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1: Percept Mot Skills 2001 Jun;92(3 Pt 1):673-4

**Geophysical variables and behavior: CIV. Power-frequency magnetic field transients (5 microtesla) and reports of haunt experiences within an electronically dense house.**

Persinger MA, Koren SA, O'Connor RP. Department of Psychology, Laurentian University, Sudbury, Ontario, Canada. Magnetic field measurements for power frequencies were measured continuously over two 24-hr. periods for a small house in which two adults who exhibited above normal occurrences of complex partial epileptic-like experiences had reported "waves of fear", tactile sensations, nightmares, apparitions, and a sensed presence. The experiences occurred within an area in which irregular amplitude modulations between 1 microT and 5 microT (50 mG) from 60-Hz sources, with durations of a few seconds to several tens of seconds, were measured. This case suggests that transient, complex temporal patterns of power-frequency magnetic fields generated by less than optimal grounding in dwellings and telluric currents may be sufficient to evoke experiences in the brains of sensitive individuals. Cultural labels, applied by the experients, then affect the explanations and expectancies for these experiences.

PMID: 11453191 [PubMed - indexed for MEDLINE]

1: Percept Mot Skills 2001 Jun;92(3 Pt 1):653-4

**Geophysical variables and behavior: CIII. Days with sudden infant deaths and cardiac arrhythmias in adults share a factor with PC1 geomagnetic pulsations: implications for pursuing mechanism.**

Persinger MA, O'Connor RP. Behavioral Neuroscience Laboratory, Laurentian University, Sudbury, Ontario, Canada. If geomagnetic-mediated stimuli trigger many sudden infant deaths, then the days in which they and hospital admissions for cardiac arrhythmias for adults occur should share a similar source of variance. Factor analyses of the days in which a sudden infant death occurred in Ontario or adults were admitted for one of eight categories of cardiac crisis in the Sudbury (Ontario) Region for the year 1984 supported the hypothesis. This factor, with which infant deaths and adult cardiac arrhythmias each shared about 40% of their variance, also shared about 40% of the variance with a factor with which about 35% of the variance in daily occurrence of geomagnetic pulsations (0.2 Hz to 5 Hz) was associated. These results are consistent with the important role of geomagnetic variables in the occurrence of transient electrical anomalies in brain function rather than cardiac blood flow.

PMID: 11453188 [PubMed - indexed for MEDLINE]

1: Int J Neurosci 2001 Aug;108(1-2):87-97

**Suppression of analgesia in rats induced by morphine or L-NAME but not both drugs by microTesla, frequency-modulated magnetic fields.**

Dixon SJ, Persinger MA. Behavioral Neuroscience Laboratory, Laurentian University, Sudbury, Ontario P3E 2C6, Canada. In Experiment I, the nociceptive threshold for a criterion response to thermal stimuli (hot plate) for rats was obtained following injections with one of various dosages of either morphine or the nitric oxide synthase inhibitor, L-NAME. On the bases of these results, rats in Experiment II were injected with either morphine (4 mg/kg), L-NAME (50 mg/kg), both morphine and L-NAME, or saline after baseline measurements for nociception and then exposed to either a 1 microTesla magnetic field or to a sham field for 30 min. The magnetic field, presented once every 4 sec, was a frequency-modulated pattern whose pixel durations, for each of the 837 successive values, were 1 msec. Nociceptive thresholds were measured immediately after the exposure and 30 min later. The results indicated that exposure to this magnetic field abolished the analgesic effects of morphine or L-NAME when injected separately but not when injected together relative to rats that had received these drugs and had been exposed to the sham field.

PMID: 11328704 [PubMed - indexed for MEDLINE]

1: Int J Neurosci 2001 Aug;108(1-2):99-107

**Decreased density of neurons in the medial preoptic nucleus and increased testicular weights for rats exposed perinatally to an 0.5 Hz Rotating Magnetic Field.**

Persinger MA, Mulligan S. Behavioral Neuroscience Laboratory, Laurentian University, Sudbury, Ontario, P3E 2C6, Canada. mpersinger@admin.laurentian.ca

Pregnant Wistar rats were exposed to either 0.5 Hz Rotating Magnetic Fields (50 microT to 300 microT or 1.5 mT to 3.0 mT) or to sham field or control environments for 3 days before to 3 days after the day of birth. The adult male offspring that had been exposed perinatally to the RMF displayed significantly heavier testicle weights but fewer neurons within the medial preoptic nucleus (MPO) and caudal ventromedial hypothalamus relative to sham field controls (effect size about 30%). There was no statistically significant difference between the two ranges of RMF intensities for these measures. RMF-exposed rats relative to sham-field exposed rats did not differ with respect to spleen weights, body weights, or mounting (reproductive)

activity. The heavier testicle weights replicated previous studies and suggest that permanent, selective alterations in neuronal density can also occur subsequent to perinatal exposure to relatively weak, extremely low frequency magnetic fields.

PMID: 11328705 [PubMed - indexed for MEDLINE]

1: Percept Mot Skills 2001 Apr;92(2):447-8

**Geophysical variables and behavior: XCII. Experimental elicitation of the experience of a sentient being by right hemispheric, weak magnetic fields: interaction with temporal lobe sensitivity.**

Cook CM, Persinger MA. Laurentian University, Sudbury, Ontario, Canada.

We tested the hypothesis that proportionally more people with above average numbers of complex partial epileptic-like experiences before the experiment would report a proximal presence during applications of a weak (1 microTesla), frequency-modulated magnetic field over the right hemisphere. Each of 16 subjects sat in a darkened, quiet room and was exposed for 20 min. to complex fields, applied through a helmet, either along the right hemisphere or across both hemispheres. None of the 8 subjects with below average scores reported a presence during the applications of the magnetic fields while 75% and 60% of the 8 subjects with above average scores reported a presence during right hemispheric and bilateral stimulation, respectively.

PMID: 11361305 [PubMed - indexed for MEDLINE]

1: Percept Mot Skills 2001 Feb;92(1):183-92

**Geophysical variables and behavior: XCI. Ambulatory behavior in rats following prenatal exposures to complex magnetic fields designed to interact with genetic expression.**

Persinger MA, St-Pierre LS, Koren SA. Department of Psychology, Laurentian University, Sudbury, Ontario. A total of 45 litters were exposed during their entire prenatal development to one of two complex patterns of magnetic fields whose strengths varied within one of four intensity ranges between 10 nT and 1,000 nT or to sham-field conditions. The litters exposed to the most complex pattern, composed of 50 200-msec. presentations of different pulses for 10 sec. every 50 sec., displayed more ambulation in an open field at 21 days of age than the litters that had been exposed continuously to a repetitive frequency-modulated field or to sham-field conditions. This treatment explained 25% of the variance in the numbers of squares traversed. The results suggest that complexity of the applied magnetic field during prenatal development may be more important than intensity for permanently affecting neuronal organization and behavior.

PMID: 11322585 [PubMed - indexed for MEDLINE]

1: Int J Neurosci 2001;106(3-4):195-207

**Experimental production of illusory (false) memories in reconstructions of narratives: effect size and potential mediation by right hemispheric stimulation from complex, weak magnetic fields.**

Healey F, Persinger MA. Behavioral Neuroscience Laboratory, Laurentian University, Sudbury, Ontario, Canada.

This experiment was designed to discern the proportion of false, inferential and verbatim memories that would be included in the reconstruction, one week later, of a 5 min narrative containing ambiguous but emotional content about a little boy. After 48 subjects were administered Spiegel's Hypnosis Induction Profile, they listened to the narrative, were exposed to one of four applications of transcerebral weak, complex magnetic fields for 30 min and then given either an accurate or inaccurate short summary of the story. One week later the group who received the erroneous summary reported more false memories about the original story than did the reference group; this treatment accommodated about 40% of the variance in numbers of false memories. Only an indicator of electrical lability within the temporal lobes (but not hypnotizability) was strongly associated with the numbers of inferential memories but not the numbers of false memories. The group that received transcerebral stimulation over the right hemisphere by a complex magnetic field and the erroneous summary reported three times the numbers of false memories compared to the other groups. Whereas verbatim memories showed a strong primacy effect inferential memories exhibited a strong recency effect ( $\eta^2 = .66$ ).

PMID: 11264920 [PubMed - indexed for MEDLINE]