

is for service and sales workers 25.6%, head of the department/managers 25.2% and the lowest rate for chief executive officer (CEO) is 20.4%, and 22.1% for unskilled workers ($p=0.006$). Informal sickness absence highest rate of 8.4% is for senior specialists compared to lowest 4.6% and 4.9% in unskilled and skilled workers group ($p=0.013$). The higher salary group (more than 570 euro), the higher formal absence rate — 32.8% compared to 23.0% in lowest salary group below 215 euro ($p<0.001$).

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OCCUPATIONAL HEALTH AND SAFETY IN TUNNELING

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ГИГИЕНА ТРУДА И ПРОИЗВОДСТВЕННАЯ БЕЗОПАСНОСТЬ ПРИ ПРОКЛАДКЕ ТУННЕЛЕЙ. Нийязи Билим, Атийе Билим. Университет Сельчук, ул. Анкары, 6, Конья, Турция, 42030

Key words: *occupational health and safety; work in tunnels; work accident*

Ключевые слова: *гигиена труда и производственная безопасность; работа в туннелях; несчастные случаи на производстве*

Tunneling activities are rapidly growing in parallel with the increase in urbanization, industry, trade and transportation needs in the world. Tunneling in developed and developing countries is now becoming indispensable. Because in many areas of life the tunnel is now confronted as a structure used by human beings. Today, tunnels can be used for many purposes such as subway, highway, railway, water, sewerage, derivation (in hydroelectric power plants), under the river, immersed tunnel and nuclear waste repository. Nowadays, two methods are usually used in tunneling called drilling-blasting and mechanized excavation. However, there are many risks and dangers faced by the workers in the tunneling. Because the nature of work, the work conditions are very difficult. Hazardous gases in underground, fire, explosion, roof fall, mudflow, explosive material accidents transport hoisting accident (loading, hauling or hoisting) and machine accidents are the most common work accidents. Besides, it is unfortunately possible to encounter very tragic work accidents that are concluded with mass deaths. In this study, the procedures to be observed in tunneling and the safety precautions that are essential in terms of work safety are generally explained. The work safety procedures can be changed according to the factors such as the type of tunnel, the opening method, the geology, the equipment used, etc. For this reason, in this study general safety precautions in tunnels are explained. As a result, a summary safety procedure and flow chart for the tunnel has been developed by presenting the procedures that should be paid attention to firms and employees working in tunnels.

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ASBESTOS AND LUNG CANCER IN A MULTINATIONAL CONSORTIUM OF CASE-CONTROL STUDIES (THE SYNERGY PROJECT)

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АСБЕСТ И РАК ЛЕГКИХ В МНОГОНАЦИОНАЛЬНОМ ОБЪЕДИНЕННОМ ИССЛЕДОВАНИИ ПО МЕТОДУ «СЛУЧАЙ-КОНТРОЛЬ» (ПРОЕКТ SYNERGY). Олссон А.¹, Кромхут Х.², Брүнинг Т.³ ¹Международное агентство по исследованиям рака, ул. Кур Альбер Тома, 150, Лион СЕДЕКС 08, Франция, 69372; ²Институт исследований по оценке риска, Утрехт, Нидерланды; ³Институт профилактической и производственной медицины немецкого страхования от несчастных случаев, Бохум, Германия

Key words: *asbestos; smoking; cancer; epidemiology*

Ключевые слова: *асбест; курение; рак; эпидемиология*

Introduction. Asbestos fibers have been attractive for a wide range of industrial applications for over a century. Consequently, large groups of workers have been (and still are, in a shrinking number of countries) exposed to asbestos, for example in the insulation, textile, cement, roofing, and refractory industries. Lung cancer is the most common cancer globally, and tobacco smoking is well established as the main cause. Asbestos is the most important occupational carcinogen, and lung cancer is the most common asbestos-related cancer. Asbestos was the first occupational exposure to be suggested to have a joint effect with smoking. Several studies and reviews have supported this hypothesis, but the type of interaction (additive or multiplicative) has been debated. The evidence is limited regarding risk and the shape of the exposure-response curve at low levels of asbestos exposure. We estimated the exposure-response for occupational exposure to asbestos and assessed the joint effect of asbestos exposure and smoking by sex, and lung cancer subtypes (adenocarcinoma, squamous cell lung carcinoma, small cell lung carcinoma) in general population studies. **Research methods:** Fourteen case-control studies conducted between 1985 and 2010 from Canada and Europe were pooled, including 16,901 lung cancer cases (13,605 men, 3296 women) and 20,965 controls (16451 men, 4514 women) with detailed information on tobacco habits and lifetime occupations. The database comprises around 14% never smokers, whereof 822 cases. A quantitative job exposure matrix (SYN-JEM) was created based on exposure measurements from multiple countries together with auxiliary data, covering a time period of more than 50 years. SYN-JEM