



## 0-6805: Summary of Stretch and Flex Program for TxDOT Operations

### Background

Strain- and sprain-related incidents account for 40 percent of the total injuries of Texas Department of Transportation (TxDOT) employees. Over the past 5 years, the most common strain or sprain injury was of the lower back; 50 percent of these injuries were caused by lifting tasks. Research studies have shown that muscle-strengthening exercises can reduce workplace strain- and sprain-related incidents. However, most of the Stretch and Flex programs currently being implemented involve more stretching than flexing. Thus, current Stretch and Flex programs may not be as beneficial as they could be. Since injury of the lower back is the most common work-related injury, strengthening the core musculature is the best preventative strategy.

### What the Researchers Did

The goal of this project was to create a guidebook presenting a set of ergonomic recommendations for common TxDOT workplace tasks and a Stretch and Flex program designed to reduce strain- and sprain-related incidents for both office and field workers. The researchers split the research into five tasks. The first task was to conduct a comprehensive literature review on Stretch and Flex programs. The comprehensive

synthesis provided a useful reference for further development of this research.

The next task was evaluating TxDOT's injury data, and developing Stretch and Flex program and ergonomic recommendations for TxDOT employees to be implemented during a pilot phase. A wallet-sized pamphlet and a set of guidelines were provided to the TxDOT employees participating in the pilot program at the end of this task, and materials were revised in Task 4.

In Task 3, the Stretch and Flex pilot program, including training and feedback sessions, was conducted in the Austin District. Based on the lessons learned from Task 3, Task 4 was to assess the pilot Stretch and Flex program and develop a final version of guidebook. The last task was to create two instructional videos and provide a demonstration.

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## What They Found

In the past 5 years, TxDOT employees sustained 482 sprain- or strain-related injuries (excluding 53 caused by automobile accidents). Of the 482, 172 (36 percent) were of the back, and approximately 30 percent of all injuries occurred during lifting/carrying. The most prevalent injury that occurred was of the lower back during lifting (67 injuries). Individual costs for injuries of the lower back during lifting ranged from \$0 to \$284,530, and missed work days ranged from 0 to 164.

Another common cause of injury was a fall or slip (113 of the 482, or 23 percent of injuries). After the lower back, the second-most prevalent injury was of the ankle following a fall or slip (35 injuries). Thus, for the Stretch and Flex program and the guidebook, the researchers specifically targeted these areas by providing exercises to improve core muscle strength and ankle flexibility, and by providing ergonomic recommendations for lifting and fall/slip prevention.

Other common injuries were to the shoulder, sustained during lifting; to the knee during falls; and to the knee and ankle during twisting maneuvers. Thus, special attention was also given to these areas.

The researchers observed that workers experienced a great deal of stiffness and lack of mobility at the hip, lower back, and ankle regions. After performing the Stretch and Flex program consistently, the workers felt better and were more effective at performing their work tasks.

## What This Means

Based on the review of the literature and pilot testing, the researchers expect that if TxDOT employees follow the recommended daily Stretch and Flex program and implement the ergonomics recommendations included in the guidebook, the incidence of work-related injuries will decline significantly.

### For More Information

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