state of mind characterized by tive flow images n 5 2 were calculated using the two fundamental properties: The algorithm corrects the arterial input trate, or understand; and an even, equal and impartial curve for delay and dispersion by fitting it to a attention to all that occurs in the field of awareness. Afterwards flow images are regional CBF to the spectral analysis of EEG, and relate calculated using a lookup-table which is generated these to the subjective experience during the resting from the first frame only. Then, whole-cerebrum re- state of normal consciousness and the Yoga Nidra gions of interest were drawn and analyzed. For re- relaxation meditation. Thus the activity patterns of gional statistical analysis, the two frames were aver- consciousness for action and consciousness of our aged to reflect the count distribution over 90 sec. Foci of activated areas were assessed voxel-by-voxel by The present study, reported preliminarily in abstract calculating Z-scores with the appropriate contrasts form [Kjaer et al. The omnibus significance practitioners. Three were females, and the age range threshold was P , 0. Each had more than 5 years of expected and observed number of pixels above the experience with Kria Yoga, Yoga Nidra, and other Yoga threshold [Friston et al. Changes are reported in techniques. The study was approved by

the local Z-scores number of standard deviations after trans- Ethical Committee and informed consent obtained for forming the statistical maps to the unit Gaussian each participant. The cerebral structures were identified by their Talairach coordinates. The total axial field Meditation and EEG of view was 15 cm with an approximate in-plane resolution of 5 mm [DeGrado et al. Each subject The subjects practiced an intense form of concentra- was exposed to an initial 10 min transmission scan tion meditation Tantric Kriya Yoga for 2 hr before followed by eight intravenous injections of MBq arriving at the PET center. Kriya Yoga is experienced as 150-H O or MBqâ€”see below , two during the an exercise which detaches the mind from thoughts 2 normal resting state, two during the normal state with and preoccupations of daily life and makes the mind r 99 r r Lou et al. This general experi- ence was shared by the subjects in the present study Subjective experience who testified that initial Kriya Yoga greatly facilitated subsequent relaxation meditation Yoga Nidra. At the After termination of the PET measurements, the time of onset of the first measurement, the subjects subjects confirmed that the control situations had been were awake and no longer in meditation, but ready for experienced as normal, alert resting states without a subsequent meditation session with detached atten- meditation. They had been listening to the tape with tion. Relaxation meditation Yoga Nidra was per- factual instructions in a state of normal conscious formed by running a tape for 45 min with a voice control of behavior. They also stated that the medita- inducing relaxation meditation through different stages. They had 10â€”20 montage Cadwell spectrum 32 with spectral been passively following the instructions on tape as analysis of 16 channels. Eight PET examinations were they were used to. The present study thus involved carried out in the following sequence of conditions: Verbal guidance to the experi- with the subjective experience of reduced control ence of joy and happiness in abstract form i. In addition, the meditative state not related to external events or facts. Verbal guidance to the vi- alpha band 8â€”12 Hz was essentially identical with the sual imagination of a summer landscape with alpha band in normal consciousness an insignificant forests, streams, and meadows with cattle. Verbal guidance to the ab- sleep [Rechtschaffen and Kales,]. Global CBF, uncorrected for the ventricular system 7 Twenty-five minutes after cessation of medita- and partial volume effects, remained unchanged tion: Regional activity support- giving factual instructions on the meditation to ing meditation was identified by subtracting the pat- follow and to avoid motor behavior: As 7 different contents Table I, Fig. As expected, the activity pattern of meditation differed The sequence of measurements was not counterbal- according to the meditative content. The silent supplementary motor area [Martin et al. Talairach coordinates The combined brain activity pattern of the medita- maxima of significant differences of flow tion sequences with auditory stimulation was then distribution for subtracted from the mean of the two measurements of each region the resting normal consciousness, with similar audi- Z tory stimulation, to identify regions which differen- x y z score tially supported the resting state of normal conscious- Bodily sensations ness. This revealed a bilateral group of regions with Postcentr. Such a task may involve scape Parahippoc. Also parietal and occipital activation was 40 52 3. During abstract meditation on joy and happi- Occ. The Symbolic representation of differential activity of meditation with visual imagery the self is centered upon the visual cortex, except for the V1, Par. These regions are very similar Par sup. One Negative X coordinates, left hemisphere; positive, right. It also occipital lobe with sparing of the V1 region, and the shows important similarities to the activation pattern parietal lobe. Meditation on symbolic representation of during REM sleep and dreaming [Braun et al. This again is bilateral hippocampal activation. This was also appar- probably related to the paucity of emotional experi- ent in the combined meditation measurements the ence during meditation compared to dreaming. Cerebral activity pattern of four stages of meditation vs. The experience of and W ernicke, visual except V1 and anterior parietal, and parietal emotional and volitional detachment is combined with meditation respectively. In addition, focal hippocampal activity is prevalent on weight of body parts upper row , abstract perception of joy poorly seen in the perspectives chosen. N ormalized values, P , second row , visual imagery third row and symbolic representa- 0. Characteristic differential flow lack of activity in the V1 supports a recent hypothesis with the role attributed to these regions in bodily of Crick and Koch [] according to which V1 representation [Adair et al. During

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symbolic meditation of the self, characterized by differential activity in prefrontal, striatal, bilateral parietal activity was noted, in accordance thalamic, temporal, parietal, and cerebellar regions. PET Study of Meditation and the Resting State. TABLE II. Combined meditative stages vs. Relinquishing the latter is one of the Talairach coordinates maxima of significant hallmarks of the meditative state. The anterior cingulate differences of flow late seems to have a particular role in the motivation distribution for and resolution of conflict by selection among competing processing alternatives on the basis of some preexisting internal conscious plan [Pardo et al. Other functions attributed to the anterior cingulate are Fusiform gyrus 5. The structure is, hence, Sup. All these functions are experienced as re- Postcentral gyrus 42 4. In slow wave sleep decreased activity has been noted in a similar set of regions: This state therefore anterior cingulate gyri, prefrontal cortex especially seems to be differentially subserved by structures orbito-frontal, basal ganglia and brain stem. It has known to subserve attention in its so-called executive been proposed that that the one characteristic of all form: Functionally, this would correspond to the Figure 2. Cerebral activity patterns of combined meditative stages vs. The meditative state has region, and the caudate nucleus, thalamus, pons, and cerebellar differential activity mainly in anterior parietal and occipital regions vermis and hemispheres. The experience of conscious control of actions is Lou et al. Normal consciousness vs. In the present investigation the individuals experienced two Talairach coordinates states of consciousness: No attempt was made to limit the activity of the mind during these conditions, and the very different neural Sup. It is therefore reasonable. Thus we may conclude that Cingulate gyrus 44 2 4. Anosognosia during intracarotid barbiturate anaesthesia: Pons 4 3. Attentional Cerebellum, vermis 2 3. Hemispheres 5. Negative X coordinates, left hemisphere; positive, right.

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Chapter 3 : - NLM Catalog Result

The first scientific study; "A 15O-H₂O PET study of meditation and the resting state of normal consciousness" (Hans C. Lou, Troels W. Kjaer et al.), done in Copenhagen, is published in the magazine: Human Brain Mapping, Volume 7 Issue 2, pages , February

Hypoglycemia-associated changes in the electroencephalogram in patients with type 1 diabetes and normal hypoglycemia awareness or unawareness. Dementia and Geriatric Cognitive Disorders Extra. Interrater variability of EEG interpretation in comatose cardiac arrest patients. Infrared thermographic assessment of changes in skin temperature during hypoglycaemia in patients with type 1 diabetes. Epileptic aura and perception of self-control. Electroencephalography EEG for neurological prognostication after cardiac arrest and targeted temperature management; rationale and study design. SSVEP-modulation by covert and overt attention: Novel features for BCI in attention neuro-rehabilitation. Automatic detection and classification of artifacts in single-channel EEG. Prognostic value of electroencephalography EEG after out-of-hospital cardiac arrest in successfully resuscitated patients used in daily clinical practice. Sabers A, Kjaer TW. Beyond the double banana: Journal of clinical neurophysiology: Transient impairment of the axolemma following regional anaesthesia by lidocaine in humans. The Journal of physiology. Effects of angiotensin II receptor blockade on cerebral, cardiovascular, counter-regulatory, and symptomatic responses during hypoglycaemia in patients with type 1 diabetes. Journal of the renin-angiotensin-aldosterone system: Wesenberg Kjaer T, Sabers A. BCI using imaginary movements: Comput Methods Programs Biomed. Postoperative increase in grey matter volume in visual cortex after unilateral cataract surgery. Influence of erythropoietin on cognitive performance during experimental hypoglycemia in patients with type 1 diabetes mellitus: A brain-computer interface to support functional recovery. Frontiers of neurology and neuroscience. Subdural to subgaleal EEG signal transmission: Detection of generalized tonic-clonic seizures by a wireless wrist accelerometer: Semi-supervised adaptation in ssvep-based brain-computer interface using tri-training. Automatic detection of childhood absence epilepsy seizures: Channel selection for automatic seizure detection. Correlation between intra- and extracranial background EEG. Automatic multi-modal intelligent seizure acquisition MISA system for detection of motor seizures from electromyographic data and motion data. Generic single-channel detection of absence seizures. Video electroencephalography monitoring differentiates between epileptic and non-epileptic seizures. Recurrent activity in higher order, modality non-specific brain regions: Monocular visual deprivation suppresses excitability in adult human visual cortex. Automatic epileptic seizure onset detection using matching pursuit: Hvad stiller hjernen op, nar synet aendres? Intraoperative hyperventilation vs remifentanil during electrocorticography for epilepsy surgery – a case report. Kjaer TW, Gyllenborg J. Diagnostik og monitorering af status epilepticus. Differences in cortical and pituitary activity in response to hypoglycaemia and cognitive testing in healthy men with different basal activity of the renin-angiotensin system. Cognitive performance, symptoms and counter-regulation during hypoglycaemia in patients with type 1 diabetes and high or low renin-angiotensin system activity. Association between regional cerebral blood flow during hypoglycemia and genetic and phenotypic traits of the renin-angiotensin system. Journal of cerebral blood flow and metabolism: Changes of cognition and regional cerebral activity during acute hypoglycemia in normal subjects: A H₂ 15O positron emission tomographic study. Journal of neuroscience research. Angiotensin-converting enzyme activity and cognitive impairment during hypoglycaemia in healthy humans. Remifentanil-induced spike activity as a diagnostic tool in epilepsy surgery. The Danish Society of Clinical Neurophysiology]. Dansk Selskab for Klinisk Neurofysiologi. Parietal cortex and representation of the mental Self. Kjaer TW, Christensen T. Billeddiagnostiske undersøgelser ved epilepsi. Reflective self-awareness and conscious states: PET evidence for a common midline parietofrontal core. Increased dopamine tone during meditation-induced change of consciousness. Brain research Cognitive brain research. Precuneus-prefrontal activity during awareness of visual verbal stimuli. Neonatal treatment with beta-cell

stimulatory agents reduces the incidence of diabetes in BB rats. International journal of experimental diabetes research. Insensitivity of V1 complex cell responses to small shifts in the retinal image of complex patterns. Decoding Neuronal Signals in Visual Cortex: Calculating Information in the Brain: PhD-thesis, University of Copenhagen; Revealing the neural code, thesis summary. Fluorescence-activated cell sorted rat islet cells and studies of the insulin secretory process. The Journal of endocrinology. Information spectroscopy of single neurons. Int J Neural Systems. Information flow and temporal coding in primate pattern vision. Decoding cortical neuronal signals: Nitric oxide does not act as a mediator coupling cerebral blood flow to neural activity following somatosensory stimuli in rats. Ossification sequence of occipital bone and vertebrae in human fetuses. J Craniofac Genet Dev Biol. Changes in human palatine bone location and tongue position during prenatal palatal closure. Cranial base angulation and prognathism related to cranial and general skeletal maturation in human fetuses. Interleukins increase surface ganglioside expression of pancreatic islet cells in vitro. Measuring natural neural processing with artificial neural networks. Changed sex ratio in BB rat offspring. Scand J Lab Animal Science. Reduction of diabetes incidence in NOD mice by neonatal glucose treatment. Animal models in the study of the pathogenesis of Type 1 Insulin-dependent diabetes. Mental status examination " yearly updates since Christensen JB, Halvorsen N. Report, Rigshospitalets Leader Education. A collaborative effort on continuous monitoring of the unconscious patients. Meditation and the self. Pathologies of the brain and identity Seksualitet og hjernens sygdomme. Retningslinjer for kirurgisk behandling af medicinsk intractabel epilepsi. Guidelines of surgical treatment of medically intractable epilepsy. Sundhedsstyrelsen, National Board of Health; Sleep disorders associated with medical disorders " yearly updates " Medlink Neurology, a multimedia resource for clinical neurology Sleptalking " yearly updates " Pituitary aplasia and dysplasia " yearly updates " Implications for the understanding of awareness. Neuroimaging in child neuropsychiatric disorders.

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Chapter 4 : Meditation and the Self - Oxford Scholarship

During symbolic meditation of the self, terized by differential activity in prefrontal, striatal, bilateral parietal activity was noted, in accordance thalamic, temporal, parietal, and cerebellar regions r r r PET Study of Meditation and the Resting State r T ABLE II.

No experiments Child experiments: Meditation with bodily sensation versus resting. Lou ; Troels W. Kjaer ; Lars Friberg; G. Human Brain Mapping 7 2: Meditation with abstract sense of joy versus resting. Verbal guidance to the experience of joy and happiness in abstract form. Meditation with visual imagery of landscape versus resting. Meditation with symbolic representation of the self versus resting. Verbal guidance to the abstract perception of the self: Fixation versus word identification. Fixation on a central cross on the screen versus reading aloud of visually presented words. Brain activation during word identification and word recognition. Fixation versus word recognition. Fixation on a central cross on the screen versus responding to visually presented words. Rest with eyes closed. Remain still with eyes closed versus listen to sequences of low and high tones and responding when a sequence has two high tones by pressing a button with the thumb on the left hand. Conceptual processing during the conscious resting state. A functional MRI study. Journal of Cognitive Neuroscience 11 1: Awake resting state with eyes closed versus goal-directed task. A default mode of brain function. Resting versus nonautobiographical episodic memory retrieval. Resting with eyes closed versus listening to sentences that contained third-person autobiographical episodic information. Journal of Neuroscience 16 Resting versus autobiographical episodic memory retrieval. Resting with eyes closed versus listening to sentences that contained first-person autobiographical episodic information. Resting with eyes closed versus conjunction between nine different cognitive task: Cortical networks for working memory and executive functions sustain the conscious resting state in man. Brain Research Bulletin 54 3: Rest versus practiced word recall. Resting versus speak load words recalled from a list of 15 words practiced one week before. Cizadlo; Stephan Arndt ; K. PET studies of memory: Resting versus novel word recall. Resting versus speak load words recalled from a list of 15 words heard only one time just prior to recall. Rest versus focused episodic memory. Rest with eyes closed versus recalling a personal event from the past and describing the event aloud. Andreasen ; Daniel S. Leonard Watkins; Laura L. American Journal of Psychiatry Rest versus semantic memory. Rest with eyes closed versus recalling and speak aloud words that start with a specific letter. Passive versus active, hypothesis generation group. Passive state with stimulus versus active states in connection with visual information processing task: Shulman ; Julie A. Fiez ; Maurizio Corbetta ; Randy L. Buckner ; Francis M. Raichle ; Steven E. Decreases in Cerebral Cortex. Journal of Cognitive Neuroscience 9 5: Passive versus active, hypothesis generation and testing group with replication. Hypothesis generation and testing group versus hypothesis generation group. Areas where changes were seen in the combined hypothesis generation and testing group but not in the hypothesis generation group alone.

Chapter 5 : Lost Self: Pathologies of the Brain and Identity - Oxford Scholarship

Meditation of symbolic representation of the self was supported by bilateral parietal activity in accordance with the role attributed to these regions in representation of the physical self (Adair et al.,) and the mental self (Lou et al.,), and was not found during meditation on other items during the sequence. We found a strong.

Chapter 6 : The Lost Self - Todd E. Feinberg; Julian Paul Keenan - Oxford University Press

This chapter introduces the study of meditation as a vehicle for discovering the neural correlates of the self. It begins with a thorough introduction to experiments designed to isolate the neural.

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Chapter 7 : The mental self | Read by QxMD

In meditation both the quality and the contents of consciousness may be voluntarily changed, making it an obvious target in the quest for the neural correlate of consciousness. Here we present the results of a positron emission tomography study of yoga nidra relaxation meditation when compared with.

Chapter 8 : Staff View: The lost self :

Hans C. Lou, Corresponding author. Troels W. Kjaer, Kennedy Institute, Glostrup, Denmark In the resting state of normal consciousness (compared with.

Chapter 9 : WOEXT: - Relaxed conscious state

Request PDF on ResearchGate | On Jan 1, , T.W. Kjaer and others published Interaction between precuneus and dorsolateral prefrontal cortex may play a unitary role in consciousness: a principal.