

Work-related?

Neck – shoulder – arm disorders

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A help for non-medical professionals in occupational safety and health to identify possible workplace problems

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Based on: Criteria document for evaluating the work-relatedness of upper-extremity musculoskeletal disorders. Sluiter, J.K., Rest, K.M. and Frings-Dresen, M.HV. Scand J Work Environ Health 27 (suppl 1) 2001.

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Introduction

Diagnostic criteria for work relatedness of neck, shoulder and arm disorders are based on a clinical diagnosis of the disorder and on assessment of the work exposure that may cause the condition. A diagnosis of a work related neck, shoulder and arm disorder has implications for both treatment, actions at the workplace and compensation. It is therefore important that the diagnostic criteria are evidence based and that there is a wide consensus about the evidence base and the criteria that should be applied. SALTSA has (partly) supported the work to produce a consensus document on the topic. This has been published and the document clearly describes the different disorders to consider, workplace exposures including psychosocial conditions and criteria that allows a conclusion if a condition is more likely to be work related than not work related. The document is intended for an audience of physicians and ergonomists involved in the diagnosis of occupational musculoskeletal disorders. The material could also be useful for a lay public interested in identifying potential workplace problems, regardless of whether a case of a neck, shoulder or arm disorder has occurred. The material may also serve as a stimulus to suggest further inquiry with experts if a worker has complaints that could suggest a neck, shoulder or arm disorder. SALTSA therefore contacted the science journalist Ulla Kindenberg, who agreed to write a version for a lay public based on the original publication and on interviews. Ergonomist Monica Mortimer provided expert help also in the preparation of the English version of this booklet. This “lay” version is not intended as a diagnostic tool or to otherwise replace the original consensus document, that can be obtained through medical library services. SALTSA would like to thank all those involved in the work

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Preface

Musculoskeletal disorders (MSD) are the most common reasons for reported work-related illness, long-term sick leave and disability pensions. Apart from personal suffering, they impose a major financial burden on the community and on employers and individuals. While the causes of MSD are many and covariant, one of the most important explanations for such illness is physical and psychosocial stress in working life. There are consequently good reasons for attempting to determine as accurately as possible the relationships between work and these disorders. One important reason is the need to take individual measures to prevent exacerbation of disorders. Another is the need to improve working conditions to prevent new disorders. A third reason is that people who suffer work-related disorders must have the right to have their disorders classified as such and to receive financial compensation.

This is why SALTSA took the initiative for a “criteria document” for evaluating the work-relatedness of upper-extremity musculoskeletal disorders. A working group consisting of prominent European experts was appointed to collect and assess existing material. The document is consequently based on the most current knowledge available and the broadest possible consensus among the experts¹.

The original document is primarily a tool for medical occupational health personnel and primary care physicians, physiotherapists and ergonomists. However, there was a need to communicate knowledge about disorders and risk factors more broadly and the present version has been prepared for this purpose. The document is intended as a source of information and guidance for actors in the work-environment field. Relevant categories include occupational safety representatives, non-medical occupational health service professionals and employers, who are responsible for occupational safety and health. Though not engaged in the diagnosis of workers' health problems, readers may need to be alerted to possible workplace problems that can cause disorders of the neck, shoulders, arms and hands

SALTSA initiates research concerning work environment and health, the labour market and work organisation against the background of Sweden's membership of the European Union. With the increasing integration of the European labour market inherent in such membership, it is essential to participate in the integration process with the best knowledge possible. Real integration is also predicated on standardised assessment systems. These include criteria not only for diagnosing and classifying disorders, but also for assessing relationships between work and disorders of this nature.

We extend our sincere thanks to the former programme secretary Anders Schaerström for his efforts in editing the scientific material for this version and to Dr Allan Toomingas for ensuring the medical correctness of the text. For SALTSA and the National Institute for Working Life:

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1) Sluiter, Judith K.; Rest, Kathleen, M. and Frings-Dresen, Monique: Criteria document for evaluating the work-relatedness of upper-extremity musculoskeletal disorders. *Scandinavian Journal of Work, Environment and Health*, Vol. 27, Supplement 1, 2001. ISSN 0355-3140.

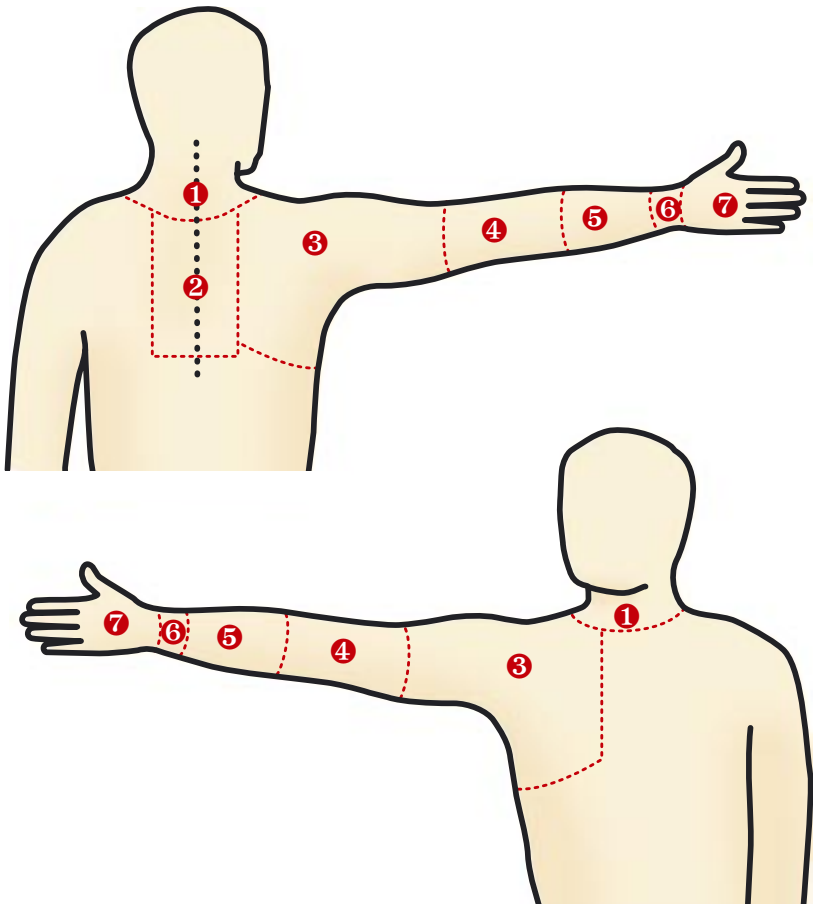
Individual copies cost FIM 200 (plus postage and handling) and are available from the Scandinavian Journal of Work, Environment and Health, Topeliuksenkatu 41a A, FIN-002500 Helsinki, Finland. Telephone: 00358-9-4747 2694. Fax: 00358-9-878 3326.

Layout of the guide

Description of the body regions discussed in this guide is followed by a section outlining the twelve types of disorder. The next section discusses how to proceed with investigating the potential work-relatedness of such disorders and criteria that should be considered. This is followed by a section on measures based on a “traffic-light model” using green, yellow and red as marker colours.

The seven upper-extremity body regions

The disorders and symptoms described in this publication are all localised to the seven body regions shown in the illustration on this page. In what follows, they will be referred to collectively as “the upper-extremity regions”:



This section outlines eleven types of specific disorder and one group of non-specific disorders that can affect the seven regions. The twelfth group, Non-specific ... disorders, is extensive and these are the disorders most frequently seen. All twelve disorder types can be work-related according to the criteria in the subsequent sections. Types of disorder are described in a standardised form based on the symptomatology.

The basic document also includes a time aspect to be considered in conjunction with symptoms and the clinical investigation. While the time aspect is more important for the expert than for the layman, as a rule-of-thumb symptoms that have persisted for four days or longer, or were present during at least four of the previous seven days, may be important to investigate further.

If such “lay assessment” suggests that the disorder may be work-related, one may proceed by investigating a possible connection to the person’s work using the “Criteria for work-relatedness of symptoms”.

However, no diagnosis can be made on symptoms alone. A diagnosis of upper-extremity MSD and its potential work-relatedness requires that a physician or physiotherapist makes a clinical diagnosis based on a physical examination.

The description of each disorder includes examples of what physicians can investigate and how investigation of the suspected disorder can be carried out. One example is “passive” movements, i.e. the investigator and not the patient moves the patient’s extremities. Another example is examination by “palpation” where the physician feels and touches the affected area.

The physician’s observations are called “clinical signs”.

1. Radiating neck complaints

Pain radiates from the neck area, causing symptoms also in other areas of the upper-extremity region. Irritation of nerve roots in the cervical spine results in well-demarcated areas of pain. By contrast, irritation of deeper structures such as connective tissue, joints, skeletal bones and muscles results in pain which is more diffuse. The pain may increase with age. Non-radiating neck pain is often called tension neck syndrome (TNS) and is classified in this document as a non-specific complaint. The symptoms are pain in one or more upper-extremity regions in conjunction with head movements. They may present as neck pain or stiffness and as a sensation of prickling or “crawling ants” in those organs.

CLINICAL SIGNS

On medical examination, clinical signs may be pain or stiffness of the neck and pain or prickling sensations of the arm or hand in association with active or passive head movements.

2. Rotator cuff syndrome

Symptoms in the shoulder region

The rotator cuff syndrome refers to symptoms or irritation of the “rotator cuff”, which is a collective name for the muscles and tendons around the shoulder joint that raise or rotate the upper arm.

The predominant symptom is pain which comes and goes in conjunction with movement. Symptoms are triggered by movements that raise the upper arm from the body. Examples of such movements include pulling on a sweater, scratching the other shoulder or upper back, combing one’s hair or closing a bra backwards. Shoulder mobility is limited by pain and stiffness.

CLINICAL SIGNS

Findings on medical examination may include shoulder pain upon active elevation movement or external/internal rotation of the arm.

3. Epicondylitis – lateral and medial

Inflammation of muscle-tendon junctions in the elbow region

The condition is characterised by pain concentrated around muscle-tendon junctions at the elbow and may radiate to the forearm. Grasping objects may be difficult and symptoms are often triggered by rotating the forearm or extension of the elbow in conjunction with grasping or lifting. In the acute stage, symptoms may also occur during rest.

Elbow pain can also result from the radial tunnel syndrome (see below) or disorders of the neck (cervical) vertebrae, and from joint wear (osteoarthritis).

Epicondylitis may be suspected if pain triggered by forearm or wrist movements is localised to the elbow.

CLINICAL SIGNS

Findings on medical examination may include elbow pain on resisted wrist extension (lateral or outward) or resisted wrist flexion (medial or inward).

4. Cubital tunnel syndrome

Compression of the ulnar nerve at the elbow

The ulnar nerve is important for muscle function and sensation in the hand. At the elbow it enters the cubital tunnel, which is where compression of the ulnar nerve most often occurs. The cubital tunnel syndrome is the second most common peripheral compression nerve disorder of the upper extremity. The affected person often experiences irritation, prickling and numbness of the fingers and hand, which may also become clumsy or weak. Pain and tenderness of the elbow may radiate towards the hand. Symptoms may get worse at night in relation to sleep position.

Cubital tunnel syndrome may be suspected if there are symptoms of numbness, fizzing or prickling affecting the fourth or fifth finger, or the fifth finger side of the forearm, wrist or hand.

CLINICAL SIGNS

Findings on medical examination may include numbness, fizzing or prickling if the forearm is pushed towards the upper arm while pressure is applied around the elbow.

5. Radial tunnel syndrome

Compression of the radial nerve in the forearm

This type of disorder is caused by entrapment of a nerve. In this case, the radial nerve located in the forearm is affected. Compression of this nerve can cause several types of symptom and clinical sign that vary depending on which part of the nerve is entrapped. Radial tunnel syndrome is usually characterised by pain in the elbow region or forearm muscle mass, with or without motor weakness.

The symptoms of this disorder can resemble epicondylitis (see preceding section). They may also resemble peritendinitis or tenosynovitis.

Radial tunnel syndrome may be suspected if pain occurs in the elbow region or forearm, or if weakness or loss of strength is felt when the wrist or fingers are extended.

CLINICAL SIGNS

Findings on medical examination may include tenderness of the forearm when pressure is applied below the elbow joint, or pain on resisted extension of the middle finger or resisted rotation of the forearm.

6. Flexor-extensor peritendinitis or tenosynovitis of the forearm-wrist region

Inflammation of flexor tendons of the forearm or wrist is characterised by pain on movement of the hand or wrist. There may also be creaking (crepitus) and local swelling of the tendon surroundings. Trying to grasp or pick up an object or rotate the wrist and hand is painful.

This type of inflammation of the wrist and forearm may be suspected if there is pain or ache along the upper or lower surface of the forearm or wrist.

CLINICAL SIGNS

Medical examination may show pain on resisted movement of the muscles under the symptom area and pain when pressure is applied to the affected tendons, or creaking during wrist movement. There may also be visible swelling of the back of the wrist or forearm.

7. De Quervain's disease

Tenosynovitis or tendovaginitis of the first dorsal compartment of the wrist

De Quervain's disease is an inflammation of the tendons and tendon sheaths of the thumb muscles. The disorder is characterised by pain on the thumb side of the wrist and impairment of thumb function.

De Quervain's disease may be suspected if the affected person experiences pain or tenderness confined to the thumb side of the wrist. The pain may radiate up into the forearm or out into the thumb.

CLINICAL SIGNS

Medical examination may show that pain is triggered in the thumb by specific thumb and hand movements, e.g. resisted extension of the thumb.

8. Carpal tunnel syndrome

Compression of the median nerve at the wrist

Carpal tunnel syndrome occurs as prickling, shooting pain, numbness, ache, clumsiness or a burning sensation in the hand. The condition is caused by transient or recurring pressure on the median nerve which runs through the carpal tunnel in the wrist.

Symptoms are often felt in the palm of the hand and the wrist, and in the middle and index fingers and thumb (at least two fingers), primarily at night. Many experience hand weakness and symptoms radiating up or down the arm.

CLINICAL SIGNS

Medical examination may show prickling, buzzing or pain when the hand is flexed downward or pressure is applied to the wrist, or that symptoms can be triggered in various ways by pinching or compressing the carpal tunnel.

Fingertip sensitivity and thumb muscle strength can also be tested.

9. Guyon canal syndrome

Ulnar nerve compression at the wrist

Persons with Guyon canal syndrome complain of numbness or prickling of the fourth and fifth fingers. Symptoms may be experienced during the day or night. There may also be pain in the hand and forearm while impaired motor function of the hand can make it difficult e.g. to grasp objects with the fingertips.

Guyon canal syndrome may be suspected if there is intermittent numbness, prickling or pain in the palm of the hand on the fifth finger side. Pain may also radiate toward the forearm.

CLINICAL SIGNS

Medical examination may show pain on testing of finger strength, or on provocation of symptoms by pinching, pressure or touch.

10. Raynaud's phenomenon and peripheral neuropathy associated with hand-arm vibration

Persons exposed to hand and arm vibration can develop a number of disorders, especially of the forearm and hand. One example is Raynaud's phenomenon which is characterised by spasm in the blood vessels that supply the fingers, making the fingers white, insensitive and clumsy. "White fingers" is a common name for this condition which, among others, can affect persons who work on a shaking machine or with a vibrating drill or lever.

Raynaud's phenomenon

Raynaud's phenomenon may be suspected if attacks of well-demarcated "white fingers" affecting at least one finger occur in conjunction with cold in persons whose symptoms have arisen after exposure to hand/arm vibration.

CLINICAL SIGNS

Medical examination may show that at least one fingertip turns white when the fingers are exposed to cold water. Other peripheral neuropathies associated with vibration. These nerve disorders are characterised by attacks of numbness of the fingers, with or without prickling. Such complaints may potentially be work-related in persons whose symptoms have arisen after exposure to hand/arm vibration.

11. Osteoarthritis of upper-extremity joints

Arthritis is characterised by deterioration of joint cartilage. Inflammation can cause functional impairment; the joint may creak on movement and in some cases becomes deformed. Since this type of wear is less common in the shoulder joint, the focus here is on the elbow, wrist and finger joints.

Clinically, the disorder is characterised by stiffness and pain on movement of the joint. Most commonly the stiffness or pain is present after a period of rest. The severity of complaints can differ strongly from week to week and tends to recur in conjunction with certain activities. In the advanced stage, pain may also be present during rest.

There are reports of repetitive stress affecting the joints of the upper-extremity musculo-skeletal organs. A strong positive association has also been found between radiologically diagnosed joint disorders and age, although clinical investigations do not show a corresponding association.

Arthritis may be suspected if pain occurs intermittently in a defined area, or around the joint. The suspicion may also be justified if localised stiffness occurs after a rest period or the pain is triggered by a specific movement.

CLINICAL SIGNS

Impaired mobility may be found on passive movement of the joints involved.

12. Non-specific upper-extremity musculoskeletal disorders

Complaints collectively defined as “non-specific“ are the most common. They can take many forms, but are characterised by pain unassociated with a specific combination of symptoms and clinical signs that would be typical of the types of disorder described above. The complaints are often persistent.

Pain, stiffness, tenderness and ache, which may be dull and unrelenting, are part of the picture. The symptoms often occur in the neck and shoulder

region. Many components may be involved in the non-specific, diffuse complaints which are sometimes harder to treat than more specific disorders.

Lack of knowledge prevents a closer categorisation of these types of non-specific complaint. No diagnostic criteria can therefore be provided.

Work-related or not?

Background

As stated in the Introduction, many factors can contribute to disorders and complaints affecting the upper-extremity musculoskeletal organs. Work can be an important factor for people exposed to risk factors at work.

It is generally easier to find evidence of physical work–environment factors as the cause of work-related MSD, than to find a corresponding psychosocial connection. There are also no studies showing that psychosocial factors alone own can contribute to the complaints discussed here.

Criteria for the work-relatedness of symptoms

According to the criteria adopted, the next step after diagnosis is to determine whether the complaints are work-related.

This section outlines the criteria for establishing such relationships. The seven upper-extremity body regions described in the Introduction are here combined into four:

- Neck
- Shoulder, shoulder joint and upper arm
- Elbow and forearm
- Wrist and hand

The criteria for linking complaints to work are based on *physical factors* such as posture, movements, use of muscle force and vibration, and on *non-physical factors*.

The latter are related to work organisation and the psychosocial climate, including work and recovery patterns, work tempo, ability to exert influence, support, demands and tension.

Physical factors that can contribute to upper-extremity MSD are posture/joint angles, movements, use of muscle force, vibration or a combination of these factors.

Extreme posture

Extreme posture is defined as using over half the range of motion (ROM) of a joint regularly during the workday.

As a risk factor, posture must always be evaluated in relation to duration or frequency or both. As a rule of thumb, the more a posture deviates from the

resting position, the more important it is to take duration of the movement and recovery time into account. One reason is that maintaining such a posture increases the strain on the affected muscles.

Movement repetition

Not only the extent of movement, but also its frequency, must be taken into account. Movements are usually defined as highly repetitive if they are performed more than 2 to 4 times a minute or in cycles of less than 30 seconds, depending on the upper-extremity region involved.

Even when the repetitiveness does not exceed these guidelines, duration may play a role when the movements are performed during most of the day, i.e. for more than four hours per workday.

Muscle force

One way to assess the degree of muscle strain is to measure the use of muscle force in relation to duration-recovery time for static actions. The greater the muscle force, the longer the required recovery time.

Maintaining the same posture for too long is a risk factor. One example is holding one's head in the same extreme position for half the workday or more, which may damage muscles in the neck and shoulders.

Vibrations

Workers who operate vibrating handtools or similar risk developing peripheral nerve disorder and 'white fingers'.

Criteria relating to non-physical factors

Non-physical factors in the workplace in combination with physical factors can increase the risk of developing work-related UEMSD.

Non-physical risk factors are found in the work organisation and psychological environment of the workplace. Examples include work:rest ratios, decision latitude, and autonomy. Demands and social support at work are also important. Perceived work stress, work tempo, work pressure, deadline involvement and mental demands can be seen as psychologically demanding work factors. Relationships with colleagues and supervisors or company management are also an issue.

Physical and mental factors in combination

Numerous investigations show that a combination of physical risk factors can increase the risk of musculoskeletal disorders. (See following schedules).

Quantification of parameters used in criteria for work-relatedness (ROM = range of motion)

Qualitative descriptor of parameter	Quantification or unit used in the criteria
Extreme posture	Over half of ROM of a joint with respect to the movement of interest, present regularly during the workday
High repetitiveness	Actions performed more than 2 to 4 times a minute, or cycles less than 30 seconds
Most of the day	(Repetitive) movements or postures performed for more than a total of 4 hours per workday
Substantial part of the day	For more than 2 hours per workday
High force	Hand weights of more than 4 kg
Low social support	Scale score lower than 25% of maximum score. Usually assessed with a questionnaire, e.g. Karasek's Job Content Questionnaire ²
High psychological demands	Scale score higher than 75% of maximum score. Usually assessed the same way as above
Too little recovery time	Less than 10-minute break possible for every 60 minutes of highly repetitive movements

1) More information about the scale is available on the Internet: <http://www.uml.edu/Dept/WE/research/jcq/jcq.htm>

Criteria for assessment of risk level

A four-step process is used for assessing the final probability of work-relatedness and categorising the disorder according to a “traffic-light model” in terms of necessary action (see below for details).

Step 1 concerns the time relationship between a disorder and the person’s present job. Did the symptoms begin, recur or worsen after the current job was started?

Step 2 concerns the presence of work factors associated with the body region in which the MSD is located.

Check whether the worker is exposed to occupational factors known to be associated with MSD in the specific body region. Start by checking pertinent requirements for the “green” (acceptable) code and then check the requirements for the “red” (unsuitable) code. Step 3 deals with determining whether there are non-occupational origins for the symptoms.

These disorders can be caused by many factors that are not work-related. Examples include accidents, previous injuries and leisure time activities. Ask whether such factors are present. Step 4. Finally, decide the level of work-relatedness based on the responses to the three preceding steps – green, yellow or red.

Responses to the above questions will lead to one of the following warning colours.

STEP 1	STEP 2	STEP 3	STEP 4
YES +	GREEN +	NO →	YELLOW
YES +	GREEN +	YES →	YELLOW
YES +	YELLOW +	YES →	YELLOW
YES +	YELLOW +	NO →	RED
YES +	RED +	YES →	RED
YES +	RED +	NO →	RED
NO +	GREEN +	YES or NO →	GREEN
NO +	RED +	YES or NO →	YELLOW

RED – DO SOMETHING NOW!
The disorder is probably work-related.

YELLOW – BE PREPARED!
The disorder may be work-related. Plan for possible measures!

GREEN – NO MEASURES REQUIRED
The disorder is probably not work-related.

NECK

Risk level GREEN if all factors is apply

PHYSICAL FACTORS

Posture during a workday

At work you normally

- do not** hold your chin opposite your breast bone during most of the day (extreme neck flexion)
- do not** sit during most of the workday with static postures of the neck and upper extremity and without rest pauses
- do not** work with unsupported arms when performing work with the upper extremities during most of the day

Movement during a workday

At work you normally

- do not** perform highly repetitive neck extension movements during most of the day
- do not** perform highly repetitive extreme neck flexion movements during most of the day.
- do not** perform highly repetitive upperextremity movements during most of the day

NON-PHYSICAL FACTORS

Work:rest ratio during a workday

At work you normally

- do not** have too little recovery time per hour when performing highly repetitive upper-extremity movements

Work characteristics in period before complaints started

- no** high psychological demands
- no** low social support

NECK

Risk level RED if at least one of the following physical factors is applicable

Risk level YELLOW if no physical factor applies but at least one of the following non-physical factors is applicable

PHYSICAL FACTORS

Posture during a workday

At work you normally

- hold your chin opposite the breast bone during most of the day (extreme neck flexion)
- sit during most of the workday with static postures of the neck and upper extremity and without rest pauses
- work with unsupported arms when performing work with the upper extremities during most of the day

Body movement during a workday

At work you normally

- perform highly repetitive neck extension movements during most of the day
- perform highly repetitive extreme neck flexion movements during most of the day.
- perform highly repetitive upper-extremity

NON-PHYSICAL FACTORS

Work:rest ratio during a workday

At work you normally

- have too little recovery time per hour when performing highly repetitive upper-extremity movements

Work characteristics in period before complaints started

- high psychological demands
- low social support

ELBOW AND FOREARM

Risk level GREEN if all factors is apply

PHYSICAL FACTORS

Posture during a workday

At work you normally

- do not** hold your hand close to your upper body during a substantial part of the day (extreme elbow flexion)
- do not** hold your elbow fully extended during a substantial part of the day
- do not** hold your forearm in an extreme twisted position during a substantial part of the day (pronation or supination)

Movement during a workday

At work you normally

- do not** perform highly repetitive elbow and wrist movements during most of the day

Force during a workday

At work you normally

- do not** perform highly forceful work for forearm muscles during a substantial part of the

Combination of factors during a workday

At work you normally

- are not** exposed to vibrating hand tools during more than a total of 1 hour per workday

NON-PHYSICAL FACTORS

Work:rest ratio during a workday

At work you normally

- do not** have too little recovery time per hour when performing highly repetitive movements

Work characteristics in period before complaints started

- no** high psychological demands
- no** low social support

ELBOW AND FOREARM

Risk level RED if at least one of the following physical factors is applicable

Risk level YELLOW if no physical factor applies but at least one of the following non-physical factors is applicable

PHYSICAL FACTORS

Posture during a workday

At work you normally

- hold your hand close to your upper body during a substantial part of the day (extreme elbow flexion)
- hold you elbow fully extended during a substantial part of the day`
- hold your forearm in an extreme twisted position during a substantial part of the day (pronation or supination)

Movement during a workday

At work you normally

- perform highly repetitive elbow and wrist movements during most of the day

Combination of factors during a workday

While none of the above criteria is fully met, your work normally

- involves a combination of the aforementioned posture, repetition and force

For elbow osteoarthritis

At work you normally

- are exposed to vibrating hand tools during more than a total of 1 hour per workday

NON-PHYSICAL FACTORS

Work:rest ratio during a workday

At work you normally

- have too little recovery time per hour when performing highly repetitive movements

Work characteristics in period before complaints started

- high psychological demands
- low social support

SHOULDER AND UPPER ARM

Risk level GREEN if all factors is apply

PHYSICAL FACTORS

Posture during a workday

At work you normally

- do not hold your hand behind your trunk (extension) during a substantial part of the day
- do not hold your hand in front of the opposite side of your trunk (extreme adduction) during a substantial part of the day (??*)
- do not hold your shoulder in extreme outward rotation during a substantial part of the day
- do not hold an unsupported arm away from your body for a couple of minutes at a time during a substantial part of the day

Movement during a workday

At work you normally

- do not perform work in which your hands move above shoulder height during a substantial part of the day
- do not perform highly repetitive upper extremity movements during most of the day

Combination of factors during a workday

At work you normally

- do not apply high force together with highly repetitive movements and extreme postures

NON-PHYSICAL FACTORS

Work:rest ratio during a workday

At work you normally

- do not have too little recovery time per hour when performing highly repetitive movements

Work characteristics in period before complaints started

- no high psychological demands
- no low social support

SHOULDER AND UPPER ARM

Risk level RED if at least one of the following physical factors is applicable

Risk level YELLOW if no physical factor applies but at least one of the following non-physical factors is applicable

PHYSICAL FACTORS

Posture during a workday

At work you normally

- hold your hand behind your trunk (extension) during a substantial part of the day
- hold your hand in front of the opposite side of your trunk (extreme adduction) during a substantial part of the day (**)
- hold your shoulder in extreme outward rotation during a substantial part of the day
- hold an unsupported arm away from your body for a couple of minutes during a substantial part of the day

Movement during a workday

At work you normally

- perform work in which your hands move above shoulder height during a substantial part of the day
- perform highly repetitive upper-extremity movements during most of the day

Combination of factors during a workday

While none of the above criteria is fully met, your work normally involves

- applying high force with the aforementioned repetitive movements and postures

NON-PHYSICAL FACTORS

Work:rest ratio during a workday

At work you normally

- have too little recovery time per hour when performing highly repetitive movements

Work characteristics in period before complaints started

- high psychological demands
- low social support

WRIST AND HAND

Risk level GREEN if all factors is apply

PHYSICAL FACTORS

Posture during a workday

At work you normally

- do not hold your wrist in extreme postures during a substantial part of the day
- do not hold tools or objects in pinch or grip position during most of the day

Movement during a workday

At work you normally

- do not perform highly repetitive movements of the wrist-hand or fingers during most of the day

Force during a workday

At work you normally

- do not exert high force with your hand(s) during a substantial part of the day

Combination of factors at work

At work you normally

- do not perform computer or mouse work during most of the day

For wrist-finger osteoarthritis, carpal tunnel syndrome and vibration white finger and hand-arm vibration syndrome

At work you normally

- are not exposed to vibrating hand tools during more than a total of 1 hour per workday

For vibration white fingers

At work you normally

- are not in a cold work environment during most of the day

NON-PHYSICAL FACTORS

Work:rest ratio during a workday

At work you normally

- do not have too little recovery time per hour when performing highly repetitive movements

Work characteristics in period before complaints started

- no high psychological demands
- no low social support

WRIST AND HAND

Risk level RED if at least one of the following physical factors is applicable

Risk level YELLOW if no physical factor applies but at least one of the following non-physical factors is applicable

PHYSICAL FACTORS

Posture during a workday

At work you normally

- hold your wrist in extreme postures during a substantial part of the day
- hold tools or objects in pinch or grip position during most of the day

Movement during a workday

At work you normally

- perform highly repetitive movements of the wrist-hand or fingers during most of the day

Force during a workday

At work you normally

- exert high force with your hand(s) during a substantial part of the day (e.g. when using hand tools)

Combination of factors at work

While none of the above criteria is fully met, your work normally involves

- combination of the aforementioned posture, repetition and force
- computer or mouse work during most of the day

For wrist-finger osteoarthritis, carpal tunnel syndrome and vibration white finger and hand-arm vibration syndrome

At work you normally

- are exposed to vibrating hand tools during more than a total of 1 hour per workday

For vibration white fingers

At work you normally

- are in a cold work environment during most of the day

NON-PHYSICAL FACTORS

Work:rest ratio during a workday

At work you normally

- have too little recovery time per hour when performing highly repetitive movements

Work characteristics in period before complaints started

- high psychological demands
- low social support

SAL TSA stands for the joint programme for working life research in Europe. SAL TSA is a joint undertaking by the three Swedish employee confederations – LO, TCO, SACO – and the National Institute for Working Life. The purpose of the programme is collaboration on problem-oriented working life research in Europe.

The purpose of collaboration in SAL TSA is fast, applicable research results, high scientific quality and relevance. The research is based largely on assignments. The research in SAL TSA covers the three areas work environment and health, labour market and work organisation.

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FOR WORKING LIFE RESEARCH IN EUROPE

The National Institute for Working Life and Swedish Trade Unions in Co-operation