HabitAtWork is an education and training tool that promotes self-help and problem solving for the prevention and management of discomfort, pain and injury.
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What is discomfort, pain and injury (DPI)?

The information below will give you an idea of what DPI means.

DPI encompasses many conditions:

• Conditions that come under Gradual Process Injuries (GPI), previously known as Occupational Overuse Syndrome (OOS) such as tennis elbow, golfer’s elbow, carpal tunnel syndrome, tendonitis etc.
• Back pain (this also includes neck pain).
• Strains and sprains – in all parts of the body, shoulders, legs, back, arms etc.

DPI usually arises from non-traumatic origins:

• There is no immediate force involved in the start of DPI. DPI tends to come on more gradually.
• It may appear that DPI has occurred after a traumatic event when in fact it hasn’t. For example: immediate low back pain from bending over to do up shoe laces. Although the pain has come on immediately, it probably wasn’t simply bending over that has caused the pain.
• Bending over may have been the ‘straw that broke the camel’s back’, i.e. the end result of a series of cumulative events.

DPI is not a clearly defined group of conditions:

• It is important to realise that DPI is by no means a clearly defined group of conditions.
• Even 'proper' traumatic injuries e.g. cutting a finger, tripping over a step, will have elements of the contributory factors.
Relationship between discomfort, pain and injury

Discomfort and pain can occur in the absence of any obvious cause or injury.

DPI relationship examples:

- Backache and headache are common everyday discomfort and pain, but they are different from back injury and head injury.
- The amount of discomfort and pain you experience does not necessarily relate to the amount of tissue damage or severity of injury.
- Your muscles and bones are very resilient and hard to injure but can be susceptible to discomfort and pain.
- Discomfort and pain can often lead to injury when the right combination of contributing factors exist.
Myths and realities of DPI prevention

Despite their best intention, workplaces often get poor results trying to deal with DPI issues. Why? Usually it is because they lack understanding of what really causes or contributes to DPI.

Here are the myths and realities of DPI:

- It’s a myth that people who experience pain have an identifiable injury.
- It’s a myth that DPI in the back can be dealt with by simply changing the way a person lifts.
- It’s a myth that work that requires manual handling is hazardous to your health.
- It’s a myth that you should let your pain guide you as to how much exercise and activity you do.

Realities

Putting up posters or teaching ‘correct’ lifting practices alone is not enough to prevent discomfort, pain and injury. This is why many workplaces fail to achieve their goal in this area.

Load/forceful movements and workplace layout/awkward postures are only two of seven groups of contributing factors that lead up to the possible onset of DPI in the workplace.
Why does DPI occur?

DPI usually starts as a result of not using your body as it is designed to be used.

Your body is designed to do a variety of tasks

Variety is the spice of life! If you don’t heed your body’s basic requirement to do a variety of tasks, then DPI may start to arise.

Historically, work was not specialised as it is today. People performed many tasks throughout the course of the day or week thus changing the demands on each part of the body.

Here’s a scenario of how cart makers used to operate in the old days and how they do today.

In the old days...

Cart makers used to source their materials, fashion them into carts, maintain the tools, do their own marketing and deliver the cart to the buyer. They generally had a hand in all parts of the cart’s inception.

Today...

Modern businesses, in an effort to improve productivity and efficiency, have specialised tasks and one person often performs the same task, or set of tasks, repetitively.

The cart makers have now partnered with the neighbouring cart makers. One just sources the materials, another makes one part of the cart and another worker makes another part and someone else does the marketing.
Your body is designed to move to be healthy

Your joints and muscles need to move to stay healthy. Tense or rigid postures restrict the flow of blood through the body’s tissues. If held tense, your body will feel fatigued and become unable to perform its functions properly.

Gentle movement helps the flow of blood by gently compressing and relaxing the pressure on the arteries and veins, thus helping to pump the blood around the body.

Look at the muscular effort illustration below:
How serious is the issue of DPI?

As can be seen from the table here, numbers and costs of claims for DPI are significant and are increasing on a yearly basis.

Can you make a difference?

Yes, HabitAtWork is aimed to provide you with the information and tools to help you prevent and manage DPI.

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of claims</th>
<th>Cost of claims*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>57,843</td>
<td>$97 million</td>
</tr>
<tr>
<td>2001</td>
<td>67,878</td>
<td>$107 million</td>
</tr>
<tr>
<td>2002</td>
<td>76,421</td>
<td>$138 million</td>
</tr>
<tr>
<td>2003</td>
<td>79,199</td>
<td>$142 million</td>
</tr>
<tr>
<td>2004</td>
<td>80,611</td>
<td>$143 million</td>
</tr>
<tr>
<td>2005</td>
<td>80,515</td>
<td>$152 million</td>
</tr>
<tr>
<td>2006</td>
<td>79,420</td>
<td>$164 million</td>
</tr>
</tbody>
</table>

*Cost of claims is rounded to the nearest million dollars.
DPI Quiz

How much of what you’ve heard about OOS or back pain is true? What causes discomfort and pain in the workplace?

Take the following quiz to find out (answers provided on the next page):

Q1: If you have pain, you must therefore have an injury.  
   True  False

Q2: DPI is always a result of bad workstation design or set-up.  
   True  False

Q3: Poor lifting techniques are to blame for back DPI.  
   True  False

Q4: OOS is a workplace disease or disorder.  
   True  False

Q5: Claims for a diagnosis of OOS will not be accepted by ACC.  
   True  False

Q6: Even if you maintain the ‘perfect’ working position, it is possible that you will experience DPI.  
   True  False

Q7: If equipment states that it is ‘ergonomically’ designed, then it must be good for me.  
   True  False

Q8: Using a computer screen causes eye problems.  
   True  False

Q9: It is possible to prevent back pain.  
   True  False

Q10: If you have back pain, the best thing you can do is rest.  
    True  False

Give 1 point for each question you answered correctly.

My score:  

Page 7
DPI Quiz Answers

Q1: False. Pain can exist without injury! Think of when you get a headache, although headaches can arise after injury, they can also exist without and we generally think little of them past taking some pain relief.

Q2: False. Although workstations should be designed or arranged to adequately perform the task that they are meant to do, it doesn’t mean that this is the problem alone.

There are many contributing factors that combine for discomfort and pain to arise. If all of them are not addressed (in their relative proportion) then it is unlikely that the discomfort and pain being experienced will go away.

Q3: False. Although adequate preparation should be made before a lift, it doesn’t mean that this is the problem alone. Remember the seven groups of contributing factors.

Q4: False. OOS is not a disease or disorder. It is an umbrella term used to encompass a number of medical diagnoses that have met certain criteria for the purposes of addressing them as a group e.g. for injury prevention programme purposes.

OOS or not?

A condition can be classified as OOS only if it has met certain criteria. These are largely around factors in the workplace being the predominant cause.

For example: someone is diagnosed with a tennis elbow.

- If this injury is caused by playing tennis as a hobby, then it is not an OOS condition.
- If it is caused by their workplace activity, then it may be an OOS condition.

Criteria for OOS

- The employment task or employment environment must have a particular causative property or characteristic that caused or contributed to the physical condition.
DPI Quiz Answers (continued)

- The property or characteristic is not found to any material extent in the person’s non-work activities or environment, and
- There is a greater risk of sustaining this type of personal injury for people who do this particular employment task or work in that environment, than for people who do not.

Q5: True. For the purposes of making an ACC claim, a diagnosis is essential (e.g. tendonitis). An individual who presents with a condition that meets the criteria of OOS should still have their condition referred to by its appropriate medical diagnosis and NOT as OOS.

Q6: True. Arranging the workstation to an anatomically ‘perfect’ working position simply allows a good starting position to be obtained. It is very important for the health and wellbeing of your body that you move it through a range of positions throughout the day.

Working Position

Our bodies are designed to move. Even a ‘perfect’ position will become uncomfortable over time.

It is often said “the best position to be in is the next one”.

Q7: False. There are no controls or limitations on the use of the words ‘ergonomically designed’ and frequently they are used simply as a selling point.

Ergonomically designed

Often the term ‘ergonomically’ designed is applied to equipment that is in some way adjustable—this does not necessarily mean that they are better for the task.

For example, an ‘ergonomically designed’ keyboard (with a space in the middle of the keys) may suit a touch typist. But, due to the gap in the middle and angle change, it may not suit the non-touch typist.

Or, if the mouse is used a lot then the increased distance to the mouse due to the size of an ‘ergonomic’ keyboard may contribute to the chances of DPI occurring.
DPI Quiz Answers (continued)

Q8: False. Computer screens are frequently cited as the main cause of eye problems. But studies have found that the screen itself is not entirely to blame.

Visual discomfort

Computer tasks require very good vision in mid-field and can highlight existing problems previously undetected.

Like the rest of our bodies, the eyes need variety and movement. Regular rests and changes of visual field are required to give the eyes a break.

Glare and incorrect lighting can place stress on the visual field.

Q9: False. Back pain is a common part of everyday life and has many potential contributing factors. It often occurs for no apparent reason thus there’s no clear consensus on how it could be prevented.

Q10: False. The concept of rest to treat back pain is outdated. Health professionals now advise patients to continue their usual activities.
Resources

**Approved Code of Practice for the Use of Visual Display Units in the Place of Work (1995)** - Provides advice and recommendations on how to prevent the development of health and safety problems that may arise from computer use. To get a copy, contact the Department of Labour (see below).

**Computer Workstations - Prevention and Management of Discomfort, Pain and Injury and Overview of Computer Workstations** - These documents supplement, but do not replace, the Approved Code of Practice above. It has been developed in response to changing technology, and new ways of managing the hazards of computer use. Available from October 2006. For more information, contact ACC (see below).

**How to implement safer workplace practices (ACC366)** - Introduction to ACC's comprehensive health and safety system to help prevent workplace injuries. Also ask about Work Smart Tips for Your Workplace (you can get posters and wallet cards containing DPI prevention tips). For more information, contact ACC (see below).

**Health and Safety in Employment Act 1992 (HSE Act)** - Promotes the prevention of harm to all people at work. The Act applies to all NZ workplaces. For more information, contact the Department of Labour (see below).


**Department of Labour**
P. O. Box 3705
Wellington, New Zealand
Telephone +64 4 915 4400
Fax +64 4 915 4015

**ACC**
Freephone 0800 THINKSAFE (0800 844 657)

Email thinksafe@acc.co.nz or go to www.acc.co.nz (under publications).
Frequently Asked Questions

Do I need new equipment?
Equipment must facilitate comfortable working positions and allow movement around different positions during the course of the day.

It is likely you will need new equipment if your current equipment is:

- Old or dated
- Damaged
- Completely fixed (i.e. not adjustable)
- Poorly maintained

If you have DPI, buying new equipment is not always the answer. Check out the Seven Contributing Factors that can contribute to DPI. Employers must take all practicable steps to ensure the safety of employees while at work, which includes providing suitable equipment/furniture. But they should also provide training in its use, as it may not simply be the style or design of equipment that causes problems.

The Health and Safety in Employment Act identifies prolonged use of a computer workstation as a possible “hazard” and that using a computer workstation may potentially cause “harm”.

What are the issues to consider when buying new equipment?
1. How long is the employee required to use the equipment?
2. What flexibility or control do they have over adjusting or changing positions?
3. Is the equipment used by multiple users? (This will usually require a far higher degree of flexibility)?
4. What sorts of outputs are required of the employees?
5. How much does the equipment/furniture cost?
6. Do the employees know how to properly use the equipment?

An employer may provide, for example, a chair with all the adjustments imaginable but unless the employee knows how to use it then one may find purchasing such technology rather pointless. **Good equipment or furniture used incorrectly can still result in DPI.**

Can using a computer affect my unborn baby or cause a miscarriage?
At present, there is no consistent, conclusive evidence from scientific studies that computer work by pregnant women results in a higher incidence of miscarriages or congenital malformation than women performing other types of work. The level of radiation given out by computers is well below the values identified in international guidelines as harmful to human health.
Frequently Asked Questions (continued)

Can I get seizures from too much computer work?
Photogenic epilepsy is a rare condition affecting one in 4000-8000 people. People susceptible in this way can experience epileptic attacks triggered by exposure to flickering light. The likelihood of such attack depends on factors such as sex, age, the frequency of the flicker, and the intensity and size of the source.

CRT screens (conventional monitors) have a refresh rate that is well above the optimum flicker frequency for triggering an attack. The relatively low brightness of the computer screen, its small size and the other factors mentioned make the chance of such an attack during computer work very unlikely.

Are dermatitis and other skin conditions related to computer use?
Scientific investigation of dermatitis and other skin problems experienced by computer operators has not revealed any consistent pattern of association with computer use. There is however some evidence that:

- Static electric fields when combined with high dust concentrations may contribute to facial skin complaints.
- Where an existing skin condition exists, electromagnetic fields may aggravate the condition.

Increasing the level of humidity or improving the ventilation may help to alleviate some symptoms.

Are there any other health issues associated with the electromagnetic emissions from computers?
Studies have been conducted to explore the relationship between health effects such as brain cancer and leukemia and exposure to electromagnetic fields generated by computers. However there is no clear, consistent evidence that exposure to computers can effect a users’ health.

On the basis of this information, there should be no major concern about the electromagnetic fields and radiation generated by computers. However, given the areas of “incomplete knowledge”, it is sensible to ensure that exposure to these fields is minimised.
Frequently Asked Questions (continued)

As a computer user am I more likely to develop eye problems?
Despite extensive research, there is no conclusive evidence that computer use can cause diseases (e.g. cataracts) or long-term changes to eyesight. However, due to the acute visual demands of many computer tasks, computer use may highlight pre-existing eye problems or produce visual fatigue and discomfort.

Symptoms of visual fatigue and discomfort may include:

- General aching/burning of the eyes
- Watering, red or itchy eyes
- Blurred vision or difficulty in focusing
- Changes in colour perception
- Headaches.

Visual discomfort is influenced by a number of different factors including individual visual acuity, the placement of the screen relative to the user, lighting of the workstation, humidity levels, the organisation of work and frequency of work breaks.

Following the recommendations presented in the Best Practice Guideline will minimise the risk of visual fatigue and discomfort for computer users.
Contributing factors

There are **seven groups of contributing factors** which all exist to some degree in all workplaces. By only addressing only one or two factors and not all of them, you are unlikely to achieve the goal in preventing discomfort, pain and injury (DPI).

Here are the seven groups of contributing factors:

- Individual factors
- Psychosocial factors
- Work organisation
- Work layout and awkward postures
- Load and forceful movements
- Task invariability
- Environmental issues

! The order does not reflect the level of importance.

? Think about your workplace: how relevant is each factor in your environment?
The seven groups of contributing factors

Individual factors

These factors can be divided into two categories:

<table>
<thead>
<tr>
<th>Factors that you can control:</th>
<th>Factors that you can’t control:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Nutrition</td>
<td>• Age</td>
</tr>
<tr>
<td>• Fitness</td>
<td>• Gender</td>
</tr>
<tr>
<td>• Sleep</td>
<td>• Genetic makeup</td>
</tr>
<tr>
<td>• Smoking</td>
<td>• Race</td>
</tr>
</tbody>
</table>

Individual factors in my life that I can control:

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The seven groups of contributing factors (continued)

Psychosocial Factors

Psychosocial factors cover all the ‘issues’ that you may be facing (both in-work and outside work) and how you deal with them.

![Diagram of IN-WORK and OUTSIDE WORK factors]

Issues in both areas affect each other. Outside work issues can cause problems when you’re at work and vice versa.

My psychosocial factors:

Circle factors that are relevant to you or add more below:
The seven groups of contributing factors (continued)

Work organisation

These factors relate to how your work is organised, including:

- Number of hours worked.
- Whether there is shift work.
- When rests are taken.
- Whether work is rotated.
- How work 'flows' through the organisation.
- 'Peaks' and 'troughs' of work load.
- Your management structure.
- How much control you have over your job.
- Who you answer to.
- How varied your work is.
- Other factors.

How these factors are affecting me:

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The seven groups of contributing factors (continued)

Work layout and awkward postures

These include the positions in which the person works.

- Is the workplace arranged at the correct heights?
-Are reach envelopes considered?
-Is equipment designed to suit the intended worker's anatomical requirements?
-Is the correct, or most appropriate, equipment available?
-Does the person know how to adjust/alter their workstations?
-Are there other factors?

How these factors are affecting me:

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_____________________________________________________________________
The seven groups of contributing factors (continued)

Load and forceful movements

These relate to how much the muscles are being required to work. Issues include:

- Carrying, pushing, pulling or manipulating of loads in the whole body (as in manual handling of objects), or
- Using part of the body to perform a task e.g. how much force is used when keying on a keyboard.

To avoid discomfort and pain from forceful movements, only use as much force as required to achieve the task and relax the rest of the muscle(s).

How these factors are affecting me:

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The seven groups of contributing factors (continued)

Task invariability

These include issues such as:

- Repetition
- Static holding (a long time in one position with no muscular relief)
- Lack of variation in cognitive demand (the amount that you have to think)

How these factors are affecting me:

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________________________________________________________________________
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________________________________________________________________________
The seven groups of contributing factors (continued)

Environment issues

These include things such as:

- cold
- heat
- air movement
- humidity
- vibration
- noise
- lighting levels

Within workplaces, it is often very hard to please everyone! But you should at least try.

Environment issues in my workplace:

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________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
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The combination effect

The combined effect of the contributing factors act in a way that magnifies their effect.

Imagine your body as a container into which contributing factors go. If the total of the contributing factors overflows the container then DPI may arise.

Each person's container holds a different amount due to factors that we have no control over, (e.g. age, gender, genetic makeup etc). To represent this we need a "block" at the base which effectively changes the volume remaining. The size of the block depends on the individual. This explains why given identical working conditions, some people get DPI and others do not - the "base block" is a different size.

The size of the base block, which represents a number of individual factors, differs from one individual to another.
Contributing factors and the combination effect

Below is an example of the seven groups of contributing factors affecting an individual. When the total of all the factors overflows the body, this is when DPI is likely to occur.

Indicate where the slider positions will be for you right now: