Dearomatized white spirit inhalation exposure causes long-lasting neurophysiological changes in rats

Dearomatized white spirit inhalation exposure causes long-lasting neurophysiological changes in rats. Neurotoxicol Teratol 18(1), 67-76, 1996. Exposure for 6 h per day, 5 days per week, during a period of 6 months to the organic solvent dearomatized white spirit (0, 400, and 800 ppm) was studied in rats that were 3 months old when the repeated exposure was initiated. After an exposure-free period of 2-6 months duration, neurophysiological, neurobehavioral, and macroscopic pathologic examinations were performed. The study revealed exposure-related changes in sensory evoked potentials and a decrease in motor activity during dark (no light) periods but no white spirit-induced changes in learning and memory functions. The measurements of the flash evoked potential (FEP), somatosensory evoked potential (SEP), and auditory brain stem response (ABR) all demonstrated dose-dependent increases of the amplitudes of the early latency peaks of the sensory evoked potentials (EPs). Furthermore, an increase of the dose showed that the measurements of FEP and SEP revealed changes in the later-latency peaks, which reflect the more associative aspects of sensory processing. The results demonstrated that 6 months of exposure to dearomatized white spirit induced long-lasting and possible irreversible effects in the nervous system of the rat.

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