

WOOD INDUSTRIES: CARPENTRY AND JOINERY (Group 2B)

Evidence for carcinogenicity to humans (*limited*)

The epidemiological data available suggest that there may be a carcinogenic risk connected with employment as a carpenter or joiner, although some of the studies produced negative results¹.

The connection between nasal cancer other than adenocarcinoma and exposure to wood dust among carpenters and joiners, found in some studies, if true, cannot be ascribed to any specific exposure. Carpenters and joiners usually work with impregnated wood, use a variety of types of wood and are exposed to many chemicals used in carpentry¹.

Several studies raise the possibility of an increased risk of Hodgkin's disease. A number of studies suggest an association between work as a joiner and nasal adenocarcinoma, but it is possible that the workers involved may have worked in the furniture industry¹.

There is also some evidence of an association between nasal carcinomas other than adenocarcinoma and work as a carpenter. In a case-control study based on an analysis of occupational data in the hospital records of 121 men seen for nasal cancer in British Columbia, Canada, between 1939 and 1977, a relative risk of 2.5 (adjusted for smoking and ethnic origin) was associated with exposure to wood. There was an increased risk for most histological types of epithelial tumour, except for transitional tumours. Of the 28 wood workers with nasal cancer, 16 had worked in the forestry industry, seven had been carpenters, four had been construction workers and one had been a cabinet-maker².

A case-control study on nasal and sinonasal cancer in Denmark, Finland and Sweden found a connection with exposure to spruce, pine and birch dust and the cancers studied, especially epidermoid and anaplastic carcinomas. There were 13 cases with exposure only to these types of wood *versus* four controls (relative risk, 3.2; 95% confidence interval, 1.1-9.4). Of the cases, five were in construction carpenters and one in a cabinet-maker with no exposure to hardwood; there were two construction carpenters among the controls³.

In a Norwegian study of 70 cases of nasal carcinoma, three cases of squamous-cell carcinoma had had exposure to pine and spruce dust in joinery and carpentry *versus* 1.5 expected on the basis of the occupational distribution in Norway according to the 1946 census⁴. In France, carpenters were not found to have an increased risk of nasal cancer, but no quantitative data were given⁵. A case-control study of nasal cancer from North Carolina and Virginia, USA, showed a nonsignificant relative risk of 1.6 for carpentry⁶.

In a national study of nasal cancer in England and Wales in 1963-1967, the occupations of 925 men were studied, using postal questionnaires and data from hospital and death records. Among wood workers, the standard incidence ratios (SIRs) for cabinet- and chairmakers, machinists and 'other' wood workers were 966, 616 and 293, respectively. For carpenters and joiners, the SIR was 149⁷. Another case-control study⁸ showed no significantly increased risk for 'woodworkers and carpenters' residing in certain areas of London, selected for the study because of high incidences of nasal and bladder cancer.

A Swedish register-linkage study gave a two-fold excess of adenocarcinoma, based on five cases, among carpenters and joiners but no overall excess of nasal cancer in this group⁹.

A cohort study comparing the experience of 10 322 men employed in wood-working industries with that of 406 798 non-wood workers showed no excess for all cancers combined. In the subcohort of carpenters and joiners, 36 cases of stomach cancer were found, yielding a standardized mortality ratio (SMR) of 170 ($p < 0.01$). There were 101 deaths from lung cancer, resulting in a SMR of 120 ($p < 0.05$). Nonsignificantly elevated SMRs were found for cancers of the liver, biliary ducts and gall-bladder (11 cases; SMR, 121), nonmelanocytic skin cancer (4 cases; SMR, 333) and melanoma (5 cases; SMR, 161). There were two cases of nasal cancer (SMR, 333; nonsignificant)¹⁰.

A proportionate mortality study showed an elevated risk for death from all cancers (proportionate mortality ratio [PMR], 112; $p < 0.01$), stomach cancer (PMR, 128; $p < 0.01$) and non-Hodgkin's lymphoma (PMR, 139; $p < 0.05$) among woodworkers (including carpenters, cabinet-makers and furniture workers, lumber graders and scalers, sawyers in sawmills and woodworkers not classified elsewhere). In this mixed category, there was no death from sinonasal cancer¹¹.

A Dutch case-control study¹² of 116 male patients with primary sinonasal malignancies of epithelial origin showed an increased risk of adenocarcinoma for those employed in joinery and carpentry work in factories (odds ratio, 16.3; 90% confidence interval, 2.8-85.3). This work included production of doors and window frames; hence, exposure to oak dust was likely.

References

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