Early Intervention in the Rehabilitation of the Worker with Disabling Pain

Delayed Recovery and Early Intervention
Russell Gelfman, MD
Clinical Director, Work Rehabilitation Center

Restorative Therapy Programming
James Hughes, PT
Therapy Supervisor, PM&R Department

American Occupational Health Conference
May 5, 2015

Disclosure

Relevant Financial Relationship(s)
None

Off Label Usage
None

Objectives

• Outline an effective approach to reduce disability in workers who have been injured or ill
• Describe the roles of the individual team members in the rehabilitation of workers experiencing pain
• List the benefits of early team intervention to effectively reduce prolonged work disability due to pain
Regional MSK Pain in a Working Population

- Questionnaire mailed to 5,604 workers
- Workplaces ~ 50/50 service vs industrial
- 4,006 (71.5%) responded
- Only 7.7% were free of regional pain

Norwegian Royal Ministry of Health and Social Affairs

- The rate of RTW slows after 12 weeks

Worse Outcomes Delayed Recovery

- Biological
  - Age, gender, co-morbidities, poor general health
- Psychological
  - Depression, stress, pain perception, motivation
  - Fear-avoidance, catastrophizing, expectations
- Social
  - Administrative, legal, delayed intervention
  - Educational attainment, perceived injustice
  - Cultural values
Delayed Recovery

Social Workplace

Major Concerns In Treating Work-Disabled Patients

• Failure to address biopsychosocial factors
• Limited focus on compensable condition
• Medically unexplained symptoms
• Administrative and clinical iatrogenesis

Early Intervention Interdisciplinary Approaches

• Interdisciplinary approach in patients at risk to develop persistent NSLBP is justified in both subacute and chronic disease stages
• Psychosocial interventions might be more effective in subacute stages since a higher proportion of modifiable risk factors were identified in that group
**Early Intervention for High Risk LBP is Effective**

Table I. Long-Term Outcome Results at 12-Month Follow-Up

<table>
<thead>
<tr>
<th>Outcome Measure</th>
<th>HR-I (n = 22)</th>
<th>HR-NI (n = 48)</th>
<th>LR (n = 54)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Return-to-work at follow-up</td>
<td>91%</td>
<td>69%</td>
<td>87%</td>
<td>0.027</td>
</tr>
<tr>
<td>Average healthcare visits regardless of reason</td>
<td>20.8</td>
<td>28.8</td>
<td>12.4</td>
<td>0.004</td>
</tr>
<tr>
<td>Average healthcare visits related to LBP</td>
<td>17.0</td>
<td>27.5</td>
<td>9.3</td>
<td>0.004</td>
</tr>
<tr>
<td>Average of disability days due to back pain</td>
<td>50.2</td>
<td>102.6</td>
<td>20.8</td>
<td>0.011</td>
</tr>
<tr>
<td>Average of self-reported pain level (0-100 scale)</td>
<td>86.4</td>
<td>67.5</td>
<td>66.8</td>
<td>0.011</td>
</tr>
<tr>
<td>Average of self-reported pain over last 3 months (0-100 scale)</td>
<td>20.8</td>
<td>45.1</td>
<td>20.7</td>
<td>0.011</td>
</tr>
<tr>
<td>% Currently taking narcotics</td>
<td>27.3%</td>
<td>63.6%</td>
<td>10.8%</td>
<td>0.003</td>
</tr>
<tr>
<td>% Currently taking psychotrophic medication</td>
<td>3.3%</td>
<td>18.7%</td>
<td>1.9%</td>
<td>0.018</td>
</tr>
</tbody>
</table>

*a* Chi-square analysis.  
*b* ANOVA.

---

**Early Intervention for High Risk LBP Saves Money**

Table II. Cost-Comparison Results (Average Cost Per Patient/Year)

<table>
<thead>
<tr>
<th>Cost variable</th>
<th>HR-I (n = 22)</th>
<th>HR-NI (n = 48)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare visits related to LBP</td>
<td>$1,670</td>
<td>$2,677</td>
</tr>
<tr>
<td>Narcotic analgesic medication</td>
<td>$70</td>
<td>$160</td>
</tr>
<tr>
<td>Psychotropic medication</td>
<td>$24</td>
<td>$55</td>
</tr>
<tr>
<td>Work disability days/lost wages</td>
<td>$7,072</td>
<td>$18,951</td>
</tr>
<tr>
<td>Early intervention program</td>
<td>$3,885</td>
<td>NA</td>
</tr>
<tr>
<td>Totals</td>
<td>$12,721</td>
<td>$21,843</td>
</tr>
</tbody>
</table>

---

**Early Screening - Minimum**

- Injury severity and type
- Pain intensity – Need for opiates
- Self-reported functional limitation
- Work absence preceding medical evaluation
- Psychological issues
- Prior treatment or surgery
- Fear of re-injury
- Expectation for early return-to-work
- Workplace issues
The work disability diagnosis interview

- Sociodemographic
  - Sedentary way of life
  - Presence of significant events

- Work-related
  - High job demand
  - Workers perception that work does not match his/her present capacity
  - Avoidance of coping
  - Long treatment lag or long period of absence from work

Summary Early Intervention

- Rate of RTW superior to usual care in high risk individuals
- Appears to be cost effective in high risk individuals
- Need to identify high risk from low risk individuals
Restorative Therapy Programming (EIOP)

by
James Hughes, PT

Continuum of Work Injury Management

- The work injury management continuum includes prevention, evaluation, and rehabilitation
- Physician and Therapist initial injury management and immediate care
- Short duration, activity oriented return to work acute care
- Functional capacity or job specific testing

Continuum of Work Injury Management (cont’d)

- Physical Therapy and Occupational Therapy Evaluation and interventions
- Restorative Therapy (EIOP)
- Work hardening / work conditioning
- Jobsite analysis, job modification and consulting on reasonable accommodations
Injury Return to work 14 days post-injury 30 days post-injury 90 days post-injury Chronic Phase Sub-Acute Phase Acute Phase Physical Therapy and Occupational Therapy Interventions Work Conditioning / Hardening Interventions Restorative Therapy (EICP) / Work Conditioning Interventions Work Transition

Stacking Totes

- Work Rehabilitation
- Warehouse

Simulated Work Specific Tasks
A Part of Therapy
Work Items Used During Therapy

How is functional work rehabilitation different than standard physical therapy?

How do we return people back to work when they have *Disabling Pain*?

Worker-Centered Treatment

- Active early intervention
- Worker-centered, meaningful, and relevant to the individual interventions
- Function based therapies, related to the physical demands of the patient's job
- An understanding that pain and function are not the same
- Consistent communication with the patient, referring physician, employer, insurer, and other members of the patient care team
Work Simulation

“Hurt does NOT equal Harm”

Restorative Therapy Program (EIOP)
- Developed in 2006
- Blends outpatient Occupational Therapy and Physical Therapy Interventions with a Work Conditioning/Work Hardening approach to Return to Work
Mayo Restorative Therapy Program (EIOP)

- Early Intervention Outpatient Program.
- Team specializing in work injury management
- Physiatrists, Occupational Therapists, Physical Therapists and referring physicians
- Goal of maintaining the injured employee at work or returning the employee to work in a timely, cost effective manner

“LIFE IS LIKE A 3-LEGGED STOOL”

- Physical
- Psychosocial
- Perception

Interdisciplinary Restorative Treatment Providers

- Physician
  - Supervises medical and psychosocial treatment of the patient
  - Diagnostic testing and interventional procedures
  - Medication assessment and management (add/adjust/discontinue)
  - Writes and supports recommended work restrictions
• Physical Therapist
  • Anatomy education of spine and muscles.
  • Assists with education/benefits of exercise.
  • Design, implement and monitor functional exercise program.
• Occupational Therapist
  • Behavioral modification approach
  • 1:1 therapy
  • Education through video, written, and verbal presentations.
  • Hands on practice/implementation of techniques.

We do Rehabilitation to get patients back to Work

and

Work is an important part of patient Rehabilitation
Pallet Staging
• Standardized Lift
• Functional Lift

Restorative Therapy (EIOP)
Program Admission Criteria
• Client has
  • Return to work issues
  • Work related injury
  • NON-work related injury

Goals of the EIOP
• Be proactive versus reactive
• Focus on function
• Accelerate injury recovery process
• Reduce days off work related to injury
• Decrease indirect and direct costs for any given severity or chronicity of injury
• Comprehensive – From injury to return to work
• Reduce likelihood of recurrent injuries
• Be cost effective
Therapy Plan of Care

- Plan of care is developed based on the following:
  - Objective Functional Testing to determine the patient's physical abilities
  - Comparison of physical abilities with critical work, home, and recreational demands
  - Treatment diagnosis
  - Communication with referring MD when setting restrictions
  - Communication with patient and employer

Physical Therapy Components of the EIOP
(based upon individual needs)

- Physical ability testing
- Assist with setting restrictions
  - Employer
  - MD
- Work assessment (clinic/on site)
- Body mechanics training
- Aerobic conditioning
- Flexibility exercises
- Stabilization exercises
- Whole body strengthening
- Functional exercises
- Specific strengthening
- Functional work-related tasks
- Manipulation, manual therapy, etc
- Therapy modalities
- Education

Physical Therapy Components
Functional Work-Related Task Simulation as Therapy

Body Mechanics For Specific Job Tasks

Occupational Therapy Components of the EIOP (based upon individual needs)

- Job satisfaction
- Sleep hygiene
- Time management
- Moderation of work and home
- Activity management
- Diagnosis Education
- Work/life balance
- Communication
- Stress management
- Work wellness
- Cycle of pain
- Biofeedback
- Functional Job Site interventions
Simulated Home Tasks as Therapy

Body Mechanics Instruction using Biofeedback for Job Specific Tasks

Additional Benefits
- Assists with setting restrictions based on objective physical findings
- Holistic approach to treating clients
  - Musculoskeletal
  - Psychosocial
  - Work and home wellness
- Improved communication between medical providers, patients, and employers
- Early recognition and implementation of additional services needed (i.e. psych, PRC, Work Hardening, PGAP, etc.)
Benefits (continued)

• Timely, safe return to work
• Established relationships with community based exercise facilities
  • providing short-term membership,
  • use of similar equipment,
  • continued programming post-discharge
  • increased patient accountability

Benefits (continued)

• Matches decisions with return to work to measured abilities
• Function-based vs. pain-based abilities defined
• Improves employee morale and satisfaction
• Educates employees and employers
• Reduces workers compensation costs
• Assesses physical and psychosocial barriers to returning to work
• Utilizes early intervention process to address barriers to rapid recovery

Outcomes from the EIOP

• 73% of the patients that participated in the Restorative Therapy program returned to full work duties without restrictions
• 20% of the patients returned to work with restrictions
• 3% of the patients dropped out of the program and had unknown outcomes
• 4% did not return to work with employer

  93% RTW – similar to literature
“Bob”
Case Study #1

• 43 year old male RN
• OTJ injury after transferring a confused patient who resisted the transfer
• Past medical history of long standing low back pain with symptoms similar to this, with approximately 1-2 episodes per year — (High risk)
• Diagnosis: Low back pain
• Imaging results: no images ordered

Initial Physical Ability Assessment:

• Client received work restrictions during initial MD visit
  • 25 lb weight restrictions
  • 4 hours of work
• Therapists assessed work restrictions at first appointment
• Assessed clients ability to perform related essential functions of the job
  • Floor to waist lift: 30 lbs.
  • Waist to overhead: 25 lbs.
  • Push/pull: 50 lbs
  • Carry: 40 lb

EIOP assessment of work restrictions
Information provided to the employer
4 hour work and 25 lb weight restriction

• Answer phones
• Charting/replenish chart
• DC patients
• Referrals – writing and calling
• Patient / family education
• Supervise patients
• Calorie counts
• Neuro. checks
• Admissions
• Assessments
• Minimal assist with patient transfers who weigh 200 lbs or less and can follow directions etc
• Pass medications
• Administer Tube Feedings
• I.V. site care
• PIcc / Central line site care
• Answer lights
• Dressing changes
• CPT
• Empty 1/2 full linen bags
• Push w/c up to 250 lb person
• Pushing cart with 150 lb person
MD agreed with restriction changes

- Weight handling
  - 30 lbs.
  - 4 hours of work.
- Revised list to employer to match new work restrictions
- In addition to previously outlined tasks, Bob can now do:
  - Cart to bed transfers
  - 160 lb patient using a slider board
  - Push W/C

Assessment of Return to Work Barriers

- Acute low back pain
- Decreased trunk stabilization
- Decreased trunk range of motion
- Job stress-rated self 4 out 5 (1=no stress 5=extreme).
- Decreased knowledge of body mechanics
- Overuse of male strength for transfers
- Depressive symptoms
- Poor sleep hygiene (pain waking up patient)
- Job dissatisfaction

Physical Treatments

- Moist heat/electrical stimulation (first 2 sessions)
- Myofascial manipulation
- Joint mobilizations
- Dynamic Lumbar stabilization
- Aerobics
- Whole body strengthening/conditioning
  - Initial exercise completed at rehab center
  - Transitioned to the healthy living center (community based health club)
Psychosocial Treatments

- Stress management/relaxation etc.
- Body mechanics instruction (transfers, etc.)
- Cycle of Pain
- Learning to balance work activities (say “no”)
- Sleep hygiene (sleep positions and healthy sleep habits)
- Communication skills training (role playing etc.)
- Job satisfaction exploration (positive self talk, focusing on strengths, etc.)
- Depression referred to MD who successfully treated the depression with medications

Outcome

- No lost days of work
- Number of days on Restricted duty:
  - 4 weeks at 4 hours
  - 6 weeks at 8 hours
- Level of Pain
  - Pre-EIOP: 10/10 at worst, constant left low back with radiation to the left foot
  - Post-EIOP: 4/10 at worst, intermittent (prolonged sitting only), left lateral thigh only
- Returned to work unrestricted, 12 hour shifts

“James”

Case Study #2

- 24 year old male
- Fell out of a semi-truck cab
- Diagnoses: Left knee pain (popliteal muscle tear), low back pain, bilateral wrist pain and neck pain
Treatment

• Started traditional outpatient physical therapy and occupational therapy
• Neck and wrist symptoms resolved, low back and left knee pain persisted
• Unable to return to any form of work

• Referred for a functional capacity evaluation with work conditioning 5 months post-injury
• The FCE determined he was not a candidate for direct work conditioning secondary to pain significantly limiting his physical abilities and not achieving maximum effort with weight handling
• He was referred to the Restorative Therapy (EIOP) Program

Restorative Therapy Sessions

• Minimal modalities
• Manual therapy
• Aerobic conditioning
• Weight handling assessment
• Body mechanics
• Total body strength training
• Communication skill training
• Job satisfaction
• Cycle of pain/pain behaviors
• Activities of daily living management
Restorative Therapy Progress

Pre-Restorative Therapy
- Weight handling 20 lbs. occasionally with use of a cane
- Flexibility/positional deficits
  - elevated work, forward bending in sit and stand, crouching, kneeling, squatting, standing, walking, stairs, step ladder, and balance
- Pain behaviors

Post-Restorative Therapy
- Weight handling 45 lbs. occasionally without cane
- Flexibility/positional deficits
  - elevated work
  - squatting
- No pain behaviors

Work Conditioning Following Restorative Therapy
- He successfully completed a work conditioning program after 6 weeks, meeting all of the critical job demands of his job (reaching 100 lbs of weight handling and no postural deficits)
- He was able to return to work as a truck driver without restrictions 9 months from date of injury
- From the initiation of Restorative Therapy to return to work was 3 months

“Pain is not a target!”

“Movement is Medicine”
“Focus on Function”
Questions?

Contact Information

Russell Gelfman, MD
Gelfman.Russell@mayo.edu

James E. Hughes, PT
Hughes.James@mayo.edu