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PHYSICAL THERAPY INSTITUTE

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Work Rehabilitation for Musculoskeletal Disorders

The patient, a mechanical maintenance worker, was pulling down on a long pipe wrench with both hands, trying to loosen a nut.

Suddenly, he felt a "massive strain" in his right elbow, diagnosed later as an extensor tendon disruption.

At the time of his evaluation by Drayer Physical Therapy Institute, he already had been out of work for five months. He was in significant pain (rating it 8 out of 10, with 10 being the worst). He had difficulty with lifting, carrying, pushing/pulling – and was not capable of meeting the physical demands of his job.

The patient also felt a lack of control in his life and inadequacy as a provider for his family.

Musculoskeletal disorders (MSD), more commonly called sprains, strains and tears, account for by far the most occupational injuries and illnesses published by the U.S. Department of Labor, Bureau of Labor Statistics (see pie chart on page 2). Most MSDs result from repeated lifting, sustained activity or over-exertion.

The specialized service's aims include a patient's safe and timely return to work after injury and injury prevention.

In 2015, MSDs required an average of 12 days off before the patient returned to work. These work-related injuries represented just under $14 billion in direct costs to employers, according to the Liberty Mutual Workplace Safety Index.

These staggering numbers have contributed to the development of specialized services known as work rehabilitation, the goals of which are to:

- Maximize the level and tolerance of function after injury;
- Facilitate a patient's safe and timely return to work after injury;
- Remediate and/or prevent injury;
- Assist workers in retaining or resuming tasks they were performing prior to injury.

Work rehabilitation includes a variety of services, including hiring, safety, injury, recovery and prevention.

During the injury phase, work rehabilitation specialists, including physical therapists and occupational therapists, customize a return to work (RTW) program. Intensive

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Scan for video about the WoRx process.

Continued from cover

and goal-oriented, an RTW program may consist of three levels of treatment.

LEVEL 1: EARLY MANAGEMENT AND WORK STRATEGIES

Traditional Level 1 management involves outpatient therapy three times per week for pain control, active and passive range of motion, strengthening, and education.

The patient's treatment began with goal setting, a vital component in managing injured workers, according to the Occupational Medicine Practice Guidelines by the American College of Occupational and Environmental Medicine.

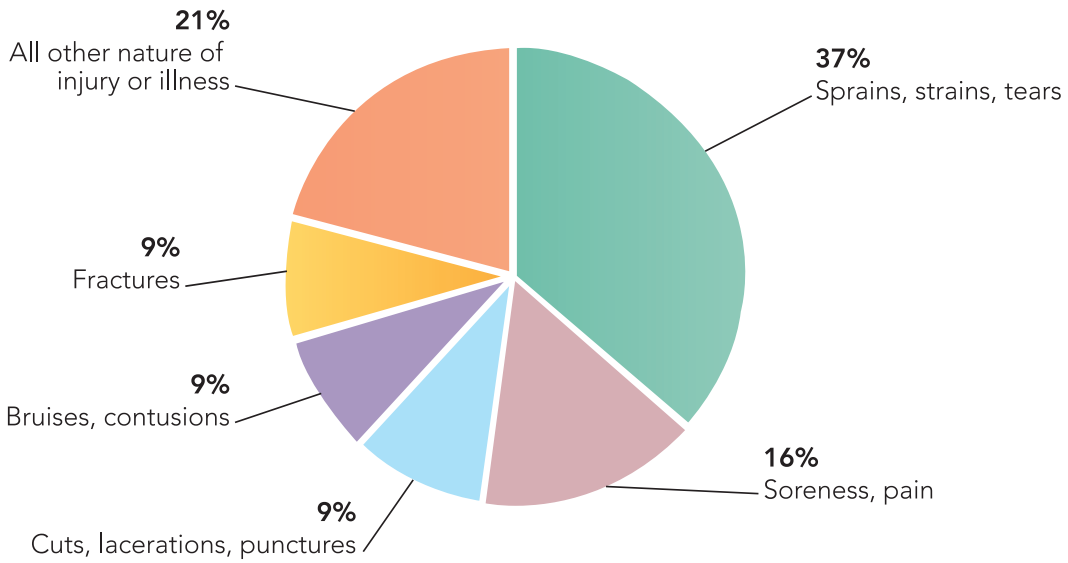
The guidelines note a threshold of four weeks off work as a "danger zone" after which an injured worker can develop a poor mindset.

A review of the patient's job description (provided by the employer) found that his physical demands or job tasks consisted of lifting floor to waist and waist to overhead; carrying with one and two hands; pushing and pulling of carts and using hand tools to turn nuts, screws and bolts; sitting; standing; reaching with arms overhead and below waist; kneeling; squatting; stooping; lying on his back, arms extended; walking; crawling; climbing stairs and ladders; forceful gripping and use of hand and pwer tools and equipment.

The patient also had to lift and carry more than 50 pounds (see chart below). Using the strength demands of work from the U.S. Department of Labor, his job was classified as heavy work. Classification of job demands is critical for a safe work environment and establishing RTW goals.

The variability of his job tasks made it a challenge to develop a treatment plan and to prepare him to go back to a variety of "worst-case" scenarios. The patient did not have an option to return to work in a

DAYS AWAY FROM WORK BY INJURY OR ILLNESS



Source: U.S Bureau of Labor Statistics, 2015

STRENGTH DEMANDS OF WORK

FREQUENCY OF FORCE EXERTION OR WEIGHT CARRIED

	OCCASIONAL (up to 1/3 of the day)	FREQUENT (1/3 to 2/3 of the day)	CONSTANT (over 2/3 of the day)
SEDENTARY WORK	10 pounds	Negligible	Negligible
LIGHT WORK	20 pounds	10 pounds	Negligible
MEDIUM WORK	20-50 pounds	10-25 pounds	10 pounds
HEAVY WORK	50-100 pounds	25-50 pounds	10-20 pounds
VERY HEAVY WORK	More than 100 pounds	50-100 pounds	20-50 pounds

Data from U.S. Department of Labor, Employment and Training Administration: Revised Dictionary of Occupational Titles, volumes I-II, fourth edition, Washington, D.C., 1991, U.S. Government Printing Office.

limited capacity, so light duty wasn't a consideration as an interim step in his recovery.

LEVEL 2: WORK CONDITIONING

After several weeks of acute injury management, the patient transitioned to work conditioning, which includes strengthening, endurance and simulated work tasks. The transition to work conditioning has been shown to have a direct correlation to RTW and to be a reliable predictor of post-injury job performance.

This phase progressed from two hours to four hours per day, four days per week. His plan of care included functional tasks, continued progressive strengthening and weight to increase tolerated job demands, and work-related goals.

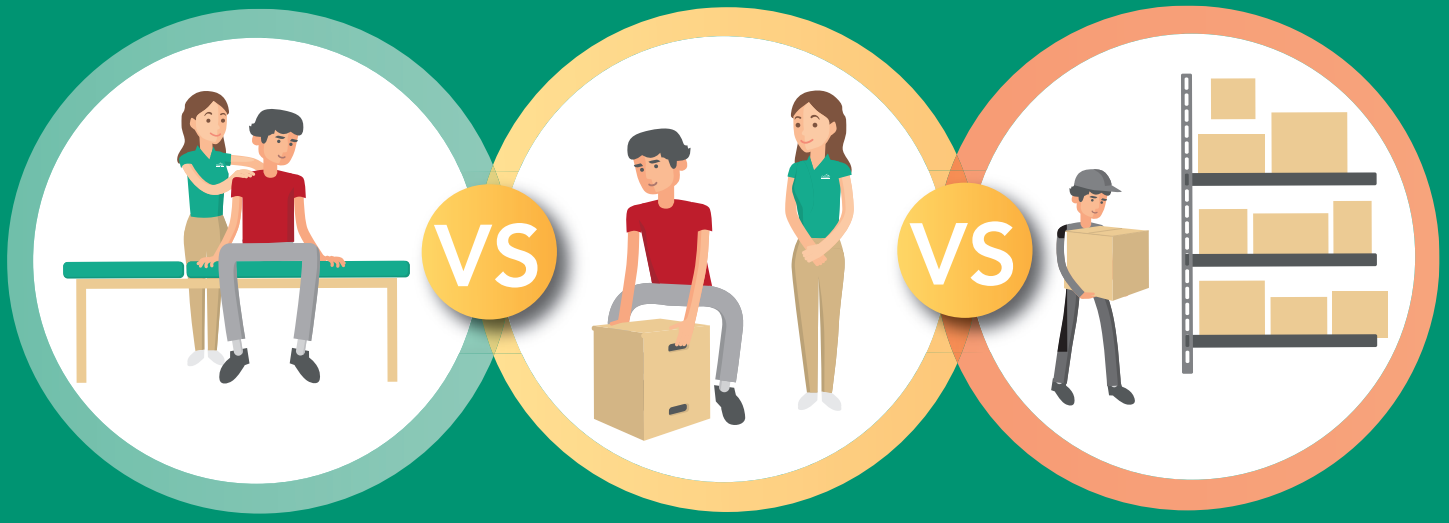
LEVEL 3: RTW TESTING

The patient was 98 percent compliant with scheduled visits over the course of care and demonstrated a strong desire for restoration, both of which proved to be strong contributing factors in his success.

He showed significant improvement with discharge testing, meeting his job demands as classified by the U.S. Department of Labor (see chart below).

Through work conditioning, he recovered his ability to perform the physical demands of his work and was discharged to return to full duty seven months after his injury. Upon discharge by Drayer Physical Therapy Institute, his score on Focus on Therapeutic Outcomes, or FOTO, indicated that he perceived no problems with activities of daily living or with his job demands.

Since 2016, Drayer Physical Therapy Institute has maintained an 82 percent RTW rate and a stay at work (SAW) rate ranging from 92 to 100 percent with combined services of acute management and work conditioning.



PATIENT'S PHYSICAL JOB DEMANDS	REQUIRED	INITIAL EVALUATION*	DISCHARGE
LIFTING FLOOR TO WAIST	50 pounds	5 pounds	50 pounds
LIFTING WAIST TO SHOULDER	50 pounds	5 pounds	50 pounds
PUSHING	200 pounds	5 pounds	200 pounds
PULLING	200 pounds	5 pounds	200 pounds
CARRYING WITH TWO HANDS	50 pounds	5 pounds	50 pounds
CARRYING WITH ONE HAND	50 pounds	5 pounds	50 pounds

*Denotes physician-imposed restrictions

RESEARCH ABSTRACT

Improvement in Pain During Work Conditioning

By Misty Seidenburg

INTRODUCTION

When a worker's injury does not improve, often it will be assessed by a physical therapist using a functional capacity evaluation (FCE) and may be treated using a work conditioning (WC) program.

WC is designed to restore neuromusculoskeletal, cardiopulmonary and physical function so the patient may return to work safely. However, little research exists comparing how clinicians assess improvement with how patients perceive improvement after a WC program.

This study assessed the association between clinician-reported functional improvement and patient self-reported improvement in pain and disability during a WC program.

METHODS

Using a convenience sample from the Focus on Therapeutic Outcomes database, researchers conducted a retrospective analysis on patients with lumbar spine injuries who were referred to a WC program.

Eight clinicians in five physical therapy clinics treated 76 adult patients, each of whom was receiving workers' compensation benefits. Each patient received a standardized FCE prior to entering the WC program.

The WC program followed the standards described by Hart et al. as well as by the American Physical Therapy Association, including:

- Goals directly related to job skills and requirements;
- Clinical skills to improve strength, endurance, flexibility, motor control and cardiopulmonary capacity related to work tasks;
- Practice, modifications and instructions in work-related activities;
- Education related to injury prevention;
- Promotion of self-management.

The common progression for the WC program was attendance four hours per day, five days per week that advanced to six and then eight hours per day for a total of four to six weeks. Discharge occurred when the physical therapist and referring physician agreed that individualized, established goals had been achieved.

Data regarding the patient's self-reported disability and pain were gathered using the Oswestry Low Back Pain Questionnaire, the short-form McGill Pain Questionnaire, and an 11-point visual analog scale (VAS). These questionnaires were completed during the intake FCE and at discharge from the WC program.

Data collection regarding the clinician's assessment of functional limitations using performance-based functional tests were completed weekly and at discharge. The tests comprised a floor-to-waist lift (measured for Physical Demand Characteristic Level (PDL) criteria) and 20 FCE standardized tests for workplace tolerance involving non-material-handling tasks.

RESULTS

All self-reported functional score averages improved. The improvement in lumbar disability and VAS were significant, but the McGill scores reflected no change in patient concerns regarding pain. The raw PDL scores also improved for patient ability to lift more weight at WC discharge.

Forty-one percent of patients achieved the established PDL goal, and 64 percent met their workplace tolerance goals.

DISCUSSION

The primary finding of this study was that despite continued concern about pain complaints, patients can have decreased perceived disability and pain intensity as well as improved performance for work-related tasks using a WC program.

REFERENCES

Hart, D., Kirk, M., Howar, J., Mongeon, S. "Association between clinician-assessed lifting ability and workplace tolerance and patient self-reported pain and disability following work conditioning." Work. 2007; 28:111-119.