

Musculoskeletal Disorders in Construction and Other Industries

The number of work-related *musculoskeletal disorders* (WMSDs, *see* MSDs in Glossary) in construction dropped sharply, by 35%, between 2007 and 2010, following the overall trend in the number of injuries (*see* page 38). The rate of WMSDs also decreased by 8%, from 41.4 to 38.1 per 10,000 *full-time equivalent workers* (FTEs, *see* Glossary) during this period (chart 47a). Despite the drop, in 2010, the rate of WMSDs in construction was still 16% higher than the rate of 32.8 per 10,000 FTEs for all industries combined.¹ Furthermore, these numbers may be underestimated due to the difficulty in establishing the work-relatedness of MSDs as well as injury underreporting (*see* pages 40 and 41).^{2,3}

The back is the primary body part affected by WMSDs in construction, although the proportion of WMSDs caused by back injuries decreased modestly from 58% in 2003 to 45% in 2010 (chart 47b). Other parts of the body, such as shoulders and extremities, each account for about 10% or less of WMSD cases, and exhibited a slight increase in trend over the same period.

One of the major causes of WMSDs is *overexertion* (*see* Glossary), also the leading cause of nonfatal injuries in construction (*see* page 43). In 2010, overexertion in lifting caused 38% of the WMSDs among construction workers (chart 47c). Other types of overexertion, such as pushing, pulling, and carrying, caused an additional 35% of WMSDs. The rate of injuries from overexer-

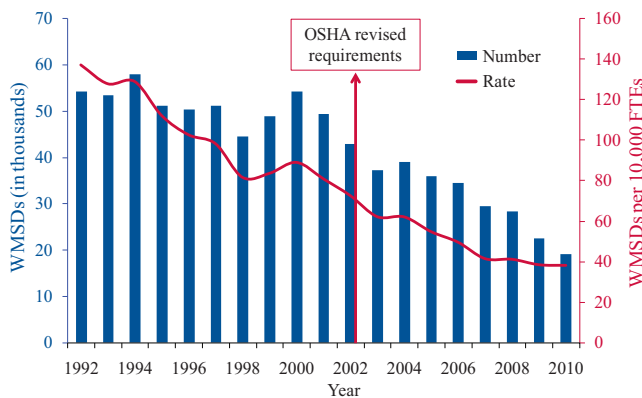
tion in lifting was 14.9 per 10,000 FTEs in construction (chart 47d). The overexertion rates in construction were higher than most industries and the average of all industries.

Within construction, the rate of overexertion injuries resulting in days away from work (DAFW) in the masonry sector was more than double the rate for overall construction (66.5 vs. 28.7 per 10,000 FTEs; chart 47e). Concrete contractors also had a high rate of overexertion injuries at 49.2 per 10,000 FTEs.

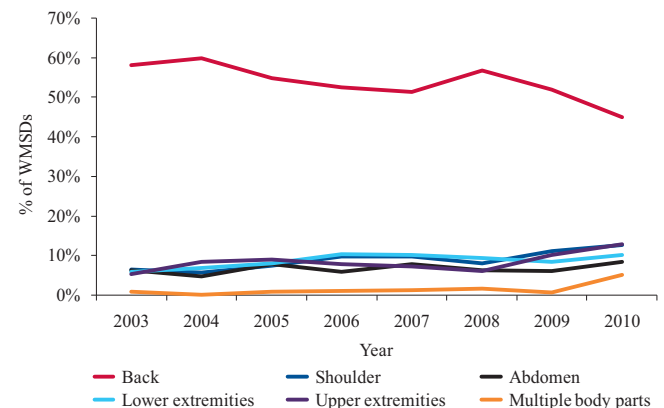
Sprains, strains, and tears are common types of overexertion WMSDs and may develop into chronic conditions. In 2010, more than 34% of DAFW injuries in construction were related to sprains, strains, and tears (chart 47f).

Many industries have reduced the weight of manually lifted materials to fewer than 50 pounds.⁴ In contrast, loads weighing 80 pounds or more are still commonly handled by workers at construction sites. While a well-conditioned male may be able to safely lift an 80-pound load on occasion, repeated actions can increase the risk of WMSDs among workers, particularly among women workers.⁵ Ergonomic solutions may help to reduce the risk of WMSDs.^{6,7} Existing ergonomic solutions and ideas are available at the Construction Solutions database: <http://www.cpwrcolutionsolutions.org/>.

47a. Number and rate of work-related musculoskeletal disorders in construction, 1992-2010



47b. Work-related musculoskeletal disorders resulting in days away from work in construction, by body part, 2003-2010



1. U.S. Bureau of Labor Statistics. 2010 Survey of Occupational Injuries and Illnesses. <http://www.bls.gov/data/#injuries> (Accessed December 2011).

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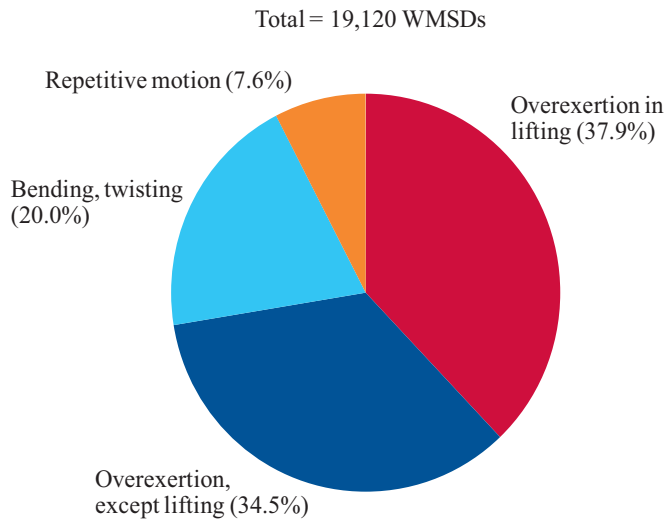
4. Kramer DM, Bigelow PL, Carlan N, Wells RP, Garritano E, Vi P, & Plawinski M. 2010. Searching for needles in a haystack: Identifying innovations to prevent MSDs in the construction sector. *Applied Ergonomics*, 41(4):577-584.

5. Liberty Mutual Manual Materials Handling Tables. http://libertymmhtables.libertymutual.com/CM_LMTablesWeb/pdf/LibertyMutualTables.pdf (Accessed January 2012).

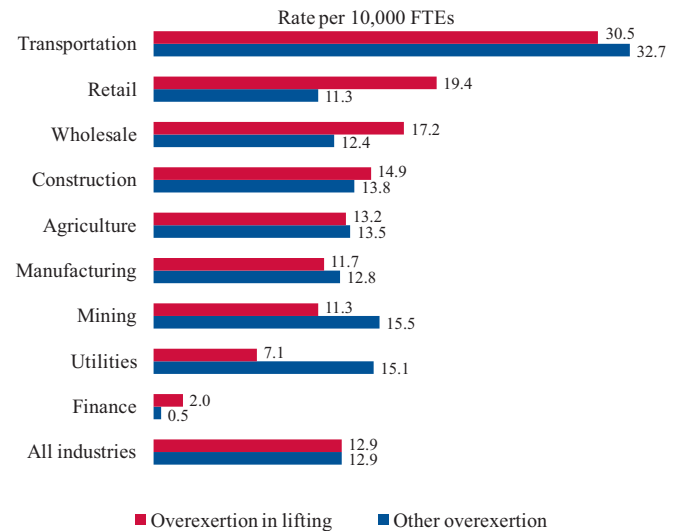
6. Choi SD, Borchardt J, & Proksch T. 2012. Transitioning academic research on manual lifting tasks observations into construction workplace good practices. *Journal of Safety, Health and Environmental Research*, 8(1):3-10.

7. Hecker SF, Hess J, Kincl L, & Schneider SP. 2006. Chapter 50: General construction. In Marras WS & Karwowski W (eds). *The Occupational Ergonomics Handbook: Second Edition: Interventions, Controls, and Applications in Occupational Ergonomics*. CRC Press; pp. 50-1 to 50-30.

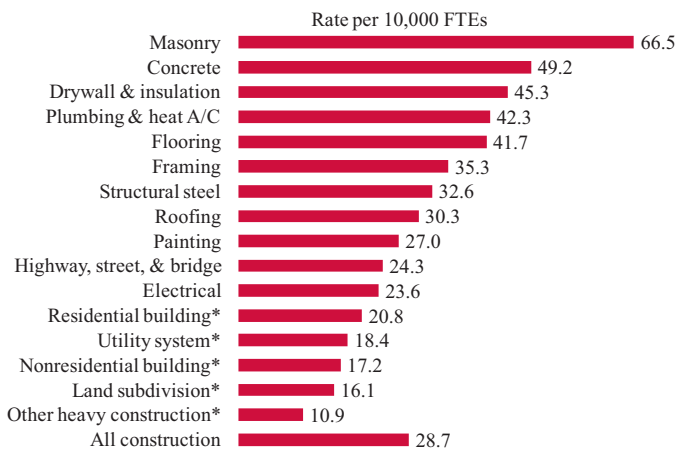
47c. Distribution of risk factors for work-related musculoskeletal disorders resulting in days away from work in construction, 2010



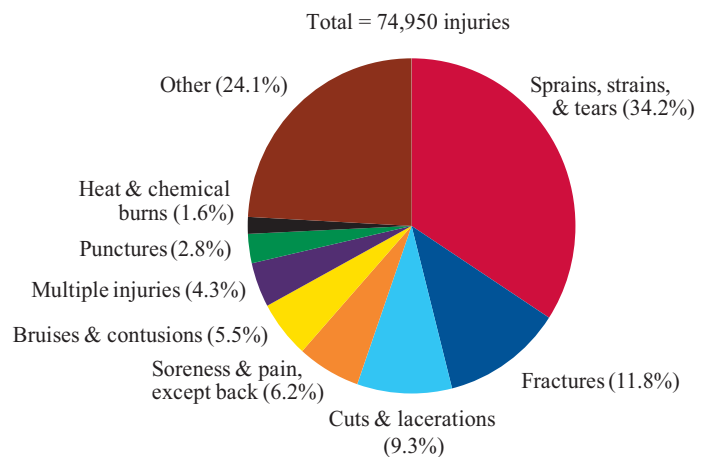
47d. Rate of overexertion injuries resulting in days away from work, selected industries, 2010



47e. Rate of overexertion injuries resulting in days away from work, selected construction subsectors, 2010



47f. Distribution of types of nonfatal injuries resulting in days away from work in construction, by nature of injury, 2010



Note: All charts - Data cover private wage-and-salary workers only. Charts 47c and 47f - Total may not add to 100% due to rounding. Chart 47e - Asterisk (*) represents four-digit NAICS; the remaining are five-digit NAICS.

Source: Charts 47a- 47c - U.S. Bureau of Labor Statistics. 2010 and previous years Survey of Occupational Injuries and Illnesses. Data were from the BLS as special requests. (E-mail: IIFSTAFF@BLS.GOV). Calculations by CPWR Data Center. Charts 47d-47f - U.S. Bureau of Labor Statistics. 2010 Survey of Occupational Injuries and Illnesses. <http://www.bls.gov/iif/> (Accessed January 2012).