

164/85 ORAL PHARMACOKINETICS OF TRICHLOROETHYLENE PHARMACOKINETICS
R.W. D'Souza, et al. J. Toxicol. Environ. Health 15(5), 587-601, 1985. 2 p. refs.

The pharmacokinetics of trichloroethylene (TCE) was studied in male Sprague-Dawley rats (300-350 µg). TCE was administered intravenously and orally at doses of 5, 10, and 25 mg/kg to nonfasted rats and orally at 10 mg/kg to rats fasted for 8-10 h. The disappearance of TCE from the blood of intravenously dosed animals was best described by a two-compartment open pharmacokinetic model. The volume of the central compartment (V_c) approximated the rats' blood volume (50-70 ml/kg). The volume distribution (V_d) and total body clearance (CL_T) decreased with increase in dose. The terminal half-life ($t_{1/2}$) was about 120 min and was not affected by increases in dose. TCE was rapidly absorbed after oral dosing, with blood concentrations peaking between 6 and 10 min. The oral to intravenous bioavailability of TCE was 60-80% in nonfasted animals. The terminal $t_{1/2}$ in fasted, orally dosed rats was identical to that when fasted rats were given the same dose intravenously. In fasted rats, bioavailability of an oral dose was greater than 90%, and peak levels in the blood were 2-3 times as high as in nonfasted rats.

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1165/85 ORAL DOSING OF RATS WITH POLYCHLORINATED BIPHENYLS INCREASES URINARY HOMOVANILIC ACID PRODUCTION.

A.F. Seegal, et al. J. Toxicol. Environ. Health 15(5), 575-586, 1985. 2 p. refs.

The effect of a single oral gavage with a mixture of Aroclors 1254 and 1260 on 24-h production of urinary homovanillic acid was determined in the laboratory rat. Adult male Wistar-derived rats were exposed to a single dose of corn oil, either alone or containing equal amounts of Aroclors 1254 and 1260 at a dosage of 500 or 1000 mg/kg. Urinary homovanillic acid concentrations were determined by high-performance liquid chromatography with electrochemical detection. The 500-mg/kg group showed a transient increase in homovanillic acid production, while the 1000-mg/kg group showed a biphasic response—an initial decrease (due to decreased food consumption) followed by a prolonged elevation. Only transient changes in body weight, food and water consumption, and urine output were observed. The results demonstrate that peripheral measurement of a dopamine metabolite may provide a means of monitoring changes in an important neurotransmitter system after exposure to a putative neurotoxin.

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1166/85 GASTRIC CANCER IN COAL MINERS: A CASE-CONTROL STUDY IN A COAL MINING AREA.

G.M.H. Swaen, et al. Brit. J. Ind. Med. 42: 627-630, Sept. 1985. 19 refs.

In collaboration with three pathology departments a case-control study was conducted in the southern part of the Netherlands to investigate the risk of gastric cancer in coal miners. Between 1 January 1973 and 31 December 1983, 323 male patients were diagnosed as having a malignant neoplasm of the stomach. For each case a control was selected

from the same pathology department, matched on year of birth and regardless of diagnosis. The archives of the Central Coal Miners Pension Fund were searched to obtain information about whether or not a patient had ever worked for a coal mining company in the Netherlands. Twenty-two per cent of the patients had been registered as an underground coal miner, compared with 20% of the control group (odds ratio of 1.14, 95% confidence interval: 0.33-1.73). Those with gastric cancer who had ever worked underground in a coal mine did so for an average period of 16.9 years compared with an average of 19.7 years in the control group. The study gives no indication that the underground workers of the Dutch coal mines had a raised risk of developing a malignant neoplasm of the stomach.

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1167/85 MERCURY IN HUMAN HAIR: A STUDY OF RESIDENTS IN MADRID, SPAIN.

M.J. Gonzalez, et al. Arch. Environ. Health 40: 225-228, July/Aug. 1985. 17 refs.

The mercury content in hair of the population in Madrid (chosen randomly) was in the range of 1.29-1.29.47 µg/g (geometric mean = 7.96 µg/g). The mean mercury content in hair of occupationally exposed workers was 12.70 µg/g (range = 2.91-65.43 µg/g). The highest means, which were found in two families (i.e., 67.89 µg/g and 92.47 µg/g, Families A and B, respectively), probably resulted from external factors. No statistically significant variations in the mercury concentrations in hair were found with regard to sex, age, or dental fillings. A significant correlation ($r=0.785$; $P<0.01$) was found between the concentration of the total mercury found in nursing infants and their mothers.

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1168/85 REVERSIBILITY EFFECTS ON RENAL AND HEPATIC GLUCONEOGENIC ENZYMES IN RATS FROM CHRONIC EXPOSURE OF CADMIUM.

B. Rajanna, et al. J. Toxicol. Environ. Health 15(3-4), 521-529, 1985. 24 refs.

The reversibility of cadmium chloride ($CdCl_2$) effects on renal and hepatic gluconeogenic enzymes in rats was studied by removal of $CdCl_2$ from the diet. Adult, male Sprague-Dawley rats were continuously treated with 0, 25, 50, and 75 ppm $CdCl_2$ mixed in powdered diet for 180 d. After this period of chronic exposure, all treated rats were kept on $CdCl_2$ -free diet for another period of 180 d. The $CdCl_2$ induced serum glucose and activities of glucose 6-phosphatase, fructose 1, 6-bisphosphatase, and phosphoenolpyruvate carboxykinase reversed to the levels of control values 120 d after the rats were fed with $CdCl_2$ -free diet. There were no significant differences in measured enzyme activities either 120 or 180 d after the cessation of $CdCl_2$ treatment. The data indicate that $CdCl_2$ effects on gluconeogenesis will gradually recover with time when the metal is removed from the diet.

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