

ACCESSIBILITY OF DNA-CARCINOGEN ADDUCTS TO ANTIBODIES AND DNA REPAIR ENZYMES.

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Antibodies against benzo(a)pyrene (BP) adducts in DNA bind to accessible adducts but not to "sheltered" adducts in damaged DNA. The "sheltered" adducts can be rendered accessible to the antibodies either when the DNA is converted from double to single stranded structure, or by agents that modulate the DNA structure. The hormone dehydroisoandrosterone (DHEA) modulates the DNA structure and renders more adducts accessible to the antibodies. This may reflect accessibility of the adducts to DNA repair enzymes since DHEA modulates the nucleoid superhelical structure, and increases DNA repair in human kidney and CHO cells. In *in vitro* immunoassay (EIA) competition experiments, competitor native BP-DNA bound more specific antibodies in the presence of DHEA. No such increased binding was observed when single stranded BP-DNA was incubated with the antibody in the presence of DHEA. In *in vivo* experiments in which DHEA was added to BP-damaged cells, more BP-adducts were removed and cell survival was increased.

NITROSAMINE EXPOSURE IN RUBBER INDUSTRY: OCCURRENCE AND PREVENTION. B.Spiegelhalder. Institute of Toxicology and Chemotherapy, German Cancer Research Center, D-6900 Heidelberg, F.R.G.

To determine the role of N-nitrosamines in the known increased cancer risk of rubber workers, air concentrations of such carcinogens were measured by area sampling or personal monitoring in 19 factories. N-Nitrosodimethylamine (NDMA) and -morpholine (NMOR) were found regularly, the air concentrations varying between 0.1-4700 $\mu\text{g}/\text{m}^3$. The mean concentration is usually in the range of 1-10 $\mu\text{g}/\text{m}^3$. Several other nitrosamines could be detected in certain product branches. In retail shops and storage rooms of tyres NDMA and NMOR were found. Most rubber chemicals on amine basis are contaminated with N-nitrosamines, but this contamination cannot explain the air concentrations of nitrosamines found. The occurrence of nitrosamines mainly depends upon their formation during production of rubber and rubber products from used vulcanization accelerators on amine basis and the presence of nitrosating agents, such as diphenylnitrosamine (retarder A) and nitrous gases in products or production areas. Elimination of one or both precursors for nitrosamine formation resulted in significant reduction of air concentration of nitrosamines. The results are a suitable basis for future epidemiological studies.

RECTOSIGMOIDOSCOPY AS A SCREENING PROCEDURE FOR EARLY COLORECTAL CANCER AND POLYPS.

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Colorectal cancer continues to kill within five years more than half of the people in whom it occurs. The control of colorectal cancer may be possible by its early detection and by the identification and elimination of premalignant polyps. A prospective study to evaluate rectosigmoidoscopy as a screening procedure for early colorectal cancer and polyps was performed in 1286 hospitalized patients (734 males, 552 females), aged 45 to 83 years (mean : 58.1 years) who have been admitted for non-colonic problems. All patients were submitted to a rectosigmoidoscopy. 8.2% of the patients had one or more polyps. Adenomatous polyps accounted for 80% of the lesions and 6% of these were malignant transformed polyps. Our study suggests that rectosigmoidoscopy is an efficient screening procedure for early colorectal cancer and polyps and is readily accepted by hospitalized and informed patients.