

Wellnomics Ergonomics Reference Guide

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Introduction

The causes of computer related injuries are complex and involve many factors, such as the level of computer use, workstation ergonomics, work load and stress levels, and physical fitness.

Ideally, Wellnomics Risk Assessment needs information on all these factors to correctly assess risks and provide recommendations best suited to each individual.

Wellnomics Risk Assessment operates in three steps.

Automated assessment of computer use: Data is gathered by the Wellnomics app over a 4 week period and analyzed to capture typical computer activity. This allows Wellnomics to calculate indicative statistics on computer usage. For example, the average time spent at the computer each day, how often breaks are taken and how many mouse-clicks or keystrokes are done. To create this profile the software compiles daily summary statistics on computer activity. These statistics can be viewed as they are being compiled by looking under the Analyze > Statistics menu in the web portal for the product.

Online Assessments: Once an accurate profile of normal computer use has been compiled, each office worker is asked to complete several online assessment questionnaires. These assess many other factors that can't be measured from your computer activity, such as posture, workstation ergonomics, stress levels, physical fitness, and also any existing symptoms or discomfort. Each assessment section takes between 5 and 10 minutes to complete.

Personal Risk Report and Recommendations: Once Wellnomics has all the information it needs this information is passed through a special 'expert system' which calculates each person's unique risk profile. The result is a personalized report showing their risks for developing RSI, and recommendations for addressing any risks found.

The report, and the risk factors that Wellnomics assesses, is divided into six categories:

Risk Category	Description
Computer Use	<p>Measures how much time you spend at the computer, your level of mouse and keyboard use, and whether you take sufficient breaks.</p> <p>High levels of computer use, with few breaks leads to a higher risk.</p>
Speed & Intensity	<p>Evaluates the speed and intensity of your computer work. For example, does your work require high keystroke rates, intensive or high precision mouse work (e.g. CAD), or continuous repetition of the same tasks.</p> <p>The more intensely you are using the computer the more stress is placed on your body, and the quicker fatigue occurs.</p>
Breaks	<p>Analyses how well you are complying with the break and work load guidelines the Wellnomics app provides.</p> <p>Looks at your micropause and break compliance, and whether the Wellnomics app settings are set correctly.</p>

Posture & Workstation	Assesses the ergonomics of your workstation (covering your chair, desk, screen, mouse and keyboard), and assesses your posture when using the computer. Poor workstation ergonomics and poor posture can result in an increased risk.
Discomfort	Assesses any existing symptoms of discomfort you may have as a result of your computer use. Looks at the severity of any discomfort present, which body regions are affected, and what impact any symptoms may have had on your work. People with existing discomfort and symptoms have an increased risk of injury.
Individual	Looks at individual factors such as your physical fitness level, how easily you're able to relax, and how hard you push yourself when tired. These factors help determine your level of muscle fatigue and how quickly you recover from fatigue.
Work Environment	Evaluates some of the more non-physical aspects of your work environment, such as work pressure, stress and levels of management and co-worker support available to you in your job. These factors greatly affect how the body responds to physical risk factors.

The report provides a rating for each risk

category (of High, Medium, or Low risk), together with an overall High/Medium/Low risk rating.

If someone is found to have a Medium or High level of risk in any category, they will be given recommendations on how to reduce these risks.

Reports can be run to analyze risk and the incidence of specific risk factors across your department or organization.

Computer Use

This Risk Category looks at how much time the user spends on the computer, their time spent using the mouse and keyboard, their peaks in usage, and whether they are taking sufficient natural breaks. All Risk Factors are based upon usage averaged over the last four weeks of computer use. This means that a user has to have a sustained pattern of high use before being flagged as at risk. Occasional periods of higher than normal use (e.g. 1 week) will not be sufficient to influence risk.

Long periods spent using the computer, high mouse use and a lack of sufficient breaks are known to be important risk factors for musculoskeletal symptoms.

However, if a user has any of these three Risk Factors present and does not have Wellnomics Breaks & Exercises enabled, then this is a sign that these need to be enabled for them.

If a user has these three Risk Factors present and does have Wellnomics Breaks & Exercises enabled, then it may be that their Breaks & Exercises settings are incorrect, or they are ignoring too many break warnings. See later Breaks section for Risk Factors covering these issues.

Very high computer use

Users with this risk factor have computer use of more than 30 hours per week (6 hours per day on average). This puts them in the top 1.5% of computer users, well above the normal population average for computer use of 10-15 hours per week. This level of computer use significantly increases the risk for developing RSI symptoms. Continuing with such high levels of computer use should be avoided.

Due to their high level of exposure these computer users should be your first priority for implementing RSI prevention measures.

Recommendations

- Ensure management is aware of these users' very high computer use. Talk with management to identify the reasons behind these users' very high use and investigate ways of reducing their workload at the computer, or mitigating its effects. Computer use over 30 hours per week (6 hours per day) normally indicates overtime is being worked (more than 40 hours per week). You may need to consider limiting ongoing overtime which involves extended computer use
- Try to limit computer use to less than 25 hours a week (5 hours a day) by spreading workload over more working days or workers and/or by job or task redesign. Try to improve the organization of tasks and jobs so that these long hours won't be necessary. You could also consider hiring more (part-time) employees or cutting out tasks all together.
- Encourage management and users to avoid very long days on the computer. Often users with high use will have one or two days each week of particularly high use, perhaps 6-8 hours in one day (possibly working late to get something finished). Such high peaks in computer use cause a raised risk of RSI symptoms and should be avoided if possible. If peaks in work load are difficult to avoid, other ways to reduce the risk should be considered. For example, allowing a late start following an extended computer work day which was required to meet deadlines.
- Ensure that other risk factors present for these users are addressed. It may be difficult to reduce these users' computer use significantly, but you can still minimize their overall risks by ensuring that all other aspects of their work environment are as good as possible. For example, you should ensure that:

- these users are well trained about good workstation ergonomics and RSI prevention
 - their posture and workstation ergonomics are excellent
 - stress is well managed
- Regularly survey these users for symptoms of discomfort related to their computer use. If any raised levels of discomfort are found, take immediate remedial action to reduce their workload, and provide support.
 - If you find raised symptom levels ask the users to choose a different stretch-break settings preset. This will provide them with a specially designed recovery / rehabilitation breaks and exercise regime to help reduce their symptoms. Explain to the users with symptoms why taking more frequent breaks is important, and that it will not reduce their productivity in the long term, even if it takes a while to get used to.

Criteria

Using the computer for more than 30 hours per week over the last 4 weeks.

High computer use

Users with this risk factor have computer use of 25 hours to 30 hours a week (between 5 hours and 6 hours a day on average). This puts them in the top 6% of computer users, well above the normal population average for computer use of 10-15 hours per week. This level of computer use increases the risk of developing RSI symptoms. Computer use above this level for long periods should be avoided.

Due to their higher exposure levels these computer users should be a high priority for implementing RSI prevention measures.

Recommendations

- Ensure management are aware of these users' high computer use. It is possible some of these users are working overtime regularly (more than 40 hours per week at work). You may need to consider limiting ongoing overtime which involves extended computer use.
- Try to limit users' computer use to less than 25 hours a week (5 hours a day) by spreading workload over more working days or workers and/or by job or task redesign. Try to improve the organization of tasks and jobs so that these long hours won't be necessary. You could also consider hiring more (part-time) employees or cutting out tasks all together.
- Encourage management and users to avoid very long days on the computer. Often users with high use will have one or two days each week of particularly high use, perhaps 6-8 hours in one day (possibly working late to get something finished). Such high peaks in computer use cause a raised risk of RSI symptoms and should be avoided if possible. If peaks in work load are difficult to avoid, other ways to reduce the risk should be considered. For example, allowing a late start following an extended computer work day which was required to meet deadlines.
- Ensure that other risk factors present for these users are addressed. It may be difficult to reduce these users' computer use significantly, but you can still minimize their overall risks by ensuring that all other aspects of their work environment are as good as possible. For example, you should ensure that:
 - these users are well trained about good workstation ergonomics and RSI prevention
 - their posture and workstation ergonomics are excellent
 - stress is well managed

- Regularly survey these users for symptoms of discomfort related to their computer use. If any raised levels of discomfort are found, take remedial action to reduce their workload, and provide support.
- If you find raised symptom levels ask the users to choose a different stretch-break settings preset. This will provide them with a specially designed recovery / rehabilitation breaks and exercise regime designed to reduce their symptoms. Explain to the users with symptoms why taking more breaks more often is important, and it will not reduce their productivity long term, even if it takes a while to get used to.

Criteria

Using the computer for 25 hours - 30 hours per week over the last 4 weeks.

Medium-high computer use

Users with this risk factor have computer use of 20 hours to 25 hours a week (between 4 hours and 5 hours a day on average). This puts them in the top 20% of computer users and above the normal population average for computer users of 10-15 hours per week. This level of computer use may increase the risk of users developing RSI symptoms.

These computer users should be a higher than average priority for RSI prevention measures.

Recommendations

- You may wish to make management aware that these users have higher than average computer use.
- Encourage management and users to spread computer work evenly over the week and to avoid peaks in computer use.
- Ensure that other risk factors present for these users are addressed. For example, you should ensure that:
 - these users are well trained about good workstation ergonomics and RSI prevention
 - their posture and workstation ergonomics are excellent
 - stress is well managed
- You may wish to survey these users for symptoms of discomfort related to their computer use. If any raised levels of discomfort are found, take remedial action to address these symptoms.
- If you find raised symptom levels ask the users to choose a different stretch-break settings preset. This will provide them with a specially designed recovery / rehabilitation breaks and exercise regime to help reduce their symptoms. Explain to the users with symptoms why taking more frequent breaks is important, and that it will not reduce their productivity in the long term, even if it takes a while to get used to.
- These users should have a higher than average priority for other RSI prevention initiatives. For example (i) training about good ergonomics and RSI prevention, (ii) workstation assessments, and (iii) monitoring of stress levels.

Criteria

Using the computer for 20 hours - 25 hours per week over the last 4 weeks.

Very high mouse use

Users with this risk factor have very high mouse use of more than 25 hours per week (more than 5 hours per day on average). This puts them in the top 0.1% of computer users, with mouse use more than double the normal population average of 6-10 hours per week.

Such a very high level of mouse use significantly increases the risk for developing RSI symptoms. Continuing with such high levels of mouse use should be avoided if at all possible.

Users with this high level of mouse use should be your first priority for implementing RSI prevention measures.

Recommendations

- Ensure management is aware of these users' very high mouse use. Talk with management to identify the reasons for these users' very high mouse use and investigate ways of reducing it, or mitigating its effects. Mouse use over 25 hours per week (5 hours per day) normally indicates overtime is being worked (more than 40 hours per week). You may need to consider limiting ongoing overtime which involves extended computer use.
- Try to limit users mouse use to less than 15 hours a week (3 hours a day). Some ways you can do this are by:
 - Spreading workload over more workers.
 - Job or task redesign to replace mouse intensive tasks with tasks requiring less mouse use.
 - Hiring more (part-time) employees or cutting out some mouse-intensive tasks all together.
 - Discussing with managers whether there are alternative software applications that can be used for tasks, applications which require less intensive mouse use, and possibly support keyboard shortcuts better.
- Encourage users to learn keyboard shortcuts for their common tasks. See online help for a good list of Windows keyboard shortcuts. If a lot of the mouse use is due to one particular application (e.g. CAD or graphic design software) see if you can find a list of specific keyboard shortcuts for this application in its online help or manual (search for 'keyboard shortcuts' or 'shortcut keys').
- Encourage users to learn good techniques for using the mouse. For example, by:
 - Not to leave their hand holding the mouse when they're not using it.
 - Alternating between the left and right hands. For example, using the mouse in the left hand in the morning, and right hand in the afternoon. This can spread the load. Remember though - it can take a while for people to get used to using their other hand on the mouse. Users should buildup gradually over time, and adjust the mouse speed settings if they need to, to make it easier to use the mouse in their other hand.
- See Tips on using the mouse for more tips on good technique when using the mouse.
- Ensure that other risk factors present for these users are addressed. If it is difficult to reduce these users' mouse use significantly you can still minimize their overall risks by ensuring that all other aspects of their work environment are as good as possible. For example, you should ensure that:
 - these users are well trained about good workstation ergonomics and RSI prevention
 - their posture and workstation ergonomics are excellent
 - stress is well managed

- Regularly survey these users for symptoms of discomfort related to their high mouse use. If any raised levels of discomfort are found, take immediate remedial action to reduce their workload, and provide support.
- If you find raised symptom levels ask the users to choose a different stretch-break settings preset. This will provide them with a specially designed recovery / rehabilitation breaks and exercise regime to help reduce their discomfort. Explain to the users with discomfort why taking more frequent breaks is important, and that it will not reduce their productivity in the long term, even if it takes a while to get used to.

Criteria

Using the mouse for more than 25 hours per week over the last 4 weeks.

High mouse use

Users with this risk factor have mouse use of 20 hours to 25 hours a week (between 4 hours and 5 hours a day on average). This puts them in the top 0.5% of computer users, with mouse use double the normal population average of 6-10 hours per week.

Such a high level of mouse use significantly increases the risk for developing RSI symptoms. Continuing with such high levels of mouse use should be avoided if at all possible.

Users with this high level of mouse use should be your first priority for implementing RSI prevention measures.

Recommendations

Ensure management is aware of these users' high mouse use. Talk with management to identify the reasons for these users' high mouse use and investigate ways of reducing it, or mitigating its effects. Mouse use over 20 hours per week (4 per day) can indicate overtime is being worked (more than 40 hours per week). You may need to consider limiting ongoing overtime which involves extended computer use.

Try to limit users mouse use to less than 15 hours per week (3 hours per day). Some ways you can do this are by:

- Spreading workload over more workers.
- Job or task redesign to replace mouse intensive tasks with tasks requiring less mouse use.
- Hiring more (part-time) employees or cutting out some mouse-intensive tasks all together.
- Discussing with managers whether there are alternative software applications that can be used for tasks, applications which require less intensive mouse use, and possibly support keyboard shortcuts better.
- Encourage users to learn keyboard shortcuts for their common tasks. See online help for a good list of Windows keyboard shortcuts. If a lot of the mouse use is due to one particular application (e.g. CAD or graphic design software) see if you can find a list of specific keyboard shortcuts for this application in its online help or manual (search for 'keyboard shortcuts' or 'shortcut keys').
- Encourage users to learn good techniques for using the mouse. For example, by:
 - Not to leave their hand holding the mouse when they're not using it.
 - Alternating between the left and right hands. For example, using the mouse in the left hand in the morning, and right hand in the afternoon. This can spread the load. Remember though - it can take a while for people to get used to using their other hand on the mouse. Users should buildup gradually over time, and adjust the mouse speed settings if they need to, to make it easier to use the mouse in their other hand.

- See Tips on using the mouse for more tips on good technique when using the mouse.
- Ensure that other risk factors present for these users are addressed. If it is difficult to reduce these users' mouse use significantly you can still minimize their overall risks by ensuring that all other aspects of their work environment are as good as possible. For example, you should ensure that:
 - these users are well trained about good workstation ergonomics and RSI prevention
 - their posture and workstation ergonomics are excellent
 - stress is well managed
- Regularly survey these users for symptoms of discomfort related to their high mouse use. If any raised levels of discomfort are found, take immediate remedial action to reduce their workload, and provide support.
- If you find raised symptom levels ask the users to choose a different stretch-break settings preset. This will provide them with a specially designed recovery / rehabilitation breaks and exercise regime to help reduce their discomfort. Explain to the users with discomfort why taking more frequent breaks is important, and that it will not reduce their productivity in the long term, even if it takes a while to get used to.

Criteria

Using the mouse for 20 hours - 25 hours per week over the last 4 weeks.

Medium-high mouse use

Users with this risk factor have mouse use of 15 hours to 20 hours a week (between 3 hours and 4 hours a day on average). This puts them in the top 6% of computer users, with mouse use significantly higher than the normal population average of 6-10 hours per week.

Such a high level of mouse use puts these users at an increased risk for developing RSI symptoms. Continuing with such high levels of mouse use for long periods should be avoided.

Users with this high level of mouse use should be a high priority for implementing RSI prevention measures.

Note: The advice and recommendations that appear in the users risk report refer to this risk factor as High Mouse Use (the same as for the High Mouse Use risk factor described above; the term Medium-High Mouse Use does not appear in Risk Reports)

Recommendations

- Ensure management is aware that these users are high mouse users. Talk with management to identify the reasons for these users' high mouse use and investigate ways of reducing it where possible, or mitigating its effects.
- Try to limit users mouse use to less than 15 hours a week (3 hours a day). Some ways you can do this are by:
 - Spreading workload over more workers.
 - Job or task redesign to replace mouse intensive tasks with tasks requiring less mouse use.
 - Hiring more (part-time) employees or cutting out some mouse-intensive tasks all together.

- Discussing with managers whether there are alternative software applications that can be used for tasks, applications which require less intensive mouse use, and possibly support keyboard shortcuts better.
- Encourage users to learn keyboard shortcuts for their common tasks. See online help for a good list of Windows keyboard shortcuts. If a lot of the mouse use is due to one particular application (e.g. CAD or graphic design software) see if you can find a list of specific keyboard shortcuts for this application in its online help or manual (search for 'keyboard shortcuts' or 'shortcut keys').
- Encourage users to learn good techniques for using the mouse. For example, by:
 - Not to leave their hand holding the mouse when they're not using it.
 - Alternating between the left and right hands. For example, using the mouse in the left hand in the morning, and right hand in the afternoon. This can spread the load. Remember though - it can take a while for people to get used to using their other hand on the mouse. Users should buildup gradually over time, and adjust the mouse speed settings if they need to, to make it easier to use the mouse in their other hand.
 - See Tips on using the mouse for more tips on good technique when using the mouse.
- Ensure that other risk factors present for these users are addressed. If it is difficult to reduce these users' mouse use significantly you can still minimize their overall risks by ensuring that all other aspects of their work environment are as good as possible. For example, you should ensure that:
 - these users are well trained about good workstation ergonomics and RSI prevention
 - their posture and workstation ergonomics are excellent
 - stress is well managed
- Regularly survey these users for symptoms of discomfort related to their high mouse use. If any raised levels of discomfort are found, take immediate remedial action to reduce their workload, and provide support.
- If you find raised symptom levels ask the users to choose a different stretch-break settings preset. This will provide them with a specially designed recovery / rehabilitation breaks and exercise regime to help reduce their symptoms. Explain to the users with symptoms why taking more frequent breaks is important, and that it will not reduce their productivity in the long term, even if it takes a while to get used to.

Criteria

Using the mouse for 15 hours - 20 hours per week over the last 4 weeks.

Very high keyboard use

Users with this risk factor have very high keyboard use of more than 30 hours per week (more than 6 hours per day on average). This puts them in the top 0.1% of computer users, with keyboard use more than far higher than the normal population average of 3-6 hours per week.

Such a very high level of keyboard use significantly increases the risk for developing RSI symptoms. Continuing with such high levels of keyboard use should be avoided if at all possible.

Users with this high level of keyboard use should be your first priority for implementing RSI prevention measures.

Recommendations

See recommendations for Very High Computer Use.

Criteria

Using the keyboard for more than 30 hours per week over the last 4 weeks.

High keyboard use

Users with this risk factor have keyboard use of 25 hours to 30 hours a week (between 5 hours and 6 hours a day on average). This puts them in the top 0.1% of computer users, with keyboard use far higher than the normal population average of 3-6 hours per week.

Such a high level of keyboard use significantly increases the risk for developing RSI symptoms. Continuing with such high levels of keyboard use should be avoided if at all possible.

Users with this high level of keyboard use should be your first priority for implementing RSI prevention measures.

Recommendations

See recommendations for Risk Factor Very High Computer Use.

Criteria

Using the keyboard for 25 hours - 30 hours per week over the last 4 weeks.

Medium-high keyboard use

Users with this risk factor have keyboard use of 20 hours to 25 hours a week (between 4 hours and 5 hours a day on average). This puts them in the top 0.1% of computer users, with keyboard use far higher than the normal population average of 3-6 hours per week.

Such a high level of keyboard use significantly increases the risk for developing RSI symptoms. Continuing with such high levels of keyboard use should be avoided if at all possible.

Users with this high level of keyboard use should be your first priority for implementing RSI prevention measures.

Recommendations

See recommendations for Risk Factor High Computer Use.

Criteria

Using the keyboard for 20 hours - 25 hours per week over the last 4 weeks.

High peak computer use

Users with this risk factor have been regularly exceeding 6 hours computer use in a day. Normally this level of computer use is only achieved when working long hours (much longer than 8 hours).

High peaks in computer use can increase a user's risk of developing RSI symptoms.

Recommendations

- Ensure management is aware of these users' high peaks in computer use. Talk with management to identify the reasons behind these users' long hours at the computer (such as working late to get something finished).
- Encourage management and users to spread their computer work evenly over the week. If the peaks in work load are difficult to avoid other ways to reduce the risk should be considered. For example, allowing a late start following an extended computer work day which was required to meet deadlines.
- Ensure that the High Daily Usage warning in the Wellnomics app is enabled and set to 6 hours or less. Consider increasing the Enforcement Level for the High Daily Usage Reminder, perhaps to Medium or Medium-High. You could also consider using a Wellnomics Settings Profile to set minimum High Daily Usage Reminder settings for these users.
- Ensure that other risk factors present for these users are addressed. For example, you should ensure that:
 - these users are well trained about good workstation ergonomics and RSI prevention
 - their posture and workstation ergonomics are excellent
 - stress is well managed
- Regularly survey these users for symptoms of discomfort related to their computer use. If any raised levels of discomfort are found, take immediate remedial action to reduce their workload, and provide support.
- If you find raised symptom levels ask the users to choose a higher settings preset. This will provide them with a specially designed recovery / rehabilitation breaks and exercise regime to help reduce their symptoms. Explain to the users with symptoms why taking more frequent breaks is important, and that it will not reduce their productivity in the long term, even if it takes a while to get used to.

Criteria

Computer use of more than 6 hours on an average of 2 or more days per week over the last 4 weeks.

Breaks

This Risk Category is designed specifically for those with Wellnomics Breaks & Exercises enabled. It assesses whether the Breaks and Exercises settings are set correctly and whether the user is complying with break prompts. The aim is to ensure that users are taking sufficient breaks, and in a way which meets the recommended break levels set by regulations and guidelines for VDU users.

Note that many of the risk factors in this Risk Category only occur if the user's computer use is above minimum levels. For example, if someone only uses the computer for 30 minutes a day, then whether they take all their Wellnomics app prompted micropauses isn't so much of an issue, as their computer use isn't high enough to create a significant risk.

Break compliance becomes most important for high computer users.

Marginal micropause compliance or marginally insufficient micropauses

Users with this risk factor have either been ignoring more than 25% of the micropause prompts or, if the Enforcement Level was set to "Quiet (no alerts)", they were found to be working longer than the micropause interval without any pause in their work more than 25% of the time.

Recommendations

For advice on helping users to reduce Micropause warnings by adapting their work habits, see risk factor Poor Micropause Compliance.

Criteria for Marginal Micropause Compliance

Micropause compliance less than 75% over the last 4 weeks (where user worked without pause for longer than the Micropause interval at least 4 times a week)

Marginal break compliance or marginally insufficient breaks

Users with this risk factor have either been ignoring more than 25% of the Break prompts or, if the Enforcement Level was set to "Quiet (no alerts)", they were found to be working longer than the Break Interval without any breaks at all for more than 25% of the time.

Recommendations

For advice on helping users to reduce Break warnings by changing their work habits, see risk factor Poor Break Compliance.

Criteria

Break compliance less than 50% over the last 4 weeks (where user worked without a break for longer than the Break Interval at least 3 times a week)

Poor micropause compliance or insufficient micropauses

Users with this risk factor have either been ignoring more than 50% of the micropause prompts or, if the Enforcement Level was set to “Quiet (no alerts)”, they were found to be working longer than the micropause interval without any pause in their work more than 50% of the time.

Note that the average user sees just 3-4 Micropause reminders a day. Users will be interrupted more often if they're working long hours and intensively at the computer, or if they're not taking enough natural breaks.

Recommendations

- Investigate if there are reasons for this poor Micropause compliance, such as high work pressure and feeling unable to take breaks, or unhappiness with using The Wellnomics app.
- If there are high work pressures talk to management about improving employee awareness of the importance of taking Micropauses when prompted. Employees and management must be aware of the benefits of Micropauses, and understand that they do not reduce productivity (and can actually improve productivity). You may wish to provide the information under What are Micropauses, and why are they needed? to staff as a refresher. This explains why Micropauses are important.
- Explain to users how to take advantage of natural pauses in their work. For example, taking their hand off the mouse when not using it, relaxing their hands on the desk when reading text on screen, waiting for a software program to finish a task, or when thinking. Note that the Wellnomics app only provides reminders if not enough natural Micropauses are being taken. If a user is seeing lots of Micropause reminders this is telling them they're not taking enough natural pauses.
- Note: Remember that the key to Micropauses being effective is relaxing the muscles to restore blood flow and promote recovery. If the user does not relax their shoulder, arm and hand muscles when taking Micropauses, then they won't be effective. See What are Micropauses, and why are they needed? for more information.
- If necessary, explain to users and management your organization's policies on RSI prevention and taking breaks. Ensure management understand they have a responsibility to ensure their staff can take enough Micropauses. Ensure users also understand they have a personal responsibility to comply with RSI prevention initiatives such as the Micropause warnings given by the Wellnomics app.
- As a last resort, you can use Settings Control to lock Micropauses so they cannot be ignored (by setting the Micropause Enforcement Level to high). See Wellnomics Administrator's Guide for instructions on doing this.

Note: To avoid user annoyance at having the Micropause Enforcement Level increased it's very important you inform users before taking this step, and explain why. The users' managers should also be involved in making this decision and support it. Having Micropauses enforced can be quite effective if introduced correctly and well supported by management and work design (e.g. performance bonuses not linked to keystroke output, users doing non-time-critical tasks that can tolerate a 5-8 second pause). Many organizations using Wellnomics do successfully use the highest Micropause Enforcement Level as the default for all users, guaranteeing good Micropause compliance.

Criteria

Micropause compliance less than 50% over the last 4 weeks (where user worked without pause for longer than the Micropause interval at least 4 times a week)

Poor break compliance or insufficient breaks

Users with this risk factor have either been ignoring more than 50% of the Break prompts or, if the Enforcement Level was set to “Quiet (no alerts)”, they were found to be working longer than the Break Interval without any breaks at all for more than 50% of the time.

Users with this risk factor have been ignoring more than 50% of their Breaks. This means the user is regularly working long periods without sufficient breaks, which increases their risk of RSI symptoms.

Recommendations

- Investigate if there are reasons for these users' poor Break compliance, such as high work pressure and feeling unable to take breaks, or unhappiness with using the Wellnomics app.
- If there are high work pressures talk to management about improving employee awareness of the importance of taking Breaks when prompted. Employees and management must be aware of the benefits of breaks, and understand that they do not reduce productivity (and can actually improve productivity).
- If possible, try to get management and users to break up their work into alternating periods of computer work, and non-computer work (i.e. away from the computer).
- Encourage users to take advantage of natural breaks in their work. Note that WorkPace only provides reminders if not enough natural breaks are being taken. If a user seeing lots of break reminders this is telling them they're not taking enough natural breaks.
- Encourage users to keep the the Wellnomics app compliance Indicator (the 'smiley face' icon in the Windows System Tray, or the Wellnomics app Status Panel) smiling.
- If necessary, explain to users and management your organization's policies on RSI prevention and taking breaks. Ensure management understand they have a responsibility to ensure their staff can take enough breaks. Ensure users also understand they have a personal responsibility to comply with RSI prevention initiatives such as the break warnings given by the Wellnomics app.
- As a last resort, you can use Settings Control to increase the Break Enforcement Level (for example, to Medium - (only 1 ignore allowed) or to Medium-High (postpone only)). This will limit the number of times users can ignore breaks.

Note: To avoid user annoyance at having the Break Enforcement Level increased it's very important you inform users before taking this step, and explain why. The users' managers should also be involved in making this decision and support it. Having Breaks enforced can be effective if introduced correctly and well supported by management and work design (e.g. performance bonuses not linked to keystroke output, users doing non-time-critical tasks that can tolerate a 5 minute break at unpredictable times).

Criteria

Break compliance less than 75% over the last 4 weeks (where user worked without a break for longer than the Break Interval at least 3 times a week)

Ineffective settings: Micropauses turned off

Users with this risk factor have disabled their Micropauses. This means they won't be reminded to take Micropauses (micro-breaks). As Micropauses are very important to preventing fatigue they should always be enabled.

Recommendations

By default, Micropauses are always enabled. Users have likely disabled their Micropauses to avoid being interrupted by warnings.

For advice on helping users to reduce Micropause warnings by changing their work habits, see risk factor Poor Micropause Compliance.

Note: With Settings Control you can lock Micropauses on so they cannot be disabled. See Wellnomics Administrator's Guide for instructions on doing this.

Criteria

Micropauses turned off.

Ineffective settings: micropause duration too long

Users with this risk factor have increased their Micropause Interval to greater than 8 minutes. The optimum value for the Micropause Interval is about 5-7 minutes. Taking lots of Micropauses (micro-breaks) is a key method to avoid the build-up of fatigue during the day. Increasing the Micropause Interval means less Micropauses will be taken.

Recommendations

For advice on helping users to reduce Micropause warnings by changing their work habits, see risk factor Poor Micropause Compliance.

Note that with Settings Control you can restrict the Micropause Interval to a maximum allowable value (for example, 8 minutes). See Wellnomics Administrator's Guide for instructions on doing this.

Criteria

Micropause Interval Setting > 8 minutes (with Micropause Duration setting < 8 seconds)

Ineffective settings: Breaks turned off

Users with this risk factor have disabled their Break warnings. This means they will never be reminded to take breaks.

Recommendations

By default Breaks are always enabled. Users have likely disabled their Breaks to avoid being interrupted by warnings.

For advice on helping users to reduce Break warnings by changing their work habits, see risk factor Poor Break compliance.

Note that you can use Settings Profiles to lock the Break warnings on so they cannot be disabled. See Wellnomics Administrator's Guide for instructions on doing this.

Criteria

Breaks turned off.

Ineffective settings: Break interval too long

Users with this risk factor have increased their Break Interval to more than 1 hour. Most regulatory guidelines for computer use specify that breaks should be taken at least once an hour. Consequently, these users' settings do not comply with guidelines.

Recommendations

By default Break Interval is longer than 1 hour. Users have likely increased the Interval to reduce the number of break warnings they get.

For advice on helping users to reduce Break warnings by changing their work habits, see risk factor Poor Break compliance.

Note that you can use Settings Profiles to restrict the Break Interval to a maximum allowable value (for example, 1 hour). See Wellnomics Administrator's Guide for instructions on doing this.

Criteria

Break Interval Setting is more than 1 hour.

Ineffective settings: Break duration too short

Users with this risk factor have reduced their Break Duration to less than 5 minutes. Most regulatory guidelines for computer use specify that breaks of at least 5 minutes every hour should be taken. Consequently, these users' settings do not comply with guidelines.

Recommendations

For advice on helping users to reduce Break warnings by changing their work habits, see risk factor Poor Break Compliance.

Note that you can use Settings Profiles to restrict the Break Duration to a minimum allowable value (for example, 5 minutes). See Wellnomics Administrator's Guide for instructions on doing this.

Criteria

Break Duration Setting is < 5 minutes (and Break Interval Setting is > 30 minutes)

OR

Break Duration Setting is < 3 minutes (and Break Interval Setting is ≤ 30 minutes)

Ignoring too many High Daily Usage reminders

Users with this risk factor have been ignoring reminders about exceeding the High Daily Usage threshold on more than 4 days over the previous 4 weeks (i.e. > 1 day a week). This means they're regularly working long days at the computer with their usage exceeding the High Daily Usage threshold (which defaults to 6 hours). High peak usage like this can increase the risk of RSI symptoms.

Note that this risk factor is only triggered if the Enforcement Level for the High Daily Usage reminder is set to Medium-Low or higher. If it is set to Low, which is the default, then no risk factor is triggered. Generally speaking high peak usage is already covered by risk factors for High Computer Use and High Peak Computer Use under the Computer Use risk category. However, there can be situations where there is a requirement to specifically implement a limit on computer use per day. For example, legal requirements such as agreements with unions on staff work load, or work limits required for staff recovering from injury. In these cases, a different limit from the default 6 hours can be specified whereupon the risk factor will then be triggered so that compliance with the limit can be monitored.

Recommendations

- Investigate the reasons for these users exceeding the High Daily Usage threshold regularly. For example, high workloads or regular deadlines that require working late.
- It's possible that some users have recovery settings with a lowered High Daily Usage Threshold (e.g. to 3 hours). If so, then either this limit needs to be raised, or, if the user still has RSI symptoms, you may need to work with management on lowering their workload at the computer, or giving them reduced working hours to allow them to recover from their RSI symptoms. Note that for users with significant RSI symptoms strictly controlling the level of computer use is key to preventing symptoms worsening and avoiding future lost work time injuries.
- If there are high workloads or deadline pressures, talk to management about this.
- Encourage users (and management) to smooth out peaks in computer work. If a task requires intensive computer use, spread it out over several days. For example, aim for two days of 3 hours at the computer instead of one day of 6 hours.
- If a user works part-time, consider getting them to work more days and less hours per day. For example, aim for 4 half-days instead of 2 full days.
- If necessary, explain to users and management the organization's policies on RSI prevention and safe working limits. Ensure management understand they have a responsibility to ensure their staff don't exceed safe limits. Ensure users understand they have a personal responsibility to comply with RSI prevention initiatives and the the Wellnomics app warnings enforcing these.

Criteria

High Daily Usage reminders were ignored on more than 4 days over the last 4 weeks AND Enforcement Level >= Medium-Low AND High Daily Usage Threshold does not equal the default 6 hrs.

Too much time with the Wellnomics app on Do not Disturb

Users with this risk factor have been putting the Wellnomics app on Do not Disturb too much. During Do not Disturb the Wellnomics app continues monitoring computer use, but doesn't prompt for any breaks.

Do not Disturb can be useful if the user needs to avoid being interrupted for a short while. For example, when:

- Giving a presentation.
- Demonstrating something on your computer to another person.
- Doing some critical work that must not be interrupted.

If a user does not like being prompted for breaks they may use Do not Disturb more often than necessary, in order to avoid being interrupted by the Wellnomics app. This will reduce the effectiveness of the Wellnomics app by allowing the user to continue working for long periods without taking breaks.

Recommendations

- Find out why these users are using Standby so much. For example:
- Are they doing a lot of work in which interruptions are detrimental (e.g., giving presentations)?
- Are they getting too many interruptions because their settings are too strict?
- Do they not understand the importance of breaks and using the Wellnomics app
- If it is because users are finding it irritating to be interrupted by the Wellnomics app, then educate the users on the importance of breaks and their benefits and encourage them to use the the Wellnomics app Status Panel to track when breaks are next due and then take voluntary breaks before the Wellnomics app prompts them. If they take lots of voluntary breaks, they will seldom be interrupted by the Wellnomics app
- If you still have problems with Standby being used too much, you can disable the Standby option using Settings Profiles. See the Administrator's Guide for instructions on doing this.

Criteria

The Wellnomics app being put on Do no Disturb for an average of more than 1 hour a week, and more than 20% of the user's time at the computer, over the last 4 weeks.

Speed and Intensity

Whereas the Computer Use risk category evaluates the duration of keyboard and mouse use, Speed & Intensity evaluates the intensity of the work done during these periods. A higher intensity of activity, such as high typing speeds and fast or precise mouse work, has been shown to increase muscle strain and be associated with increased musculoskeletal symptoms.

There is not currently enough scientific evidence to set exact safe limits for intensity factors. However, the evidence does indicate a likely dose-response relationship for these factors - meaning the higher the intensity, the higher the increased risk. Exactly what threshold should be used to determine 'safe' or 'unsafe' is yet to be determined.

Because of this, Wellnomics Risk Management uses a population comparison approach to identify those users whose Speed & Intensity at the computer is much higher than average, and therefore likely to represent an increased risk. The thresholds at which risks are flagged are based at the 90th percentile compared against the normal population of computer users. This means that a Speed & Intensity Risk Factor is only present if the user is in the top 10% of computer users for this statistic as compared against the average computer user (not just against computer users in your organization).

Your organization may, of course, have a higher or lower proportion of users than normal with a high intensity of work. For example, if your organization has a lot of data entry workers or copy typists then your level of computer users with the High typing speed Risk Factor may be greater than average (i.e. more than 10%).

High typing speed

Users with this risk factor have a high typing speed, with more than 14,000 keystrokes per hour. This places them in the top 10%† of computer users for typing speed.

High typing speeds have been found to be associated with increased loading of shoulder muscles, and an increased risk of complaints. For this reason, very high typing speeds should be avoided, or at least compensated for by paying special attention to mitigating any other risk factors present for these users.

Note that there is not enough scientific evidence to set exact safe typing speed limits. Instead, Wellnomics identifies users with much higher typing speeds than the average, as these users are more likely to be in a higher risk population.

Recommendations

- You may wish to suggest to these users that they limit their typing speed to less than 14,000 keystrokes an hour. Note that the Wellnomics app provides a feature (called the Typing Speed Limit) that can warn users when they are exceeding a high typing speed for long periods.

It may be difficult to get these users to reduce their typing speed. High typing speed may be a key requirement of their job (for example, as a data entry operator or copy typist). If it is not practical to reduce typing speeds, at least make sure that these users are a higher priority for other ergonomics interventions.

- If these users are also high computer users (with computer use of 15 hours a week or more) it is recommended you encourage these users to learn touch typing (i.e. typing with all 10 fingers and without looking at the keyboard).

Touch typing spreads the load across your fingers and allows a more relaxed hand and forearm position. It is also more efficient and accurate when learned well. Touch typing can have other benefits with regard to posture and head position (the user no longer needs to look down at the keyboard regularly to see where the keys are).

Criteria

Greater than 14,000 keystrokes per hour over the last 4 weeks, placing the user in the top 10%[†] compared to a normal population for this statistic. Must also have average computer use of at least 5 hours per week before this risk factor is flagged.

High level of mouse clicks

Users with this risk factor have a very high level of mouse clicking - in the top 10%[†] of computer users. These users are doing more than 1,250 clicks per hour on average, which means their work must require a much higher amount of mouse clicking than normal. This high level of mouse clicking can cause increased muscle and tendon loads.

Recommendations

Try to find out why these users have such a high mouse click rate. Is it something about the type of work they are doing? Can this work be adjusted to reduce the amount of mouse clicking required?

Some tips that may help users to reduce the amount of mouse clicking required are:

- Using keyboard shortcuts instead of the mouse for common tasks. (See Further Information section for a list of common Windows keyboard shortcuts)
- Changing the Windows mouse and application settings so users can use single clicks instead of double clicks. (See Further Information section for instructions on how to do this).

Criteria

Number of mouse clicks greater than 1,250 clicks per hour over the last 4 weeks, placing the user in the top 10%[†] compared to a normal population for this statistic. Must also have average computer use of at least 5 hours per week before this risk factor is flagged.

High level of mouse movements (direction changes/min)

Users with this risk factor have a much higher intensity of mouse usage than normal users. They are doing more than 1,850 mouse movement direction changes per hour, placing them in the highest 10%[†] of users for this activity.

This means these users are either using highly mouse intensive applications, or they are trying to work very quickly - speeding up their normal mouse activity. Intensive mouse use like this can cause increased muscle and tendon loading in the arm and hand.

Recommendations

Try to find out why these users have such a high number of mouse movements. Is it related to the type of work they are doing? Can this work be adjusted to reduce the level of mouse movements required?

If special applications are being used (such as CAD or graphic design), check the manuals to see if there are keyboard alternatives for common actions in the application that require lots of mouse movements.

Get users to think about whether there are common activities they're doing that require a lot of mouse movement. If there is, try one of the following:

- Look in the application's online help for an alternate, more efficient way of doing that activity. For example, if moving many objects one at a time, perhaps there is a way to select them all, then move them together.
- Use the keyboard to select and move objects. Many applications let you use the Arrow keys (or Shift-Arrow or Ctrl-Arrow) to move selected objects around.
- Use keyboard shortcuts instead of the mouse. (See Further Information section for a list of common Windows keyboard shortcuts.)

It may be just that the user is working very quickly - doing normal activities but trying to do them as quickly as possible. If so, encourage the user to slow down a bit.

Criteria

Number of mouse movements of greater than 1,850 movements per hour over the last 4 weeks, placing the user in the top 10%+ compared to a normal population for this statistic. Must also have average computer use of at least 5 hours per week before this risk factor is flagged.

High use of mouse drag

Users with this risk factor use mouse drag (moving the mouse while holding down a mouse button) far more than normal users. For these users more than 12% of their mouse use is mouse-drag actions, which puts them in the highest 10% of computer users for this activity.

Mouse drag actions can require significantly greater muscle tension in the hand and forearm than normal mouse movements.

Recommendations

Try to find out why these people use mouse drag so much. Is it related to the type of work they are doing? Can this work be adjusted to reduce the amount of mouse drag required?

If special applications are being used (such as CAD or graphic design), check the manuals to see if there are keyboard alternatives for the common activities in the application that require mouse dragging.

Encourage users to find alternate ways of moving or selecting items. For example, some alternatives that can be used in many applications are:

- Using the Page Up and Page Down keys to move through a document instead of dragging the slider bar.
- Using Ctrl-C and Ctrl-V to Copy and Paste text or objects instead of 'dragging and dropping' using the mouse.

- Using the keyboard to select and move objects instead of the mouse. Many applications let you use the Arrow keys (or Shift-Arrow or Ctrl-Arrow) to move objects around. (First select or highlight the object, then use these keys to move).

Tip: To make navigation and moving objects with the keyboard easier, see Further Information section for advice on optimizing the keyboard's auto-repeat settings.

Criteria

More than 12% of mouse use involved doing a mouse drag action (holding down mouse button while moving the mouse) over the last 4 weeks, placing the user in the top 10%+ compared to a normal population for this statistic. Must also have average computer use of at least 5 hours per week before this risk factor is flagged.

High level of precise mouse work

Users with this risk factor are doing a lot of precise mouse movements. They are in the highest 10%+ of computer users for this risk factor. This means these users are likely doing a lot of very precise mouse work requiring small movements and high positioning accuracy. This may be related to doing specialist mouse work such as CAD or graphic design.

Precise mouse work can place a higher strain on the hand and forearm muscles. This is because of the high level of muscle tension needed to position the mouse accurately, and make controlled small movements.

Recommendations

Try to find out why these users' work requires such high mouse precision. Is it related to the type of work they are doing? Can this work be adjusted to reduce the level of mouse precision required?

If special applications are being used (such as CAD or graphic design), check the manuals to see if there are keyboard alternatives for the common actions in the application that require high mouse precision.

Some options for reducing the need for precise mouse work, or reducing the strain caused by precise work are listed below.

- Reduce the mouse speed (and turn off acceleration) to make it easier for the hand to make precise movements. See Further Information section for instructions on how to adjust mouse speed and turn off mouse acceleration.
- Use the keyboard to select and move items. Many applications let you use the Arrow keys (or Shift-Arrow or Ctrl-Arrow) to move selected items around.
- Use keyboard shortcuts instead of the mouse. (See Further Information section for a list of common Windows keyboard shortcuts.)
- Try out a different type of input device, such as a touchpad or tablet, which may be better suited to precise mouse work.

Criteria

High level of small/precise mouse movements, with mouse precision index of 14.5 or higher over last 4 weeks, placing the user in the top 10% compared to a normal population for this statistic. Must also have average computer use of at least 5 hours per week before this risk factor is flagged.

Posture & Workstation

This risk category covers risk factors that are normally covered in a traditional workstation assessment. This focuses on postural factors involving the neck, shoulders, and arms. The online assessment asks additional questions to identify potential causes of postural risk factors, such as an incorrectly setup workstation.

All of these risk factors have been shown to be correlated with an increased risk of upper body discomfort and musculoskeletal injuries.

Head bent forward (>45°) (neck flexion)

This is when a position is adopted where the head is rotated downwards on the neck more than 45 degrees.

This may be because:

- the position of documents is too low (For example, no document holder being used)
- the user is looking at the keyboard while typing
- the screen position is too low
- a laptop or notebook computer is being used (which can cause the screen to be too low)

This can result in strain on upper neck muscles, ligaments and joints and consequently discomfort.

Head bent backwards (neck extension)

This is when a position is adopted where the head is tipped backwards on the neck. This may be because:

- bifocal glasses are being used
- the screen position is too high

This can result in strain on upper neck muscles, ligaments and joints and consequently discomfort.

Head turned sideways (>45°) (neck rotation)

This is when a position is adopted where the head is turned to one side more than a quarter turn.

This may be because:

- A document or screen is positioned to one side
- A doorway with frequent visitors is located to the side or behind the workstation resulting in frequent turning of the head and neck to see who is there

This can result in strain on upper neck muscles, ligaments and joints and consequently discomfort.

Forward head posture (anterior position of the head i.e. leaning forward, head sticking out)

This is when a position is adopted where the head is pushed forward on the neck, sometimes called 'protraction' or a 'poking chin'.

This may be due to leaning forward or sticking the chin forward, in an effort to see something better

This can result in strain on upper neck muscles, ligaments and joints and consequently discomfort.

Shoulder elevation

This is when a position is adopted where the shoulders are shrugged towards the ears.

This may be due to:

- desk being too high
- mouse being placed too far away
- keyboard being too high
- telephone being held between the shoulder and the ear
- chair armrests being too high
- stress / tension

This can result in strain on upper neck and shoulder muscles, tendons, ligaments and joints and consequently discomfort.

Upper arm raised (upper arm elevation)

This is when a position is adopted where the upper arms are lifted or positioned forward of the main body.

This may be due to:

- desk being too high
- mouse being placed too far away
- keyboard being too high
- telephone being held between the shoulder and the ear
- chair armrests being too high
- stress / tension

This can result in strain on upper neck and shoulder muscles, tendons, ligaments and joints and consequently discomfort.

Reaching with arm (upper arm rotation)

This is when a position is adopted where the lower arm, when bent at the elbow, is positioned away from the trunk.

This may be due to:

- the mouse being placed too far to one side

- the way the mouse is used
- the position of the chair armrests

This can result in strain on upper neck and shoulder muscles, tendons, ligaments and joints and consequently discomfort.

Insufficient forearm support

This is when a position is adopted where there is little or no support for the forearms while working.

This may be due to:

- the configuration of the desk
- the height of the chair
- the placement of equipment e.g. the keyboard or mouse are too close to the desk edge to allow space for forearm support on the desk or too far away from desk to allow forearm support on chair arm rests.

Lack of forearm support can increase musculoskeletal loading of the trunk, shoulders and arms and consequently discomfort.

For more information on the latest advice on forearm support see the Wellnomics white paper Forearm support during keyboard and mouse use.

Wrist bent to side (wrist ulnar abduction)

This is when a position is adopted where the wrist, when the palm is facing down, is bent towards the little finger side too much.

This may be due to:

- laptop being used with no external keyboard
- position of the mouse
- the way the mouse is used
- typing technique
- arm rest position

This can result in strain on elbow, forearm, wrist and hand muscles, tendons, ligaments and joints and consequently discomfort.

Wrist bent up (wrist extension)

This is when a position is adopted where the wrist, when the palm is facing down, is raised up too much.

This may be because:

- the body of the mouse is too high
- of the way the mouse is used
- the keyboard is tilted forward, i.e. the keyboard has high legs at the back
- the keyboard is too thick

This can result in strain on elbow, forearm, wrist and hand muscles, tendons, ligaments and joints and consequently discomfort.

Wrist bent down (wrist flexion)

This is when a position is adopted where the wrist, when the palm is facing down, is bent down too much.

This may be because:

- the keyboard is tilted backwards, i.e. the keyboard has high legs at the front
- the keyboard is positioned too low

This can result in strain on elbow, forearm, wrist and hand muscles, tendons, ligaments and joints and consequently discomfort.

Discomfort

Upper body discomfort can hamper work activities and reduce productivity. It is also an early warning sign of potential musculoskeletal injury.

A prior history of discomfort related to computer use is also a strong predictor of future problems. In other words, if an employee has had problems before they are at greater risk of future problems.

This risk category uses the scientifically validated Visual Analogue Scale to identify any existing symptoms of discomfort, their severity, and which body areas are affected.

Priority should be placed on any employees who have significant discomfort in one or more body areas. Immediate steps should be taken to reduce this discomfort, and address the causes.

To help pinpoint the causes of discomfort read the recommendations below for each body area. You should also review the risk factors in other risk categories. A high risk in the Discomfort risk category will often be the result of risk factors being present in other risk categories. For example, neck discomfort may be caused by Posture & Workstation risk factors such as neck flexion or neck rotation.

Neck discomfort

Neck discomfort is commonly reported by computer users.

They may be related to:

- posture and workstation factors, e.g. screen placement, workstation height
- work environment factors e.g. work demands, stress
- individual factors e.g. past history of discomfort, levels of physical activity

Neck discomfort may affect work performance and absenteeism.

Shoulder discomfort

Shoulder Discomfort is commonly reported by computer users.

They may be related to:

- posture and workstation factors, e.g. workstation height, mouse position
- work environment factors e.g. limited influence over rest breaks
- individual factors e.g. history of Discomfort, level of physical activity

Shoulder discomfort may affect work performance and absenteeism.

Upper back discomfort

Upper back discomfort is reported by computer users.

They may be related to:

- posture and workstation factors, e.g. workstation height, the chair
- computer use behavior e.g. working too long without a break

- individual factors e.g. history, level of physical activity

Upper back discomfort may affect work performance and absenteeism.

Lower back discomfort

Lower back discomfort is commonly reported by people in general but can be associated with computer use.

They may be related to:

- posture and workstation factors, e.g. the chair
- computer use behavior e.g. working too long without a break
- work environment factors e.g. stress
- individual factors e.g. history of discomfort, levels of physical activity

Lower back discomfort may affect work performance and absenteeism.

Forearm discomfort

Forearm discomfort is commonly reported by computer users.

They may be related to:

- posture and workstation factors, e.g. forearm support, mouse and keyboard position
- work environment factors e.g. high work demands, work load surges
- individual factors e.g. history of discomfort, levels of physical activity

Forearm discomfort may affect work performance and absenteeism.

Wrist / hand discomfort

Wrist/hand discomfort is reported by computer users.

They may be related to:

- posture and workstation factors, e.g. forearm support, mouse and keyboard position
- work environment factors e.g. overtime, low job control
- individual factors e.g. history of discomfort, levels of physical activity

Wrist/hand discomfort may affect work performance and absenteeism.

Head discomfort (headaches)

Headaches are commonly reported by people in general but can be associated with computer use.

They may be related to:

- visual discomfort. See risk factor Eye strain
- neck discomfort. See risk factor: Neck discomfort
- environmental conditions, e.g. lighting, glare
- posture and workstation factors, e.g. screen placement

- computer use behavior e.g. working too long without break
- work environment factors e.g. work demands
- individual factors e.g. visual deficiencies, stress

Headaches may affect work performance and absenteeism.

Eye strain

Visual discomfort is commonly reported by computer users and may include symptoms of sore eyes, blurry vision, red eyes, tired eyes, dry eyes and headaches. It may be related to:

- environmental conditions, e.g. lighting, humidity
- posture and workstation factors, e.g. screen placement, screen quality
- computer use behavior e.g. working too long without a break
- individual factors e.g. undetected visual deficiencies

Visual discomfort may affect work performance and absenteeism.

High risk rating for Discomfort assessment

Action should be taken as soon as possible to address the discomfort reported by these users.

Recommendations

- Ensure that the individual(s) concerned implement the recommendations given under each category in their risk assessment report. Particularly those categories that are given a High or Medium risk rating.
- Follow up on any requests from employees regarding the implementation of these recommendations e.g. alternative equipment, discussion of work demands or work feedback requirements, information regarding an employee assistance program.
- Take particular note of any High or Medium ratings in other risk categories. These may give you pointers to the causes of this discomfort. For advice on addressing likely causes of discomfort, identify the top risk factors in the High or Medium risk categories, and then see the recommendations under each of these specific risk factors.

Criteria

Frequent or continuous ("All the time") discomfort rated at 4 or more (out of 10 on the Visual Analog Scale) in one or more body areas.

Medium risk rating for Discomfort assessment

Action should be taken where possible to help alleviate the discomfort reported by these users.

Recommendations

- Encourage the individual(s) concerned to implement the recommendations given under each category in their risk assessment report. Particularly those categories that are given a High or Medium risk rating.

- Follow up on any requests from employees regarding the implementation of these recommendations e.g. alternative equipment, discussion of work demands or work feedback requirements, information regarding an employee assistance program.
- Take particular note of any High or Medium ratings in other risk categories. These may give you pointers to the causes of this discomfort. For advice on addressing likely causes of discomfort, identify the top risk factors in the High or Medium risk categories, and then see the recommendations under each of these specific risk factors.

Criteria

Occasional (“Sometimes”) discomfort rated at 4 or more (out of 10 on the Visual Analog Scale) in one or more body areas

OR

Frequent or continuous (“All the time”) discomfort rated at 1 or more (out of 10 on the Visual Analog Scale) in one or more body areas.

Work Environment

Issues in the work environment can be sources of stress for the employee. Stress has been shown to have an important influence on the development and persistence of musculoskeletal discomfort and disorders. These issues are technically referred to as "work environment factors". Including a focus on these issues is increasingly seen as best practice in any office ergonomics program.

These issues have also been shown to influence many other aspects of individual productivity and organizational success, such as absenteeism, staff turnover and employee job satisfaction.

The benefits of addressing work environment issues can therefore be far greater than just reducing the risks of musculoskeletal disorders.

Recommendations from experts are provided below to guide you in taking appropriate action for any work environment risk factors identified in your department or organization.

For more background on work risk factors see *"Wellnomics white paper - Psychosocial risk factors, what are they and why are they important"*.

High mental load

Workers perceive the mental requirements of the job to be high.

For example,

- Working intensely
- High information processing demands

High mental load is associated with a greater risk of developing musculoskeletal discomfort and disorders.

Studies have shown that mental performance drops off after one hour of sustained concentration on a task. Just like physical exercise, best performance is achieved when effort is alternated with rest.

It is important that tasks which require a high degree of mental effort are varied with other less mentally demanding tasks. If this is not possible frequent, short breaks are important to maintain optimal performance.

The demands of work with a high mental load can also be mitigated by a healthy work life balance and physical activity.

Recommendations

- Design mentally demanding jobs to include tasks which have variable mental loads. For example, consider:
 - Requesting that staff do their own photocopying, filing or other simple administrative tasks.
 - Scheduling meetings in the middle part of the day rather than at the beginning or end of the day so that intensive periods of work are broken up.
 - Requesting that each staff member participates in a role outside of their key role e.g. be a member of the H&S, social or product evaluation committee or be a First Aid or Fire warden.
- Ensure that staff have opportunities for regular breaks and encourage them to take these breaks. Make sure you use Wellnomics Breaks & Exercises to help you with encouraging this.

- Encourage a healthy work life balance amongst staff. For some recommendations on achieving this see advice under risk factor High tendency to continue in the Individual Factors risk category.
- Encourage physical activity. For some recommendations on achieving this see advice under risk factors Low physical activity and Low physical fitness or low muscle strength in the Individual Factors risk category.

Criteria

User answers "often" or "higher" to questions assessing mental load.

Based upon Copenhagen Psychosocial Questionnaire (COPSOQ).

High work demands

Workers perceive the physical and mental requirements of the job to be high.

For example:

- Working very fast
- High work load
- Constant time pressures
- Pressure to work overtime

High work demands are associated with a greater risk of developing musculoskeletal discomfort and disorders. Ensuring that employees are managing the demands of their work satisfactorily is therefore very important to preventing these problems, as well as optimizing performance.

Coping with the demands of work is helped by a healthy work life balance and physical activity.

Recommendations

- Try as much as possible to spread work load and responsibilities amongst team members.
- Ensure that targets can be realistically met. In setting targets consider quantity of work, quality of work, and the situations under which the work is being done. Set targets in consultation with team members and review them regularly
- If an individual is reporting high work demands and is having difficulties meeting realistic targets consider if they need:
 - further or more specific training
 - assistance in managing personal matters e.g. a referral to an employee assistance program
- Encourage a healthy work life balance amongst staff. For some recommendations on achieving this see advice under risk factor High tendency to continue in the Individual Factors risk category.
- Encourage physical activity. For recommendations on achieving this see advice under risk factors Low physical activity and Low physical fitness or low muscle strength in the Individual Factors risk category.

Criteria

User answers "often" or "higher" to questions assessing work demands.

Based upon Copenhagen Psychosocial Questionnaire (COPSOQ).

Low job control

Workers perceive they have a low amount of input into the way they do their work.

For example,

- Little or no control over work speed
- Little or no opportunity to schedule own work
- Limited break opportunity
- Poor task variation
- Little or no opportunity to make own decisions
- Low job control is associated with a greater risk of developing musculoskeletal discomfort and disorders.

Having some control over work speed, work schedule, some task variation, opportunities to take regular breaks and some input in decision making is important for people to enjoy their jobs, perform well and avoid musculoskeletal discomfort and disorders.

Recommendations

- Consider if any work routines can be altered to provide more control for staff. For example:
 - consider the way the work is allocated; can workers select a proportion of their work from a 'menu' rather than have it just given to them?
 - More flexible working hours e.g. slightly later start or earlier finish to allow children to be taken to or from school or to allow peak hour traffic to be avoided.
 - Allowing allocated breaks within a range of time to accommodate workflow and personal preference e.g. 10 minute morning break to be taken sometime between 9 am and 10:30 am
 - Flexibility over how the work is done with performance measures based on successful outcomes.
 - Be creative! And ask your staff how the role might work better for them.
- Ensure there are realistic standards for work load and achievement.
- Consider if more variety can be added to the role e.g. reduce the amount of division of work; for example, in a call center allow the call taker to perform some of the follow ups required rather than allocating this part to another person.
- Consider clear pathways for achievement based advancement.
- Ensure that regular breaks are built into the work process and the time that these take are considered in the performance targets. Make sure you use Wellnomics Breaks & Exercises to help you with this.
- Provide an employee 'suggestion box' or web-based equivalent so that staff can have input into their roles and the organization in an anonymous way if preferred. Ideas from the suggestion box should be presented, discussed with staff and implemented where appropriate.
- Whenever possible staff should be well informed and consulted about any issues pertaining directly to their roles.

Criteria

User answers "sometimes" or "lower" to questions assessing level of job control.

Based upon Copenhagen Psychosocial Questionnaire (COPSOQ).

Low social support from colleagues

Workers perceive that they receive a low level of support from co-workers.

Poor social support is associated with an increased risk of musculoskeletal discomfort and disorders. A supportive working environment is important to optimize performance and to reduce the risk of musculoskeletal problems.

It is important to try and establish why staff may be feeling unsupported.

- Are others too busy to help or listen to problems?
- Is the work considered too specialized for others to help?
- Is there a shared understanding not to 'bother' colleagues or managers with questions?

Recommendations

- If the lack of support available is a workload or time pressure is an issue, try as much as possible to spread work load and responsibilities amongst team members.
- If the lack of support is due to a lack of specialist skill, consider:
 - If support can be provided from another area of the organization
 - If support can be provided external to the organization e.g. a mentoring program
 - If support can be provided to an individual e.g. an employee assistance program
- If the lack of support may be due to a historic culture that colleagues should not be 'bothered' or be asked for things consider:
 - Discussing with staff how better support can be provided for them to do their work. How could this be done? What procedure should be followed, e.g. informal, a web based post system or regular meetings?
 - Organizing a team building event.
 - Entering a corporate sports event or competition.

Criteria

User answers "sometimes" or "lower" to questions assessing level of social support from colleagues.

Based upon Copenhagen Psychosocial Questionnaire (COPSOQ).

Low sense of community

Workers feel that they are not really part of a community at work.

For example,

- Poor general atmosphere at work
- Poor co-operation and relationships between colleagues

Poor social support is associated with an increased risk of musculoskeletal discomfort or disorders. A friendly, considerate atmosphere within your work group is important to working successfully together. It is important to try and establish why staff may feel that the working environment is not optimal.

- Is it due mainly to a clash of personalities between several people? Or clashes between groups with different views?
- Is it due to people not really knowing each other that well due to conflicting work schedules or new employees entering into established work groups?

- Is it due to organizational change which has resulted in uncertainty?

Recommendations

- Try to resolve issues of personality clashes by considering:
 - Careful arrangement of work groups and project groups to have compatible people working together where possible.
 - Full consultation with affected parties to see if conflicts can be resolved and 'ground rules' established. In serious cases, specialized assistance may be required e.g. from the Human Resources department or an Organizational Psychologist.
- Try to resolve issues of unfamiliarity between team members by considering:
 - Regular group meetings at a time all can attend.
 - Team building and social events.
 - An induction program for new employees that includes specific introductions to team members and a group social event e.g. morning team or lunch together.
- Try to resolve issues of organizational change and uncertainty by considering:
 - Full consultation with affected parties to ensure all staff are well informed.
 - Utilizing experts to assist staff in the change process e.g. from the Human Resources department, Organizational Psychologist or employee assistance program.
- Consider organizing a team building event.
- Consider entering a corporate sports event or competition.
- Try to make the workplace fun e.g. celebrate people's birthdays, have a regular shared morning tea or lunch, arrange a sweepstake for an upcoming event. Be creative!
- Show an interest in employees' out of work lives e.g. their family, hobbies and congratulate employees who excel in their out of work pursuits.
- Lead by example and be friendly and considerate to all.

Criteria

User answers "sometimes" or "lower" to questions assessing sense of community at work.

Based upon Copenhagen Psychosocial Questionnaire (COPSOQ).

Lack of feedback at work

Workers perceive that they receive a low level of feedback from colleagues and immediate superiors.

For example,

- Little or no opportunity to talk about work performance with colleagues or managers

A perception of poor co-worker support is associated with an increased risk of musculoskeletal discomfort or disorders.

To perform well and be satisfied by their work people need good information on what is expected of them, including feedback on their work performance.

Feedback provides opportunities for staff to improve their performance, if necessary. It can also be reassuring for people to know that they are doing well and that they are on the right track.

Recommendations

- Ensure that all staff are provided with constructive feedback about their work performance.
- The format of feedback should be decided, in part, through discussions with staff. Consider:
 - The style e.g. formal, informal
 - The frequency of each style e.g. informally weekly and formally annually
 - The process e.g. email, meeting
 - The 'ground rules'. These may include, for example, that feedback will:
 - not be personal but objective
 - be constructive and always include something positive
 - include realistic and achievable improvement requests
 - include opportunity for discussion
 - include ways to achieve improvements e.g. training
 - include a review process
- If you are unsure about how to provide feedback or are experiencing difficulties with the process seek help e.g. from the HR department or through further training

Criteria

User answers "sometimes" or "lower" to questions assessing feedback at work.

Based upon Copenhagen Psychosocial Questionnaire (COPSOQ).

Lack of Sufficient Leadership

Workers perceive that their immediate superiors show a poor level of leadership.

For example,

- Perceived poor ability of managers to plan work well and to solve problems

A perceived lack of good leadership is associated with an increased risk of musculoskeletal discomfort or disorders. Good management support and leadership is important for having healthy and productive work groups.

Recommendations

- Meet with your staff and ask for feedback regarding work planning and problem solving management. Consider:
 - Discussing what style of management would be beneficial to all
 - Focusing on specific work examples to ensure that the discussions are objective and are not personally critical
 - Utilizing experts to assist facilitation of the discussions e.g. from the Human Resources department or an Organizational Psychologist
- If you are unsure about how to provide appropriate leadership or are experiencing difficulties with this role seek help e.g. from senior colleagues, the HR department or through further training.

Criteria

User answers "sometimes" or "lower" to questions assessing leadership.

Based upon Copenhagen Psychosocial Questionnaire (COPSOQ).

High work stress

Workers perceive their work to be stressful and they are experiencing signs of work stress.

For example:

- High levels of fatigue
- High levels of emotional tiredness
- High levels of frustration
- Poor work-life balance

High perceived work stress is associated with an increased risk of upper limb problems and symptoms of stress can be associated with musculoskeletal problems.

People may experience stress for a variety of reasons, both work and personal. Some of these reasons may be highlighted in the Individual Factors assessment, e.g.

- having a high commitment to work
- a tendency to continue to work regardless of the circumstances
- difficulties in achieving a good work life balance

and in other sections of the Work Environment Factors assessment e.g.

- High work demands
- Low job control
- Low social support from colleagues

Personal, out of work issues are also likely to impact on the experience of stress.

Having high perceived work stress makes employees more likely to develop musculoskeletal discomfort and disorders. It is important that signs of stress are recognized and addressed as well as possible.

Recommendations

- Be open to discuss the individual's feelings of work stress.
- Try to address any specific work environment factors identified e.g. work demands, control over work, social support. See advice provided for the specific work environment risk factors that have been identified in the assessments.
- Try to address any specific individual factors identified e.g. a tendency to continue, poor work life balance. See advice provided for the specific Individual risk factors that have been identified the assessments.
- Recommend that the individual seeks help from experts e.g. their doctor, the employee assistance program.

Criteria

User answers "sometimes" or "higher" to questions assessing work stress.

Based upon Copenhagen Psychosocial Questionnaire (COPSOQ).

Individual

Musculoskeletal discomfort and disorders that are related to work have a multi-factorial origin. As well as environmental factors such as workstation setup and workload there are individual factors unique to each person which can also affect that person's risk level.

These factors can reinforce each other or be mediated by cultural or societal factors (such as those assessed by the work environment factors risk category). Individual factors include things about a person that they can't change, e.g. gender; things that they can change, e.g. fitness and muscle strength, and some factors that may be difficult to change, e.g. coping strategies and personality traits.

Of the many attributes that can vary between individuals six have been shown to have a significant correlation with an increased risk of discomfort and injury.

Each of these risk factors is explained below, together with recommendations for addressing or mitigating the effects of this risk factor.

In practice it may be difficult to address some of these risk factors. In this case it is simply a matter of placing a higher priority on these people for other preventative measures, ensuring that their overall risk does not exceed safe levels.

For more background on the Individual Factors risk category see Wellnomics white paper *Individual factors: What are they and why are they important?*

High sensitivity to stress or commitment

Individuals who have a tendency to feel very stressed and those who are very committed to their work have an increased risk of developing musculoskeletal discomfort and disorders.

A sustained stress response may result in increased muscle tension, reduce the ability of the musculoskeletal system to recover during or after work and increase the central nervous system's response to discomfort. Over commitment to work may result in less leisure time and consequently less time to rest and recuperate both mentally and physically.

Recommendations

Being highly committed to their work is an admirable quality and makes for valuable employees. One potential drawback of such focus and dedication is that it can have a negative impact on health in the long term. A good balance between work and relaxation is important to maintain a good working and private life.

It is important that work load and responsibilities are distributed evenly amongst team members so that an increased work load does not fall to one or two individuals.

Another thing that can help is to make sure that staff take full advantage of their leisure time. Encourage relaxing activities that provide a change from work and which really helps employees to recharge their batteries. Adequate recovery from mental fatigue is just as important for maintaining 'mental fitness' as adequate recovery from physical fatigue is. The same principles apply.

- Try as much as possible to spread work load and responsibilities amongst team members
- Encourage a work-life balance amongst staff. You can do this by:
 - Not expecting regular overtime
 - Allowing for flexible hours where possible

- Encouraging leisure activities by joining corporate events or having work teams entered into local sports competitions
- Supporting and congratulating employees who excel in their out of work pursuits
- Showing an interest in employees out of work lives e.g. their family, hobbies
- Setting a positive example of a good work-life balance as a manager

Criteria

Agree or Strongly Agree with 4-5 of the 6 questions on sensitivity to stress and high commitment

High tendency to continue working

Employees with this risk factor indicate a tendency to work overtime, and keep working outside normal working hours. Individuals who have a tendency to continue to work regardless of the circumstances have an increased risk of developing musculoskeletal discomfort and disorders, especially if it means they are spending extra long hours at a computer.

An individual's tendency to continue may result in risky biomechanical and cognitive processes, for example adopting poor postures, continuing to work without breaks and working through symptoms of discomfort. A tendency to continue working may also result in less leisure time and consequently less time to rest and recuperate both mentally and physically.

Recommendations

It is important to work out why these employees feel they need to continue working so hard.

Is it because:

- High work demands?
- A company culture that expects people to work lots of overtime?
- High standards they have for themselves?
- They enjoy their work so much that they find it hard to put it down.

If the main reason is 1 or 2, then your organization should consider the implications of this and identify ways to reduce the causes of overwork. Continuous overwork can increase the risk of musculoskeletal discomfort and disorders.

If the main reason is 3 or 4 then it is a matter of making sure that staff aim for balance. High standards and/or a strong interest in work are very healthy and often indicators of highly valued employees. But if taken too far, can affect health in the long term.

Some suggestions for addressing this risk factor are listed below:

- Try as much as possible to spread work load and responsibilities amongst team members to reduce work demands.
- Try as much as possible to spread the workload over a period of time and avoid large surges and peaks in workload.
- Ensure that workload and performance expectations are reasonable and matched to the individual's skill levels.
- If improved performance is required from an individual formulate a consultative professional development plan to develop staff competencies.

- Monitor overtime hours and encourage reasonable working hours.
- If overtime is required in the short term, then once the period is over reward the extra effort with time-in-lieu or another appropriate recognition of extra effort.
- Encourage a work-life balance amongst staff. You can do this by:
 - Not expecting regular overtime
 - Allowing for flexible hours where possible
 - Encouraging leisure activities by joining corporate events or having work teams entered into local sports competitions
 - Supporting and congratulating employees who excel in their out of work pursuits
 - Showing an interest in employees out of work lives e.g. their family, hobbies
 - Setting a positive example of a good work-life balance as a manager

Criteria

Answers highest level on questions designed to assess tendency to continue working.

Low physical activity

Individuals who have low levels of physical activity are at greater risk of developing musculoskeletal disorders.

Exercise can prevent and reduce musculoskeletal discomfort so the absence of exercise increases an individual's risk of discomfort.

Recommendations

- Encourage physical activity amongst your staff. Some simple ideas to help with this are listed below:
- Getting off the bus early and walking
- Parking the car further away from the office and walk
- Where possible, travel to work and appointments by bicycle or by foot (in combination with public transport), instead of driving
- Taking the stairs instead of the lift
- Walking briskly
- Walking at lunchtimes and during breaks
- Initiation of group exercise at breaks e.g. stretching or walking
- Considering using 'sit-stand' desks to reduce prolonged sitting
- Walking as much as possible during work, e.g. to the coffee machine, to the copier, printer or fax and to your mailbox
- Walking outside when two or three people are meeting and few notes need to be made
- Regular breaks from computer work to walk away from desks or perform exercises to stretch or relax your muscles. (Make sure you use the Wellnomics app® to help you with this. the Wellnomics app® has many good exercises that you can do in working time at your computer)
- Provide an exercise facility or subsidized gym membership
- Provide shower and change facilities
- Display posters to encourage physical activity.
- Enter corporate events or enter a work group in a local sports competition

- Arrange exercise based team building events e.g. orienteering, rock climbing, kayaking
- Acknowledge the physical activity achievements of staff
- As a manager, lead by example!

Criteria

Does physically demanding activity less than 5 times a week and participates in exercise less than 3 times a week.

Low physical fitness or Low muscle strength

Individuals who have low levels of physical fitness or muscle strength are more susceptible to developing discomfort because bodies and muscles are less resistant to fatigue and less able to recover quickly.

Strength training and all-round physical exercise (e.g. walking, cycling, and swimming) can prevent and reduce musculoskeletal discomfort so the absence of fitness and muscle strength increases an individual's risk of discomfort.

Recommendations

Maintaining a good level of fitness and muscle strength will help staff stay healthy.

This can be achieved by either:

1. Performing at least 20 minutes of exercise three times a week. this exercise should be strenuous enough that you sweat, or
2. Doing 30 minutes of moderate physical activity, such as walking or gardening, at least 5 days a week.
"Just 30 minutes of physical activity taken regularly will benefit the health of everyone." US Surgeon General 1996

See risk factor *Low Physical Activity* for some ideas on how to encourage greater fitness and muscle strength amongst your staff.

Criteria

User rates their fitness or muscle strength as poor.

Low overall physical capacity to cope with workload

Individuals who have a tendency to continue to work regardless of the circumstances have an increased risk of developing musculoskeletal discomfort and disorders.

An individual's tendency to continue may result in risky biomechanical and cognitive processes, for example adopting poor postures, continuing to work without breaks and working through Symptoms of discomfort. A tendency to continue working may also result in less leisure time and consequently less time to rest and recuperate both mentally and physically.

Recommendations

See risk factors *Low Physical Activity* and *Low Fitness or Low Muscle Strength* for some ideas on addressing this risk factor.

Criteria

Either low physical activity, Low physical fitness or low muscle strength