

# ONSITE-PT – BUILDING AN EFFECTIVE PRACTICE IN INDUSTRY

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As physical therapists leave traditional clinics and move “behind the walls” of industry, new strategies can help you succeed. This program will address setting up an onsite practice, including how to handle proposals and payment, how to incorporate outcomes and evidence based treatment etc., autonomous and “handling yourself” in corporate culture, various equipment and space options, paperwork and note keeping, and other critical elements in meeting the needs of employees and employers while benefiting your business.

## Objectives:

- The participant will be able to identify the most common opportunities to provide musculoskeletal health services on-site in a cross-section of industrial settings.
- The participant will be able to identify the key components to successful treatment of musculoskeletal disorders (MSD) on-site in a cross-section of industrial settings.
- The participant will be able to identify the key components to the development and implementation of a successful program for the prevention of MSD in a cross-section of industrial settings.
- The participant will be able to identify the key components for effective management and measurement of service impact that can lead to growth of an onsite industrial practice.

## Multi-Level

**Introduction:** Physical Therapy (Physiotherapy) was first organized as a separate healthcare discipline in 1865, nine years earlier than Osteopathy and 30 years ahead of Chiropractic (Jull 2000). Since their emergence these three disciplines have played a progressive role in the conservative treatment of musculoskeletal disorders (MSD) in addition to the medical profession. The Physical Therapy profession is beginning to assume a major role in the long-term management and prevention of MSD. This presentation will provide the attendee with the fundamentals for a successful practice in industry based over 20 years of experience.

Historically occupational or work-related musculoskeletal disorders (WRMSD) have always been a concern and problem for both the employer and employee. Prior to the industrial revolution and the advent of worker’s compensation laws the behavior of the employer and employee regarding the prevention and management of WRMSD was discretionary, with many disastrous stories for the injured worker. Worker safety for life and limb was the first and obvious concern in the prevention arena.

An evolving system of laws, rules, regulations, guidelines and practices over the past 50 years for the prevention and treatment of WRMSD has recruited and challenged the Physical Therapy profession. Research evidence during this same time period has clearly identified that risk for a WRMSD is a multi-disciplinary issue, maintenance of activity is almost always a critical component to a successful

strategy, posture and ergonomics is of time-tested importance, strength and endurance are very important for the more demanding jobs, and positive relationships and attitudes are critical.

Any system of intervention for MSD has to get at root cause(s) to be effective. The mechanism of onset for most MSD (work-related and not work-related) is cumulative or repetitive stress and strain (CTD/RSI). This implicates lifestyle behaviors at root cause, including; postural and biomechanical habits, exercise habits, dietary and general health habits along with attitudes, beliefs, coping skills and occupational satisfactions. Physical Therapy has the training, skills and perspective to attack the root causes of MSD.

When the root cause of a group of healthcare disorders involves lifestyle behaviors, biologic responses to aging and injury, and a variety of domains of physical function a biopsychosocial model of care, not the classic biomedical one, is required. Our unique training, skills and perspective as Physical Therapists enables us to assume a key role in the marriage of treatment and prevention of MSD in industry. We can uniquely address the primary concerns of both the employee and employer, achieving a 'win-win' approach when applied effectively with cooperation.

**The Past, Present & Future:** In the past Physical Therapy has had an obvious and ongoing role in the treatment of MSD. This included outpatient treatment services for ambulatory, less severe injury and disorders, and rehabilitation for the more severe injuries and mutilations etc.

The first approaches to the prevention of MSD were found in the form of 'Back Schools' in the mid-twentieth century. Simultaneously, the emerging science of ergonomics added an engineering component to work injury prevention (The Human Factors and Ergonomics Society was founded in 1957).

Over the second half of the twentieth century concepts that could link treatment and prevention of WRMSD evolved. Treatment improved as medical science increased our understanding of the multi-disciplinary nature of WRMSD and effective methods for measuring clinical outcomes and worker readiness emerged. Prevention methods improved with objective methods for matching worker to the job tasks, the recognition of evidence-based risk factors (multi-disciplinary) and recognition of the importance of interactive education and training the work force. It is not surprising that the presence of Physical Therapists onsite in industry increased significantly during this time period.

The 'Back School' approach gained momentum first in the Scandinavian countries, particularly Sweden. Alf Nachemson, MD and associates played a pivotal role towards an evidence-based approach to preventing back and neck pain problems. The Bergquist-Ullman\_study was the first RCT to show efficacy of an educational approach for the prevention of LBP in industry, and the 'Swedish Back School' became a model that proliferated these concepts.

At approximately the same time period the fundamental constructs for Functional Capacity Evaluation (FCE) and Work-Hardening emerged. This championed the role of objective test and measurement of the worker's ability to meet the physical demands of their jobs, and a structured approach to restoring the injured worker back to a safe ability to return to work (RTW).

The Occupational Safety and Health (OSHA) Act of 1970 was created as a means of helping to protect workers from harm. Included in the act was the creation of the National Institute for

Occupational Safety and Health (NIOSH). These two governmental agencies have generated a large body of knowledge applicable to the treatment and prevention of WRMSD.

Our experience onsite in industry began in 1984 when we were recruited by the Medical Director at Ethicon Corporation to help solve a growing problem with WRMSD. Our role in helping to gain control over the expanding number of MSD (especially CTS & LBP) without having to resort to surgery, provided us with the opportunity to redesign a prevention program that had already proven to be ineffective. The resulting success at connecting our treatment principles and concepts to an effective prevention strategy has served as the seed for over 20 years of onsite and continually growing experience. The ability of the treatment and prevention programs to be compatible and complementary at all levels has been one of our keys to success onsite.

As we gained more experience it became clear that the ultimate intervention for WRMSD is before the problem develops. When this fails, then treatment should be implemented as quickly as possible. The worker should never have to leave or stop work to manage or recover from their MSD in almost every case. Having the Physical Therapist onsite enables the employer to have a healthcare provider that is able to perform both of these functions with a unique ability. It is our opinion that, by definition “prevention and wellness is healthcare, as treatment after a disorder has developed is illness care” (Rath: CSM, Boston, Feb 2002). Our being onsite enables us to provide healthcare.

The following will overview and highlight what we have found to be critical factors to our success in the treatment, prevention and wellness arenas in industry.

**Onsite Treatment:** Providing treatment services for patients with WRMSD is better onsite for a variety of reasons. First of all, you have the opportunity to see the source of the problem and train the worker to change their work-habits in the real-life situation. It also facilitates early intervention, when MSD are more amenable to treatment and progressions of the disorder can be prevented. In addition, the worker will lose less time from work (commuting time etc.) which amounts to a significant cost savings. Overall there are no disadvantages, only many advantages to being onsite provided you have the trust of the workers and you can produce excellent and consistent clinical results.

The success of your onsite treatment service is dependent upon a number of factors, including your ability to provide:

- 1) Comprehensive Service – you need to have the skills and ability to successfully manage the full range of disorders to be encountered, within the environment that they exist. The most common disorders affect the lower back, neck and upper limb. These disorders are treated within a wide range of work environments, ranging from sedentary to very heavy physical demands, and from ideal to adverse working conditions.
- 2) Effective & Efficient Service – your service must be able to successfully resolve a large majority of the patients quickly, identify those that will respond slowly (but well) with accuracy, and quickly identify those few that can't be helped and/or need further medical attention. In addition your service has to be reliable and convenient to those that you serve.

- 3) Adaptable Service – you need to be comfortable and able to clinically perform in any setting, with minimal equipment requirements. Therefore your clinical diagnostic, assessment, educational, exercise and manual skills are paramount.
- 4) Accountable Service – you need the ability to track clinical outcomes, satisfaction and economic impact of your service and report results and trends effectively to management. The ability to provide ongoing analysis of your impact will gain the trust and confidence of management, build demand for your services and help you to improve your care for the workers. This is dependent upon a standardization of your treatment approach and outcome assessment process with policy and procedures guidelines, operational definitions, clinical forms, and database programs.
- 5) Effective Communications – you must be effective in verbal, written and other forms of communication to the various groups involved on all sides of the issues. This cannot be overemphasized, as it may be the ultimate determinant for your success or failure.

A key to our success in industry has been to connect the patient's treatment experience with a plan to prevent recurrence of the same disorder. Our treatment strategies all include a strong component of education and training of the patient in self-management, recognition of the warning signals of recurrence and the development of a specific (individualized) system of procedures to fight back against their problem (Tools to Fight Back®). This enables our programs to coordinate well with prevention, wellness and other interventional strategies used through the company. The idea is to encourage a 'wellness culture' and the use of consistent concepts and terminology is helpful towards achieving this goal.

**Onsite Prevention Services:** The World Health Organization divides prevention into 3 categories: 1) Primary – measures taken to prevent clinical manifestation, 2) Secondary – measures taken to arrest development in the early stages, and 3) Tertiary – measures taken to minimize consequences.

Using the WHO definition, our prevention services are focused mainly on primary and secondary measures, but include tertiary programs. The basis for the creation of our programs was our experience with treatment strategies that were successful at resolving the disorders we were attempting to prevent. However, our method of treatment was, and is unique. Our approach places a heavy emphasis on interactive education and training of the patient to take an active role in their recovery, integrated with manual therapy, therapeutic and biomechanical procedures and concepts. The intent of this interactive treatment approach is to hasten recovery time and to develop a process for prevention of recurrence and progression. This method of treatment provided us with a natural segue to the development of onsite prevention programs.

There are many factors that will influence your ability to be successful at implementing a prevention program for a company, or any of its sub-divisions. Some of these factors are within your control and others are not. In attempt to provide guidance to those Physical Therapists interested in this area of practice, the following are critical factors for success of an onsite prevention service:

- 1) Have a Sound Basis for Your Approach – you must have a good understanding of the most relevant, multi-disciplinary, evidence-based factors related to each MSD you are attempting to prevent. This requires a comprehensive, biopsychosocial perspective. We have relied upon connecting our treatment experience to the prevention programs.

- 2) A Comprehensive Musculoskeletal Service – it is essential that you are able to effectively address the full spectrum of MSD that are, or could potentially affect the target worker groups for the company.
- 3) Population Macro-Targeting – you need to identify, analyze and understand the population of workers that will receive your service. Your programs should be tailored to specific disorders that have occurred, or are likely to occur in the target populations.
- 4) Population Micro-Targeting – the individual worker that is having a particular problem needs to be provided a means of solving their individual problem. It is possible that a general program may achieve this, but many times it does not, or the individual is just not capable of taking the information and applying it effectively. These employees need to be identified and dealt with individually otherwise they will grow into the 10 % of the cases that represent 90 % of the cost.
- 5) Getting at Root Causes - most of the WRMSD are a result of cumulative and repetitive strain; i.e. a fatigue failure response. Consequently, biomechanical and exercise behaviors are a key target. We have developed a 3-stage model for MSD and the concept of ‘Tools to Fight Back®’ to first help the employees understand the problem and process and then constructively intervene. It’s a long-term issue.
- 6) Effective Communication – at every level of your interface in industry you must use simple language, address the needs and concerns of the audience and make good sense for the worker and management. Ultimately your ability to effectively communicate determines your success or failure.
- 7) Establishing a Cause and Effect - we rely upon having the employee experience (and management observe) the immediate ‘cause and effect’ benefit of our instructions upon work performance and complaints. This is an essential component to helping the employee to change their biomechanical work habits, and encourage the lifestyle changes required for long-term health and wellness.
- 8) Overcoming Fears & Getting the ‘Buy-in’ – management is often fearful that you will open ‘Pandora’s Box’. They believe bringing attention to MSD will result in a rash of reports, incidents and claims.
- 9) The Importance of Responsiveness – you need to be responsive to the needs and requests of the workers and management. Management needs to be responsive to requests for improvements in the work environment.
- 10) Achieving a Cultural Change – the most successful companies are able to achieve a health and wellness culture. This requires the company to place a high value on the health and wellness of all employees, not just in words but in actions and behaviors.
- 11) The Importance of Measurement, Reporting and Communicating Results– you need to have procedural guidelines, standardized forms and methods of data/information collection, a routine of data analysis and reporting, and communicate the results effectively.

The general process for implementation of a mature prevention program has four stages: 1) the preparation phase, 2) the training phase, 3) the implementation phase, and 4) the ongoing analysis and support phase.

There will always be a small group of employees that are prone to chronic, recurrent disorders that never fully resolve. This group requires tertiary prevention to minimize the impact to themselves and the company.

**Management, Measurement & Marketing:** As previously mentioned, you need to have well defined policies, procedures and guidelines for onsite programs. The physical therapists and other healthcare professionals implementing the programs need to be trained, supervised and held accountable to a standard of service. Those patients and employees that are not responding to treatment or prevention programs have to be identified rapidly, the case analyzed and a better solution obtained. This requires a surveillance process that quickly identifies potential problems.

The collection of information that you can use for analysis and reporting includes the following:

- 1) Demographics & Independent Variables – the employee’s age, gender, department and job, physical demand characteristics (PDC), seniority, program (treatment or prevention), case-type (work-related, not work-related)
- 2) Dependent Variables – number of visits/sessions, weeks on program, outcome (excellent, good, fair, poor, unknown, not applicable), medical visits, first-aid cases, recordable injuries, time loss, cost/savings, satisfaction etc.
- 3) Reporting formats – we provide monthly and annual reports that overview the services provided and the response of the patients and employees. In addition, we are always available to provide reports on demand to help management or labor.
- 4) Response to data – we look to our data analysis as a tool to improve our service in general, and the service of individual practitioners.

We are not a good source for information about how to market your service to industry, as all of our business has come to us based on our reputation; i.e. ‘word of mouth’. And, from our biased perspective, we believe this is the best marketing. However, had we not been able to provide reasonable proposals with documented evidence of our effectiveness our reputation alone would not have gotten us any further in the contractual process.

**Summary:** The escalating costs of healthcare and disability, the recognition of lifestyle behaviors as a root cause for MSD and an aging work force all lead to an inevitable need for more effective prevention and wellness services in industry. The Physical Therapist is uniquely qualified to address many of the critical issues and root causes for MSD and play a major role onsite in industry. Our experience is that the provision of consistently effective and efficient treatment of WRMSD and connecting this to strategies to prevent recurrence is a method for entry into onsite services. Once onsite, your ability to provide an effective intervention, document and report your results and effectively communicate the role of service at helping both the employee and company will enable your business to grow.

## References:

- Bergquist-Ullman M, Larsson U. Acute low back pain in industry. *Acta Orthop Scand Suppl*: 170; 1 – 117, 1977.
- Bernacki EJ, Guidera JA, Schafer JA, Tsai SP. An ergonomics program designed to reduce the incidence of upper extremity work related musculoskeletal disorders. *JOEM* 41 (12); 1032 – 1041, 1999.
- Burton AK, Waddell G, Tilotson KM, Summerton N. Information and advice to patients with back pain can have a positive effect: a randomized controlled trial of a novel educational booklet in primary care. *Spine* 24 (23): 2484 – 2491, 1999.
- Daltroy LH, Iversen MD, Martin SD, et al. A controlled trial of an educational program to prevent low back injuries. *New Engl J Med* 337 (5); 322 – 328, 1997.
- Dimberg L, Olafsson A, Stefansson E et al. The correlation between work environment and the occurrence of cervicobrachial symptoms. *J Occ Med* 31 (5); 447 – 453, 1989.
- Friedman PJ Predictors of work disability in work-related upper extremity disorders. *JOEM* 39 (4); 339 – 343, 1997.
- Jarvik JG, Hollingworth W, Heagerty PJ, Haynor DR, Deyo RA Three-year incidence of low back pain in an initially asymptomatic cohort: clinical and imaging risk factors. *Spine* 30 (13):1541-48, 2005.
- Garcy P, Mayer T, Gatchel R Recurrent or New Injury Outcomes After Return to Work in Chronic Disabling Spinal Disorders: Tertiary Prevention Efficacy of Functional Restoration Treatment, *SPINE* 21:952-959, 1996
- Gatchel R, Mayer T, Functional Restoration for Chronic Low Back Pain, Part II: Multimodal Disability Management; *Pain Management* 2:136-140, 1989
- Gatchel R, Polatin P, Mayer T The Dominant Role of Psychosocial Risk Factors in the Development of Chronic Low Back Pain Disability, *SPINE* 20:2702-2709, 1995
- Grayzel EF, Finegan AM, Ponchak RE. The value of in-house physical therapy. *JOEM* 39 (4); 344 – 343, 1997.
- Hadler, NM. Occupational Musculoskeletal Disorders, 2<sup>nd</sup> Edition. Lippincott Williams & Wilkins, Philadelphia, 1999.
- Hagberg M et al. Work related musculoskeletal disorders (WMSDs): a reference book for prevention. Scientific editors: Kuorinka I, Forcier L. Taylor & Francis, Bristol, PA, 1995.
- Heymans MW, van Tulder MW, Bombardier C, Koes BW Back Schools for Nonspecific Low Back Pain: A Systematic Review Within the Framework of the Cochrane Collaboration Back Review Group. *Spine*. 30(19):2153-2163, 2005.
- Hubble MA, Duncan BL, Miller SD. The Heart & Soul of Change: What Works in Therapy. American Psychological Association, Washington D.C., 1999.
- Kaplansky BD, Wei FY, Reecer MV. Prevention strategies for occupational low back pain. *Occupational Medicine: State of the Art Reviews* 13(1): 33-45, 1998.
- Kelsey JL. Epidemiology of radiculopathies. *Adv Neurol*. 1978;19:385-98.
- Kelsey JL, Githens PB, Walter SD, et. al. An epidemiological study of acute prolapsed cervical intervertebral disc. *J Bone Joint Surg Am*. 1984 Jul;66(6):907-14.
- Lackner JM, Carosella AM. The relative influence of perceived pain control, anxiety, and functional self-efficacy on spinal function among patients with chronic low back pain. *Spine* 24 (21); 2254-2261, 1999.

Larsen K, Weidick F, Leboeuf-Yde C. Can passive prone extensions of the back prevent back problems? A randomized, controlled intervention trial of 314 military conscripts. *Spine* 27(24): 2747-52, 2002.

Linton SJ, Kamwendo K. Risk factors in the psychosocial work environment for neck and shoulder pain in secretaries. *J Occ Med* 31 (7); 1989.

MacKenzie EJ, Morris JA, Jurkovich GJ, et al. Return to work following injury: the role of economic, social and job-related factors. *Am J Pub Health* 88 (11); 1630 – 1637, 1998.

Mayer TG, Gatchel RJ, Polatin PB Occupational musculoskeletal disorders. Function, outcomes & evidence. Lippincott Williams & Wilkins, Philadelphia, 2000.

Mayer T, Gatchel R, Functional Restoration for Chronic Low Back Pain, Part I: Quantifying Physical Function; *Pain Management* 2:67-75, 1989

Mayer T, Gatchel R, Kishino N, Keeley J, Capra P, Mayer H, Barnett J, Mooney V Objective Assessment of Spine Function Following Industrial Accident: A Prospective Study with Comparison Group and One-Year Follow-Up; Volvo Award in Clinical Sciences, 1985, *SPINE* 10:482-493, 1985

Monkofsky J, Rath JD. How to reduce ergo injuries by 60 %. Presented at 2001 EH&S Technical Conference, Farmington, CT June 19, 2001.

Moore A, Jull G. Editorial. *Manual Therapy*, 5 (1): 1, 2000.

Mundt DJ, Kelsey JL, Golden AL, Panjabi MM, Pastides H, Berg AT, Sklar J, Hosea T. An epidemiologic study of sports and weight lifting as possible risk factors for herniated lumbar and cervical discs. The Northeast Collaborative Group on Low Back Pain. *Am J Sports Med.* 1993 Nov-Dec;21(6):854-60.

Myers J, Prakash M, Froelicher V, Do D, Partington S, Atwood JE. Exercise capacity and mortality among men referred for exercise testing. *N Engl J Med* 346 (11): 793 – 801, 2002.

Nachemson AL, Jonsson E. Neck and Back Pain: The Scientific Evidence of Causes, Diagnosis and Treatment. Lippincott Williams and Wilkins, Philadelphia, 2000.

Nassau DW The effects of prework functional screening on lowering an employer's injury rate, medical costs, and lost work days. *Spine* 24 (3): 269 – 274, 1999.

Nordin M, Andersson GBJ, Pope MH Musculoskeletal Disorders in the Workplace: Principles and Practice Mosby, St. Louis, 1997.

Nordin M 2000 International society of the study of the lumbar spine presidential address: backs to work: some reflections. *Spine* 26 (8): 851-856, 2001.

Popper SE, Yourkavitch MS, Schwarz BW, et. al. Improving readiness and fitness of the active military force through occupational medicine tenets. *JOEM* 41 (12); 1065 – 1071, 1999.

Sbriccoli P, Yousuf K, Kupershtein I, et. al. Static load repetition is a risk factor in the development of lumbar cumulative musculoskeletal disorder. *Spine* 29 (23): 2643 -53, 2004.

Snook S, Webster B, McGorry R, Fogleman M, McCann K. The Reduction of Chronic Nonspecific Low Back Pain Through the Control of Early Morning Lumbar Flexion: A Randomized Controlled Trial. *Spine.* 23(23):2601-2607, December 1, 1998.

Taimela , Diederich C, Hubsch M, Heinricy M. The Role of Physical Exercise and Inactivity in Pain Recurrence and Absenteeism From Work After Active Outpatient Rehabilitation for Recurrent or Chronic Low Back Pain: A Follow-Up Study. *Spine.* 25(14):1809-1816, July 15, 2000.



Walker, JM Injured worker helplessness: critical relationships and systems level approach for intervention. J Occ Rehab 2 (4); 201 – 209, 1992.

Williams, MM, Hawley, JA, McKenzie, RA, Van Wijmen, PM: A Comparison of the Effects of Two Sitting Postures on Back and Referred Pain. Spine 16 (10): 1185-91, 1991.

Ventre J, Schenk RJ Validity of the Duffy-Rath questionnaire. Orhtopedic Practice 17 (1): 22-25, 2005.

Zigenfus GC, Yin J, Giang GM, Fogarty WT. Effectiveness of early physical therapy in the treatment of acute low back musculoskeletal disorders. JOEM 42 (1); 35 – 39, 2000.

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