SHORT REPORT

Mandatory use of eye protection prevents eye injuries in the metal industry

Nils Bull

Background
Eyes are frequently injured in occupational accidents. What is the preventive effect of mandatory eye protection in metalworking?

Methods
The injury incidence was determined before and after eye protection became mandatory in a metalworking yard.

Results
The incidence declined from 6.09 to 0.42 injuries per million working hours after eye protection became mandatory.

Conclusions
Mandatory eye protection among metalworkers in Norway has high potential for preventing eye injuries and should be implemented.

Key words
Accident; eye injury; personal protective equipment; safety.

Background
The eyes are among the organs most frequently injured in occupational accidents [1–3]. The incidence of eye injuries in Norway was stable from 1990 to 2002 [4]. Workers in the metal industry have the highest incidence of work-related eye injuries in Norway. Metal cutters and tools for polishing are frequently involved. Use of eye protection is not mandatory in this industry because the public authorities in Norway prefer to appeal to the employers and employees to take responsibility for preventing injury. This study therefore aimed to show the preventive effect of mandatory use of eye protection in order to challenge authorities to make use of eye protection mandatory in the metal industry in Norway.

Methods
The study was performed in a mechanical yard in Norway that has developed special competence in engineering and building steel substructures, hulls, well-head platforms and large steel structures. Since 1970, the company has delivered a wide range of floating and fixed installations to the oil industry in the North Sea. The mean number of workers during the period was 1140 (range 600–1680), including its own employees and workers from hired subcontractors.

Due to a high incidence of eye injuries, the employer made the use of eye protection compulsory in the production area in 1993. The company’s health and safety board discussed the proposal before it was implemented. The five local health and safety groups also discussed changes at the workplace. Workers who wore prescription glasses were provided with prescription glasses. Special eye protection devices were made available for certain work operations, such as goggles for metal cutters and a fresh-air mask and visor for welders. Employees who did not use eye protection were initially reminded of the compulsory need to wear protective eyewear and were subsequently given two written warnings prior to termination of their employment. Subcontracted workers who failed to comply with the use of protective eyewear were required to leave the workplace.

Linear regression analysis was performed on the incidence of occupational eye injuries (injuries per million working hours) causing absence from work before and after the employer required the employees to use protective eye equipment.

Results
Fifty-four eyes were injured during the period. The mean incidence rate was 6.09 injuries per million working hours from 1990 to 1992. The use of eye protection became mandatory in 1993, and the mean incidence rate for 1994–2002 was 0.42 per million working hours ($P < 0.0001$). The incidence of injuries was not higher in periods in which the number of workers was higher.
Conclusions

The incidence of occupational eye injuries was high before the employer required the use of eye protection in 1993 and then fell dramatically. There were no changes in legislation or production methods during the period that could have influenced the results. Obligatory use of eye protection means loss of liberty for the employees but effectively prevented eye injuries, including blindness, in the metal industry (Figures 1 and 2). Mandatory use of eye protection among metalworkers in Norway has a high potential for preventing eye injuries and should be implemented.

Conflicts of interest

None declared.

References


Figure 1. The effect of eye protection on work-related eye injuries in a mechanical yard.

Figure 2. Foreign body in cornea while hammering metal without eye protection.