

PREVENTING, MANAGING WORKPLACE INJURIES

By Deena Nigro and Jessica Heath

Recent news headlines:

“2 pool employees critically injured in North Carolina workplace accident.”

“New Jersey utility worker hurt rebuilding power line.”

“2 injured in separate incidents at Montgomery County meat packing plant.”

Worker injuries make headlines on a regular basis – and with good reason. Each year, more than 4.1 million people (4.4 cases per 100 full-time workers) in the United States suffer a workplace injury or occupational illness. About half of them miss work and require ongoing medical care.

WORKERS' COMPENSATION

When an injury or illness occurs on the job, the workers' compensation system provides benefits to that worker. Workers' compensation laws exist in every state, although they differ. Many states do not require small



Carpal tunnel syndrome is the most common repetitive stress injury in the workplace.

businesses to provide workers' compensation insurance to their employees.

Generally, workers' compensation laws are designed to ensure that affected employees are provided with ongoing employee benefits while protecting the employer and eliminating

the need for litigation. Typically, benefits provide wage replacement, medical treatment and vocational rehabilitation.

PREVENTION

Government and employers have attempted to improve the work environment and reduce

workers' compensation claims. The U.S. Occupational Safety and Health Administration (OSHA) was created to ensure the safety and health of America's workers by setting and enforcing standards. OSHA requires employers to provide adequate safety training for workers and to review safety policies with employees on a regular basis.

In fact, many employers have an ergonomic professional – an engineer, industrial professional, physical or occupational therapist, nurse practitioner or occupational physician – whose primary goal is to reduce the number of work-related illnesses or injuries and to help contain workers' compensation costs.

These ergonomic professionals assess:

- Workplace risk factors, which may include the physical requirements of the job, such as posture, force, repetition, duration, recovery time, velocity and overall exertion.

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THE MAJORITY OF WORKERS' COMPENSATION CLAIMS FALL INTO ONE OF FIVE INJURY CATEGORIES:

- Falls that can result in head injuries, knee injuries and fractures. Most falls, according to federal workplace injury statistics, result in sprains, strains or tears.
- Lifting injuries, which are common and often result in low back pain, accounting for 19 percent of all workers' compensation claims in the United States. Back injuries are highest among truck drivers, operators of heavy equipment and construction workers.
- Auto accidents, in which workers' compensation benefits apply no matter who is at fault and cover injuries to the head, spinal cord and soft tissues, and fractures.
- Heavy equipment operation, such as in the construction industry, because of vibration, falls, and defective or poorly maintained equipment.
- Repetitive motion injuries that occur when the body is required to work harder and longer than it is prepared to do. While the immediate impact may go unnoticed, the repetitive strain often results in damage. Carpal tunnel syndrome is the most common repetitive stress injury in the workplace.

Continued from cover story

- Characteristics of the work environment: heat, cold, lighting, hazardous exposure, noise and vibration.
- Workers' physical and mental stresses and workload hours.

Ergonomic professionals also help employers comply with government regulations regarding work environments. In this way they improve productivity and quality of work, and they reduce the number of days missed to injury.

But here's a sobering statistic: despite these efforts, workplace deaths, illnesses and injuries cost society \$155.5 billion annually.

MANAGING WORKER INJURIES

Once a work injury has been reported, the employee is referred to a physician by his employer. This may be to an emergency room, family physician, orthopedic physician or in-house occupational medicine physician.

In addition, the employee often will be assigned a medical case manager or insurance adjuster, who assists in the planning and coordination of healthcare services. Medical case management begins with a personal interview with the injured employee. The case manager then assists in developing, implementing and coordinating a medical care plan with healthcare providers and the employee.

Physicians have the difficult task of choosing the most appropriate next step for the patient, including work restrictions, additional referrals and physical therapy.

Treatment for patients referred to physical therapy typically includes therapeutic

exercise for range of motion; strength training; neuromuscular re-education; manual treatment, including soft tissue mobilization, joint mobility and flexibility; and postural and body mechanics awareness.

The therapist updates the physician regarding the patient's progress, addressing current pain, range of motion, and strength deficits. Using this information, the physician then updates the employee's job status form.

Without knowing whether the patient can complete the activities required of his job, it is difficult for a physician to make proper recommendations regarding return to work. If returned to work too soon, the patient may be at increased risk for further injury. A functional capacity evaluation may be ordered to assist in this decision making.

There is a great need to improve the effective management of workers' compensation patients. This goes beyond standard physical therapy interventions to address musculoskeletal injuries. Physical therapists with specialized training will provide job testing, functional baseline testing, functional work screens, and work conditioning programs. These types of services are much needed in order to reduce workers' compensation costs and to improve the overall productivity of injured workers.

REFERENCES

U.S. Department of Labor, Office of Workers' Compensation Programs

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The APTA's Guide to Physical Therapy Practice 2003

Workers-comp-news.com

Q&A

WORKERS' COMP TERMS

By Jessica Heath

WHAT IS A JOB DESCRIPTION?

It is a detailed explanation of the physical demands of a job, provided by the employer.

WHAT ARE PHYSICAL DEMANDS?

These are the stressors associated with a job's physical activities and/or the strength, mobility and agility required for that job. Jobs typically are classified as:

- Sedentary: occasionally lifting up to 10 pounds; involves sitting most of the time, but may involve walking or standing for brief periods of time.
- Light work: occasionally lifting up to 20 pounds and/or applying up to 10 pounds of force frequently; requires walking or standing to a significant degree, or sitting most of the time but pushing and/or pulling arm and/or leg controls and/or working at a set production rate constantly to move a weight of less than 10 pounds.
- Medium work: occasionally lifting up to 50 pounds and/or moving 10-25 pounds frequently.
- Heavy work: occasionally lifting up to 75 pounds and/or frequently moving 25-50 pounds and/or constantly moving 10-20 pounds.

WHAT IS ERGONOMICS?

Ergonomics is the study of how to improve the fit between the physical demands of the workplace and the employees who perform the work.

WHAT IS A FUNCTIONAL CAPACITY EVALUATION?

Also known as FCE, it is a comprehensive battery of performance-based tests that is used commonly to determine ability for work, daily living or leisure activities. The purpose of FCE is to evaluate the maximum physical capabilities of an individual and determine whether the results are valid and reliable. The test is used for return-to-work and job-placement decisions. It can help to determine

level of disability and its impact on work performance. FCE results are used for intervention and treatment planning, case management and decisions for case closure.

WHAT IS A FUNCTIONAL SCREEN?

A functional screen is a 30- to 45-minute examination that determines the functional abilities of a patient related to the physical demands of his job.

WHAT ARE WADDELL'S SIGNS?

Waddell's signs are a group of physical signs that may indicate a psychological component to chronic low back pain. Historically, they have been used to detect malingering in patients with back pain.

WHAT IS WORK CONDITIONING?

Work conditioning is an intensive work-related, goal-oriented conditioning program designed to restore strength, power and endurance; motor function, motor control and motor learning; range of motion; and cardiovascular and pulmonary functions. The objective is to restore physical capacity and function to enable the patient/client to return to work. Typically, this program is conducted four hours a day, five days a week.

WHAT IS WORK HARDENING?

Work hardening is a highly structured, goal-oriented, individualized intervention program designed to return a patient to work. Real or simulated work activities are used to restore physical, behavioral and vocational functions. Work hardening programs address the issues of productivity, safety, physical tolerances and worker behaviors. Typically conducted eight hours a day, five days a week, this program must involve a staff of physical therapists, occupational therapists, psychologists and vocational specialists.

CASE STUDY

WORKERS' COMPENSATION CASE

By Misty Becker

PATIENT HISTORY

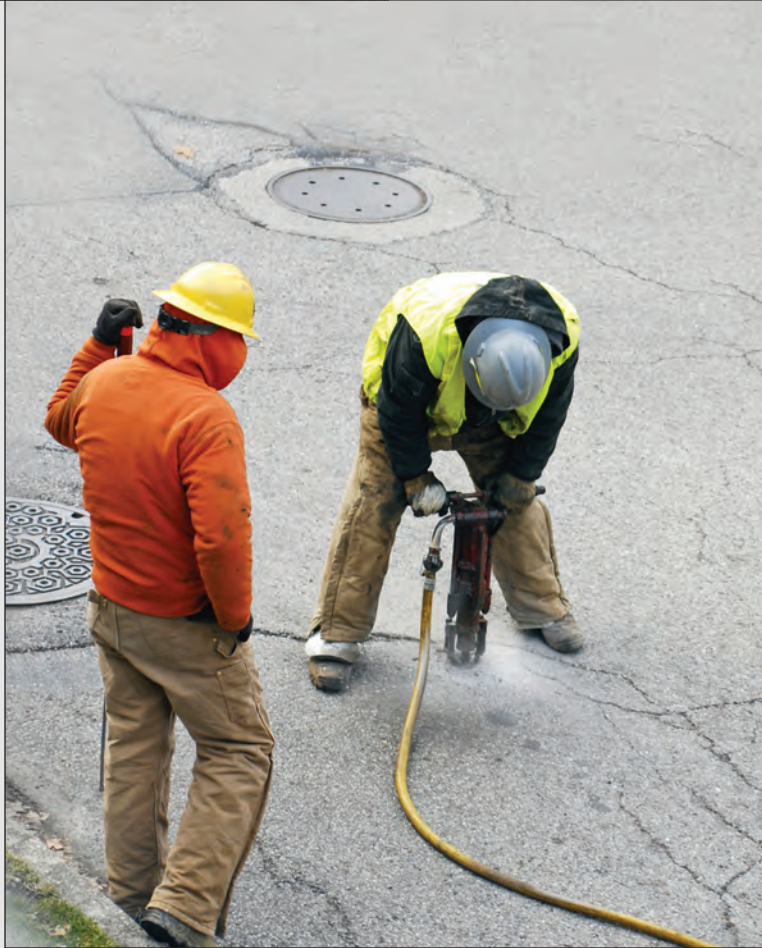
A 42-year-old male presented to physical therapy status post compression fracture of the right tibial plateau and impacted femur. The patient, a highway construction worker, was injured when he was hit by a jackhammer. He immediately was sent to the emergency room, where his injuries were confirmed on radiograph, and underwent decompression surgery one week later.

ASSESSMENT

Physical therapy was initiated five days after his surgery. At this time, the patient was on medical leave with the intention of returning to light duty as soon as possible; he was highly motivated to return to his pre-injury work level. His job duties included frequent squatting, walking on uneven surfaces, heavy lifting greater than 100 pounds, stepping on/off equipment and driving heavy equipment. The patient was ambulating non-weight bearing on bilateral axillary crutches with his knee locked into full extension with leg brace. He rated pain as 8/10 at worst and 4/10 current/best. Range of motion was restricted 0-30 degrees with painful, empty end feel. There was significant restriction of the patella, and the patient was unable to complete a straight leg raise. Manual muscle test was deferred secondary to irritability levels.

TREATMENT

The patient initially was seen once per week for three



Injured by a jackhammer at work, the patient was highly motivated to return to his pre-injury work level.

weeks with a progressive at-home exercise program to allow him to continue to heal. His program included heel slides with brace unlocked to 90 degrees and strengthening exercises of the hip, knee and ankle musculature.

By week 4, patient's plan of care was increased to three times per week. He initiated weight-bearing exercises, beginning with reclined, single- and double-leg squats. Core exercises were incorporated at this time. Gait training was initiated to progress the patient to full weight-bearing crutch

walking and then to ambulation with a cane over the next four weeks. Once ambulating with a cane, he was able to return to light-duty office work, which required some ambulation in construction zones.

By week 8, the patient was able to walk without an assistive device. Gait training was continued to further improve the patient's symmetry of loading. Surfaces were varied to replicate the surface changes he would encounter at his job. Because of persistent knee pain, he received a corticosteroid injection. This, along with patellar taping and

electrical stimulation, improved neuromuscular function and reduced pain.

OUTCOME

After 11 weeks of therapy, the patient could complete all home activities of daily living without difficulty. However, a functional capacity evaluation revealed that he still was unable to kneel on his involved side and had continued limitations in eccentric quadriceps control. With these limitations, he was unable to fulfill the requirements of his job.

In addition to his current strengthening and conditioning program, dynamic single limb activities were added to address these deficits, including star excursion drills, lateral step-downs and step-ups onto an 18-inch step to replicate the height of the machines he had to negotiate. Jumping activities then were introduced to provide increased loading onto the involved limb. At 14 weeks, he received medical release from his physician to return to work at full duty. The only modification he had to make was to kneel on the uninvolved limb.

SUMMARY

This case underscores the importance of targeted physical therapy in helping a highly motivated patient return to his prior level of employment after a severe lower extremity injury. Successful physical therapy management of workers' compensation cases can reduce healthcare costs by allowing individuals to remain productive employees. 📌

RESEARCH ABSTRACT

FCE AS PREDICTOR OF RETURN-TO-WORK ABILITIES

By Richard Willy

INTRODUCTION

The use of functional capacity evaluations (FCE) is widespread in industrial medicine. Specifically, FCE determines functional abilities through a battery of physical tests and psychosocial indexes. Physical tests may include material-handling tasks, evaluation of hand function and non-resisted movements (e.g. squatting and standing abilities). The client's functional abilities then are compared with the demands of a job to establish a safe and appropriate return-to-work strategy. Despite the widespread use of FCE, little evidence has been published on the validity of the FCE process in predicting return-to-work status. Therefore, the authors of this current study sought the most effective components of an FCE in determining six-month work status of injured clients.

METHODS

Using a retrospective study design, FCE performance was obtained from chart reviews of 808 FCE clients. FCE performance included material-handling tasks consisting of a floor-to-waist lift, a waist-to-overhead lift, and a weighted-box carry. Grip force and non-resisted movement abilities also were evaluated, and client demo-



All of the material-handling tasks were highly predictive of level of work achieved at six months.

graphics were assessed. FCE performance then was compared with the return-to-work status at six months post-FCE. Return-to-work status was obtained by a phone interview with each client. Subjects were asked a.) if they had returned to work, and b.) level of work achieved (e.g. full-duty, restricted-duty). Data were analyzed using a multiple logistic regression to assess the predictive ability of FCE in determining a return to work. Finally, an analysis of variance (ANOVA) was conducted to assess the relationship between

FCE performance and the level of work achieved.

RESULTS

Of the subjects analyzed, 53.6 percent attained some level of work status at six months post-FCE. A client's ability to perform a floor-to-waist lift was found to be the greatest predictor of return to work at six months post-FCE. All of the material-handling tasks were highly predictive of level of work achieved at six months. Neither grip force nor non-resisted movement testing was able to predict return to work or level of work achieved.

DISCUSSION

These results suggest that material-handling tests have the greatest ability to predict return to work and level of work achieved. Thus, if testing time is limited, material-handling tests may be the most efficient means to determine work status. Grip testing and non-resisted movement testing appear to be the least predictive of work status. However, these tests still may be warranted based upon the demands of a particular job.

When evaluating the results of this study, several limitations should be kept in mind. First, job availability and job demands were not assessed. Thus, a client may not have been able to return to work for lack of available jobs. Second, some workers may have returned to less-demanding but still-unrestricted jobs with their employers. These employees potentially could have obtained a perfect score on return-to-work status, despite potentially having some serious physical limitations. Finally, only one FCE format was assessed. Despite these limitations, however, it appears that the core tests of FCE can correctly predict return-to-work abilities of injured workers.

Matheson, L.N., Isernhagen, S.J., Hart, D.L. (2002). Relationships among lifting ability, grip force, and return to work. *Physical Therapy Journal*. 82 (3): 249-256. 📌

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