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Titel des Beitrags: Cardiovascular function of workers exposed to carbon disulphide.

Abstract:

OBJECTIVES: The aim of the study was to verify that exposure to carbon disulphide (CS(2)) up to 10 ppm results in a negative inotropic effect on cardiovascular function. METHODS: In a cross-sectional study a total of 325 workers exposed to CS(2) in the rayon-producing industry and 179 controls from the same plants were examined. The exposure assessment was based on personal air sampling and biological monitoring (2-thiothiazolidine-4-carboxylic acid (TTCA) in urine) for all persons. The examination consisted of a standardised questionnaire, physical examination, assessment of body fat mass, ergometric test with the determination of work capacity at heart rates of 100, 130, 150 and 170 beats/min, and electrocardiography. RESULTS: The mean external exposure was 6.04 ppm CS(2) (range: 0.03-91.08); the mean internal exposure was 1.14 mg TTCA/g creatinine (range: 0.02-11.50). The workers exposed to CS(2) showed better physical fitness. The diameters of the left heart chamber of the exposed persons were not significantly different when compared with occupationally non-exposed workers, but there was a tendency of increasing diameters for the exposed employees. In the multiple linear regression the diameters showed physiologically plausible correlations with the body mass index, body fat mass, alcohol consumption, and physical fitness, but not, however, with the exposure, neither with the exposure group in all persons nor with
the internal or external exposure within the exposed workers. CONCLUSIONS: In this study, differences in the heart chamber diameters between exposed persons and controls could not be confirmed. Differences in physical fitness and constitution can explain differences in heart chamber diameters.