The construction industry has very high work-related injury rates. And work-related musculoskeletal injuries and disorders (WMSDs) are among the most frequently reported causes of lost or restricted work time in the construction industry. Overexertion, sprains, strains, pulls, and tears are all an unfortunate regular occurrence on many construction job sites. Construction work activities include heavy lifting, frequent and repetitive motions, and awkward postures. However, ergonomics is still a relatively new theme for the construction industry. Understanding of the workers’ and managers’ knowledge and perception of ergonomic issues in construction can play a critical role to develop and implement effective ergonomic programs and policies.

The objective of this study is to categorize the similarities and differences of workers and managers in the awareness and perceptions of safety and ergonomic programs, injury and illness, and work conditions in the construction industry. The results of this study can help understand the awareness and perceptions of ergonomic-related concerns of construction workers and managers. Eventually, this study will contribute to reducing the occurrence of work-related musculoskeletal injuries and disorders (WMSDs) and lost or restricted work time in the construction industry.

### Situation / Problem

The construction industry has an unenviable history of having one of the highest work-related injury rates among all industries in the United States. Workrelated musculoskeletal injuries and disorders (WMSDs) are among the most frequently reported causes of lost or restricted work time in the construction industry. Overexertion, sprains, strains, pulls, and tears are all an unfortunate regular occurrence on many construction job sites. Understanding of the workers’ and managers’ knowledge and perception of ergonomic issues in construction can play a critical role to develop and implement effective ergonomic programs and policies. However, ergonomics is still a relatively new theme for the construction industry, and only a few studies have reported the similarities and differences of the workers’ and managers’ knowledge and perceptions of ergonomics matters in the construction industry.

### Methods

A survey questionnaire was developed and distributed to construction workers and managers employed at two separate industrial construction projects located in southern Alabama and eastern Nebraska. The questionnaire comprised of a total of 40 questions and consisted of four major sections: background, safety and ergonomic programs, injuries and illnesses, and work conditions. The survey questionnaire was administrated to workers and managers working at the industrial construction projects from July 2015 through September 2018. Statistical analyses for descriptive statistics, Pearson’s chi-square tests, ANOVA analyses, and univariate, multivariate regression analyses of the data were conducted using SAS® (Statistical Analysis Software) 9.3 Software.

### Results

Two hundred eighty-one participants completed the survey (Group A: 88, Group B: 193). The majority of the respondents were male (91%). About 60% of the workers were white, followed by Latinos (25%), and African Americans (9%). Their average age was 37, and the age range was from 18 to 70. Seventy-four percent of the participants were workers, while 26% were managers.

Ninety-two percent of their employer had a written safety program, while only 39% of them had an ergonomics program. The respondents very well perceived that their employers were concerned for their workplace safety. However, the participants’ perception of ergonomics in terms of importance was much lower than their perception ranking of safety concerns. Only 39% thought ergonomics was extremely important to their employer, comparing to that for safety (69%). Only about one-third of the participants reported that their company or union provided ergonomic training and that they had received ergonomic training specific to the task they perform. Less than one-third of the participants knew how to perform an ergonomic assessment, and only 26% of respondents stated that an ergonomic evaluation had been completed on the task they perform. Managers were more likely to know about their companies’ safety and ergonomic programs. Workers were more likely to be unsure on how to perform an ergonomic assessment than managers. Both managers and workers reported relatively lower ratings of the importance of ergonomics in their companies.

Sprain/strain was the most commonly occurring injuries among the participants (51%) followed by back injuries 48%, cuts 47%, burns 25%, carpel tunnel syndrome 19%, and fractures 11%. The top possible cause for the injury or illness were “motion/position” and “slip/tip/fall” (50% of the participants, respectively), followed by “overexertion” 33%, “tools/machinery” 33%, and “chemicals” 8%. Workers were more likely to get back injuries, Carpal Tunnel Syndrome, fractures, burns, injuries due to overexertion, injuries due to tools/machinery, injuries due to chemicals than managers.

Regression analysis were performed to find relationships between the demographic characteristics and work environment/working conditions, as independent variables, and the rank scores of their perception of their company’s safety and ergonomics issues, as dependent variables. Multivariate regression analysis results showed that race, job position, and survey group significantly predicted participants’ ratings of safety procedure, feedback, and safety perception.

### Conclusions

While the construction industry has done an admirable job developing safety programs, it has done far less to develop comprehensive ergonomic programs and policies that would help provide education and guidance to its workers and managers in the industry. Also, there are some differences between workers and managers in the awareness and perceptions of safety and ergonomic programs.

### References
