

Worker Safety Issues Related To Advanced Meat Recovery

BACKGROUND

The slaughtering, processing, and packaging of meat has long been associated with a high incidence of accidents, injuries and illnesses. Indeed, when the Occupational Safety and Health Act (OSHA) of 1970 became law, the meat and meat products industry was designated by the Department of Labor as one of the five Standard Industrial Classifications (SICs) to receive priority attention as part of OSHA's efforts to target those industries having the highest rates of occupational injuries.

A significant number of injuries and illnesses are due to the widespread use of knives, hooks, and circular saws. Equipment of this type is especially linked to cumulative trauma disorders (CTDs) and has likely played a significant role in the number of CTDs reported among employees of the meat packing industry. This is true for those employees responsible for boning operations.

CUMULATIVE TRAUMA DISORDERS

Cumulative trauma disorders, or chronic, overuse injuries such as tendinitis, tenosynovitis, and carpal tunnel syndrome, which affect the soft tissues and nerves of the upper extremity, are actually illnesses and are recorded as such by OSHA. CTDs are crippling and can significantly affect both the occupational and non-occupational life of the person exposed. In addition, since they are cumulative disorders, if the task characteristics remain unchanged, the cumulative deterioration of the affected body part will frequently continue until irreversible damage is done. CTDs can be, in fact, debilitating.

A great deal of research has been done over the past two decades which demonstrates that work-related CTDs are serious disorders. In 1995, the Bureau of Labor Statistics reported that in one year there were 705,800 cases of days away from work that resulted from over exertion or pain due to repetitive motion. Estimated costs associated with lost days and compensation claims related to musculoskeletal disorders range from \$13 to \$20 billion annually (National Institute of Occupational Safety and Health, 1996; AFL-CIO, 1997).

Because of the reported severity of the problem, researchers and the government alike have been trying to learn more about its specifics. Last year, the National Institutes of Health and Congress asked the National Academy of Sciences (NAS) to examine the current state of the scientific research base relevant to the problem of work-related musculoskeletal disorders, including factors that can contribute to such disorders. The 1998 NAS report concluded that: 1) there is a higher incidence of reported pain, injury, loss of work and disability among individuals who are employed in occupations where there is a high level of exposure to physical loading than for those employed in occupations with lower levels of exposure; and 2) there is strong biological plausibility to the relationship between the incidence of musculoskeletal disorders and causative exposure factors in high-exposure occupational settings. Work factors and physical load include vibration - if the work object vibrates, some of that vibration will be transmitted to

the body. NAS also concluded that more research needs to be done to better understand cumulative trauma disorders and their clinical course.

MEAT PACKING INDUSTRY AND CUMULATIVE TRAUMA DISORDERS

Prior to 1994, meat packing companies had many of their employees using vibrating hand-held knives to remove meat from bones. Industry reports that anywhere from 20% to 40% of those employees reported hand, wrist, elbow and shoulder injuries -all falling into the category of "cumulative trauma disorders."¹ The cool temperatures necessary at meat packing plants have also contributed to the increased risk of CTDs. In the late 1980's, the meat packing industry's incidence of disorders due to "repeated trauma" was approximately 75 times that of industry as a whole.

These incidence rates, coupled with other issues, prefaced unprecedented fines being levied by OSHA on some prominent companies in the meat packing industry in 1987 and 1988. These companies entered into "Settlement Agreements" with OSHA and the union where applicable. One of the most important parts of these agreements was that the companies agreed to enter into long-term programs aimed at solving their CTD problems by using an "ergonomics" approach. Ergonomics is a multidisciplinary concept rooted in the design of jobs, tools, and workstations to fit the capabilities and limitations of workers².

Among the important developments that came out of the long term programs to address CTDs has been the introduction and use of the Advanced Meat Recovery (AMR) system which provides efficient separation of meat from bone without the widespread use of the vibrating, hand-held (e.g. whizard) knives. As mentioned above, these vibrating knives are an acknowledged source of CTD's. Since the time that AMR system were first introduced, there has been an improvement in worker safety, especially in the area of repetitive motion disorders. Although one can not say for sure if there is a direct link between increased use of AMR systems and decreased worker safety injuries, but with the advent of AMR systems, companies have been able to move employees from those jobs having a high incidence of such repetitive injuries (i.e., the use of hand held vibrating knives) to other, less hazardous positions within the company. Also, there are indications to show that companies that tackle the problem of worker safety are able to save substantial money.

Although companies continue to use hand-held vibrating knives, they are used much less frequently with the advent of the AMR systems and are primarily for straight cutting. This, along with the fact that hand-held vibrating knives have been improved to address some of the worker safety concerns, may have helped decrease the number of repetitive motion disorders (i.e., carpal tunnel syndrome and tendinitis) reported to the Department of Labor for "butchers and meat

¹ Conversations with representatives from the meat packing industry; American Meat institute memorandum submitted to FSIS regarding "Proposed Rule on Meat Produced by Advanced Meat/Bone Separation Machinery and Recovery Systems, FSIS Docket No. 96-027P, 63 Fed. Reg. 19959, April 13, 1998" dated June 12, 1998.

² NIOSH Publication 94-124

cutters." It is important to note that the Department of Labor does not provide a rate for "auto-knife operator;" therefore statistics on "butcher and meat cutter" are used as the closest entry³. In fact, the job of auto-knife operator is much more demanding and the injury rate may be higher than that of "butcher and meat cutter" as defined by the Department of Labor.

Department of Labor statistics show that reports of carpal tunnel syndrome by butchers and meat cutters dropped significantly with the widespread use of the AMR systems. In 1994, when the US Department of Agriculture acknowledged that the product obtained from AMR systems was the same as meat, AMR systems became widely used in the industry. That same year, reported cases of carpal tunnel syndrome by butchers and meat cutters dropped by 38% (Department of Labor). Although it is not likely that the entire decline can be attributed to the introduction and use of AMR systems, they did allow the industry to rely less upon hand held vibrating knives.

USDA PROPOSED RULEMAKING

USDA is now proposing to change the allowable calcium and iron levels in a meat product. According to USDA, the rule was proposed as a clarification rather than because of any food safety concern. Industry sources indicate that the AMR systems can not meet the proposed standards and operate economically³³. These same industry sources indicate that they will return to vibrating hand-held knives, at least in a large part, to remove meat from the bone. As noted above, although the hand-held knives have improved over the years, because of the fact that they require employees to repeatedly perform a task with a vibrating piece of equipment, the risk of cumulative trauma disorders remains. Additionally, without the AMR systems, meat from the neck bone will have to be removed by hand. Currently, hand held knives are mostly used to make straight cuts so with little wrist movement, the risk of CTDs is relatively low. Removing meat from neck bones requires a great deal of twisting and turning of the hand and wrist and therefore increases the risk of CTDs.

A recent review (July 1997) of musculoskeletal disorders and workplace factors done by the National Institute for Occupational Safety and Health (NIOSH) concludes that there is evidence supporting an association between exposure to vibration and CTDs. The review also concluded that there is strong evidence that there is a relationship between exposure to a combination of risk factors (e.g., vibrating hand tools confounded by hand or wrist posture and forceful exertion) and CTDs.

³ Conversations with representatives of the meat packing industry

It has been estimated that 1,970 workers will be put back into the tenuous position of taking a job that they know has a strong association with cumulative trauma disorders⁴. Industry estimates of injury incidence range from 20% to almost 40% annually. Using a conservative estimate that 20% of these employees would experience CTD, approximately 394 cases of injuries would be reported. Estimates of medical costs alone for those injuries would be over \$10 million annually⁵⁴.

CONCLUSION

Even with the addition of the AMR systems, the Department of Labor has noted that butchers and meat cutters have the second highest median days away from work because of injury. This number only stands to grow if the industry increases its use of vibrating hand-held knives to remove meat from the bone. As noted above, this is not a food safety problem; and because it is not a food safety concern, consumers will not be safer. If companies return to vibrating hand held knives, employees of the meat processing industry will indeed be at greater risk for cumulative trauma disorders.

⁴ Based on a 1999 report titled "Advanced Meat Recovery Systems An Economic Analysis of proposed USDA Regulations" done by Sparks Companies.