Clinical Reasoning Pathway for Job Analysis and Return to Work

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Working Party
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Clinical Reasoning Pathway for Job Analysis and Return to Work

Background
The Occupational Health Professional Development Group (OHPDG) of the Occupational Therapy Association SA Division recognised that there are a variety of approaches to identifying suitable duties for return to work and reporting the findings, which reflects differences in the quality of clinical reasoning. The OHPDG generally agreed that Job Analysis reports in the context of South Australian Workers Compensation should reflect:

- the referral request
- the job demands specific to the worker’s injury/illness; and
- the Occupational Therapist’s understanding of the functional aspects of the injury/illness; and
- the application of sound clinical reasoning used to formulate appropriate recommendations.

A Working Party was established to research the existing literature and draw on clinical experience to produce a guideline document to assist with improving consistency of Job Analysis and reporting amongst Occupational Therapists for the purpose of return to work.

Objectives
- To compile relevant educational material in relation to clinical reasoning for the development of return to work guidelines / recommendations following Job Analysis.
- To synthesise available evidence on the most common work relevant musculoskeletal injuries/illnesses, and their recovery time frames.
- To provide systematic methods for undertaking Job Analysis.
- To provide strategies that utilise evidence and Job Analysis information to develop clinically justified return to work recommendations.
Pathway for Job Analysis and Return to Work

Initial Steps
Referral Received:
- Be clear on the nature & aim of the referral
- Clarify if necessary

Know Your Conditions
Understand/Consider diagnosis and implications for medical restrictions and recovery rates (see Appendix 1 for guidelines for various conditions)

Determine Factors for Analysis
Consider basic “job title” and extrapolate potential job demands vs condition:
- Spinal
- Upper limb
- Lower limb

Liaison with Key Parties
Required to determine relevant background information (worker, doctor, employer, case manager, allied health provider, rehabilitation provider)

Job Analysis
- Undertake JA specific to nature of injury/illness
- Take measurements of heights, weights, forces where indicated
- Ensure worker and employer are present.

Matching Job Demands to Capacity
- Interview
- Observation
- Clinical Assessment
- Expected recovery rates
- FCE

Consider Barriers to Return to Work
- Medical or Rehabilitation
- Workplace
- Individual

Identify Suitable Duties
- Discuss with worker and employer
- Ensure agreement of all parties

Outcome
Check recommendation/action plan meets initial referral request

Reporting
Formal report generated. Include rationale for task selection and Graduated Return to Work Program

Review
- Is it required?
- In what format?

Figure 1 – Pathway for Job Analysis and Return to Work
Review referral information to determine what may be required.

Clearly establish the nature and aim of the referral.

Source and review relevant medical information.

**Initial Steps**

This step is the start of the information gathering process.

At a minimum, seek to understand the context of the situation, i.e., the:

- Injury/Illness
- Date of injury
- Job(s) to be analysed

What is the purpose of the referral? What does the referrer hope to achieve from undertaking the Job Analysis?

Does the referrer require:

- Analysis of the entire pre-injury role, or only specific tasks and work practices?
- Assessment and analysis of duties in other areas of the workplace in addition to pre-injury duties?
- A graduated return to work program?
- An assessment of all of the jobs undertaken within the workplace and a brief description of such? If so, consider whether a worksite assessment is more appropriate.

Medical reports
Medical certificates
Treatment plans
A sound understanding of the diagnosis is necessary prior to conducting the Job Analysis.

If you need other information there are a variety of resources that can be accessed such as WorkCover SA, the full version of MD Guidelines, New Zealand Accident Compensation Commission. See Reference Section, page 73, and Useful Resources, page 75 for links.

Appendix 1, Guidelines for Various Conditions, page 30 is designed to provide information on commonly seen musculoskeletal injuries/illnesses. The information in Appendix 1 has been edited from MD Guidelines and WorkCover SA as a link and ready reference. Please check the website(s) for any updates.

Know Your Conditions

Take into account the following:
- nature of the injury/illness
- expected recovery timeframes for that injury/illness
- duration between the date of injury/illness and referral request
- likely treatment / rehabilitation options
- expected medical restrictions relative to the recovery timeframes
- anticipated functional abilities of the individual
- prognosis
- potential complications
It is important to have a clear plan prior to undertaking the visit to the worksite for the Job Analysis.

Use the job title to identify the potential key job demands that will require analysis in relation to the injury/illness. Consider basic “job title” and extrapolate potential job demands vs condition:
- spinal
- upper limb
- lower limb

Methods to extrapolate the potential job demands may include:
- knowledge from previous Job Analysis
- professional experience
- research via internet websites or other literature, eg resources such as ANZSCO - Australian and New Zealand Standard Classification of Occupations, First Edition, Revision 1 or US Department of Labor, Selected Characteristics of Occupations Defined in the Revised Dictionary of Occupational Titles (DOT).
Contact key parties

If appropriate, contact with the key parties can be useful prior to undertaking the Job Analysis. Confidentiality should be maintained and worker consent may be required prior to this contact.

Key parties may include but are not limited to the:
- injured individual (worker)
- employer
- treating medical practitioner
- allied health provider
- case manager
- vocational rehabilitation provider
- worker’s representative.

Liaison can be used to gather information such as:
- necessary preliminary background to the injury:
  - medical history
  - treatment, including identifying treatment providers
  - medical restrictions/guidelines
  - functional status/capabilities
  - current certified work capacity
  - potential work capacity
- presence of co-morbidities
- possible psycho social issues
- job information, eg a general job description, availability of duties
- location of worksite for the Job Analysis – geographic, entry details or any specific instructions
Job Analysis

The worker and relevant employer representative(s) are to be present when the Job Analysis is undertaken.

There may be exceptional circumstances where a worker is unable to be present at the worksite visit. In such circumstances, an analysis of the physical demands of available duties can still be undertaken. The reason(s) for worker non-attendance at the Job Analysis is to be clearly documented.

The worker should be present to provide information regarding:

- current work status
- current treatment regime
- previous work-relevant injuries/illnesses and whether there are specific ongoing work guides applicable to these injuries/illnesses
- co-morbidities which may impact on ability to perform duties
- functional tolerances – postural, strength and movement
- details of duties performed at the time of onset of symptoms
- details of usual duties (if different from above)
- work processes, work flow, frequency and duration of tasks
- work practices used by the worker to perform usual duties
- hours of work, usual work days, usual work roster, over-time (regular or intermittent), shift patterns, seasonal work, provisions for rest breaks
- usual job rotations
- machines, tools, equipment and work aids used
- licensing/training for specified duties or operation of machinery
- relevant environmental factors
- relationships with team leaders/supervisors and co-workers
- other jobs performed eg secondary employment
- list of duties the worker considers he/she can currently perform
- list of duties the worker considers he/she is currently unable to perform or has issues with and why
Physical demands analysis is a systematic way of describing the physical activities that a job requires. It is concerned only with the physical demands of the job; it is not concerned with the physical capacity of the worker.” (Martin & Jones, 1991).

An employer representative should be present to provide information regarding:

- description of usual business
- details of duties performed at the time of onset of symptoms
- details of usual duties (if different from above)
- work processes, work flow, frequency and duration of tasks
- hours of work, usual work days, usual work roster, over-time (regular or intermittent), shift patterns, seasonal work, provisions for rest breaks
- usual job rotations
- machines, tools, equipment and work aids used
- licensing/training for performing relevant duties or operation of machinery
- worker relationships with team leaders/supervisors and co-workers
- options for alternative/modified duties (if required to accommodate stay at work or return to work)
- employer ability to accommodate alternative/modified duties
- whether the worker’s reduced work capacity in turn creates an altered workload for co-workers (if this is the case, then to mitigate risk the worker may need to be rostered in addition to the work team requirements)

Undertake the Job Analysis specific to the nature of the work related injury/illness. There is no need to assess all the physical demand factors of each duty in question for the purpose of return to work.

As a general guide, the tables on the following page can be used to determine the physical factors to be assessed in relation to specific body areas.
### Physical Demand Factors to be Considered

<table>
<thead>
<tr>
<th>Body Area</th>
<th>Cervical spine</th>
<th>Thoracic spine</th>
<th>Lumbosacral spine</th>
<th>Shoulder and upper arm</th>
<th>Elbow/forearm</th>
<th>Wrist/hand</th>
<th>Hip</th>
<th>Knee/ankle/foot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sitting, forward reaching, overhead reaching, repetitive/sustained neck movements, lifting, carrying, pushing, pulling, crawling, climbing, operation of hand controls</td>
<td>Sitting, forward reaching, overhead reaching, standing, stooping, lifting, carrying, pushing, pulling, crawling, climbing, operation of hand controls</td>
<td>Sitting, standing, walking, overhead reaching, forward reaching, stooping, kneeling, crouching, lifting, carrying, pushing, pulling, crawling, climbing, balancing, operation of foot controls</td>
<td>Forward reaching, overhead reaching, lifting, carrying, pushing, pulling, crawling, climbing, operation of hand controls</td>
<td>Forward reaching, overhead reaching, handling, lifting, carrying, pushing, pulling, crawling, climbing, operation of hand controls</td>
<td>Forward reaching, overhead reaching, handling, fingering, feeling, lifting, carrying, pushing, pulling, crawling, climbing, operation of hand controls</td>
<td>Sitting, standing, walking, stooping, kneeling, crouching, lifting, carrying, pushing, pulling, crawling, climbing, balancing, operation of foot controls, overhead reaching</td>
<td>Sitting, standing, walking, stooping, kneeling, crouching, lifting, carrying, pushing, pulling, crawling, climbing, balancing, operation of foot controls</td>
</tr>
</tbody>
</table>

**Table 1** - Developed by Dwyer, Ksiazkiewicz, Moody (2013).

<table>
<thead>
<tr>
<th>Lumbar/thoracic back:</th>
<th>Neck, shoulder girdle and upper arm:</th>
<th>Hip, knee and ankle:</th>
<th>Elbow, forearm, wrist and hand:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>Stooping</td>
<td>Walking</td>
<td>Pushing</td>
</tr>
<tr>
<td>Stationary standing</td>
<td>Pushing</td>
<td>Stationary standing</td>
<td>Pulling</td>
</tr>
<tr>
<td>Sitting</td>
<td>Pulling</td>
<td>Sitting</td>
<td>Lifting/carrying</td>
</tr>
<tr>
<td>Stooping</td>
<td>Lifting/carrying</td>
<td>Stooping</td>
<td>Forward reaching</td>
</tr>
<tr>
<td>Twisting</td>
<td>Forward reaching</td>
<td>Twisting</td>
<td>Sideways reaching</td>
</tr>
<tr>
<td>Kneeling/crouching</td>
<td>Sideways reaching</td>
<td>Kneeling/crouching</td>
<td>Overhead reaching</td>
</tr>
<tr>
<td>Pushing</td>
<td>Overhead reaching</td>
<td>Pushing</td>
<td>Stair/step ladder climbing</td>
</tr>
<tr>
<td>Pulling</td>
<td>Neck flexion</td>
<td>Pulling</td>
<td>Ladder climbing</td>
</tr>
<tr>
<td>Lifting/carrying</td>
<td>Neck extension</td>
<td>Lifting/carrying</td>
<td>Operation of foot controls</td>
</tr>
<tr>
<td>Forward reaching up to 90° shoulder flexion</td>
<td>Neck rotation</td>
<td>Forward reaching up to 90° shoulder flexion</td>
<td>Exposure to arm/hand vibration or kickback</td>
</tr>
<tr>
<td>Sideways reaching</td>
<td>Exposure to arm/hand vibration or kickback</td>
<td>Overhead reaching</td>
<td>Ladder climbing</td>
</tr>
<tr>
<td>Overhead reaching</td>
<td>Ladder climbing</td>
<td>Stair/step ladder climbing</td>
<td>Operation of hand controls</td>
</tr>
<tr>
<td>Stair/step ladder climbing</td>
<td>Operation of hand controls</td>
<td>Operation of foot controls</td>
<td>Pushing</td>
</tr>
<tr>
<td>Ladder climbing</td>
<td>Operation of foot controls</td>
<td></td>
<td>Pulling</td>
</tr>
<tr>
<td>Exposure to whole body vibration</td>
<td></td>
<td></td>
<td>Lifting/carrying</td>
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<tr>
<td>Operation of foot controls</td>
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<td>Forward reaching</td>
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<td></td>
<td></td>
<td></td>
<td>Exposure to arm/hand vibration</td>
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<td></td>
<td></td>
<td>or kickback</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ladder climbing</td>
</tr>
</tbody>
</table>

**Table 2** - Developed by Dwyer, Ksiazkiewicz, Moody (2013).
Undertaking the Analysis of Duties

During the Job Analysis, take photographs* and/or video* of tasks focusing on relevant movement patterns/postures and key aspects of the tasks.

Images captured should be included in the Report where relevant.

*Ensure appropriate consent is obtained prior to taking photographs and/or video.
Other Factors to Consider During the Worksite Visit:

- **Observe** the worker in relation to postures assumed, postural tolerances, movement patterns, ranges of movement, and pain behaviours.

- **Request** the worker to demonstrate their usual work practices, where relevant, for each task. This must be undertaken within the available medical restrictions GUIDES. Do not request the worker to perform/demonstrate tasks that exceed current available medical restrictions GUIDES.

- **Instruct** the worker in safe work practices and use of tools, equipment and work aids to ensure that correct postures are assumed and movements performed.

- **Discuss** with the worker what they can do rather than what they cannot do. Reassure the worker that activity, including suitable work, is beneficial for his/her recovery and will not be harmful.

**Consider:**
- Which duties the worker can perform immediately, for how long, and proposed job rotations.
- What additional equipment/ modifications are required – can the worker perform the assessed duties without the available equipment or does it need to be provided prior to the worker commencing the duties?
Match physical demand factors with known risk and certified capacity.

Create a list of duties commensurate with the worker’s current work ability.

The occupational therapist’s opinion concerning which duties are currently suitable should be based on risk and capacity.

The physical demand factors of the assessed duties are to be matched with known risk, the worker’s current certified capacity and known / demonstrated abilities. The following are to be considered:

- expected recovery timeframes for the worker’s injury/illness
- medical guides (certified and from available medical reports) - do these guides match the expected recovery timeframes?
- guides from available assessments such as Functional Capacity Evaluation
- clinical assessment [assessment of strength, Range of Movement (ROM), Activities of Daily Living (ADL) ability]
- progress in treatment
- observed functional tolerances (postural/movement/strength) during the worksite visit
- known risks relevant to the worker’s injury/illness

This information is to be matched with the physical demand factors of the assessed duties to determine a list of duties that is commensurate with the worker’s current work ability. These duties are to form the basis for developing guides for return to work.

Clearly communicate to the worker and employer which duties are considered suitable and provide reasons.
Consider Barriers to Return to Work

A number of barriers to return to work have been identified. These factors include:

Medical or Rehabilitation Barriers:
- worker’s fear and beliefs about their condition
- worker’s fear and beliefs about the impact of re-entry to the workplace on their health
- when the patient attributes the cause of illness or injury to the workplace
- the health provider fails to accurately represent the clinical situation to the insurer or employer

Workplace Barriers:
- when there are multiple previous episodes of absence, and when periods of absence are lengthy
- low or inadequate support from supervisors and colleagues
- stressful work and low job satisfaction
- high psychological job demands
- lack of availability of modified work
- physical job characteristics
- demographic factors

Individual Worker Barriers:
- older or increasing age
- inability to adapt to injury-related impairments and accept changes in occupational activities or new job skills
- negative expectations about the injury, and prospects for recovery and/or return to work
- when the self-rated symptoms are severe

(Source: WorkCoverSA, 2013)

During the workplace assessment the Occupational Therapist is to consider potential barriers to return to work and facilitate strategies for addressing the barriers.

‘Not surprisingly, return to work is often less dependent on the medical factors surrounding the actual injury than it is about the unique characteristics of an injured employee and his or her employer’ (Talmage, Melhorn, & Hyman, 2011, p. 31).
When determining suitable duties for return to work there are factors additional to the physical demands of the assessed duties and the worker’s certified capacity that need to be considered. These include:

- Current work status – This indicates demonstrated capacity, tolerance and progress in relation to expected recovery timeframes.
- Results of self-reported measures, either formal or informal such as reported activity levels in usual household tasks (Activities of Daily Living).
- The worker’s reported current functional tolerances (ie postural, movement and strength).
- The worker’s reported pain tolerances and fatigue.
- Is there a match or a mismatch between reported and observed functional tolerances?
- Do the worker’s reported and observed functional tolerances match the expected recovery timeframes?
- Do the worker’s reported and observed functional tolerances match the current available medical guides?
- Is there evidence of delayed recovery?
- Duties the worker considers they can currently perform versus those they are unable to perform or have issues with. Consider the duties the worker is currently prepared to perform (based on actual or perceived risk or tolerance). If risk is perceived rather than actual, the occupational therapist needs to address the perception and reassure the worker that the duties will not be harmful. However, this needs to be balanced with the worker’s preparedness to tolerate symptoms eg pain, fatigue.
- Information from the employer as to what is ‘workable’ for the worksite regarding availability of specific duties, job rotations, hours, shifts etc.
- Co-morbidities - consideration is to be given to reported/diagnosed physical and mental health conditions. Where duties are not suitable for the worker to perform due to co-morbidities, rather than the work relevant injury/illness, these need to be clearly defined.
There are three types of suitable duties that may be considered when returning the worker to the workplace.

**Pre-injury duties** – reduced hours of the pre-injury duties that the injured worker has the capacity to perform.

**Modified duties** – components of some of the pre-injury duties that have been included or removed to match the injured worker’s capacity.

**Alternative duties** – duties that are different from the pre-injury duties but allow the injured worker to stay at work or return to work.

During the worksite visit negotiations should take place regarding duties

- **Specific duties to be performed immediately** – Endeavour to balance between the duties the worker is prepared to perform, employer needs (practicality for the workplace), occupational therapist opinion based on job matching, and available medical guides.

- **Rotation of duties** – Frequency and duration of specific duties. This should be based on reported and observed functional tolerances, giving consideration to what is ‘workable’ for the worksite. The rotation of duties should ensure rotation of postures, movements and strength demands.

- **Hours per day, number of days per week**, giving consideration to usual allocated work rest breaks

- **Shiftwork** – Some employers may have a policy that while a worker is undertaking a graduated return to work they will remain on day shift where additional support is usually available.
During the worksite visit negotiations should take place regarding duties (cont’d)

- **Order in which the duties are to be upgraded**, based on:
  - the physical demands of the duties in question
  - frequency and duration of duties performed
  - worker preference for upgrading duties
  - employer preference for upgrading duties
  - occupational therapist opinion based on the physical demand factors of the duties and anticipated recovery timeframes

- The **number of stages** in the proposed return to work program – this will be dependent on the number/range of duties performed, the scope of the physical demand factors of these duties, and the nature of the worker’s injury/illness. The number of stages should be realistic.

- It may be beneficial to produce a **limited program**, subject to review rather than an extensive program to ensure practicality.

- **Proposed timeframe** for the return to work program – this is to be based on anticipated recovery timeframes.

- Encourage the employer to offer **work accommodation** as required, to assist recovery and return to work.

- Consider how the **treatment program** is to be integrated with the proposed return to work program.

- **Staff allocation** - is the worker to be an extra to the usual staff numbers? This should only be considered to mitigate risk.

- **Assistance for the worker** with specific duties, if required eg with heavier manual tasks.

- Suggestions for **workplace modifications** – including modification of existing equipment, provision of additional equipment, ergonomic considerations, and tools. Do these modifications need to be implemented before the worker commences performing specific duties?

- **Address barriers** that may impact on return to work.

- Obtain agreement from the worker and employer regarding the **goals for return to work**.

- Obtain agreement from all parties present for the **proposed return to work program**. This may require the signatures of the relevant parties and, if possible, leave a summary of the proposed return to work program with the worker and employer.
During the worksite visit negotiations should take place regarding duties (cont’d)

Recommendations for review of the proposed return to work program

- Inform the worker and employer whether the duties of Stage 1 of the proposed return to work program can be commenced within current available medical guides or whether medical consent/further certification is required prior to commencing the proposed program.

- These are to be undertaken, where relevant, at strategic points of the return to work process eg. Where the worker commences duties that require further instruction in the use of specific equipment or work practices, where the worker is commencing duties that they have indicated are of possible concern to them.

Other recommendations relevant to progressing return to work

- Discuss any other recommendations that may be relevant to progressing return to work, eg:
  - Further strengthening program to address specific strength deficits. This is relevant if:
    - There are no or insufficient suitable duties for the worker to perform immediately.
    - There are insufficient duties to upgrade the physical demands to pre-injury/usual duties in a graduated manner.
  - Strategies to address pain behaviours, fear of re-injury etc.
  - Industrial issues – These are to be addressed by the worker and employer separate to the return to work process. While industrial issues may impact on return to work, it is important to keep these issues separate.
  - Family requirements – What were the usual family commitments that the worker attended to prior to sustaining the work relevant injury/illness? How does this compare with the worker’s current family commitments? How do the commitments impact on the proposed return to work program?
Goals of Return to Work

Hierarchy of return to work

The hierarchy of return to work is as follows:
- Pre-injury employer, pre-injury employment
- Pre-injury employer, different employment
- Different employer, pre-injury employment
- Different employer, different employment

Figure 6 – Hierarchy of Return to Work. Government of South Australia 2010, Workers Rehabilitation and Compensation Regulations, Part 3, 23(c) (ii).

Judgement regarding likely return to work goal

On completing the Job Analysis and considering all available information, the occupational therapist is to make a judgment whether it is likely that the worker will return to pre-injury/usual duties. This may not necessarily be a judgement that is communicated to all parties during the Job Analysis. However, the occupational therapist may flag with the worker and employer specific duties that are of potential concern in the longer term and how this will be addressed, without giving the impression that the worker will definitely not return to perform the specific duties.

Liaison with the certifying/treating medical practitioner is essential for developing long term return to work goals.
Considerations When Formulating the Return to Work Program

- Suitable duties for commencement of the return to work program.
- Duration of the tasks to be performed over the course of the day / shift / week.
- Conditions under which the tasks are to be performed, including job modifications, the individual's pace of work and production rates, eg:
  - could a worker perform a sorting and filing task at a bench if the material was placed on the bench for them to reduce lifting demands
  - does the worker need to work at a self-regulated pace
  - could they perform the task at half of the production rate expected from fit employees?
- Task rotation – how often and what tasks? Ensure rotation of tasks to allow for variation of movement patterns and postures.
- Suggested hours of work taking into consideration scheduled breaks.
- Non-scheduled breaks required – frequency; duration, location and what is to be undertaken during the break, eg stretches?
- Graduation of hours and duties commensurate with functional improvement (consider strength, endurance, range of motion etc).
- Specific timeframes for the worker to progress / upgrade through stages consistent with anticipated recovery timeframes and available duties.
- Consider reviewing the worker's progress at relevant stages of the program eg:
  - Where there is a significant increase in the physical demands of the duties.
  - Where further assessment of, and input into the individual's work practices is indicated.
  - When the worker expresses concerns regarding their ability to undertake specific duties.

If the worker was not present during the Job Analysis

If the worker was not present during the Job Analysis the following are to be considered:

- Where appropriate the therapist should attempt to make contact with the worker to discuss the findings of the job analysis prior to completing the report.
- If there is no contact with the worker the Job Analysis is to be presented as a generic analysis of the physical demands of the assessed duties.
- A job match can be undertaken considering the physical demands of the assessed duties and available medical guides.

If recommendations for graduated return to work have been requested, these are to be based on physical requirements of the assessed duties, available medical guides relevant to the worker, and

If the worker was not present during the Job Analysis (cont'd)

anticipated recovery timeframes.

Recommendations can be made for job modifications if required.
Communication with the referrer is recommended to discuss pertinent aspects of the Job Analysis prior to finalising the Report. The occupational therapist should follow a systematic template/format for the Report, such as that shown below.

![Sample Report Template](image)
1. Worker Information
   - Name
   - Date of Birth
   - Claim number
   - Injury / illness
   - Date of injury

2. Employment Information
   - Pre-injury work status
   - Job title
   - Job description
     - A brief description of the employer’s business, injured individual’s job role and working conditions may be included.
     - Hours of work, usual work days, usual work roster, over-time (regular or intermittent), shift patterns, seasonal work, provisions for rest breaks
   - Other jobs performed, eg secondary employment

3. Background Information
   - Details of duties performed at the time of onset of symptoms
   - Details of usual duties (if different from above)
   - Previous work-relevant injuries/illnesses and whether there are specific ongoing work guides applicable to these injuries/illnesses
   - Co-morbidities which may impact on capacity/ability to perform usual duties

4. Current Status
   - Functional tolerances as observed, measured and/or reported at the assessment:
     - Range of motion
     - Strength
     - Postures adopted
     - Postural tolerances reported and/or demonstrated
     - Movement patterns
     - Pain behaviours
     - Pain tolerance
     - Reported endurance
     - Work practices
   - Current treatment regime
   - Current work status including certified capacity. This indicates demonstrated capacity, tolerance and progress in relation to expected recovery timeframes.

5. Other Considerations
   - Presentation
     If relevant, include your observations of the worker such as:
     - Did they present in a straightforward manner?
     - Did you observe postural guarding, abnormal movement patterns?
5. Other Considerations (cont’d)

- Did they express concerns about returning to work?
- Did they appear to have a good relationship with their employer and colleagues?

- Potential Barriers, eg
  - industrial issues
  - slow / delayed recovery rate
  - co-morbidities
  - reduced opportunities to graduate hours / work duties due to lack of suitable options at the workplace
  - fear of re-injury

6. Job Analysis

- Results of the Job Analysis
- Jobs / tasks analysed
  - Document the usual duties.
  - Document available alternative/modified duties.
  - Detail and quantify relevant physical demand factors of the usual duties and available alternative duties. Use recognised standards for body positions, strength rating and frequency of work (see Appendix 3).

Measureable information, including but not limited to:
- Reach distance – vertical, horizontal, lateral
- Weights, including height of lifting/lowering; frequency of handling
- Application and direction of force
- Travel distances, for example walking, moving loads
- Comment on work pace
  - Non-paced
  - Machine-paced
  - Output based
  - Deadlines
  - Requirement to respond to emergencies
- Document Job Rotations
  - Detail frequency and duration of duties
- Note machines, tools, equipment and work aids used
- Comment on relevant environmental factors.
- Identify risk factors for example sustained/awkward postures, repetitive movements, vibration, force
- Comment on cognitive demands of the duties as appropriate

- Photographs / Diagrams
  Images conveying key elements of the job are useful in the Report, but be specific. Consider the value of the photograph inserted and avoid general images, eg a photograph of an individual using a lateral prehensile or key grasp to turn a knob while simultaneously pulling on a security door handle to open it gives the reader
6. Job Analysis (con’d) considerably more information in relation to the upper limb demands associated with this task than simply a photograph of the door and lock.

7. Job or Task Match Describe findings in relation to the match between the analysed job demands and the workers’ capacity as per your assessment.

8. Recommendations

- Clinical Reasoning
  Justify the recommendations through evidence gathered and demonstrate the link with clinical reasoning / available evidence, taking into consideration the worker’s capacity, tolerance and identified risk factors.

- Onsite Education
  Where recommendations relate to a modification to the individual’s work practices, sufficient information must be included to reinforce on-site education provided to the worker by the therapist.

- Agreed Actions
  Document any agreed actions relative to the responsibilities of key parties including review(s) and timeframes for such.

- Suitable Duties
  List duties that the worker can commence immediately.

- Suggested Modifications
  - Existing equipment used - does the current equipment require modification to allow the worker to use it without impact to their injury (eg can built up handles improve knife grip for a work suffering De Quervain’s tenosynovitis; would inserting a spring loaded base in a laundry trolley help minimise stooping demands)?
  - New equipment – would a different piece of equipment help the worker safely perform their job? eg a vertical or angled mouse as opposed to a standard mouse for a worker suffering from lateral epicondylitis.
  - Workstation(s) and layouts
  - Individual’s work methods
  - Work flows/ work rates

Where modifications are suggested, the following information must be included:
- Rationale for the suggested modification
- Name, descriptor, model number of recommended equipment
- Hire versus purchase options
- Costs
- Supplier and supplier details
- Duration equipment is required

Where recommendations relate to a modification to the individual’s work practices, sufficient information must be included to reinforce on-site education provided to the worker by the occupational therapist.
9. Goals for Graduated Return to Work
Identify the overall return to work goal ie:
- pre-injury hours and duties with pre-injury employer;
- agreed hours / duties if return to work goal is with a different employment;
- expectations if the worker is participating in a work trial.

10. Return to Work (RTW) Program
- Formulate a graduated RTW Program which is specific to the injury, job and expected recovery timeframes.
- Communication with the treating practitioner is useful to discuss upgrading timeframes and recommendations.

11. Other Recommendations
Document any other recommendations considered necessary in the worker’s rehabilitation and progressing their return to work.
Decide if a strategic follow up is required and when this should occur

- If job modifications have been made or equipment prescribed, is a review required as follow up to provide instruction, education and to ensure safety?
- Consider reviewing the worker’s progress at relevant stages of a graduated return to work program eg:
  - where there is a significant increase in the physical demands of the duties
  - where further assessment of and input into the individual’s work practices is indicated
  - when the worker expresses concerns regarding their ability to undertake specific duties
  - if employer/worker compliance with the agreed program requires clarification

Reflection and check

- Reflect on your initial aims in relation to the referral request
- Check that the recommendations and action plan address both the aims and initial request.
Appendix 1: Guidelines for Various Musculoskeletal Conditions

Sprains and Strains, Ankle
The following information has been edited from MD Guidelines and WorkCover SA as a link and ready reference. Please check the links for updates.

Source Link
MD Guidelines website

WorkCover SA Website

Overview
An ankle sprain is an injury to the ligaments around the ankle. An ankle strain is an injury to the tendons or muscles around the ankle. Ankle sprains and strains involve the stretching or tearing of tissue of the ligaments or the muscle-tendon unit, respectively.

Sprains are classified according to the amount of tearing of the ligament. A first-degree sprain is one in which the ligament fibers are overstretched but intact. A second-degree sprain is one in which some fibers are actually torn. A third-degree sprain is one in which the ligament is completely torn and nonfunctioning.

Strains can be categorized by the same manner as sprains, with first-degree indicating overstretching, second-degree indicating partial tear, and third-degree indicating complete tear (rupture). Strains of the ankle are generally mild (first-degree). They are similar to sprains in the mechanism of injury, treatment, and prognosis.

An ankle sprain is typically caused by sudden, strong contraction, torsion, direct impact, or by a sudden, forceful straightening. Ankle sprains usually occur as a result of forcibly twisting the ankle or by landing from a jump on a foot that is turned in (inversion) or out (eversion). Basketball has the highest rate of ankle sprains of any sport. Sprains can also occur in football, soccer, volleyball, skiing, and martial arts.

Strains are either partial or complete tears of muscle-tendon units, usually the result of strong muscular contraction sustained in forceful stretching. They typically occur from the same activities and stresses as sprains, but are uncommon about the ankle joint. The tendons that traverse the ankle joint (peroneal tendons laterally; tibialis posterior and toe flexor tendons medially; tibialis anterior and toe extensor tendons anteriorly; the Achilles tendon posteriorly) are usually strained or ruptured at their point of insertion in the foot, rather than at the ankle level. The only exception to this is the Achilles tendon behind the ankle. This tendon can be strained in the leg, ankle, or foot.

The most common ankle injury is the lateral inversion ankle sprain, which accounts for 85% of all ankle sprains (Young). It occurs as the foot and ankle roll over sideways, causing damage to the ligament that connects the fibula to the talus and calcaneus. Another classification system for sprains (Leach classification) is based on which of the three ligaments in the area are torn (ruptured). A first-degree sprain is a rupture of the anterior talofibular ligament, a second-degree sprain is a rupture of both the anterior talofibular and calcaneofibular ligaments, and a third-degree sprain is rupture of both of these ligaments plus the posterior talofibular ligament. When the foot is turned out (eversion) during the injury, damage is to the inside (medial) of the ankle. The four ligaments in this area are called the deltoid ligaments. They are much stronger than the lateral ankle ligaments and rarely rupture. In fact, the bone insertion of these ligaments (medial malleolus) will usually fracture (avulsion fracture) before the ligament ruptures.
A much less common sprain occurs to the ligament between the tibia and fibula (syndesmosis). This injury is called diastasis of the tibiofibular syndesmosis, or a "high" ankle sprain, and causes significant disability. This injury occurs when force is transmitted from the foot up the center of the ankle joint, such as landing on the foot from a height. Part of the function of ankle ligaments involves communicating with the nervous system via a stimulus feedback mechanism (proprioception) to help the individual maintain balance. When the ligaments are sprained, this important proprioceptive function may be distorted or lost, resulting in inversion injuries. It has been suggested that repeated "going over the ankle" (inversion injuries) may be due more to proprioceptor damage than to unstable ligaments (Cox).

Causation and Known Risk Factors

Individuals who participate in athletic activities are more likely to experience ankle sprains and strains.

Treatment

Early mobilization of the ankle is essential to avoid stiffness. Protective immobilization with a pneumatic stirrup or lace-up ankle brace is usually sufficient treatment for first-degree sprains and first- and second-degree strains. In cases where weight bearing and foot motion are extremely painful, crutches may be used for a brief period. Weight bearing as tolerated is encouraged, however casting is generally avoided because prolonged immobilization of the ankle can lead to muscle atrophy and reduced range of motion (Struijs).

Conservative treatment with immobilization is sufficient for all deltoid (sic) sprains, unless an avulsion fracture of the medial malleolus is present. Diastasis of the syndesmosis is surgically repaired by suturing of the ligament (modified Bunnell technique) combined with insertion of a transfixion screw through the tibia and fibula to reposition them together (open reduction with internal fixation). Third-degree strains may be treated surgically by sewing (suturing) torn tendon ends together (modified Bunnell technique).

Most lateral ankle sprains are treated with application of an ankle support (elastic wrap, lace-up brace, semi-rigid pneumatic brace), early mobilization, and rehabilitation (Wapner; Krabak). Some third-degree and severe second-degree lateral ankle sprains in highly functioning athletes are treated with surgical repair of the torn ligaments (Broström procedure); however, surgery is generally not necessary in the majority of cases (Krabak). In severe injuries in which chronic instability develops, special reconstructive procedures (lateral ankle reconstruction) may be used. Most of these use tendon or fascia grafts to reconstruct the missing or scarified ligament. These procedures include the Chrisman-Snook procedure, Lee-Evans procedure, and the Watson-Jones procedure.

All surgical procedures usually require postoperative casting and avoidance of any weight bearing for 6 weeks, followed by intensive physical therapy to reduce pain and swelling and to regain strength and range of motion. The proprioceptive function of the ankle ligaments must be restored through rehabilitation in order to avoid repeat ankle inversion injuries and to help the individual maintain normal balance. Anti-inflammatory medications are often prescribed to control pain and swelling.

Prognosis

Complete recovery from first-degree sprains and first- and second-degree strains can be expected, even without appropriate treatment. With second- and third-degree sprains, even with appropriate treatment, some individuals will have some subsequent weakness and instability of the ankle (particularly on the lateral side). These individuals may be prone to recurrent injury, and may require an ankle brace for recreational activities and possibly even for normal walking.

Some individuals with chronic injuries treated with lateral ankle stabilization procedures (Chrisman-Snook procedure or Watson-Jones procedure) emerged with a very stable ankle, but experienced some residual stiffness in the ankle.

The most common complication after treatment is recurrent instability.

Ability to Work (Return to Work Considerations)

Restrictions would include limited weight bearing depending on the severity of the injury. Walking, climbing, and squatting should be limited early in the treatment of ankle sprains.

Use of canes, crutches, or walkers may be necessary. Wearing a boot or brace is common. Work
release time for physical therapy will be necessary. The use of the foot in driving (for gas pedal or clutch, depending on which foot is involved) is prohibited until the individual has returned to full weight bearing in regular shoes. In some cases, footwear appropriate to the requirements of the job, such as high top shoes, may help stabilize the ankle and prevent recurrence. Avoiding ill-fitting or worn out shoes is also important. Athletes recovering from ankle sprain should be encouraged to continue a program of stretching and balance (proprioception) training on a regular basis.

**Failure to Recover**

**Regarding Diagnosis**
- Was diagnosis of ankle sprain/strain confirmed?
- Does pain persist even after a course of treatment?
- Were follow-up x-rays done to rule out fractures missed earlier?
- Does individual have excessive residual swelling?
- Was MRI performed to evaluate soft tissues?
- Did individual experience any complications?
- Has the individual experienced recurrent instability or chronic subtalar joint pain?
- Does individual have an underlying condition that may affect recovery?

**Regarding Treatment**
- Has individual been compliant with treatments, including rest, ice, compression and elevation (RICE)?
- If recommended, did individual make use of crutches and protective immobilization to reduce or eliminate weight bearing?
- Are elevation, hydrotherapy, and external compression warranted at this time?
- Did individual receive physical therapy?
- Would individual benefit from physical therapy?
- Was avulsion fracture present? Did it require open reduction with internal fixation?
- Was surgical repair successful?
- Were complications a result of the repair procedure?
- Was reconstruction (Chrisman-Snook, Lee-Evans, or Watson-Jones procedure) required?
- Did individual receive adequate balance training?

**Regarding Prognosis**
- To what degree does instability affect function?
- Are appropriate precautions, such as an ankle brace, used to enhance function and prevent re-injury?
- Would individual benefit from a lateral ankle stabilization procedure?
- Does residual ankle stiffness affect individual's functional ability or occupational requirements?
- Should consideration be given to more intensive therapy such as aggressive elevation, hydrotherapy treatments, and external compression?
- Has individual been involved in a comprehensive rehabilitation program?

Source: Medical Disability Advisor.
Refer to website for references.
Cervical Spine Sprains / Strains including whiplash

The following information has been edited from MD Guidelines as a link and ready reference. Please check the link for updates.

Source link
MD Guidelines website

Overview
A cervical strain occurs when muscles around the neck stretch or tear. A sprain occurs when the ligaments stretch or tear. The terms "cervical acceleration-deceleration injury," "CAD," or "whiplash" may also be used to describe the clinical findings of neck pain, particularly after a motor vehicle collision. CAD and whiplash are descriptive terms for neck pain, they do not represent specific diagnoses.

Neck pain is common, even without trauma. Cervical sprain and cervical strain by definition refer to injuries to neck ligaments and muscles. The term "neck pain" is used to refer to neck pain that begins without a specific traumatic incident.

Cervical strain/sprain injuries may occur as a result of trauma from a fall or, most commonly, from motor vehicle collisions. When associated with a motor vehicle collision, the direction or angle of the collision can occur from any direction, but most often occurs when the individual's car is hit from behind. The sudden acceleration thrusts the individual's body forward, with the head rapidly moving backward and then subsequently forward (acceleration-deceleration). That movement, if violent enough, can cause injury to many different tissues and structures of the neck, including bones, facet joints, muscles, blood vessels, ligaments, nerves, the esophagus, and intervertebral discs. However, almost all patients with neck pain without neurologic deficit or fracture after a motor vehicle collision have no definitive injury finding on x-ray, CT scan, and MRI. Thus the "whiplash" injury remains poorly understood (Kasch). In a systematic review of 47 studies, approximately 50 percent of adults with whiplash injury reported neck pain symptoms at one year (Carroll).

In severe trauma, concussion may also occur. Injuries to the brainstem, bruising of the brain (subdural hematomas), and bleeding (hemorrhage) on the surface of the brain may occur. These multiple injuries may give rise to a myriad of symptoms which are often seen soon after the initial injury.

Chronic pain develops in some patients who have experienced a cervical strain/sprain injury. In motor vehicle accidents there is no direct correlation between the magnitude of impact, the amount of vehicle damage, and the degree of injury, although immediate onset of neck pain may be a predictor for chronic pain. Absence of any significant vehicle damage generally means the impact was below the injury threshold, and personal injury would be very unlikely.

Other causes of cervical sprains and strains include a contact sports injury, a fall, or a blow to the head from a falling object.

Causation and Known Risk Factors
Individuals at risk of cervical sprain and strain are those who drive a lot, engage in contact sports (e.g., football, wrestling), high-speed sports (e.g., skiing, diving), or work where falls and falling objects are more common. Severe sprains and strains with associated spinal cord injury can occur in sports-related injuries. Individual at increased risk include those with pre-existing rheumatoid arthritis or ankylosing spondylitis involving the cervical spine, and in elderly individuals with severe degenerative changes.

In a case controlled study of 1843 drivers involved in motor vehicle collisions, 26 percent had neck pain for more than one day. Predictors of injury were female, younger age, prior history of neck pain, rear collision, being in a stationary vehicle, the severity of the collision, not being at fault, and doing monotonous work (Wiles).

Treatment
Early introduction of movement has been shown to be superior to immobilization (Malanga). Passive therapies should be limited to the acute phase of recovery, and then the physician or physical
A therapist should progress individuals to activity as soon as possible. Conservative treatment may include a soft support collar, which should be worn for only a few days and only for those with severe pain. Rigid cervical collars are used infrequently, unless spinal stability has been compromised by fracture or dislocation. Medication to control pain is usually prescribed and may include narcotic analgesics, nonsteroidal anti-inflammatory drugs (NSAIDs), and muscle relaxants.

Physical therapy modalities for pain relief are appropriate for treatment of acute sprain/strain. Self application of ice or heat at home is usually as helpful as formal passive treatment with modalities often provided by a physical therapist. Traction may be used for symptoms of arm pain or radiculopathy resulting from the injury. However, a large prospective cohort study of motor vehicle collision neck pain patients found that those who had high utilization of health care (many physician and/or chiropractor visits) had significantly slower recoveries (Côté).

**Prognosis**

Healing of soft tissue is expected within a few weeks. Most individuals can return to work immediately or within a few weeks. Symptoms may still be present in 20% to 40% of individuals 6 months after injury, but the prognosis is good for those individuals who have progressive (even if slow) improvement with time, and their symptoms usually resolve (Petrooulos).

One-third of individuals report persistent symptoms of neck pain 10 years after the injury (Hunter). Persistent neck pain is more common in women, older individuals, those individuals who experience severe initial neck pain, upper back pain, multiple symptoms, reduced range of motion, neurological deficit, cognitive impairment, and/or headaches at the back of the head (occipital region).

**Ability to Work (Return to Work Considerations)**

Any activity that requires flexion or extension of the neck such as overhead work, lifting, or carrying a heavy object may be temporarily restricted in newly symptomatic individuals. Evaluation may be needed if the individual works at a desk or drafting table. Workstation ergonomics need to be addressed. An adjustable chair and proper height of the computer monitor allow for optimal posture and neck positioning. Individuals who spend a great deal of time on the telephone would benefit from a headset.

A worksite evaluation helps to assess risk factors that might increase symptoms during recovery, which can be slow. The use of a soft support collar may restrict function, and is not generally necessary. Safety and policy drug issues must be evaluated if medication is needed during work time.

**Failure to Recover**

If an individual fails to recover within the expected maximum duration period, the reader may wish to consider the following questions to better understand the specifics of an individual's medical case.

**Regarding diagnosis:**
- What symptoms persist?
- Is there a neurologic deficit? Has it been confirmed by an EMG/nerve conduction study, or by a second physician?
- What injury related findings are present on x-ray, CT scan, and/or MRI? Is there a specific diagnosis based on these tests, or is “cervical sprain/strain” still the working diagnosis?
- Does individual exhibit symptoms such as headache, pain in upper chest and back, changes in sensation, dizziness (vertigo), nausea, blurred or double vision, ringing in ears (tinnitus), fatigue, restlessness, loss of libido, insomnia, pain in the jaw or temporomandibular joint (TMJ), and difficulty swallowing (dysphagia)? These symptoms suggest consultation first with a neurologist, then with a psychologist or psychiatrist may be helpful.
- Is there evidence of symptom magnification behavior?

**Regarding treatment:**
- Have all aspects of conservative treatment been utilized?
- Is the individual still wearing (inappropriately) a soft support (cervical collar)?
- Were pain medications (analgesics, NSAIDs, antidepressants, anticonvulsants, and cortisone) prescribed?
- Has individual participated in a comprehensive, appropriate rehabilitation program?
- Did individual require surgical interventions?

**Regarding prognosis:**
- How severe was initial injury?
- Did the individual have prior episodes of neck pain with disability?
- Does the individual have chronic widespread pain (pain in multiple sites)?
- To what degree do symptoms affect the individual’s ability to work?
- Does individual have an underlying condition that may affect recovery?
- To what degree do symptoms impact individual's ability to perform daily activities? Is this improving with time, or worsening with time?

Source: Medical Disability Advisor.
Refer to website for references.
# WorkCover SA Guidelines – Acute neck pain

The following information has been edited from WorkCover SA as a link and ready references. Please check the link for updates.

### Source link
WorkCover SA Website


### Definition & Prevalence
Acute neck pain refers to pain in the neck that has been present for less than three months. Acute neck pain is most commonly idiopathic or attributed to a whiplash associated disorder; serious causes of acute neck pain are rare. Degenerative changes seen on X-rays are not predictive of neck pain.

Neck pain is a common experience, and is frequently persistent or recurrent. The lifetime prevalence of neck pain in adults is estimated to be between 50 to 80%. Most individuals who experience neck pain manage to perform with their usual activities of daily living. About one or two individuals in 20 will find their pain

### Expected recovery timeframes
Where an individual has not recovered within the expected recovery timeframe, the diagnosis and management plan should be reconsidered. Reassess for serious underlying pathology (red flags), undertake screening for psychosocial risk factors (yellow flags), and reconsider treatment type and intensity.

Expected recovery timeframes for neck pain can be found below.

<table>
<thead>
<tr>
<th>Sprain/strain including whiplash</th>
<th>Expected healing time:</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>40% have recovered by 4 weeks, 60% have recovered by 6 weeks, 85% are recovered by 3 months</td>
<td>In some cases symptoms are recurrent. The chance of recovery is maximised by undertaking as much activity as can be tolerated and by not keeping the neck in a flexed position for periods of more than 10-20 minutes.</td>
<td></td>
</tr>
<tr>
<td>Cervical nerve – treated surgically</td>
<td>6 weeks-6 months</td>
<td>If cervical fusion has also occurred, then heavy physical activity will need to be avoided until the fusion is solidly healed.</td>
</tr>
<tr>
<td>Cervical nerve root lesions – treated conservatively</td>
<td>6 weeks-2 years</td>
<td>Notes: Generally these lesions spontaneously improve with most recovery occurring in the first 12 months.</td>
</tr>
</tbody>
</table>
Carpal Tunnel Syndrome
The following information has been edited from MD Guidelines as a link and ready reference. Please check the link for updates.

Source links
MD Guidelines website

Overview
Carpal tunnel syndrome (CTS) is a condition that results in symptoms of numbness, paresthesia, or pain in the distribution of the median nerve at the wrist. The exact pathophysiology is not completely understood but can be viewed as compression of the median nerve as it passes from the forearm into the hand at the level of carpal ligament. The median nerve is the main nerve of the hand. Its branches enter the hand through a narrow passageway (carpal tunnel) formed by the wrist bones (carpal bones) and the tough ligament that holds the tendons in place (the transverse carpal ligament). The median nerve supplies sensation to the thumb, index finger, middle finger, and, in most people, to part of the ring finger. Because this passageway is rigid, thickening of structures, inflammation, swelling, or increased fluid retention may compress the nerve (nerve entrapment), causing pain and numbness in the fingers (particularly the thumb and the index and middle fingers) and, over time, hand weakness. Pain may eventually extend to the arm, shoulder, and, rarely, the neck. Sensation in the palm is not always affected because of a branch of the median nerve that does not go through the carpal tunnel.

Any condition, trauma, or injury that increases pressure on the median nerve and tendons in the carpal tunnel can result in carpal tunnel syndrome, including a smaller carpal tunnel than normal, wrist injury such as sprains or fractures that produce swelling and alter the shape and size of the carpal tunnel, overactive pituitary gland, synovitis of rheumatoid arthritis, repeat use of vibrating hand tools, fluid retention during pregnancy or menopause, or the presence of a cyst or tumor.

Causation and Known Risk Factors
Specific risk factors for carpal tunnel syndrome remain controversial; there are few clinical data to show that repetitive or forceful hand and wrist movement can result in carpal tunnel syndrome (Garg).

Currently, no single ergonomic risk factor is sufficient to establish a causal relationship. Occupational risk factors include force and repetition, force and posture (strong evidence); vibration (some evidence); highly repetitive work (some evidence); forceful work (some evidence); carpal tunnel size (some evidence); awkward postures (insufficient evidence); keyboards (insufficient evidence); cold environment (insufficient evidence); length of employment (insufficient evidence); and dominant hand (insufficient evidence). Non-occupational risk factors include age (very strong evidence); increasing BMI (very strong evidence); gender (strong evidence – female); biospsychosocial (strong evidence); diabetes (strong evidence); and smoking (insufficient evidence) (Melhorn, "Disease and Injury Causation," 171).

Underlying or comorbid conditions that can increase the risk of developing CTS include rheumatoid arthritis, renal failure, diabetes mellitus, acromegaly, multiple myeloma, amyloidosis, obesity, recent tuberculosis, and bacterial or fungal infection that spreads into the carpal tunnel.

Carpal tunnel syndrome is more common in those who develop trigger digit, elbow tendinopathy (epicondylitis), and ulnar nerve mononeuropathy at the elbow. Those associations raise the question of a congenital predisposition to musculoskeletal disorders (Garg).

Trauma or injury, such as a wrist fracture that decreases the size of the carpal tunnel or wrist sprain that causes swelling of the synovial tissue covering the tendons in the carpal tunnel (tenosynovitis), may increase the risk of CTS. It may also occur in some individuals with degenerative neck conditions (cervical spondylosis). An increased frequency of CTS has been shown in alcoholics. Smokers may experience worse symptoms and a longer recovery time from CTS than non-smokers.

Women are 3 times more likely to develop the syndrome than men because of their typically smaller
carpal tunnel. Risk increases with advancing age. For women, the peak time for developing CTS is between ages 45 and 54. Women who are pregnant, taking oral contraceptives, or going through menopause are also more prone to develop the condition due to fluid retention ("Carpal Tunnel Syndrome").

**Treatment**

Conservative treatment should include education of the patient about the condition and may also include modifying tasks that seem to exacerbate the symptoms, such as repetitive motion of the wrist and fingers or wrist-bending extremes (flexion and extension). Other treatment may include use of nonsteroidal anti-inflammatory drugs (NSAIDs such as aspirin or ibuprofen), wearing protective splints while working and/or sleeping, stretching and strengthening exercises, diuretics to reduce excess fluids, and possible corticosteroid injections into the carpal tunnel. An electrical current may be used to deliver medication (usually corticosteroids) through the skin into the area requiring treatment (iontophoresis). Studies have shown that vitamin B6 (pyridoxine) supplements help reduce symptoms of CTS only in those who are deficient in this vitamin; yoga has been shown to reduce pain and increase grip strength (NINDS).

In chronic or severe cases unrelated to fluid buildup in pregnancy or menopause, surgery is appropriate. The procedure (open carpal tunnel release) involves cutting the transverse carpal ligament (roof of the carpal tunnel) to relieve pressure on the median nerve. This is generally done on an outpatient basis with local or regional anesthesia. In some cases, surgery can be performed endoscopically by inserting a fiberoptic endoscope through a small incision to observe the inside of the carpal tunnel while incising the transverse carpal ligament (endoscopic carpal tunnel release).

**Prognosis**

Recurrence of CTS after nonsurgical treatment is difficult to determine. If pain and tingling increase or weakness persists despite nonoperative treatment, surgery may be necessary. Recurrence of CTS after successful surgical treatment is rare. Most patients enjoy near complete recovery if the surgery is provided early before significant permanent damage to the nerve has occurred. If the carpal tunnel release surgery occurs late, some residual numbness, pain, weakness, or stiffness may persist.

**Ability to Work**

The ability to work is determined by the severity of the symptoms and the treatment provided. In the early phase, the individual may need to decrease tasks requiring repetitive wrist motion and extremes of wrist bending (flexion, extension) until the condition improves. Additionally, protective wrist splints may be used at sleep to maintain neutral wrist positions. Accommodation may be required at workstations, such as ergonomically designed computer keyboards to provide support for the individual's hand and wrist. If the individual has had surgery and the operated hand must be used for heavy activity, time off from work may be needed for several weeks for recovery. After surgery, the individual may be required to avoid heavy lifting and highly repetitive motion for up to 1 month after surgery. Grip strength may continue to improve for 1-2 years after surgery.

**Risk:** The risk for recurrent CTS is low (Szabo).

**Capacity:** Most activities can be safely performed in the pre and post-operative period. Limiting forceful grip along with tolerance is the key during the early phases. Traditional wound healing requires avoiding contact with chemicals and limit extended periods of soaking with water to the surgical incision site. Return to heavy activities gradually, much like a long distance runner in training, is appropriate (Talmage; Melhorn).

**Tolerance:** Tolerance for symptoms is dependent on rewards. Self employed individuals often return to regular activities as tolerated while employed individuals may have various lengths of disability. Outcomes for workers' compensation patients are poorer than for those without workers' compensation (Adams).

**Accommodations:** The key to limited unnecessary disability is communication. It should focus on what the patient can do, instead of on what the patient cannot do (because the latter may be enabling in the psychological sense). Communication with the employer should focus on the benefits for the patient (their employee) of stay at work or early return to work. For further information, please refer to "Work Ability and Return to Work," pages 1-8.

**Failure to Recover**

If an individual fails to recover within the expected maximum duration period, the reader may wish to
Failure to Recover
(Cont’d)

consider the following questions to better understand the specifics of an individual’s medical case.

Regarding diagnosis:
• Does individual have pain, tingling, numbness, or feeling of weakness in the wrist, hand, or fingers? Is pain intermittent, often worsening at night or when individual first gets up in the morning?
• Does individual complain of dropping items more frequently than usual?
• Do fingers feel "locked" at times? Is associated but untreated trigger digit present?
• Does individual have problems pinching or grasping objects?
• Does physical exam reveal changes in sensation along the median nerve in the thumb and first three fingers?
• Does palm appear to be wasting away near the thumb (thenar eminence atrophy) indicating potentially severe neuropathy, or comorbid osteoarthritis of the thumb carpal-metacarpal joint?
• Does individual have Tinel’s or Phalen’s sign?
• Does the individual have comorbid lateral elbow tendinopathy or ulnar neuropathy at the elbow?
• Does the individual have comorbid shoulder or neck pathology?
• Were nerve conduction studies performed to evaluate the nerve function (distal latency, nerve conduction velocity, electromyography needle testing), and if so, were the results normal or abnormal?
• Was testing for inflammatory disease (sedimentation rate) and thyroid disease (TSH) that might cause or masquerade as CTS performed?

Regarding treatment:
• If conservative methods have failed to relieve symptoms, is individual a candidate for carpal tunnel release?
• If the case is atypical, did an injection of steroids reduce numbness and pain prior to an attempt at surgery?
• Did individual undergo open or endoscopic carpal tunnel release?
• Did individual experience any complications from the surgical procedure itself?
• Did the operation report describe inflammatory synovium suggesting inflammatory disease and not idiopathic CTS was present? If "yes", was a synovial biopsy done? If the biopsy showed inflammatory cells in the synovium, has the patient been referred to a rheumatologist?
• Does individual continue to experience symptoms even after surgical intervention? If yes, were repeat nerve conduction tests done by the same physician to see if the nerve function improved?
• What further treatment options are being considered?

Regarding prognosis:
• Does pain persist even after 2 months have passed since treatment?
• Does individual perform repetitive tasks such as gripping a tool for prolonged periods of time?
• Can individual refrain from activities that may increase the symptoms for as long as pain or other symptoms persist?
• Until symptoms resolve, should individual be transferred temporarily to a position that does not require repetitive motion?
• Is individual’s work station or computer keyboard ergonomically designed to provide support for the hand and wrist?
• Was individual given a splint to provide support for the wrist and hand? If so, is it being used as instructed?
• Does individual have a coexisting condition such as diabetes or pregnancy that may affect recovery?

Source: Medical Disability Advisor.
Refer to website for references.
Tenosynovitis

The following information has been edited from MD Guidelines as a link and ready reference. Please check the link for updates.

Source links
MD Guidelines website

Overview
Tenosynovitis develops when the inner (synovial) lining of the tendon sheath becomes injured or inflamed. It occurs most often in the hands, wrists, and elbows.

The inner synovial lining is separate from the fibrous outer sheath covering the tendon, and provides nourishment and lubrication to the tendon. Irritation to the synovial lining can be caused by injury, overuse, repetitive strain, trauma, rheumatoid arthritis, gout, or infection.

Tenosynovitis often is classified as irritative or frictional when there is mild inflammation caused by overuse. In its acute stage, infectious tenosynovitis can create pus (purulent exudate), which compromises the space for the tendon even further. Bacterial causes of tenosynovitis include Neisseria gonorrhoea, Staphylococcus, Streptococcus, Pasteurella multocida (cat bites), Eikenella corrodens (human bites), and Mycobacterium in immunocompromised individuals.

Causation and Known Risk Factors
Individuals at risk for tenosynovitis of the upper extremities include carpenters, painters, welders, swimmers, tennis players, and baseball players. Although wrist tenosynovitis usually occurs in people who perform repetitive grasping or pinching motions with the thumb, it sometimes develops spontaneously in pregnant women. Individuals, such as runners, who engage in repetitive movements of the lower extremities, are at risk of tenosynovitis of the knee, ankle, and foot, but this type of tenosynovitis is less common. Women are more prone than men to irritative or frictional tenosynovitis.

Gonococcal tenosynovitis, a complication of gonorrhea, typically affects teenagers and young adults. Common sites of infection include the top (dorsum) of the hand, wrist, and ankle. Other types of infectious tenosynovitis may result from puncture wounds or lacerations, usually to the hands.

Treatment
Treatment usually begins with cessation of the activity that causes the pain. Individuals are often advised to wear a splint temporarily to avoid recurrence. Nonsurgical (conservative) treatment for tenosynovitis may utilize ultrasound, iontophoresis, and electrical stimulation, along with heat or ice for local pain control and to reduce swelling and inflammation.

Oral non-steroidal anti-inflammatory drugs (NSAIDs) may be prescribed to control mild to moderate pain. In some cases, injection of lidocaine or a corticosteroid may be helpful. Repeated injections into tendons can weaken the tendon, so injections are limited to 2 to 3 over a period of several months. Weight-bearing tendons, such as the patella tendon and Achilles tendon, are at greater risk for rupture from injections.

Surgery to incise part or the entire sheath (release of tendon sheath) may be necessary when conservative measures fail. When tenosynovitis causes swelling in a confined space such as the base of thumb (de Quervain's disease), the swelling may need to be relieved by surgical incision of the constrictive tendon sheath. Surgery may also be necessary for a painful trigger finger or thumb.

Prognosis
Depending on the location and severity of tenosynovitis, symptoms may persist for a few days or for several weeks. If overuse or aggravation continues, pain may worsen and persist for several months.

If rest and conservative medical management fail to provide relief, surgery to release the tendon sheath usually is effective. Renewed aggravation or a flare-up of underlying conditions may lead to an exacerbation.

Ability to Work
Tenosynovitis can affect an individual's ability to perform a number of ordinary functions. Restrictions on such activities as gripping, twisting, hammering, lifting, pulling, and pushing are common, even if little force is needed to accomplish these tasks. Adaptive devices or changes in job requirements to
decrease stress on the tendons will facilitate earlier return to work. Initial treatment would include alternating repetitive tasks and providing rest periods. Alteration in job requirements may be necessary to prevent exacerbation and recurrence. Company policy on medication usage should be reviewed to determine if pain medication use is compatible with job safety and function.

### Failure to Recover

If an individual fails to recover within the expected maximum duration period, the reader may wish to consider the following questions to better understand the specifics of an individual's medical case.

#### Regarding diagnosis:
- Has individual experienced an injury, rheumatoid arthritis, gout, infection, or repetitive strain or trauma to the hand, wrist, elbow, or other joint?
- Does individual complain of pain, swelling, and limited motion in the affected area?
- On exam, is the area tender to palpation? Swollen? Is crepitus detectable?
- Did individual undergo x-ray? MRI? EMG and nerve conduction studies?
- Have conditions with similar symptoms been ruled out?

#### Regarding treatment:
- Has individual discontinued the activity that causes pain?
- Is individual using NSAIDs?
- Did individual have corticosteroid injection?
- Is individual using a splint? Using ice? Heat?
- Were antibiotics necessary?
- Was surgery necessary?

#### Regarding prognosis:
- Does individual actively participate in rehabilitation?
- Does individual perform exercises at home?
- Does individual have any conditions that could affect ability to recover?
- Did individual experience complications such as tendon rupture?
- Is individual's employer able to accommodate any necessary restrictions

Source: Medical Disability Advisor.  
Refer to website for references.
Epicondylitis, Medial & Lateral

The following information has been edited from MD Guidelines as a link and ready reference. Please check the link for updates.

Source link
MD Guidelines website

Overview
Epicondylitis suggests an inflammation of the elbow epicondyle either lateral (outside) or medial (inside). Lateral epicondylitis, commonly called tennis elbow, is a painful disorder that originates at the common extensor origin on the lateral humeral epicondyle. Traditionally, it has been described as lateral epicondylopathy, despite the fact that repeated studies of pathologic findings do not show inflammation (Orchard). Histologic studies show an angiofibroblastic dysplasia from microtears on the tendon. Hence, lateral epicondylopathy may be semantically more correct. Runge is usually credited for the first description in 1873 of the condition (Runge), while the term "tennis elbow" was first used in 1883 by Major in his paper "Lawn-tennis elbow" (Major; Kaminsky).

A similar condition can occur in the common flexor tendon origin at the medial elbow and has been labeled as golfer's elbow, medial epicondylitis, or medial epicondylopathy.

Symptoms of epicondylitis often occur with overuse or overexertion of the forearm and wrist muscles. Improper training, poor technique, or improperly sized equipment often contributes to the disorder (Blackwell). Some cases have been described after acute trauma from a blow to the elbow or a sudden maximal muscle contraction.

Incidence and Prevalence: Lateral epicondylitis is at least 5 times more common than medial epicondylitis (Mercier).

Caustion and Known Risk Factors
The risk for symptoms increases with occupations and sports that require forceful movement of the forearm along with repetition. Golfer’s elbow also may affect bowlers, weight lifters, and archers. Tennis elbow may also affect badminton and squash players.

While lateral epicondylitis is uncommon in tennis players under 38 years of age (Kitai), the incidence increases after age 40 (refer to table 9-13 in "Causality," page 169), typically affecting individuals ages 40 to 50 years (Bryant).

Although men are twice as likely to develop medial epicondylitis as women, lateral epicondylitis affects men and women equally (Bryant).

Treatment
Initial nonsurgical (conservative) treatment consists of modification of activities with a reduction in precipitating or exacerbating activity, systemic nonsteroidal anti-inflammatory drugs (NSAIDs) for pain and inflammation. Although often suggested, a band around the proximal forearm (forearm strap or counter-force brace) may provide some symptom relief but will not correct the condition. The suggested mechanism is that the forearm strap spreads the force of the muscle contraction over a greater area and diminishes tensile stresses on the common extensor tendon (lateral epicondylitis) or common flexor tendon (medial epicondylitis). A time-limited use of a wrist extension (cock-up) splint may be helpful initially in more severe cases. Ice often relieves pain after activity, with or without swelling. Stretching can be started immediately and strengthening exercises begun as the pain subsides. There is a lack of clear literature evidence for the efficacy of massage.

Local anesthetic-corticosteroid injection may be used to treat ongoing pain in individuals who do not improve after a few weeks of treatment, although recurrences can be observed after injection. The injection may not be fully effective for 5 to 7 days and can be repeated if initial injections are transiently beneficial. Splints provide restriction of both the wrist and elbow and can be used in individuals not responding to other methods of treatment.

Autologous blood injections, botulinum toxin injections, and extracorporeal shock wave therapy are
alternative treatments investigated in limited or inconclusive studies. They may be requested in some cases, as they continue to be investigated despite the lack of clear literature evidence of efficacy.

Surgery is provided on a case-by-case basis. The majority (90% to 95%) of individuals with epicondylitis will respond to non-operative treatment. Unfortunately most individuals are unwilling to wait 6 to 12 months and want to return to work activities sooner. Surgery is reserved for individuals whose pain persists, interfering with activities, and who have not been helped by appropriate nonoperative treatment. Surgery usually involves open release of the tendon's origin, excision of degenerated tendon tissue, and/or needle to the epicondyle. Needle to the epicondyle is using a needle or knife blade to make small holes in the epicondyle that stimulate blood healing to the area. Rarely is a repair of any tendon gaps or tears required. Any abnormalities in the elbow joint may be addressed concurrently.

**Prognosis**

Although recovery may be slow and tedious, most individuals have relief of major symptoms within 18 months from onset. Conservative measures can relieve symptoms in more than 90% to 95% of cases but may require 18 months of limited activities. When surgery is needed, it relieves symptoms for more than 80% of individuals (Young), although some individuals continue to experience pain during aggressive activities. Ulnar nerve involvement may be associated with a less optimal prognosis. Recurrence of epicondylitis later in life is common.

**Ability to Work (Return to Work Considerations)**

An ergonomic evaluation of the workplace may be helpful. Limiting precipitating or exacerbating activity may be helpful. The key is to remain physically active in an effort to maintain functional capacity and limit loss of muscle mass. A gradual return to normal work duties is recommended, with an emphasis on improving form to avoid aggravating activities. Change in job duties, sharing or alternating tasks, and limiting time and frequency of repetitive activities are important accommodations to consider. Use of vibrating tools such as impact wrenches or jackhammers should be minimized. Increasing or decreasing the size of tool grips so the wrist can be held in the "ideal" position is also helpful. Use of splints, straps, and casts affect dexterity and the individual may be temporarily unable to lift and carry heavy or bulky objects, operate equipment, or perform other tasks requiring the use of both hands. If the dominant arm was affected, the individual may be unable to write legibly (severe cases), type well, or perform activities that require fine motor skills such as those in a laboratory or assembly line. Company policy on medication usage should be reviewed to determine if pain medication use is compatible with job safety and function. For additional information on risk and capacity, please refer to "Work Ability and Return to Work," pages 190-192.

**Risk:** This is no significant risk of reinjury for epicondylitis. NIOSH data suggest that most jobs do not pose a substantial risk, and that the common problem is tolerance for symptoms, not risk.

**Capacity:** Capacity, the ability to do activities, is usually not an issue with epicondylitis. Individuals have the ability but will report pain with activities (tolerance).

**Tolerance:** Tolerance (pain with activities) for epicondylitis is a frequent reason people choose to do, or not to do, specific activities. Tolerance is affected by how the individual considers the rewards (including salary and fun) versus the cost (including pain).

**Accommodations:** Temporary modification of activities includes limiting exposure to precipitating or exacerbating activity, but not total absence of activity. A change in job duties, sharing or alternating tasks, and limiting time and frequency of repetitive activities are important accommodations. For chronic cases, temporary work modification is not appropriate.

Surgical treatment may decrease the associated pain. Ultimately, however, the employee will need to choose to take a different job or to continue to endure the pain. In many chronic cases, the pain ultimately decreases, but this progression may take years to occur.

**Failure to Recover**

If an individual fails to recover within the expected maximum duration period, the reader may wish to consider the following questions to better understand the specifics of an individual's medical case.
Regarding diagnosis:
- Does individual's occupation or hobby involve forceful or stressful use of the forearm, often in combination with repetition?
- Does individual report elbow pain, swelling, and the inability to use the wrist and arm?
- Has pain spread to the forearm?
- Is the affected elbow on the dominant or nondominant side?
- Does individual have a history of neck or shoulder injuries?
- On physical examination, is the pain localized over either epicondyle?
- Does pain increase with resisted wrist motion?
- Is weakness noted in the forearm?
- Has the individual experienced numbness and tingling in the affected arm?
- Does the individual report occasional locking?
- Did individual have an injection test done? X-ray? MRI?
- Have conditions with similar symptoms been ruled out?

Regarding treatment:
- Has individual responded favorably to treatment consisting of rest from the aggravating activity, ice packs, NSAIDs, and a splint?
- Has individual received a corticosteroid injection?
- Has individual allowed enough time for conservative treatments to be effective?
- Was surgery necessary?

Regarding prognosis:
- Is individual active in physical therapy? Does individual have a home exercise program?
- Is individual's employer able to accommodate any necessary restrictions?
- Has individual had an ergonomic evaluation of his or her work area?
- Does individual have any conditions that may affect the ability to recover?
- Does individual experience any complications such as radial or ulnar neuropathy?

Source: Medical Disability Advisor.
Refer to website for references.
Fracture
The following information has been edited from MD Guidelines as a link and ready reference. Please check the link for updates.

Source link
MD Guidelines website

Overview
A fracture is a structural break and disruption in a bone of any size or shape. A fracture occurs when force is applied to a bone in an amount greater than it can support. The amount of force required to cause a fracture depends on the composition and strength of the bone. The force may be a direct force, as from a blow (direct trauma) or a motor vehicle accident, a twisting force, or repeated pounding on the same bone. Repeated impact and loading on an area of bone (e.g., prolonged marching, running) can cause a break referred to as a stress fracture. Fractures also can occur because of diseases that affect the strength of the bone (e.g., osteopenia, osteoporosis, bone tumors) or the protective structures around it (pathological fractures).

Fractures vary with the number of bone fragments affected and their position. All fractures are described in terms of five categories: location of the bone in the body (anatomic location), direction of the fracture lines (i.e., transverse, oblique, spiral, comminuted, impacted), the relation of the bone pieces to each other (alignment and apposition), the stability of the fracture, and the amount of soft tissue damage around the fracture (i.e., simple or closed, compound or open, complicated or uncomplicated). An open or compound fracture is one where the fractured bone end pierces the skin; a greenstick fracture is one where the fracture is only on one side of the bone but the other side of the bone is caused to bend; a comminuted fracture is one where the bone has broken into three or more fragments (“Fractures”). Muscles attached to the bones involved often pull the fracture fragments out of position, especially if the muscles spasm. This can change the status of a fracture from one where the fragments have not shifted out of position (nondisplaced) to one where they have become displaced. A fracture is a structural break and disruption in a bone of any size or shape. A fracture occurs when force is applied to a bone in an amount greater than it can support. The amount of force required to cause a fracture depends on the composition and strength of the bone. The force may be a direct force, as from a blow (direct trauma) or a motor vehicle accident, a twisting force, or repeated pounding on the same bone. Repeated impact and loading on an area of bone (e.g., prolonged marching, running) can cause a break referred to as a stress fracture. Fractures also can occur because of diseases that affect the strength of the bone (e.g., osteopenia, osteoporosis, bone tumors) or the protective structures around it (pathological fractures).

Causation and Known Risk Factors
Individuals of advanced age, individuals exposed to falls and/or objects falling on them, those who experience a motor vehicle accident, as well as individuals involved in high-risk activities performed with high-impact or at high-velocity are at increased risk for fractures.

Individuals who participate in sports activities that involve running, jumping, and sprinting have a higher risk for stress fractures, since the force of each running step is at least three times that of the individual's body weight (DeLee). Individuals with a genetic predisposition to rigid, high-arched feet (pes cavus), those with a leg length discrepancy that imparts greater stresses to the longer leg, those with a hallux valgus deformity or a longer second ray (Morton’s foot), and those with pronounced hip external rotation are also at increased risk for a lower extremity stress fracture (DeLee).

Treatment
If the bone fragment ends are in adequate alignment for healing to occur, protective rest...
(immobilization) may be all that is needed for treatment of the fracture. The devices used for immobilization may involve a sling, brace, splint, or cast. Measures to decrease swelling and pain include ice, elevation, and medication.

Fractures that are not in an anatomically correct position require repositioning (reduction). This may be accomplished by applying gentle pressure on the bones after pain relief has been obtained (closed reduction). If this maneuver fails or is undesirable, surgery may be indicated to realign the bone fragments (open reduction). Fractures that change position (unstable) will often require metal implants (fixation devices) to be inserted into the bony fragments to allow a stable and correct position during healing. The material used (hardware) can consist of wires, screws, pins, rods, or plates. If the fracture site is surgically opened for the insertion of hardware, the procedure is referred to as an open reduction internal fixation (ORIF). If the fixation device is applied on the outside of the fracture site, it is referred to as an external fixation device or external fixator.

**Prognosis**

Simple, uncomplicated fractures usually heal in 6 to 12 weeks without loss of function. Any increase in severity of the fracture or added complications will delay recovery for weeks to months and may compromise function. While the fracture may heal, damage to the surrounding structures can result in poor function of an extremity and a less than optimum outcome.

**Ability to Work (Return to Work Considerations)**

Individuals will require some type of immobilizing device, which could potentially present a safety hazard to themselves or their coworkers. Assistive devices for walking, such as crutches and canes, can decrease manual dexterity and need to be used only on dry, hard surfaces. Individuals will need frequent rest periods and in some cases an area where they can elevate the injured extremity, perhaps even a cot or bed, during the early weeks of treatment. Elevation is to permit control of edema and in the lower limb to help prevent deep venous thrombosis. Access to ice may be needed to control swelling and pain. Individuals may need temporary reassignment to a more sedentary position.

Extensive physical and/or occupational therapy appointments may be needed to facilitate optimum results and strengthen bone weakened from disuse (osteopenia). Work release time usually is needed for these visits. Occupational therapy work site evaluation of safety issues and work feasibility will be beneficial in situations that seem challenging to the individual and/or employer. Medication use for control of pain is probable during the first weeks of treatment. Company policy on medication usage should be reviewed to determine if pain medication use is compatible with job safety and function.

**Failure to Recover**

If an individual fails to recover within the expected maximum duration period, the reader may wish to consider the following questions to better understand the specifics of an individual’s medical case.

**Regarding diagnosis:**
- Were symptoms of a fracture (pain, obvious deformity, swelling, loss of strength and motion) noted on the initial exam?
- Was the diagnosis of fracture confirmed with x-ray? If not, was a follow-up x-ray or bone scan done to rule out an occult fracture?
- Was the possibility of joint dislocation ruled out?

**Regarding treatment:**
- Was treatment appropriate to type and location of fracture?
- Was other trauma present that could delay fracture treatment?
- Would individual benefit from a consultation with a specialist, such as an orthopedic surgeon, hand surgeon, or foot surgeon?
- Was ORIF required? What is the expected outcome?
- Was physical or occupational therapy required?
- Was individual compliant with treatment recommendations (e.g., use of crutches or cane, adherence to protective device use, participation in physical therapy)?
- Has individual used multiple NSAID drugs that may delay fracture healing?

**Regarding prognosis:**
- Based on the type of treatment required has adequate time elapsed for recovery (6 to 20 weeks)?
Did the individual experience any complications that may affect recovery (e.g., fat emboli, deep venous thrombosis, compartment syndrome, infection)?

Has individual followed prescribed rehabilitative therapy?

If the recovery has been longer than expected, has individual been re-examined to rule out the possibility of a delayed union or nonunion?

Does individual have an underlying condition (e.g., diabetes, vascular disease, inflammatory disease, osteoporosis) or associated injury (e.g., tendon laceration) that may affect recovery?

Source: Medical Disability Advisor
Refer to website for references.
Hernia
The following information has been edited from MD Guidelines as a link and ready reference. Please check the link for updates.

Source link
MD Guidelines website

Overview
A hernia is the protrusion of tissue (often a portion of the intestine) through the structure that contains it. Hernias may originate in the groin (where the lower abdomen meets the thigh) due to a weakness in the muscular wall, increased abdominal pressure, or a combination of both. There are 3 types of hernia that occur in the groin: femoral, direct inguinal, and indirect inguinal.

In a femoral hernia, part of the intestines push the membrane that lines the abdomen (peritoneum) downward through the opening where the femoral artery and vein pass into the thigh (femoral canal). Chronic increases in abdominal pressure play a role in the development of this type of hernia, and pregnancy may be a factor in the development of femoral hernias in women.

A direct inguinal hernia passes through the abdominal wall in the groin (rather than through a canal) in an area of muscular weakness. The abdominal weakening usually occurs from a combination of aging and increased abdominal pressure that can result from chronic coughing or straining.

Indirect inguinal hernias take an indirect course through the anterior abdominal wall. They occur where the spermatic cord (in males) or a small fibrous ligament (in females) runs through an opening in the lower abdominal wall (inguinal canal). During development, the canal may not close tightly enough around the spermatic cord or the ligament, and increased pressure inside the abdomen may force the inguinal ring to open. A hernia sac containing the clear membrane that covers the intestines (peritoneum), as well as a portion of the intestines, protrudes into and through the inguinal canal. As the hernia sac enlarges, it may extend into the scrotum (males) or into the groin (females).

Each of these three types of hernias can be described as reducible or incarcerated. A reducible hernia is one that can be returned to the abdomen, either spontaneously or by manipulation using a finger. An incarcerated hernia cannot be reduced, and the hernia cannot be pushed back into the abdominal cavity. The blood supply to an incarcerated hernia may be cut off (strangulation), leading to tissue death (necrosis). Hernia is the protrusion of tissue (often a portion of the intestine) through the structure that contains it. Hernias may originate in the groin (where the lower abdomen meets the thigh) due to a weakness in the muscular wall, increased abdominal pressure, or a combination of both. There are 3 types of hernia that occur in the groin: femoral, direct inguinal, and indirect inguinal.

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A hernia is one that can be returned to the abdomen, either spontaneously or by manipulation using a finger. An incarcerated hernia cannot be reduced, and the hernia cannot be pushed back into the abdominal cavity. The blood supply to an incarcerated hernia may be cut off (strangulation), leading to tissue death (necrosis).

**Causation and Known Risk Factors**

Any condition that increases pressure in the abdomen (such as obesity, chronic cough, straining during urination or bowel movements, heavy lifting, or pregnancy) may contribute to the development of a hernia. Premature birth and a personal or family history of hernias may be predisposing factors in some individuals (Mayo Clinic).

**Treatment**

Surgical repair is usually recommended for inguinal hernias since the risk of obstruction and strangulation almost always outweighs the risk of surgery. In cases in which strangulation is suspected, individuals undergo initial fluid resuscitation, antibiotic therapy, and emergency surgery consultation (McCollough). If significant prostate enlargement is present, this condition may be treated first to reduce the complications of urinary retention and urinary tract infection after hernia surgery.

There are 2 general types of hernia surgeries, herniorrhaphy and hernioplasty. During herniorrhaphy, the protruding intestine or other tissue is pushed back into the abdominal cavity, and the weakened or torn opening is sewn back together. In hernioplasty, the entire inguinal area is secured with synthetic mesh to reinforce the repair and protect against future hernias (Mayo Clinic). Most inguinal or femoral hernias are uncomplicated and can be repaired with either open or laparoscopic surgery. Recent studies comparing these two methods found that individuals who had their hernias repaired with the less invasive laparoscopic surgery had less initial pain and returned to work sooner than those who underwent conventional open surgery. However, recurrence rates within 2 years were higher in the laparoscopic group (10% versus 4%), as were complication rates (Neumayer; Jeyarajah). As a result of these studies and others (Douek), some clinicians recommend the use of open surgery for first-time (primary) occurrence of inguinal and femoral hernias and laparoscopic surgery for treatment of recurrent ones (Jeyarajah).

**Prognosis**

Complete recovery is expected after surgical repair of a hernia. Only 1.5% to 3% of all hernias recur (Jeyarajah). The likelihood of recurrence depends upon the size and severity of the hernia, history of any previous hernia surgery, presence of predisposing factors, and surgical technique used for repair. Some "recurrent" hernias are actually indirect hernias missed during the initial surgery (Jeyarajah). Using a synthetic mesh patch to strengthen the groin area (hernioplasty) may lessen the risk of recurrence. A strangulated hernia can be life-threatening if left untreated.

**Ability to Work**

Lifting or climbing should be avoided during the recovery period following surgical repair of an inguinal or femoral hernia. The risk of recurrence can be reduced by addressing risk factors such as obesity, chronic constipation, smoking, and chronic cough.

**Failure to Recover**

If an individual fails to recover within the expected maximum duration period, the reader may wish to consider the following questions to better understand the specifics of an individual’s medical case.

**Regarding diagnosis:**

- Does individual have swelling or a bulge in the groin area or within the scrotal sac? If so, is the bulge lower on the abdomen (near the area of the upper thigh)? Is it painless, or is there discomfort with straining or coughing?
- If diagnosis is uncertain, were other conditions with similar symptoms ruled out?
- Was diagnosis of inguinal or femoral hernia confirmed?

**Regarding treatment:**

- Was hernia repair successful?
- Was hernia repaired under local anesthesia in an outpatient or a hospital setting?
- Did individual experience any complications from the surgical procedure or anesthesia?
Regarding prognosis:
- Was strangulation or tissue necrosis present? Will further procedures be required?
- Does individual have a coexisting condition, such as obesity or COPD, that may complicate treatment or affect recovery?
- Based on known factors (size and severity of the hernia, history of any previous recurrence, presence of predisposing factors, and the surgical technique used for repair), is individual at risk for hernia recurrence?
- Was a synthetic mesh used to strengthen abdominal wall and lessen risk of recurrence?
- Have any complications developed that may affect recovery?

Source: Medical Disability Advisor.
Refer to website for references.

WorkCover SA Guidelines - Hernia
The following information has been edited from WorkCover SA as a link and ready reference. Please check the links for updates.

<table>
<thead>
<tr>
<th>Expected healing time:</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unoperated</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td>On occasions, a hernia can cause symptoms, particularly pain. Until it is surgically repaired there should be a reduction in lifting and forceful strain eg, pushing, pulling.</td>
</tr>
<tr>
<td>Surgically repaired</td>
<td>Up to 6 weeks</td>
</tr>
<tr>
<td></td>
<td>While the healing structures have not attained full strength for 6 weeks after surgery, increasing activity including activity at work will normally be possible from 1-2 weeks after surgery.</td>
</tr>
</tbody>
</table>

Sprains and Strains, Knee

The following information has been edited from MD Guidelines as a link and ready reference. Please check the link for updates.

Source link

Sprains and Strains, Knee. MD Guidelines. Viewed April 2014

Overview

The knee is a weight-bearing joint and is supported by a system of ligaments, cartilages (medial and lateral menisci), muscles, and bone structure. A ligament connects a bone to a bone. A tendon attaches a muscle to a bone. A knee sprain is damage or tearing of ligaments or the joint capsule. A knee strain refers to damage or tearing of a muscle tendon unit associated with the knee joint.

In the knee, both sprains and strains are evaluated according to the amount of looseness (laxity or instability) and loss of function that they cause. A first-degree injury stretches the ligament or muscle tendon unit, but does not cause significant structural damage. First-degree sprains are characterized by minimal swelling (edema), localized pain and tenderness, no instability and a good "end point" or limit to ligament stretch on exam. The individual with a first-degree sprain may perform activities within the limits of pain tolerance without causing further damage to the knee; however, activities that have high risk or reinjury (tackle football) are restricted, as the ligament does not regain normal strength for 3-6 weeks. First degree sprains occasionally have associated injury to other structures, like the menisci.

A second-degree injury partially disrupts and weakens the ligament or muscle tendon unit. Second-degree sprains are characterized by partial tears, moderately localized pain and tenderness, and mild instability. Again an "end point" is present, as at least some of the ligament is intact. The injured structure must be protected from stress for a period of about 6 weeks in order to prevent further injury. Second degree sprains more commonly have associated injury to other knee structures.

A third-degree injury is one in which the ligament or muscle tendon unit is completely disrupted. Third-degree sprains exhibit complete tears, mild to pronounced edema, and clear instability. On physical exam stress the examiner notes "no end point" unless pain induced muscle spasm limits the examiner's ability to demonstrate instability. Third degree damage requires a long period of protection from stress and often surgical repair or reconstruction. Third degree sprains frequently have associated injury to other knee structures.

Sprains can occur in any or all of the four major knee ligaments, and to other knee stabilizing ligaments. The lateral collateral ligament (LCL) is found on the outer side of each knee and attaches the thigh bone (femur) to the outside bone of the lower leg (fibula). The medial collateral ligament (MCL) is found on the inner side of each knee and attaches the femur to the shinbone (tibia). The anterior cruciate ligament (ACL) and the posterior cruciate ligament (PCL) are both found in the middle of the knee joint itself (intra-articular) and also connect the femur to the tibia, helping to stabilize the knee joint. The MCL is the ligament most commonly injured, but damage to the ACL is the most common source of joint instability (Levy).

Sprains can occur in isolated or multiple ligaments. Sometimes other knee structures are injured in association with sprains, as in the famous "terrible triad" ("unhappy triad") of O'Donoghue, in which the ACL, MCL, and medial meniscus are all damaged. Strains are often associated with sprains and share the same risk factors and mechanisms of injury.

Causation and Known Risk Factors

Less experienced and poorly conditioned individuals who engage in athletic activities are at greater risk for sports-type knee injuries, as are those who fail to warm up adequately. Knee injuries are more common in individuals who participate in sports such as football, soccer, basketball, and skiing.
Treatment

First-degree sprains and strains are treated conservatively with rest from the offending activity to avoid additional injury in the next few weeks. Ice, nonsteroidal anti-inflammatory drugs (NSAIDs), light knee wraps, and muscle strengthening exercises may be included in conservative treatment.

Second-degree sprains or strains are often treated with braces that restrict but do not eliminate knee motion. Physical therapy modalities to decrease pain and exercises to strengthen muscles, and restore balance and agility are an integral part of the treatment.

Third-degree sprains may require surgical intervention for repair or reconstruction of the torn tissue. The decision to repair or reconstruct a ligament is based on the amount of instability, likelihood of increased injury without repair, number of ligaments injured, and any associated injuries.

Isolated MCL and LCL sprains usually are treated nonsurgically. If the ACL is injured, it is often treated surgically in younger and athletic individuals and non-operatively with bracing in older or sedentary individuals. (See Anterior Cruciate Ligament Repair).

Few cases of PCL injury require surgery, with all first-degree and most second-degree sprains treated conservatively (Canale). Typically, surgery is not recommended for individuals older than age 50 or those with severe osteoarthritis (Peccin). When surgery is necessary for a ruptured PCL, it may involve anchoring it to bone (ligament-to-bone fixation), or reconstructing the ligament. These procedures are often performed arthroscopically.

Severe strains resulting in torn tendons are rare, but usually require surgical repair. This surgery involves suturing of the tendon ends back together (tenoplasty) or anchoring the tendon to bone (tenodesis).

Chronic instability due to rupture of tendons or ligaments is surgically repaired with procedures known as reconstruction or reconstruction with augmentation, which reinforces the unstable area with a fascia graft or transferred tendon. There are many such procedures, depending on which ligaments are non-functional.

Prognosis

Isolated injuries to the collateral ligaments, even third-degree injuries, generally heal well with non-operative treatment. Third-degree collateral ligament sprains associated with other ligament or meniscus damage often require surgery, but generally will heal well. Recovery can be expected when first and second-degree sprains of ACL and PCL are treated with physical therapy and activity alteration. Second degree cruciate sprains may be “protected” with a brace for instability to be worn during heavy activity that risks reinjury. Third-degree sprains of ACL that are surgically repaired, with either primary repair or reconstruction with augmentation, require an extensive rehabilitation after surgery, but recovery can be expected. Surgery to treat third-degree injuries to PCL is rarely performed on middle-aged or older adults unless there is gross instability or associated injuries, especially of the meniscus. Individuals undergoing this surgery require an extensive rehabilitation afterwards, but recovery can be expected.

Full recovery from strains can be expected after physical therapy for first and second-degree injuries. Third-degree strains and sprains will require several months for full recovery. Return to limited activity may be expected early in treatment, with an interruption for surgery and eventual return to full activity. Knee braces are often used for all levels of sprains and strains, sometimes only in the early stages of recovery, and often for several months after surgery. Protective braces may be required after recovery to prevent re-injury.

Ability to Work

Isolated injuries to the collateral ligaments, even third-degree injuries, generally heal well with non-operative treatment. Third-degree collateral ligament sprains associated with other ligament or meniscus damage often require surgery, but generally will heal well. Recovery can be expected when first and second-degree sprains of ACL and PCL are treated with physical therapy and activity alteration. Second degree cruciate sprains may be “protected” with a brace for instability to be worn during heavy activity that risks reinjury. Third-degree sprains of ACL that are surgically repaired, with either primary repair or reconstruction with augmentation, require an extensive rehabilitation after surgery, but recovery can be expected. Surgery to treat third-degree injuries to PCL is rarely performed on middle-aged or older adults unless there is gross instability or associated injuries, especially of the meniscus. Individuals undergoing this surgery require an extensive rehabilitation afterwards, but recovery can be expected.
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Supportive treatment, anterior cruciate ligament: MMI for isolated anterior cruciate injury treated non-surgically is usually reached within 4 months of injury. Symptoms may continue to improve for up to a year after injury.

Supportive treatment, medial or lateral collateral ligament: MMI for isolated knee collateral ligament injury treated non-surgically is usually reached within 3 months of injury. Symptoms may continue to improve for up to a year after injury.

Surgical treatment, arthroscopic repair of anterior cruciate ligament: MMI for isolated anterior cruciate injury treated non-surgically is usually reached within 4 months of injury. Symptoms may continue to improve for up to a year after injury.

If an individual fails to recover within the expected maximum duration period, the reader may wish to consider the following questions to better understand the specifics of an individual's medical case.

**Regarding diagnosis:**
- Has diagnosis been confirmed by MRI and/or surgery?
- If individual has continued pain or stiffness after treatment, was an MRI done to search for a missed injury?
- Does either MRI or arthroscopy show injury to the articular cartilage of the knee?
- Is a “bone bruise” present on MRI? (These may produce knee pain for up to 6-8 months, but resolve with time.)
- If imaging results were equivocal, would diagnostic arthroscopy be appropriate?

**Regarding treatment:**
- Has individual been prescribed a custom fit brace that protects the injured ligament?
- Has individual been enrolled in a comprehensive rehabilitation program that includes physical therapy to strengthen muscles, and restore balance and agility as an integral part of the treatment? If muscle atrophy or knee limitation of motion is still present, is additional physical therapy indicated?
- Is surgical intervention warranted and on what basis?
- Has individual experienced any complications such as infection, recurrent effusions, osteoarthritis, loss of knee motion, or chronic instability with loss of function?

**Regarding prognosis:**
- Is individual middle-aged or older? Many older individuals with residual instability or arthritis never regain their pre-injury status.
- Does individual have an injury to a meniscus and residual instability (this combination predicts an increased risk of post-traumatic arthritis)?
- Have temporary workplace accommodations been made to allow for surgery and resultant rehabilitation period? Is a permanent change to easier work likely to result in return to work?

Source: Medical Disability Advisor.
Refer to website for references.
**WorkCover SA Guidelines - Acute Knee Injuries**

The following information has been edited from WorkCover SA as a link and ready reference. Please check the links for updates.

**Source links**

WorkCover SA website


WorkCover SA Website


**Definition**

Acute knee pain refers to pain experienced for up to six weeks from date of injury.

The most common diagnoses reported to WorkCover are strains and sprains, meniscal injury, bruises/contusions, lacerations, and bursitis.

Expected recovery timeframes for acute knee injuries and pain can be found below.

<table>
<thead>
<tr>
<th>Expected healing time:</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sprain/strain</strong></td>
<td>Sprain/strain injuries generally heal in 2-6 weeks. Sometimes this is a provisional diagnosis and a different diagnosis is made when expected healing does not occur.</td>
</tr>
<tr>
<td>2-6 weeks</td>
<td></td>
</tr>
<tr>
<td><strong>Bruises/contusions</strong></td>
<td>If there is significant associated tissue injury, particularly with a crush injury, healing may be slower.</td>
</tr>
<tr>
<td>2 weeks</td>
<td></td>
</tr>
<tr>
<td><strong>Meniscal (cartilage) injury treated surgically</strong></td>
<td>Arthroscopic treatment of a damaged meniscus should be followed by rapid restoration of function arising from the damaged meniscus unless there are other concurrent pathologies within the knee joint.</td>
</tr>
<tr>
<td>2-4 weeks</td>
<td></td>
</tr>
<tr>
<td><strong>Lacerations</strong></td>
<td>Generally activity can continue while healing occurs, particularly if the affected area can be kept dry.</td>
</tr>
<tr>
<td>2 weeks</td>
<td></td>
</tr>
<tr>
<td><strong>Rehabilitation</strong></td>
<td>Can nearly always return to work in a seated job</td>
</tr>
</tbody>
</table>

Can nearly always return to work in a seated job.
Low Back Pain
The following information has been edited from MD Guidelines as a link and ready reference. Please check the link for updates.

Overview
Low back pain is a symptom, not a specific disease. Low back pain is usually described as discomfort in the lumbosacral region of the back that may or may not radiate to the legs, hips, and buttocks. The pain may be due to a variety of causes, and many individuals may never receive a clear diagnosis for the cause of the pain. A small percentage may have a serious disease unrelated to the back.

Although low back pain may be caused by medical conditions such as infection or cancer, the vast majority of low back pain cases are attributed to mechanical or musculoskeletal conditions. These conditions include lumbosacral muscle and ligament strains and sprains; disorders of the intervertebral discs and associated joints such as degeneration (spondylitis); degeneration that narrows the space through which spinal nerves pass (spinal stenosis); disc displacement (herniation of a disc); disorders of the vertebral body, such as slippage (spondylolisthesis) or fracture; or structural deformities, such as scoliosis. This section will focus on mechanical and musculoskeletal conditions that cause low back pain.

Low back pain ranks second only to upper respiratory infections as a cause of lost work productivity. It accounts for approximately 175.8 million days of restricted activity annually in the US (Patel).

Causation and Known Risk Factors
An initial episode of back pain typically occurs between 30 and 40 years of age. The likelihood of having low back pain increases with age. However, the condition has become increasingly prevalent in pre-teens and teens, and has been attributed to weighty backpacks and incorrect posture while using video games and computers. Overall deconditioning is also likely to contribute to low back pain. Added stress to the back from any cause such as obesity, pregnancy, or unnatural curvature or disease of the spine can increase the risk for back pain. Occupational risk factors include lifting objects while twisting or without property bending the legs, heavy pushing or pulling, and vibrational stresses. A family history may predispose individuals to some causes of back pain, such as degenerative disc disease.

Treatment
Pain without an underlying diagnosis is treated conservatively with tolerable activity and reassurance. Simple analgesics and nonsteroidal anti-inflammatory drugs (NSAID) may be appropriate. Muscle relaxants are frequently prescribed, but their effectiveness comes from their sedative action. Use of light support corsets is sometimes suggested to help with the pain, but their value has come under question. For acute back pain, it has been found that the resumption of activity as tolerated is superior to bed rest (activity facilitates recovery), but short periods of bed rest may be necessary for severe symptoms. In cases of chronic pain that is unresponsive to conservative treatment, some doctors may choose to administer steroids and other injections in an effort to decrease pain and inflammation. Types of injections and the likelihood of their use vary among physicians (“Back Pain”).

Spinal manipulation may decrease the pain, especially in the first 4 to 6 weeks after the onset of pain.

In the vast majority of cases, surgery is not needed for simple low back pain. Underlying conditions and diseases that may necessitate surgery include herniated discs, spinal stenosis, vertebral fractures, and degenerative disc disease.

Prognosis
Individuals suffering from uncomplicated back pain usually recover from the acute episode, though recurrence is common. Forty to fifty percent of individuals are symptom-free within 1 week of onset of pain. Up to 90% of simple back pain symptoms resolve without medical attention in 6 to 12 weeks (Patel).
Ability to Work (Return to Work Considerations)

Heavy or unassisted lifting; repetitive rotation of the back; carrying, pushing, or pulling heavy objects; vibrational stresses; overhead work; and prolonged sitting are to be avoided early on. Prolonged standing should be evaluated for aggravation of the pain. Rest periods are an important part of both treatment and prevention. Some health care providers may recommend wearing a lumbosacral support. Use of medications such as pain relievers (analgesics) and muscle relaxants will necessitate review of safety issues and drug-testing policies. Recurrence of back pain is common, and education regarding safer work practices for lifting, carrying, pushing, pulling, and sitting can help decrease or prevent recurrence.

Failure to Recover

If an individual fails to recover within the expected maximum duration period, the reader may wish to consider the following questions to better understand the specifics of an individual’s medical case.

Regarding diagnosis:
- Is this individual’s first episode of pain, or is it recurrent?
- Have infection and cancer been ruled out in the individual?
- Was adequate testing done for individual to establish the diagnosis?
- Has an MRI been obtained?
- Have conditions with similar symptoms been ruled out?
- Does individual’s pain radiate to either leg?
- Did individual experience a recent fall or stumble?
- Has a second opinion been obtained from an appropriate specialist?

Regarding treatment:
- Is individual active in physical therapy?
- How did individual respond to conservative treatment?
- Was it necessary for individual to have surgery?

Regarding prognosis:
- Is individual actively participating in physical therapy and a home exercise program?
- Has work conditioning been implemented? Was pain behavior noted during work conditioning?
- Has a work site visit occurred to negotiate a modified-duty return-to-work compromise?
- Has a functional capacity assessment been done to have a general idea of activity tolerances?
- Is individual involved in any hobbies or other activities that can strain the back? If overweight, is individual enrolled and participating in a weight loss program?
- Is individual experiencing secondary gains from low back pain?
- Is individual experiencing stressful situations that may be intensifying his or her pain? Has a psychological assessment been obtained?

Source: Medical Disability Advisor.
Refer to website for references.
WorkCover SA Guidelines - Low Back (Lumbosacral Spine)

The following information has been edited from WorkCover SA as a link and ready reference. Please check the link for updates.

Source link

WorkCover SA Website

Definition

Low back pain can be classified as:

- acute - present for 4 weeks or less
- subacute – present 5-12 weeks after injury
- persistent (chronic) - present ≥ 12 weeks after injury.

Expected recovery timeframes for non-specific low back pain can be found below.

<table>
<thead>
<tr>
<th>Expected healing time:</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-specific/benign low back pain</td>
<td>While pain may continue beyond 6 weeks from date of onset, there is strong evidence that implementing active management strategies is associated with better long term functional outcomes.</td>
</tr>
<tr>
<td>Radicular pain (sciatica) treated conservatively</td>
<td>Up to 2 years</td>
</tr>
<tr>
<td></td>
<td>Most radicular pain (sciatica) responds well to conservative management (ie, surgery is not required). After 6 weeks from date of onset the risk of aggravation or a further disc protrusion has returned to pre-injury risk. As for benign low back pain, adopting active management strategies is associated with a better long-term functional outcome.</td>
</tr>
<tr>
<td>Degenerative changes/facet joint pain</td>
<td>6 weeks</td>
</tr>
<tr>
<td></td>
<td>While pain may continue beyond 6 weeks from date of onset, there is strong evidence that implementing active management strategies is associated with better long term functional outcomes. It should be noted that there is a greater likelihood of longer term symptoms with this presentation.</td>
</tr>
<tr>
<td>Bruises / contusions</td>
<td>2 weeks</td>
</tr>
<tr>
<td></td>
<td>If there is significant associated tissue injury, particularly with a crush injury, healing may be slower.</td>
</tr>
<tr>
<td>Fracture</td>
<td>2-6 weeks*</td>
</tr>
<tr>
<td></td>
<td>Fractures of the transverse processes are most common and activity is resumed as tolerated.</td>
</tr>
</tbody>
</table>

*Other fractures are more significant and may require a longer healing time (up to 3 and rarely even 6 months).
Sprains and Strains, Shoulder and Upper Arm
The following information has been edited from MD Guidelines as a link and ready reference. Please check the link for updates.

Source link
MD Guidelines. Viewed April 2014,

Overview
The shoulder is one of the most mobile structures in the body; consequently its joint and associated soft tissues are highly vulnerable to injury. There are two main joints in the shoulder: the acromioclavicular joint, which connects the upper part of the shoulder blade (acromion) to the collar bone (clavicle); and the glenohumeral joint, which connects the socket of the shoulder blade (glenoid) to the upper end of the long bone of the arm (humerus). Ligaments (fibrous bands of tissue that connect the bones to bones) function to stabilize the joint. A shoulder sprain results in damage to the ligaments, usually from forces strong enough to stretch and/or tear the ligaments without causing a shoulder fracture or dislocation. The ligaments most frequently affected by a shoulder sprain include the acromioclavicular, coracoclavicular, and coracohumeral ligaments, each one named according to its origin at the scapula and insertion in the clavicle or humerus.

In addition to ligament damage, tendons (fibrous connective tissues that connect muscles to bones) also may be involved. A sprain is damage to tendons and the muscle(s) they are attached to. A shoulder strain may include damage to the muscles and/or tendons of the rotator cuff (supraspinatus, infraspinatus, teres minor, and subscapularis) as well as to the biceps or triceps muscles. When the proximal biceps tendon is severely strained, the cartilage of the shoulder socket (glenoid labrum) may become detached, resulting in a superior labrum anterior posterior (SLAP) lesion. On occasion, the muscles that attach the upper arm and shoulder to the chest (pectoral muscles), the back (latissimus dorsi, teres major), or those that stabilize the scapula (trapezius, rhomboids) may also become injured. Muscle strains most commonly occur in the dominant arm and are frequently the result of a forceful eccentric muscle contraction.

Ligament sprains are graded according to the severity of ligament damage and the resulting amount of joint separation: grade I or first-degree sprains involve stretching of the ligament fibers without joint separation. Grade II or second-degree sprains reflect stretching and tearing of some ligament fibers with minimal joint displacement, and grade III or third-degree sprains involve full thickness tears (rupture) of ligament fibers that result in joint dislocation (acromioclavicular dislocation, glenohumeral dislocation). More severe shoulder sprains are less common but may be graded from IV to VI, reflecting increased displacement of the bony anatomy (described in more detail in Dislocation, Acromioclavicular Joint).

Muscle and tendon strains are similarly graded according to the severity of muscle or tendon fiber damage. A grade I strain is a mild strain in which muscles or tendons become stretched, with few torn fibers and no loss of muscle strength. Grade II strains involve a greater number of injured muscle or tendon fibers with noticeable loss of strength. A grade III strain is a severe strain in which the muscle or tendon is ruptured, resulting in complete functional loss of the affected muscle or tendon. The grading of shoulder strains or sprains is not an exact science but is based on clinical assessment and experience related to signs, symptoms, or imaging studies.

Causation and Known Risk Factors
Risk of a sprain or strain of the upper arm and shoulder increases with participation in overhead reaching and throwing activities, repeatedly lifting heavy weights, direct trauma to the shoulder, falling onto an outstretched arm, overuse, or repeated attempts to lift or lower a heavy weight. However, with chronic degeneration of the muscle and tendon fibers, as occurs with impingement syndrome, older individuals may report a history of gradual onset of shoulder pain without known trauma. Sitting or working with poor posture also may predispose certain individuals to chronic muscle strain. SLAP lesions may be present in up to 20% of individuals with no known history of trauma (Snyder).
**Treatment**

In most cases, conservative treatment is recommended to resolve painful symptoms unless a rupture of the affected ligament, muscle, or tendon is present and results in significant shoulder instability or weakness.

Grade I and II shoulder sprains and strains are initially treated with rest, cold therapy, and nonsteroidal anti-inflammatory drugs (NSAIDs) to help reduce painful symptoms. A sling may be used for the first few days following injury to allow symptoms of acute pain to subside; however, prolonged use of a sling may lead to shoulder stiffness and slowed recovery time. Early range of motion exercises should be performed as tolerated to promote healing and reduce the risk of a frozen shoulder (adhesive capsulitis). Whereas grade I injuries will typically heal with conservative treatment, grade II injuries may also require physical therapy to improve range of motion and promote muscle strengthening.

Grade III shoulder sprains and strains may be initially treated with a sling and cold therapy, but many cases may require surgery to repair the ruptured ligament, muscle, or tendon. Acromioclavicular dislocations and grade III strains in older individuals are typically treated conservatively unless the individual engages in heavy overhead work or is very active. However, muscles and tendons that have sustained full thickness tears often require surgery to trim torn muscle or tendon fibers (debridement), to reattach the ruptured muscle or tendon, or to repair torn or detached cartilage (labral tear and SLAP lesion). Surgical repair of the shoulder muscles, tendons, or cartilage may be performed arthroscopically through tiny incisions using a fiberoptic scope and small instruments, or with open surgery to reconstruct larger, more complicated, or avulsed tears with grade III injury. A mini-incision between 4 cm to 6 cm long also may be used to access and repair torn soft tissues in certain individuals, promoting reduced healing time. Upper arm and shoulder surgery may be performed with either a regional or general anesthesia. Following surgery, rehabilitation is important to help the individual regain functional strength and mobility.

**Prognosis**

In general, individuals with shoulder sprain injuries demonstrate a good functional outcome with conservative treatment in the majority of cases. Successful outcome of conservative treatment for rotator cuff tears ranges between 33% and 90%, with older individuals requiring longer recovery time; younger individuals are more likely to have a good outcome than older individuals (Quintana). Re-rupture rates following rotator cuff tear can be as high as 50% according to MRI, but clinically the majority of these patients remain minimally symptomatic or asymptomatic (Gerber). Biceps tendon lesions, ranging from tendinitis to complete rupture, are commonly associated with rotator cuff tendon tears (grade III strains). Following biceps tendon rupture and surgical repair, outcome is good, although strength deficits may remain following recovery. If a SLAP lesion is also present, satisfactory outcomes generally require arthroscopic surgery to repair the torn cartilage.

Massive grade III strains and grade IV to VI shoulder sprains have a poorer prognosis and are associated with a higher degree of disability.

Depending on work duties and whether the dominant or nondominant arm is affected, the individual may require accommodations to restrict lifting, carrying, pushing, pulling, and reaching activities. Individuals whose dominant arm is affected may require a temporary or permanent reassignment of job duties.

If surgery has been performed, resumption of activity should be based on the type of repair and the surgeon’s recommendation. During the recovery period, there may be prolonged restrictions on overhead work, lifting, reaching, and repetitive activities.

Company policy on medication usage should be reviewed to determine if pain medication use is compatible with job safety and function.

**Ability to Work (Return to Work Considerations)**

Depending on work duties and whether the dominant or nondominant arm is affected, the individual may require accommodations to restrict lifting, carrying, pushing, pulling, and reaching activities. Individuals whose dominant arm is affected may require a temporary or permanent reassignment of job duties.

If surgery has been performed, resumption of activity should be based on the type of repair and the surgeon’s recommendation. During the recovery period, there may be prolonged restrictions on overhead work, lifting, reaching, and repetitive activities.
If an individual fails to recover within the expected maximum duration period, the reader may wish to consider the following questions to better understand the specifics of an individual’s medical case.

**Regarding diagnosis:**
- Has individual sustained a traumatic injury to the upper arm and shoulder?
- Did individual report a popping, tearing, or slipping sensation followed by a sharp pain in the shoulder?
- When did sprain or strain occur?
- On exam, is edema present? Effusion? Tenderness? Ecchymosis?
- Is there an observable defect in the muscle? Muscular atrophy? Joint deformity?
- Does individual have difficulty raising the arm above shoulder height?
- Does individual report loss of muscle strength in the upper arm or shoulder?
- Has diagnosis been confirmed?
- Did tests include x-rays, stress x-rays? Was MRI, CT scan, ultrasound, or arthrogram necessary?
- Is the injury first, second, or third degree?
- Does individual experience shoulder instability? Dislocation?
- If diagnosis was uncertain, were conditions with similar symptoms ruled out (i.e. cervical spine radiculopathy, rotator cuff tendinitis, impingement syndrome, biceps tendinitis, brachial plexus injury)?

**Regarding treatment:**
- Was surgical treatment required?
- Has individual followed recommendations for temporary immobility with upper arm sling?
- Has individual been compliant with prescribed medication? Cold therapy?
- Does individual require physical therapy?
- Is individual compliant with rehabilitation regimen?
- Does individual follow a home exercise program?

**Regarding prognosis:**
- Is individual compliant with treatment recommendations?
- Has adequate time elapsed for complete recovery?
- If symptoms persisted despite treatment, were further diagnostic tests performed?
- Was individual re-examined to rule out the possibility of complications?
- Does individual have any comorbid conditions such as osteoarthritis, rheumatoid arthritis, osteoporosis, diabetes, or gout that could affect recovery and prognosis?
- Did individual have complications such as hemarthrosis, adhesive capsulitis, dislocation, fracture, brachial nerve plexus injury, or vascular injury that could affect recovery?
- Has injury occurred on the dominant or nondominant side?
- Did grade III injury occur?
- Was surgical treatment necessary?
- Is individual’s employer able to accommodate any necessary restrictions

*Source: Medical Disability Advisor. Refer to website for references.*
### WorkCover SA Guidelines - Acute Shoulder Injuries

The following information has been edited from WorkCover SA as a link and ready reference. Please check the links for updates.

**Source link**

WorkCover SA Website  
WorkCoverSA Health provider > Guidelines by injury type > Recovery timeframes for common injury types. Viewed November 2013,  

**Definition and Prevalence**

Acute shoulder injuries include sprains and strains, rotator cuff pathologies, impingement syndrome, frozen shoulder, instability disorders (acute and recurrent dislocation and other types of instability), bruises and contusions.

Acute shoulder pain is pain felt in the shoulder region that lasts for up to six weeks. Around 10% of people will experience an acute shoulder injury at some stage in their lives. Guidelines for shoulder pain identify different physical examination requirements and X-ray positions to assist assessment and diagnosis of the above mentioned conditions.

Where an individual has not recovered within the expected recovery timeframe, the diagnosis and management plan should be reconsidered. Reassess for serious underlying pathology (red flags), undertake screening for psychosocial risk factors (yellow flags), and reconsider treatment type and intensity.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Expected healing time</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sprain/strain</td>
<td>6 weeks</td>
<td>Most non-specific strain/sprain injuries should heal within 6 weeks.</td>
</tr>
<tr>
<td>Rotator cuff tendinopathy</td>
<td>2-12 weeks</td>
<td>Rotator cuff tendinopathy without impingement should resolve with removal of the causative activity and restricting shoulder movement to the pain free range in the acute (first 6 weeks) phase.</td>
</tr>
</tbody>
</table>
| Impingement syndrome       | 2-12 weeks<           | Removal of any causative activity will assist healing. Conservative treatment may be unsuccessful.  
There will generally be a pain-free range of shoulder movement and the ability to continue activity within that range of movement. |
| Dislocation                | 3-12 weeks            | Healing depends on whether it is the acromioclavicular or glenohumeral joint which is dislocated, the amount of associated injury and if surgical intervention is required. In most instances healing should occur within 6 weeks. |
| Bruises/contusions         | 2 weeks               | If there is significant associated tissue injury, particularly with a crush injury, healing may be slower. |
Appendix 2: Generic Return to Work Information

The following information is an excerpt for handy reference purposes, from the Workcover SA website. Please check the links for updates.

Source link

Assessing duties and capability

The most important treatment modality for musculoskeletal injuries is returning to as much of the worker’s usual activity as soon as possible. This is not limited to work but includes the usual activities the worker undertakes in sport, in recreation and at home.

Discuss with the worker what they can do in their workplace rather than what they cannot do. This will assist them to remain positive and give them the best chance of recovery.

Generic work capabilities 0 to 6 weeks

Table 1 shows work capabilities which are common after musculoskeletal injuries to specific body areas. Obviously each injury needs to be assessed and restrictions such as these modified for individual circumstances.

<table>
<thead>
<tr>
<th>Table 1: Generic work capabilities 0-6 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note: These restrictions are also appropriate for home and leisure activities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wrist</th>
<th>Neck</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Wear splint if provided</td>
<td>• Not to maintain neck position, except neutral for periods of &gt;5 minutes in one position (particularly flexed)</td>
</tr>
<tr>
<td>• Lifting limit – often low weights of 1-2kg</td>
<td>• Not to repeatedly twist (where possible move whole body)</td>
</tr>
<tr>
<td>• Avoid repetitive movements, particularly twisting</td>
<td>• Not to lift more than:</td>
</tr>
<tr>
<td>• No exposure to vibration</td>
<td>- 10kg with arm by side, or</td>
</tr>
<tr>
<td></td>
<td>- 5kg with arm outstretched</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elbow</th>
<th>Low back</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Avoid precipitating actions</td>
<td>• Not to repetitively twist or bend</td>
</tr>
<tr>
<td>• No repetitive movements</td>
<td>• Not to lift &gt;5-10kg</td>
</tr>
<tr>
<td>• Lifting limit – often low weights of 1-2kg, particularly with outstretched arm</td>
<td>• Not to sit or stand for more than 20-30 minutes at a time</td>
</tr>
<tr>
<td>• For epicondylitis wearing of a strap is often helpful</td>
<td>• Not to be exposed to vibration</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shoulder</th>
<th>Knee</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Generally restricted range, most commonly no greater than 45 degrees from neutral</td>
<td>• Can nearly always work in a seated job</td>
</tr>
<tr>
<td>• Not to lift more than:</td>
<td></td>
</tr>
<tr>
<td>- 1-2kg with outstretched arm</td>
<td></td>
</tr>
<tr>
<td>- 5-10kg with arm in neutral (by side) position</td>
<td></td>
</tr>
<tr>
<td>• Particularly no activity either at work or at home in which hands are above head height</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ankle</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Can nearly always work in a seated job</td>
<td></td>
</tr>
</tbody>
</table>

Table 3 – Generic Work Capabilities 0-6 weeks, (WorkCover SA).
Obtain information about the worker's job role and work demands

Obtaining information about the worker's role and work demands will assist the treating medical practitioner to provide an opinion regarding whether the worker is fit to return to pre-injury workplace duties, fit to return to modified/other duties, or make recommendations about restrictions that need to be observed. This can be achieved by asking the worker about their job and exploring the requirements of their role, giving consideration to the following:

- Physical demands such as mobility, postural requirements, manual handling
- Frequency and duration that tasks are performed
- Hours of work, including over-time, shift work, provision of rest breaks

Further information can be obtained from the worker themselves, or the rehabilitation and return to work coordinator (or the employer, if they do not have a coordinator). The employer or rehabilitation and return to work coordinator can provide information about the workplace, work practices and the job requirements of the injured worker.

Options for graduated return to work

Remain mindful that an injured worker does not have to be fully recovered or free from pain before returning to safe and suitable work. Work is part of the functional recovery from injury. There are three types of suitable duties that may be considered when returning the worker to the workplace.

1. **Pre-injury duties** – reduced hours of the pre-injury duties that the injured worker has the capability to perform
2. **Modified duties** – components or some of the pre-injury duties that have been included or removed to match the injured worker’s capability
3. **Alternative duties** – duties that are different from the pre-injury duties but allow the injured worker to remain at work or return to work

To be successful, suitable duties must be matched to the injured worker’s capabilities. They should only continue for a limited time. Ideally these duties should be productive, assist the worker to increase their physical capabilities, allow continued workplace social supports and be within the worker’s psychological capabilities as they recover from injury.

Increasing capacity to work

Increasing capacity to work may be undertaken in a number of ways:

- **Increase in work hours** – The total work hours per day and/or the total number of working days per week should be increased. This should occur rapidly to return the worker to pre-injury hours within a period of several weeks. This prevents physical deconditioning and psychological sequelae thus minimising the chance of chronicity.
- **Increase in physical demands of duties** – As the worker recovers, the physical demands of duties performed should be increased, for example, increasing tolerance for lifting; postures that may be more demanding, such as repetitive stooping, crouching or overhead reaching. How rapidly this is increased is dependent on the injury healing, any reconditioning required, and the availability of appropriate duties.
- **Frequency and duration of tasks** – The work pace and the duration that tasks are performed throughout the working day are gradually increased.
- **Rest breaks** – Avoid the use of regular rest breaks (which denote inactivity and may lead to deconditioning) beyond the normal allocated work rest breaks. Instead, focus on restorative breaks in which there are regular rotations of tasks to allow for changes in physical demands. Some examples are:
  - changes in posture from sitting to standing/walking
  - tasks involving non-repetitive upper limb movements
  - tasks requiring no or minimal lifting.

Return to work utilising any of these alternatives should be regularly reviewed with the express aim of recognising the increasing capability of the worker which occurs as the injury heals, and reflecting this in increased hours and duties.

[1][2][3] Refer WorkCover SA website for references.
Certifying capacity

WorkCoverSA supports the Australasian Faculty of Occupational and Environmental Medicine (AFOEM) Consensus Statement, ‘Realising the Health Benefits of Work’.

This Consensus Statement has been endorsed by numerous medical colleges, including:

- The Royal Australian College of General Practitioners
- The Royal Australasian College of Physicians
- Royal Australasian College of Surgeons.

A patient is likely to have a better health outcome by remaining at and returning to work:

Return to work is not possible for everyone, but certifying time off work—particularly when absence is long-term—can have significant side effects, including poorer physical health, poorer mental health and increased mortality.

This image to the right shows work capacity examples that are common after musculoskeletal injuries to specific body areas.

Detailed descriptions such as these guide the patient and all others involved in the patient’s rehabilitation and return to work process.

Examples of work capacity that could be recorded in the WorkCover Medical Certificate for various types of musculoskeletal injuries

Note: Restrictions are also appropriate for home and leisure activities.

Shoulder
- No above shoulder height work
- Avoid forceful pushing/pulling with upper arm
- Lifting limit of 5 kilograms away from the body

Neck
- Avoid prolonged neck flexion or extension postures
- Avoid prolonged static arm forward postures
- No repetitive near rotation

Elbow
- Avoid precipitating actions, forearm rotation
- Avoid repetitive movements
- Can lift low weights up to 5 kilograms, but requires caution with outstretched arm
- For epidydimalis, wearing of a strap is often helpful

Wrist
- Avoid repetitive or forceful wrist movements
- Avoid repetitive or forceful forearm rotation
- Avoid forceful pushing and pulling with upper limb

Low back
- Avoid repeated bending, and lifting
- Avoid lifting more than 10 kilograms for low levels or repetitive basis

Knee
- Avoid prolonged static standing
- Avoid repetitive crouching, kneeling
- Avoid prolonged low level postures
- Avoid repetitive access of stair inclines and ledges
- Avoid walking on rough terrain

Ankle
- Can nearly always work in a seated job

Figure 8 – Certifying Capacity: WorkCover SA, 2013.
Appendix 3: Resources for Rating Structures of Physical Demands

Strength Rating
The strength factor is expressed by one of five terms: Sedentary, Light, Medium, Heavy and Very Heavy.

<table>
<thead>
<tr>
<th>Frequency of work</th>
<th>Sedentary</th>
<th>Light</th>
<th>Medium</th>
<th>Heavy</th>
<th>Very heavy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occasional</td>
<td>Up to 5kgs</td>
<td>Up to 9kgs</td>
<td>9-23kgs</td>
<td>23-45kgs</td>
<td>&gt;45kgs</td>
</tr>
<tr>
<td>Frequent</td>
<td>Negligible</td>
<td>Up to 5kgs</td>
<td>5-11kgs</td>
<td>11-23kgs</td>
<td>&gt;23kgs</td>
</tr>
<tr>
<td>Constant</td>
<td>0</td>
<td>Negligible</td>
<td>Up to 5kgs</td>
<td>5-9kgs</td>
<td>&gt;9kgs</td>
</tr>
</tbody>
</table>

Additional factors for job rating
- Sitting most of the time; may involve walking or standing for brief periods of time. Jobs are sedentary if walking and standing are required only occasionally and all other sedentary criteria are met.
- (1) Standing / walking to a significant degree; or
- (2) sitting most of the time but entails pushing and/or pulling of arm or leg controls and/or
- (3) job requires working at a production rate pace entailing constant pushing and/or pulling of materials even though the weight of those materials is negligible.

<table>
<thead>
<tr>
<th>Frequency of Work</th>
<th>Code</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>N</td>
<td>Not Present</td>
</tr>
<tr>
<td>O</td>
<td>O</td>
<td>Occasionally:</td>
</tr>
<tr>
<td>F</td>
<td>F</td>
<td>Frequently:</td>
</tr>
<tr>
<td>C</td>
<td>C</td>
<td>Constantly:</td>
</tr>
</tbody>
</table>

For convenience, the percentages, noted in brackets (), have been widely used in describing frequency of work.


<table>
<thead>
<tr>
<th>Frequency</th>
<th>Materials Handling</th>
<th>Nonmaterials Handling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrequent</td>
<td>1-2 repetitions/day</td>
<td>1-100 repetitions/day OR ≤15x/hr OR ≤1x/4 min</td>
</tr>
<tr>
<td>Occasional</td>
<td>2-32 repetitions/day OR 1-5x/hr OR &lt;1x/10 min</td>
<td>1-100 repetitions/day OR ≤15x/hr OR ≤1x/4 min</td>
</tr>
<tr>
<td>Frequent</td>
<td>33-200 repetitions/day OR 6-30x/hr OR 1x/10 min to 1x/2 min</td>
<td>101-800 repetitions/day OR 15-120x/hr OR 1x/4 min to 1x/30 sec</td>
</tr>
<tr>
<td>Constant</td>
<td>&gt;200 repetitions/day OR &gt;30x/h4 OR &gt;1x/2 min</td>
<td>&gt;800 repetitions/day OR 120x/hr OR ≥1x/30 sec</td>
</tr>
</tbody>
</table>

Table 4 – Sourced from United States Department of Labor, Dictionary of Occupational Titles, 4th Ed, Revised 1991, Appendix C (Converted from Imperial to Metric).

**Definition of Activities**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CARRYING</strong></td>
<td>Transporting an object, usually holding it in the hands or arms or on the shoulder. Carrying is most often evaluated in terms of duration, weight carried and distance carried.</td>
</tr>
<tr>
<td><strong>LIFTING</strong></td>
<td>Raising or lowering an object from one level to another (includes upward pulling). Lifting is evaluated in terms of both intensity and duration. Consideration is given to the weight handled, position of the worker’s body, and the aid given by helpers or mechanical equipment.</td>
</tr>
<tr>
<td><strong>PULLING</strong></td>
<td>Exerting force upon an object so that the object moves toward the force (includes jerking). Pulling is evaluated in terms of both intensity and duration. Consideration is given to the weight handled, position of the worker’s body, and the aid given by helpers or mechanical equipment.</td>
</tr>
<tr>
<td><strong>PUSHING</strong></td>
<td>Exerting force upon an object so that the object moves away from the force (includes slapping, striking, kicking, and treadle actions). Pushing is evaluated in terms of both intensity and duration. Consideration is given to the weight handled, position of the worker’s body, and the aid given by helpers or mechanical equipment.</td>
</tr>
<tr>
<td><strong>SITTING</strong></td>
<td>Remaining in a seated position.</td>
</tr>
<tr>
<td><strong>STANDING</strong></td>
<td>Remaining on one’s feet in an upright position at a work station without moving about.</td>
</tr>
<tr>
<td><strong>WALKING</strong></td>
<td>Moving about on foot.</td>
</tr>
<tr>
<td><strong>CONTROLS</strong></td>
<td>Controls entail the use of one or both arms or hands (hand/arm) and/or one or both feet or legs (foot/leg) to move controls on machinery or equipment. Controls include but are not limited to buttons, knobs, pedals, levers and cranks.</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Activity</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CLIMBING</strong></td>
<td>Ascending or descending ladders, stairs, scaffoldings, ramps, poles and the like, using feet and legs, and/or hands and arms.</td>
</tr>
<tr>
<td><strong>BALANCING</strong></td>
<td>Maintaining body equilibrium to prevent falling when walking, standing, crouching or running on narrow, slippery, or erratically moving surfaces; or maintaining body equilibrium when performing gymnastic feats.</td>
</tr>
<tr>
<td><strong>STOOPING</strong></td>
<td>Bending body downward and forward by bending spine at the waist, requiring full use of the lower extremities and back muscles.</td>
</tr>
<tr>
<td><strong>KNEELING</strong></td>
<td>Bending legs at knees to come to rest on knee or knees.</td>
</tr>
<tr>
<td><strong>CROUCHING</strong></td>
<td>Bending body downward and forward by bending legs and spine.</td>
</tr>
<tr>
<td><strong>CRAWLING</strong></td>
<td>Moving about on hands and knees or hands and feet.</td>
</tr>
<tr>
<td><strong>REACHING</strong></td>
<td>Extending hand(s) and arm(s) in any direction.</td>
</tr>
<tr>
<td><strong>HANDLING</strong></td>
<td>Seizing, holding, grasping, turning or otherwise working with the hand or hands. Fingers are involved only to the extent that they are an extension of the hand.</td>
</tr>
<tr>
<td><strong>FINGERING</strong></td>
<td>Picking, pinching, or otherwise working primarily with fingers rather than with the whole hand or arm as in handling.</td>
</tr>
<tr>
<td><strong>FEELING</strong></td>
<td>Perceiving attributes of objects, such as size, shape, temperature, or texture, by touching with skin, particularly that of fingertips.</td>
</tr>
</tbody>
</table>

Table 7 – Definitions of Activities, United States Department of Labor Employment and Training Administration, The Revised Handbook for Analyzing Jobs, 1991
Physical Demands of Work

Employers often request detailed charts of “restrictions” based on ability to lift, push, pull, climb, bend, stoop, crawl, kneel, and other activities. When presented in a form, it is often difficult for the physician to differentiate what a normal healthy person is similar age, sex, education, and body build would be capable of doing. Standards created by the US Department of Labor, found in The Dictionary of Occupational Titles Physical Demands of Work (Table 4-1) and Physical Demand Characteristics of Work (Table 4-2) – are a helpful starting point. Millender and Conlon expanded on these guides by matching possible additional job activities to eight general job categories (Table 4-3).

Table 4-1 Physical Demands of Work

<table>
<thead>
<tr>
<th>Physical Demand Level</th>
<th>Lb Lifting (Frequent/Occasional)</th>
<th>Lb Carry (Frequent/Occasional)</th>
<th>Lb Push/Pull</th>
<th>Climbing</th>
<th>Bend, Stoop, Twist/h</th>
<th>Sit/Stand (min)</th>
<th>Walk (h/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sedentary</td>
<td>0/10</td>
<td>0/10</td>
<td>100</td>
<td>None</td>
<td>0</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>Sedentary-light</td>
<td>5/15</td>
<td>5/15</td>
<td>125</td>
<td>Ramp</td>
<td>&lt;10</td>
<td>30</td>
<td>2</td>
</tr>
<tr>
<td>Light</td>
<td>10/20</td>
<td>15/20</td>
<td>150</td>
<td>Stairs</td>
<td>15</td>
<td>45</td>
<td>3</td>
</tr>
<tr>
<td>Light-medium</td>
<td>20/35</td>
<td>20/35</td>
<td>200</td>
<td>Stairs</td>
<td>20</td>
<td>60</td>
<td>3+</td>
</tr>
<tr>
<td>Medium</td>
<td>20/50</td>
<td>25/50</td>
<td>250</td>
<td>Ladder</td>
<td>30</td>
<td>90</td>
<td>4</td>
</tr>
<tr>
<td>Medium-heavy</td>
<td>35/50</td>
<td>40/75</td>
<td>300</td>
<td>Ladder</td>
<td>40</td>
<td>120/120</td>
<td>4+</td>
</tr>
<tr>
<td>Heavy</td>
<td>50/100</td>
<td>50/100</td>
<td>350</td>
<td>Scaffold</td>
<td>50</td>
<td>180/150</td>
<td>5</td>
</tr>
<tr>
<td>Very heavy</td>
<td>50/100+</td>
<td>75/100+</td>
<td>4+</td>
<td>Pole/Rop</td>
<td>60+</td>
<td>210/180+</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 8 – Physical Demands of Work, AMA Guides to the Evaluation of Work Ability and Return to Work, 2nd Edition, p49

Table 4-2 Physical Demand Characteristics of Work

<table>
<thead>
<tr>
<th>Physical Demand Level</th>
<th>Occasional (0% to 33% of Work day)</th>
<th>Frequent (34% to Work day)</th>
<th>66% of</th>
<th>Constant (67% to Work day)</th>
<th>100% of</th>
<th>Typical Energy Required (Metabolic equivalents)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sedentary</td>
<td>10 lb</td>
<td>Negligible</td>
<td>Negligible</td>
<td>1.5-2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light</td>
<td>20 lb</td>
<td>10 lb</td>
<td>Negligible</td>
<td>2.2-3.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light-medium</td>
<td>35 lb</td>
<td>20 lb</td>
<td>5 lb</td>
<td>3.6-4.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>50 lb</td>
<td>20 lb</td>
<td>10 lb</td>
<td>4.6-6.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium-heavy</td>
<td>75 lb</td>
<td>35 lb</td>
<td>15 lb</td>
<td>6.4-7.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy</td>
<td>100 lb</td>
<td>50 lb</td>
<td>20 lb</td>
<td>7.1-7.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very heavy</td>
<td>&gt;100 lb</td>
<td>&gt;50 lb</td>
<td>&gt;20 lb</td>
<td>&gt;7.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 9 – Physical Demand Characteristics of Work, AMA Guides to the Evaluation of Work Ability and Return to Work, 2nd Edition, p50
### Table 4-3 Guidelines for Tasks by Job Categories

<table>
<thead>
<tr>
<th>Job Category</th>
<th>Job Description</th>
<th>Weight Lifted, lb*</th>
<th>Weight Pushed or Pulled, lb*</th>
<th>Weight Carried, lb*</th>
<th>Climbing†</th>
<th>Body Motion‡</th>
<th>Sitting-Standing Transition§</th>
<th>Walking (% of Day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sedentary</td>
<td>10/0</td>
<td>150/0</td>
<td>≤5/0</td>
<td>Ramp/none</td>
<td>&lt;10</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Sedentary -light</td>
<td>15/≤5</td>
<td>200/100-125</td>
<td>15/≤5</td>
<td>None/ramp</td>
<td>&lt;10</td>
<td>30 min</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>Light</td>
<td>20/≤10</td>
<td>250/125-150</td>
<td>20/10-15</td>
<td>Stairs/none</td>
<td>10-15</td>
<td>30-45 min</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>Light-medium</td>
<td>35/≤20</td>
<td>300/200-250</td>
<td>35/20</td>
<td>None/stairs</td>
<td>15-20</td>
<td>45 to 60 min</td>
<td>40</td>
</tr>
<tr>
<td>5</td>
<td>Medium</td>
<td>50/≤35</td>
<td>350/250-300</td>
<td>50/25-30</td>
<td>Ladder/stairs</td>
<td>20-30</td>
<td>1-1.5h</td>
<td>50</td>
</tr>
<tr>
<td>6</td>
<td>Medium-heavy</td>
<td>75/≤50</td>
<td>400/300-350</td>
<td>75/30-40</td>
<td>Scaffold/ladder</td>
<td>30-40</td>
<td>1.5-2 h</td>
<td>60</td>
</tr>
<tr>
<td>7</td>
<td>Heavy</td>
<td>100/≤50</td>
<td>450/350-400</td>
<td>100/40-50</td>
<td>Poles/scaffold</td>
<td>40-60</td>
<td>2-2.5 h</td>
<td>70</td>
</tr>
<tr>
<td>8</td>
<td>Very heavy</td>
<td>&gt;100/&gt;50</td>
<td>&gt;450/&gt;400</td>
<td>&gt;100/&gt;60</td>
<td>Rope/poles</td>
<td>&gt;60</td>
<td>&gt;2.5 h</td>
<td>80</td>
</tr>
</tbody>
</table>

* Values are expressed as weight infrequently (0%-33% of time)/weight frequently (67%-100% of time).
† Descriptions are expressed as type of climbing infrequently/frequently.
‡ Values are number of instances of body motion (bending, kneeling, squatting, or reaching) per hour.
§ Values are time spent in continuous transition between sitting and standing positions.


### Metric Conversion Table

<table>
<thead>
<tr>
<th>Pounds</th>
<th>Kgs</th>
<th>Pounds</th>
<th>Kgs</th>
<th>Pounds</th>
<th>Kgs</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>2.3</td>
<td>60</td>
<td>27.2</td>
<td>150</td>
<td>68.4</td>
</tr>
<tr>
<td>10</td>
<td>4.5</td>
<td>70</td>
<td>31.7</td>
<td>200</td>
<td>90.8</td>
</tr>
<tr>
<td>15</td>
<td>6.8</td>
<td>75</td>
<td>34</td>
<td>250</td>
<td>113.4</td>
</tr>
<tr>
<td>30</td>
<td>13.6</td>
<td>80</td>
<td>36.3</td>
<td>300</td>
<td>136.8</td>
</tr>
<tr>
<td>35</td>
<td>15.9</td>
<td>90</td>
<td>40.8</td>
<td>350</td>
<td>158.8</td>
</tr>
<tr>
<td>40</td>
<td>18.1</td>
<td>100</td>
<td>45.4</td>
<td>400</td>
<td>181.4</td>
</tr>
<tr>
<td>50</td>
<td>22.7</td>
<td>125</td>
<td>56.7</td>
<td>450</td>
<td>204.1</td>
</tr>
</tbody>
</table>

Table 11 – Metric Conversion Table
Appendix 4: Case Studies
Case Study 1 – Lumbar Spine Injury

Worker | Male, 57 years old
Job Title | Interstate truck driver
Injury | L5-S1 disc prolapse with resolving nerve root radiculopathy.

Scenario
Acute lower back injury 3 months ago when a guide rope he was pulling downwards slipped, pulling his body forwards and into rotation.
MRI confirmed L5-S1 disc prolapse impinging upon L5 nerve root.

Expected restrictions and recovery times – comment from MD Guidelines:

**Disc prolapse**
Up to 90% of lumbar disc herniations improve without surgery. In most cases, the herniation resorbs. Even if the herniation remains, the symptoms often subside. Recurrence, even after discectomy, is reported in 3% to 7% of individuals (Canale).

**Radicular pain**, treated conservatively
Most radicular pain (sciatica) responds well to conservative management (ie, surgery is not required). After 6 weeks from date of onset the risk of aggravation or a further disc protrusion has returned to pre-injury risk.

**Lumbar disc displacement, treated medically not surgically**
Length of Disability – duration in days

<table>
<thead>
<tr>
<th>Job Classification</th>
<th>Minimum</th>
<th>Optimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sedentary</td>
<td>1</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Light</td>
<td>1</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td>Medium</td>
<td>1</td>
<td>21</td>
<td>42</td>
</tr>
<tr>
<td>Heavy</td>
<td>1</td>
<td>56</td>
<td>91</td>
</tr>
<tr>
<td>Very Heavy</td>
<td>1</td>
<td>91</td>
<td>156</td>
</tr>
</tbody>
</table>

Source: MD Guidelines

**Current Medical Guidelines**
Medical certificate states:
Fit to return to modified duties
4 hours per day, 3 days per week
No sitting > 30 minutes continuously
No lifting > 5kg

Comment from MD Guidelines:
Immediately after a trauma-related herniation, modifications of work duties may be necessary such as avoiding heavy lifting, twisting, repetitive flexion (stooping), and prolonged exposure to vibration.

Persistent radicular pain from a lumbar disc herniation, even without myelopathy, may not be compatible with heavy work.
<table>
<thead>
<tr>
<th>Current status</th>
<th>Currently not working – awaiting outcome of job analysis to determine suitable duties and GRTW program.</th>
</tr>
</thead>
</table>
| Reported functional abilities | Interrupted sleep pattern and wakes stiff each morning.  
Sitting / driving tolerance of 30 minutes continuously.  
Restricted with forward spinal flexion (stooping), e.g. to pull on work boots and clean bathroom.  
Unable to mow his large lawn or lift a full grass catcher.  
Can tolerate indoor sweeping and short periods of vacuuming but not mopping.  
Difficulties changing bed linen.  
Able to undertake food preparation and dishwashing.  
Independent with personal care. |
| Pain patterns | Left and centralised lower back pain with sensory dysfunction in left postero-lateral thigh to knee level.  
Pain is aggravated by prolonged sitting, repetitive or sustained stooping and handling weights > 5-7kg. |
| Treatment | Hydrotherapy twice a week.  
Supervised Pilates 3 times per week plus home exercise program.  
Analgesia – codeine tablets 3 times per day.  
Non Steroidal Anti Inflammatory Drug as required (average of 3 times per week). |
| Identified barriers to RTW | Is scenario fitting with MD guidelines – are there discrepancies?  
Current subjective functional tolerances match expected recovery outlined in MD Guidelines. |
| Family commitments | No specific complicating family issues identified. |
| Industrial issues | Interstate driver – works alone.  
Head office is based on the eastern seaboard and there are limited local duties available fitting medical restrictions.  
Reduced opportunities to graduate hours / work duties due to lack of suitable options at the work place.  
Prolonged driving on a constant basis for up to 10 hours per day and occasional loaded spinal movements are required to secure loads at beginning of trips.  
Truck is manual. Radiculopathy is in leg that operates clutch.  
Limited sitting tolerance. |
| Comorbidities | Age  
Heavy smoker  
No previous back injuries reported |
**Job Analysis**

Conducted with supervisor and worker with HR Officer on telelink from head office for discussion (pre and post analysis).

**Essential functions**

Checking truck prior to each trip e.g. oil, water, line integrity.
Securing loads.
Coupling trailers – attaching lines; rotating handle to retract stabilisers.
Driving to interstate destinations.
Uncoupling trailers.

**Non-essential functions**

Changing tyres is undertaken by a contractor
Cleaning the truck periodically using a truck wash

**Physical demands**

**Sitting / Driving - constant**
- Manual truck requiring frequent clutch use in built up areas; minimal clutch use on open road.
- Sitting on a fully supportive air ride seat for up to 10 hours per day.
- Exposure to whole body vibration

**Climbing - occasional**
- Vertical climbing in and out of truck cabin.
- Climbing between prime mover and trailer to connect trailer.

**Spinal rotation - occasional**
- Reversing using side and central mirrors to un/couple trailers.
- Throwing ropes over loads

**Stooping - occasional**

**Pushing / pulling - to secure load**
- Using medium to heavy level pull forces
- Medium level force to rotate handle to retract stabilising legs
- Light level forces to attach and detach lines between trailer and prime mover

**Lifting - occasional**
- 15kg – ground to waist level
- 5kg – waist to overhead level

**Carrying** – up to 15kg bundles of ropes short distances (10m) - occasional.

**Job Match**

Use of known limitations for condition as compared to job demands.

Pre-injury duties are currently unsuitable due to prolonged sitting; exposure to whole body vibration; medium -heavy clutch operation demands with affected lower limb; forces required to secure loads and postures required to attach lines when coupling trailers.

No other duties available with pre-injury employer as duties limited to long distance truck driving.

**Liaison**

- Conducted with supervisor and worker with HR Officer on telelink from head office.
- Discussed current restrictions and agreed that they cannot be accommodated with the duties available within the yard and long-distance driving.
- All parties discussed possibility of on off-site work hardening program.
Liaison (cont’d)  | Options for RTW explored – short term and long term.  
|---------------------------------------------------------------|
| HR Officer indicated parent company has links with local delivery company that could possibly host duties for work hardening. Duties involve collecting palletised goods which are loaded onto the truck by workplace store persons, and delivered within metropolitan area. Delivery duration is between 10-60 minutes.  
| Next step is to conduct a job analysis of the duties offered at the local delivery company to establish suitability for a GRTW program to improve work capacity.  

Agreed Actions  | Conduct a job analysis of the duties offered at the local delivery company to establish suitability for a GRTW program to improve work capacity.  
|---------------------------------------------------------------|
| Determining suitable duties list and conditions under which duties may be performed.  
| Development of a GRTW program with time frames relating to hours of work and possible commencement of driving with pre-injury employer.  
| Medical opinion to be sought to determine the long-term prognosis for a durable return to pre-injury duties to establish a clear RTW goal.  
| Liaison with treating practitioner / case manager to arrange for assessment of long term capacity.  

Follow Up  | Review of RTW goal following receipt of prognosis and medical information.  
|---------------------------------------------------------------|
| Review of capacity to drive long distances once sufficiently work hardened.  

### Case Study 2 – Shoulder Injury

<table>
<thead>
<tr>
<th>Worker</th>
<th>Male, 45 years old</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Title</td>
<td>Storeman – Beer manufacturer</td>
</tr>
<tr>
<td>Injury</td>
<td>Right shoulder bursitis and impingement (dominant arm)</td>
</tr>
</tbody>
</table>

#### Scenario
Gradual onset of symptoms over a period of months
He attributes his problems to the stacking of 12kg boxes into shipping containers for export of product, on a repetitive basis between ground and overhead level.
Reports that his discomfort levels are now preventing him from sleeping and performing normal work activities.

**Comment from MD Guidelines:**
Upper arm and shoulder sprains or strains typically occur as the result of direct trauma, falling onto an outstretched arm, overuse, or repeated attempts to lift or lower a heavy weight. However, with chronic degeneration of the muscle and tendon fibers, as occurs with impingement syndrome, older individuals may report a history of gradual onset of shoulder pain without known trauma.
Risk of a sprain or strain of the upper arm and shoulder increases with participation in overhead reaching and throwing activities, repeatedly lifting heavy weights, direct trauma to the shoulder, falling onto an outstretched arm, participation in contact sports, and poor physical condition. Men are affected more frequently than women due to the increased likelihood of occupational physical labor and participation in contact sports.

<table>
<thead>
<tr>
<th>Current medical guidelines</th>
<th>Treating practitioner has stated fit for modified duties, no above shoulder level work, maximum of 5kg lifting.</th>
</tr>
</thead>
</table>

**Comment from MD Guidelines:**
Depending on work duties and whether the dominant or nondominant arm is affected, the individual may require accommodations to restrict lifting, carrying, pushing, pulling, and reaching activities. Individuals whose dominant arm is affected may require a temporary or permanent reassignment of job duties.

<table>
<thead>
<tr>
<th>Current status</th>
<th>Has remained at work but is struggling with duties. The medical certificate has prompted the employer to seek further help to identify suitable duties within the work environment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worker reports pressure to undertake tasks outside of his capacity as there is minimal assistance available.</td>
<td></td>
</tr>
</tbody>
</table>

**Reported functional abilities**
- Describes constant pain in his right shoulder that intensifies on abducting his arm to approximately 80°.
- Unable to lay on right side.
- Experiencing difficulties with reaching out in front of his body and to the side, especially when exerting force.
- Compensating with left arm, is creating soreness in left shoulder.
- Unable to undertake vacuuming, gardening, tends to drive with his left hand on the wheel and right hand in his lap as his right shoulder aches on holding the wheel for long periods.
<table>
<thead>
<tr>
<th><strong>Treatment</strong></th>
<th>Physiotherapy 3 times per week, Hydrotherapy A cortisone injection in right shoulder but reports no improvement.</th>
</tr>
</thead>
</table>
| **Identified barriers to RTW** | **Is scenario fitting with MD guidelines – are there discrepancies?** Symptoms do not appear to be settling or capacity increasing as would be expected. Potential aggravating activities at work.  
**Family commitments** No specific complicating family issues identified  
**Industrial issues** Employer has reported that he is a consistent worker, always trying hard to perform well and taking on extra responsibilities. No performance issues existed prior to injury.  
**Co-morbidities** No previous injuries |
| **Job Analysis** | **Essential functions** Handling spare production machinery parts and consumables in varying shapes and sizes for receiving, storage and despatch  
Handling bulk product on pallets – forklift  
Manual box stacking – re-sort on pallets plus container hand stacking for export  
Ordering  
Receipt and despatch  
Stocktaking  
**Non essential functions** Cleaning including ride on sweeper, broom and vacuum  
Assist with production when required  
**Physical demands** Lifting – occasional to frequent  
20kg ground to bench level (mixed goods)  
12kg to overhead level  
Carrying – up to 20kg short distances (3m), occasional  
Pushing – flat bed trolleys, sack truck, scissor lift platform trolley  
Pulling – manual pallet wrap  
Reaching – extended forward reach in manual pallet stacking as pallets situated under overhead racking, overhead reach in containers  
Sitting – occasional – computer ordering and phone work. |
| **Job Match** | **Use of known limitations for condition as compared to job demands.** All work should be between ground level to chest level (below 80° shoulder flexion/abduction).  
Weight restriction currently at 5kg with height or frequency not specified, would expect a graduation in weight handling abilities.  
Match to be made based on individual tasks eg. Bench to bench transfer of incoming goods up to 10kg involving sliding action may be possible with lifting ground to chest level restricted to 5kg. |
Push capacity in relation to trolley use to be stated in terms of amount on trolley or pallet jack. Use light weight loads eg. 4 box limit on trolley. Restrict to no full pallet shifting using pallet jack.

Identified that he is accessing above shoulder level shelving with right arm as no assistance is available when part or consumable required. He is also often manually stacking pallets with up to 12kg boxes in order to meet deadlines of truck movements.

### Liaison

Meeting with employer, supervisor, worker, RTW in-house co-ordinator.

Job analysis completed.

Joint discussion regarding current duties, potential other modified duties, issues identified where worker is exceeding his restrictions with potential aggravation of condition, potential for graduated program where duties are introduced into his schedule as improvement occurs, methods of reducing risk.

Hand written action plan left with all parties indicating current tasks that fall within his capabilities and recommendations for changed workflow and equipment (eg. deliveries to be placed on bench rather than ground, scissor lift platform trolley to be used as transfer platform on shelving, mechanised pallet wrapper to be used instead of manual etc).

Graduated plan agreed upon and report to state that all parties are in agreement with plan – presented to treating practitioner in formal report and also handwritten copy sent with worker to appointment that afternoon to keep treating practitioner informed.

### Agreed Actions

**GRTW program / 6 Stage Program developed**

Suitable duties list

Time frames

Proposed modifications

Identify progression of duties once capacity improves though increased strength, range of movement and endurance.

### Follow Up

Program taken in stages to increase weight handling and height of lifting. Review at worksite scheduled for stage 5 before introduction of normal duties – this is to determine if normal duties are able to be achieved or if further modifications are required.

Review of work practices if symptoms not settling.
### Case Study 3 – Knee Injury

<table>
<thead>
<tr>
<th>Worker</th>
<th>37 year old female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Title</td>
<td>Registered Nurse (RN)</td>
</tr>
</tbody>
</table>
| Injury       | Sprain right anterior cruciate ligament (ACL), mild joint instability.  
Comment: Damage to the ACL is the most common cause of joint instability. Isolated injuries to the collateral ligaments generally heal well with non-operative treatment (MD Guidelines). |
| Scenario     | Worker works as a Registered Nurse in the Aged Care Industry. She was working night shift when she slipped and fell, landing ‘heavily’ on the right knee. She was able to complete the shift but did not return to work the following day. Reported ‘severe’ pain and some swelling in the anterior aspect of the right knee. |
| Current medical guidelines | Modified duties, 2 hours per day, 3 non-consecutive days per week, seated duties only, not able to drive long distances.  
Comment: Anticipated healing time is 2-6 weeks. Walking, climbing, squatting or kneeling during early treatment stages is restricted (MD Guidelines). Can nearly always return to seated work (WorkCoverSA Guidelines). |
| Current status | 6 weeks post-injury.  
Commenced modified duties one week ago, working 2 hours per day 3 non-consecutive days per week, performing seated office duties only.  
Reported functional abilities are:  
• Standing upright – 5 minutes at a time  
• Walking – 10 minutes at a time  
• Sitting – 30 minutes at a time  
• Lifting/carrying – 2kg bilaterally  
• Crouching – unable to perform  
• Kneeling – unable to perform  
Comment: The reported functional abilities do not match anticipated recovery times. |
| Treatment    | Physiotherapy 3 times per week, in the form of ultrasound, application of heat pack and interferential.  
Comment: Passive modalities on their own 6 weeks post-injury will not address instability of the knee. An active strengthening program is required. |
| Identified barriers to RTW | Is scenario fitting with MD guidelines – are there discrepancies?  
• Recovery does not fit anticipated recovery timeframes.  
• Reported functional abilities are significantly reduced, considering the anticipated recovery timeframe of 6 weeks.  
• Certified capacity for work does not match anticipated recovery timeframes.  
• Physiotherapy treatment is passive and no active treatment has been instigated.  
Family commitments  
The worker has a 5-year-old son who commenced school 8 weeks ago and is experiencing difficulties adjusting to school. |
### Identified Barriers to Work RTW (con'td)

<table>
<thead>
<tr>
<th>Industrial issues</th>
<th>Nil.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-morbidities</td>
<td>No previous injuries.</td>
</tr>
</tbody>
</table>

### Job Analysis

<table>
<thead>
<tr>
<th>Essential functions</th>
<th>RN on floor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 days/week, 8 hours/day</td>
<td></td>
</tr>
<tr>
<td>• Directing and liaising with staff re clinical and care issues</td>
<td></td>
</tr>
<tr>
<td>• Oral, hearing and vision assessments</td>
<td></td>
</tr>
<tr>
<td>• Planning and managing all clinical issues</td>
<td></td>
</tr>
<tr>
<td>• Wound management</td>
<td></td>
</tr>
<tr>
<td>• Administering insulin and taking blood sugar levels</td>
<td></td>
</tr>
<tr>
<td>• Blood pressure measurements</td>
<td></td>
</tr>
<tr>
<td>• Medication round</td>
<td></td>
</tr>
<tr>
<td>• Catheter flush</td>
<td></td>
</tr>
<tr>
<td>• Responding to emergencies – including resident transfers and administering oxygen</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2 days/week, 8 hours/day – Funding Submissions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Preparation of documentation and submissions to obtain funding for residential care. Computer-based tasks.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-Essential Functions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Retrieving linen from linen cupboard</td>
<td></td>
</tr>
<tr>
<td>Assisting pathology nurse with taking blood samples from residents</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical demands – RN on floor</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifting – occasional, 5kg floor to overhead</td>
<td></td>
</tr>
<tr>
<td>Pushing – medication trolley, minimal force, 1.5 hours consecutively</td>
<td></td>
</tr>
<tr>
<td>Crouching/kneeling – occasional, retrieve medication from low shelving</td>
<td></td>
</tr>
<tr>
<td>Semi-squatting – frequent, during medication round</td>
<td></td>
</tr>
<tr>
<td>Sitting – occasional (20% of shift)</td>
<td></td>
</tr>
<tr>
<td>Standing/Walking – constant (80% of shift)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical Demands – Funding Submissions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifting – occasional, 2-4kg waist to shoulder height</td>
<td></td>
</tr>
<tr>
<td>Sitting – constant (80% of shift)</td>
<td></td>
</tr>
<tr>
<td>Standing/Walking – occasional (20% of shift)</td>
<td></td>
</tr>
</tbody>
</table>

### Job Match

<table>
<thead>
<tr>
<th>Use of known limitations for condition as compared to job demands.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Tasks should be performed above hip height to eliminate need for low level reaching, kneeling and/or crouching.</td>
<td></td>
</tr>
<tr>
<td>• Worker should be able to immediately commence performing the full 2 x 8 hour shifts of Funding Submissions as the duties are predominantly seated. This should include the 2-4kg lifting as it is between waist to shoulder height and there is no medical restriction regarding lifting ability. Rotate sitting for 30 minutes with 10 minutes of walking.</td>
<td></td>
</tr>
<tr>
<td>• Worker should be able to perform 2 hours x 2 days per week of RN on Floor, performing the following tasks:</td>
<td></td>
</tr>
<tr>
<td>o Directing and liaising with staff re clinical and care issues</td>
<td></td>
</tr>
<tr>
<td>o Oral, hearing and vision assessments</td>
<td></td>
</tr>
<tr>
<td>o Planning and managing all clinical issues</td>
<td></td>
</tr>
<tr>
<td>o Wound management</td>
<td></td>
</tr>
<tr>
<td>Job Match (cont’d)</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>- Administering insulin and taking blood sugar levels</td>
<td></td>
</tr>
<tr>
<td>- Blood pressure measurements</td>
<td></td>
</tr>
<tr>
<td>- Catheter flush</td>
<td></td>
</tr>
<tr>
<td>- Assisting pathology nurse with taking blood samples from residents</td>
<td></td>
</tr>
<tr>
<td>- Retrieving linen from linen cupboard – above hip height.</td>
<td></td>
</tr>
<tr>
<td>- RN on floor duties – Rotate sitting for 20 minutes with 10 minutes of walking.</td>
<td></td>
</tr>
<tr>
<td>Worker to perform above mentioned duties within the sit/stand rotation.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Liaison</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Meeting with employer, worker, in-house RTW Coordinator.</td>
</tr>
<tr>
<td>- Discuss anticipated healing times and how this compares with worker’s progress</td>
</tr>
<tr>
<td>to date. Positively reinforce anticipated full recovery within a short period of</td>
</tr>
<tr>
<td>time.</td>
</tr>
<tr>
<td>- Discuss proposed current duties and work hours, how this fits with current</td>
</tr>
<tr>
<td>medical guidelines and anticipated recovery, and that risk of aggravation of</td>
</tr>
<tr>
<td>knee condition is minimal.</td>
</tr>
<tr>
<td>- Formulate graduate RTW program with worker and employer and agree on upon plan.</td>
</tr>
</tbody>
</table>
| Ask worker what she would consider to be a reasonable increase in work hours/duties. However, OT is to guide discussions, considering anticipated recovery times. Proposal for staged GRTW:
| - ↑RN on floor to 4 hours/day, 2 days/week, no change in duties.                |
| Rotate 15 minutes sitting with 15 minutes stand/walk.                           |
| - ↑RN on floor to 6 hours/day, 2 days/week, no change in duties.                |
| Rotate 10 minutes sitting with 20 minutes stand/walk.                           |
| - ↑RN on floor to 8 hours/day, 2 days/week, no change in duties.                |
| Rotate 10 minutes sitting with 30 minutes stand/walk.                           |
| - As performed to date with no restriction on stand/walk.                       |
| - Commence medication round, distribution of medication only.                   |
| - Pre-injury duties ie commence retrieving linen and medication from low level   |
| shelving; responding to emergencies.                                             |
| - Hand written action plan left with all parties, outlining RTW plan.            |
| - Discuss worker concerns regarding son’s adjustment to school and commitments  |
| for getting child to/from school. Seek solutions but concurrently reinforce      |
| obligation for RTW.                                                             |
| - Discuss physiotherapy treatment ie Passive treatment is no longer indicated     |
| and an active strengthening program needs to be implemented immediately to      |
| address residual mild knee instability.                                          |
| - Discuss that the treatment program will be undertaken concurrent with RTW      |
| program.                                                                        |

<table>
<thead>
<tr>
<th>Agreed Actions</th>
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<tbody>
<tr>
<td>- Liaise with physiotherapist regarding active strengthening program and how</td>
</tr>
<tr>
<td>this fits in with RTW program.</td>
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<tr>
<td>- Liaise with medical practitioner regarding medical clearance for RTW program.</td>
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<tr>
<td>- Consider need for case conference if medical clearance is not forthcoming.</td>
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<tr>
<td>This will indicate the need to discuss the knee condition and anticipated</td>
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<tr>
<td>recovery timeframes.</td>
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<tr>
<th>Follow up</th>
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<tr>
<td>- Worksite visit in stage 5 of RTW program to review work practices for</td>
</tr>
<tr>
<td>medication round, low level postures and emergency procedures.</td>
</tr>
</tbody>
</table>
Appendix 5 - Clinical Reasoning Cycle

Figure 9 – Clinical Reasoning Cycle


http://blogs.utas.edu.au/snm-pep/2013/03/26/clinical-reasoning-resources-for-professional-experience-facilitators/
Glossary

**Ability (Work)** – Defines what an individual is currently fit to do. Ability can increase with exercise and activity, or it can decrease with inactivity (Talmage, Melhorn & Hyman, 2011, p. 11).

**Accommodation (Work)** – Any modification of the workplace or specific job that allows a person with a disability to perform essential functions of a job and/or able to be gainfully employed (Rondinelli et al, 2008, p. 609).

**Alternative duties** – duties that are different from the pre-injury duties but allow the injured worker to stay at work or return to work (WorkCover SA, 2013).

**Capacity** – Refers to concepts such as strength, flexibility and endurance. It indicates that the individual is already maximally trained and fully acclimated to the job or activity in question (Talmage, Melhorn & Hyman, 2011, p. 11). It is the physical ability based on the injury and the medical condition (Talmage, Melhorn & Hyman, 2011, p. 23). The maximal ability or capability of a person. Capacity indicates existing abilities for activities that include the maximum function the person is able to perform (Genovese & Galper, 2009, p. 2).

**Clinical Reasoning** – describes the process by which clinicians collect cues, process the information, come to an understanding of a patient problem or situation, plan and implement interventions, evaluate outcomes and reflect on and learn from the process. (University of Newcastle, 2009, p. 3)

**Comorbidity** – A concomitant but unrelated pathologic or disease process (Spraycar, 1995, p. 372).

**Duration** – A continuous period of time (Spraycar, 1995, p. 528).

**Element** – The smallest step into which it is practical to subdivide any work activity (Martin & Jones, 1991, p. 2-1).

**Frequency** – The number of regular occurrences in a given time (Spraycar, 1995, p. 690).

**Functional Capacity Evaluation** – Is the objective measurement of a person’s ability to perform functional work activities (Genovese & Galper, 2009, p. 2).

**Functional limitations** – Restriction in or lack of ability to perform a task due to impairment. In some instances, functional limitations may be overcome through personal or environmental accommodations (Rondinelli et al, 2008, p. 611).

**Guides (for Work)** - Recommended appropriate levels of activity at work, relevant to phases of recovery from injury or illness (Talmage, Melhorn, & Hyman, 2011).

**Illness (Work-relevant, Occupational)** - Conditions that do not occur from specific traumatic events. Chronic musculoskeletal pain is most common in the illness group. Any abnormal condition or disorder (other than one resulting from injury) caused by exposure to a factor(s) associated with employment. (Talmage, Melhorn & Hyman, 2011, p. 24)

**Injury (Work-relevant)** - A condition that occurs from a specific traumatic event(s) (Talmage, Melhorn & Hyman, 2011, p. 24).
Job – A group of positions within an organisation which are identical with respect to their major or significant tasks (Martin & Jones, 1991, p. 2-1).

Job Analysis – A systematic way of describing the physical activities that a job requires (Martin & Jones, 1991, p. 2-1). An analysis of work demands (intellectual, physical, sensory and perceptual), workstation design, equipment used and the work environment (Innes and Straker, 2002, p.56).

Job Matching – A process of determining the adequacy of the worker’s abilities as they relate to the essential functions of a specific job (Genovese & Galper, 2009, p. 21).

Job Rotations – The risk of musculoskeletal disorders may be minimised by rotating staff between different tasks to increase task variety. Job rotation requires the tasks to be sufficiently different to ensure that different muscle groups are used in different ways so they have a chance to recover (Safe Work Australia, 2011).

Modified duties – Components of some of the pre-injury duties that have been included or removed to match the injured worker’s capacity (WorkCover SA, 2013)

Occupation – A group of jobs in which a common set of tasks are performed (Martin & Jones, 1991, p. 2-1).

Pace (of work) – Refers to rate or speed at which an element or a task is performed (Dwyer, Ksiazkiewicz, Moody, 2013).

Position – Collection of tasks constituting the total work assignment of a single worker (Martin & Jones, 1991, p. 2-1).

Pre-injury duties – Duties performed by the worker prior to sustaining a work-relevant injury or illness (Dwyer, Ksiazkiewicz, Moody, 2013).

Return to work – This includes stay at work and return to work options (Talmage, Melhorn & Hyman, 2011, p. 23).

Risk – Chance of harm to the worker, co-workers or general public if the worker engages in specific work activities. It is the possibility of re-injury or worsening of the medical condition. (Talmage, Melhorn & Hyman, 2011, p. 10, 23)

Sign – Any abnormality indicative of disease, discoverable on examination of the patient (Spraycar, 1995, p. 1614)

Symptom – Any morbid phenomenon or departure from the normal structure, function, or sensation, experienced by the patient (Spraycar, 1995, p. 1718)

Task – One or more elements and is one of the distinct activities that constitute logical and necessary steps in the performance of work by the worker (Martin & Jones, 1991, p.2-1).

Tolerance – It is the ability to tolerate sustained work activity at a given level. Symptoms such as pain and/or fatigue are what limit the ability to perform the task(s) in question. Tolerance is not scientifically measurable or verifiable. Tolerance is influenced by psychosocial issues such as previous pain experience, fear-avoidance beliefs, and economic considerations (Talmage, Melhorn
& Hyman, 2011, p. 12-13). It refers to the decision by the individual to endure symptoms such as pain or fatigue in exchange for the benefits of work (Talmage, Melhorn & Hyman, 2011, p. 23).

Work limitations – The current abilities the individual lacks or tasks he/she is unable to perform; describe what the person is not physically able to do (Talmage, Melhorn & Hyman, 2011, p. 12).

Workplace Assessment – ‘The interaction between the worker, the job and the work environment ... in order to identify suitable duties, including an overview of the physical environment, job demands and working conditions’ (Innes and Straker, 2002, p. 55).

Workplace modifications – Changes to operation of machines, equipment, work aids, tools and/or work processes to reduce risk and/or enable workers with reduced ability to stay at work or return to work (Dwyer, Ksiazkiewicz, Moody, 2013).

Work practices – The postures and movements that the person utilises while performing a given task (Dwyer, Ksiazkiewicz, Moody, 2013).

Work Restrictions – Work activities that the individual should not do on the basis of known risk of harm to self or others (Talmage, Melhorn & Hyman, 2011, p. 10).
References


# Useful Resources

Note: all links were current at time of publication.

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<tr>
<th>Organization</th>
<th>Description</th>
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<tr>
<td>MD Guidelines</td>
<td></td>
<td><a href="http://www.mdatagridelines.com">http://www.mdatagridelines.com</a></td>
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<tr>
<td>Royal Australasian College of Physicians</td>
<td>Australian and New Zealand Consensus Statement on the Health Benefits of Work</td>
<td><a href="http://www.racp.edu.au/index.cfm?objectid=57063EA7-0A13-1AB6-E0CA75D0CB353BA8">http://www.racp.edu.au/index.cfm?objectid=57063EA7-0A13-1AB6-E0CA75D0CB353BA8</a></td>
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<td>Scottish Intercollegiate Guidelines Network</td>
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<tr>
<td>The Cochrane Library (United States)</td>
<td></td>
<td><a href="http://www.thecochranelibrary.com/view/0/index.html">http://www.thecochranelibrary.com/view/0/index.html</a></td>
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</tbody>
</table>
| WorkCoverSA (cont’d) | GP Essentials: includes assessing yellow flags, and examples of work capacity that could be recorded for various types of musculoskeletal injuries  
http://www.workcover.com/health-provider/gp-essentials  
Health Provider Guidelines by Injury Type  
http://www.workcover.com/health-provider/guidelines-by-injury-type  
Links to guide for assessing red and yellow flags  
Injury Management  
Publications and Forms  