

Quick Exposure Check (QEC)

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Quick Exposure Check

Developed by Robens
Institute and the
University of Surrey for
HSE in the UK



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The development of the Quick Exposure Check (QEC) for assessing exposure to risk factors for work-related musculoskeletal disorders

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What is it?

- Easy, straightforward tool to use
- Provides Exposure Scores for body areas
- Identifies needed exposure reduction
- Assists with job comparisons as well as before and after evaluations



How Does it Work?

- Looks at *individual tasks*
- Includes input from evaluator and worker
- Considers:
 - Back, Shoulder, Wrist/Hand, Neck
 - Driving
 - Vibration
 - Work Pace
 - Stress



Steps to Complete QEC

- Identify task(s) of concern (There may be 2 or 3)
- Talk to the worker(s) about the task
- Observe the task for a period/# of cycles
- Complete the Observer portion of the tool
- Ask the worker to answer the Worker Assessment questions and fill in the tool
- Ask the worker for suggestions on how to make improvements
- Score the Assessment
- Enter the Actions Required on the front
- Reassess during a trial or after changes



Worker's name _____ Date _____

Observer's Assessment

Back

A When performing the task, is the back
(select worse case situation)

- A1 Almost neutral?
A2 Moderately flexed or twisted or side bent?
A3 Excessively flexed or twisted or side bent?

B Select **ONLY ONE** of the two following task options:

EITHER

For seated or standing stationary tasks. Does the back remain in a static position most of the time?

- B1 No
B2 Yes

OR

For lifting, pushing/pulling and carrying tasks (i.e. moving a load). Is the movement of the back

- B3 Infrequent (around 3 times per minute or less)?
B4 Frequent (around 8 times per minute)?
B5 Very frequent (around 12 times per minute or more)?

Shoulder/Arm

C When the task is performed, are the hands
(select worse case situation)

- C1 Almost no need to view fine details?

Worker's Assessment

Workers

H Is the maximum weight handled
MANUALLY BY YOU in this task?

- H1 Light (5 kg or less)
H2 Moderate (6 to 10 kg)
H3 Heavy (11 to 20kg)
H4 Very heavy (more than 20 kg)

J On average, how much time do you spend
per day on this task?

- J1 Less than 2 hours
J2 2 to 4 hours
J3 More than 4 hours

K When performing this task, is the maximum force
level exerted by one hand?

- K1 Low (e.g. less than 1 kg)
K2 Medium (e.g. 1 to 4 kg)
K3 High (e.g. more than 4 kg)

L Is the visual demand of this task

- L1 Low (almost no need to view fine details)?
*L2 High (need to view some fine details)?



Interpreting the Questions

- In your reference guide it elaborates on how to answer the different questions
- Note the importance placed on the worker's responses
 - It is what is ***perceived***, not necessarily what the actual load is (e.g. weight of a load)



The Back

Assessment of the back

Back posture (A1-A3)

The assessment for back posture should be made at the moment when the back is most heavily loaded.

For example, when lifting a box the back is under highest loading when the person leans or reaches forward, or bends down to pick up the load.

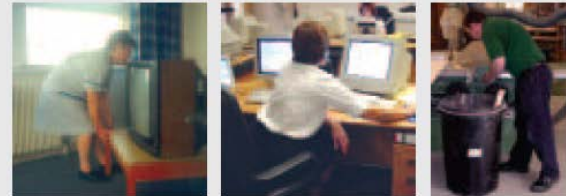
Almost neutral (A1)

- The back is defined as almost neutral (A1) if it is in less than 20° of flexion/extension, twisting, or side bending.



Moderately flexed/twisted side bent (A2)

- The back is defined as moderately flexed or twisted or side bent (A2) if it is in more than 20° but less than 60° of flexion/extension, twisting or side bending.



Excessively flexed/twisted side bent (A3)

- The back is defined as excessively flexed or twisted or side bent (A3) if it is in more than 60° of flexion, twisting or side bending.



The Back (Continued)

Back movement (B1-B5)

Select ONLY one of the two task options:

- If you are assessing a standing or seated stationary task (e.g. sedentary work, repetitive tasks), assess B1-B2 and ignore B3-B5. If the back is static for most of the time, select B2.

- If you are assessing a lifting, pushing/pulling or carrying task (i.e. moving a load by moving the back), assess B3-B5 and ignore B1-B2. This question refers to how often the person needs to bend or rotate the back when performing these types of manual handling tasks. For example, when unloading boxes from a pallet, count the number of times per minute the individual's back moves to lift and lower the load. Then select the most appropriate category B3-B5.



Shoulder / Arm

Assessment of the shoulder/arm

Shoulder/arm position (C1-C3)

The assessment should be based upon the position of the hands when the shoulder/arms are most heavily loaded during work.

This may not necessarily be at the same time as when the exposure of the back is assessed. For example, the load on the shoulder may not be at the highest level when the person bends down to pick up a box from the floor, but may become greater subsequently when the box is placed at a higher level.

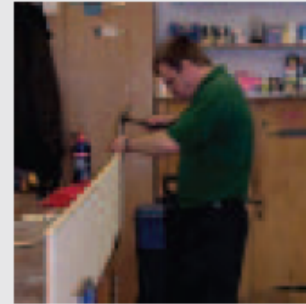
Shoulder/arm movement (D1-D3)

The movement of the shoulder/arm is defined as:

- **Infrequent (D1)** if there is some intermittent movement.
- **Frequent (D2)** if there is a regular movement with some pauses.
- **Very frequent (D3)** if there is almost continuous movement.



Hands at or below waist height (C1)



Hands at about chest height (C2)



Hands at or above shoulder height (C3)



Wrist / Hand

Assessment of the wrist/hand

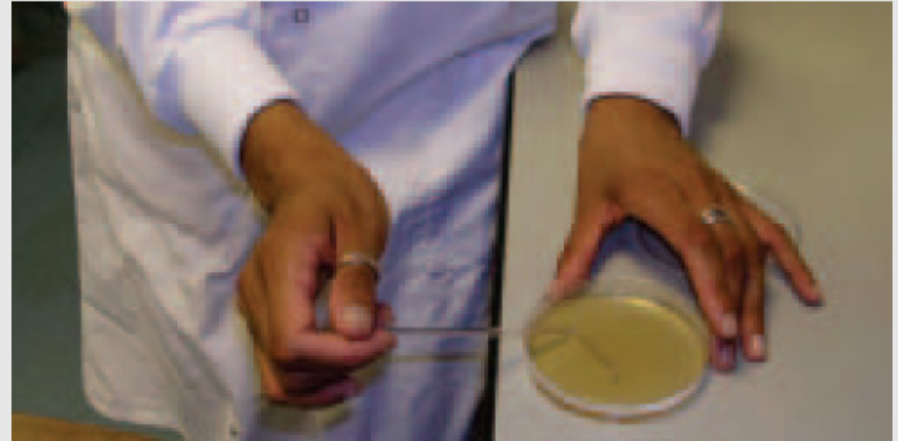
Wrist/hand posture (E1-E2)

This posture is assessed during the task when the most awkward wrist posture is adopted. This may be wrist flexion/extension, side bending (ulnar/radial deviation).

The wrist is regarded as almost straight (E1) if the movement is limited within a small angular range (e.g. less 15° of the neutral wrist posture). Otherwise, if an obvious wrist angle can be observed during the performance of the task, the wrist is considered to be deviated or bent (E2).

Wrist/hand movement (F1-F3)

This refers to the movement of the wrist/hand and forearm, excluding the movement of the fingers. One motion is counted every time the same or similar motion pattern is repeated over a set period of time (e.g. 1 minute).



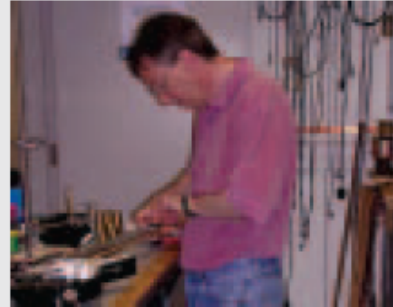
The wrist is deviated or bent (E2)



Neck

Assessment of the neck (G)

The neck posture is defined as excessively bent or twisted if the angle is greater than 20° relative to the torso. If this angle is exceeded select either G2 or G3 dependent upon the duration. Otherwise select G1.



Neck excessively bent (G)



Exposure Scores Worker's name _____

Date _____

Back

Back Posture (A) & Weight (H)

	A1	A2	A3
H1	2	4	6
H2	4	6	8
H3	6	8	10
H4	8	10	12

Score 1

Back Posture (A) & Duration (J)

	A1	A2	A3
J1	2	4	6
J2	4	6	8
J3	6	8	10

Score 2

Duration (J) & Weight (H)

	J1	J2	J3
H1	2	4	6
H2	4	6	8
H3	6	8	10
H4	8	10	12

Shoulder/Arm

Height (C) & Weight (H)

	C1	C2	C3
H1	2	4	6
H2	4	6	8
H3	6	8	10
H4	8	10	12

Score 1

Height (C) & Duration (J)

	C1	C2	C3
J1	2	4	6
J2	4	6	8
J3	6	8	10

Score 2

Duration (J) & Weight (H)

	J1	J2	J3
H1	2	4	6
H2	4	6	8
H3	6	8	10
H4	8	10	12

Wrist/Hand

Repeated Motion (F) & Force (K)

	F1	F2	F3
K1	2	4	6
K2	4	6	8
K3	6	8	10

Score 1

Repeated Motion (F) & Duration (J)

	F1	F2	F3
J1	2	4	6
J2	4	6	8
J3	6	8	10

Score 2

Duration (J) & Force (K)

	J1	J2	J3
K1	2	4	6
K2	4	6	8
K3	6	8	10

Neck

Neck Posture (G) & Duration (J)

	G1	G2	G3
J1	2	4	6
J2	4	6	8
J3	6	8	10

Score 1

Visual Demand (L) & Duration (J)

	L1	L2
J1	2	4
J2	4	6
J3	6	8

Score 2

Total score for Neck

Sum of Scores 1 to 2 _____

Driving



Worker's Assessment of Task

“The worker’s responses are an integral part of the assessment and it is important that they answer each question based on their experience of doing the work. Explain the meaning of the questions and list the response categories. If the worker is in doubt, opt for the higher exposure category.”



Worker's Assessment of Task

Maximum weight handled (H1-H4)

Time spent on task (J1-J3)

Maximum force level (K1-K3)

Visual demand (L1-L2)

Driving (M1-M3)

Vibration (N1-N3)

Work pace (P1-P3)

Stress (Q1-Q4)



Scoring the Assessment



Important risk factors

Back

- load weight
- duration
- frequency of movement
- posture

Shoulder/arm

- load weight
- duration
- task height
- frequency of movement

Wrist/hand

- force
- duration
- frequency of movement
- posture

Neck

- duration
- posture
- visual demand




Exposure Levels

	Exposure level			
Score	Low	Moderate	High	Very High
Back (static)	8-15	16-22	23-29	29-40
Back (moving)	10-20	21-30	31-40	41-56
Shoulder/arm	10-20	21-30	31-40	41-56
Wrist/hand	10-20	21-30	31-40	41-46
Neck	4-6	8-10	12-14	16-18

	Exposure level			
Score	Low	Moderate	High	Very High
Driving	1	4	9	-
Vibration	1	4	9	-
Work pace	1	4	9	-
Stress	1	4	9	16



An OHCOW Tool

		Job Title:			Job Title:		
		Task 1	Task 2	Task 3	Task 1	Task 2	Task 3
Task Name		Insert Task Name	Insert Task Name	Insert Task Name	Insert Task Name	Insert Task Name	Insert Task Name
 <p>Occupational Health Clinics for Ontario Workers Inc.</p> <p>This tool was designed by Occupational Health Clinics for Ontario Workers (OHCOW) for use with the Quick Exposure Check (QEC) developed by the Robens Centre for Health Ergonomics, University of Surrey, Guildford, UK. Only individuals who have received appropriate training should complete assessments.</p>	Photo	Insert Photo of Task	Insert Photo of Task	Insert Photo of Task	Insert Photo of Task	Insert Photo of Task	Insert Photo of Task
	A						
	B						
	C						
	D						
	E						
	F						
	G						
	H						
	J						
	K						
L							
M							
N							
P							
Q							
Exposure Legend	Total Back Exposure (Static)	0	0	0	0	0	0
None	Total Back Exposure (Moving)	0	0	0	0	0	0
Low	Total Shoulder/Arm Exposure	0	0	0	0	0	0
Moderate	Total Wrist/Hand Exposure	0	0	0	0	0	0
High	Total Neck Exposure	0	0	0	0	0	0
Very High	Total Driving Exposure	0	0	0	0	0	0
	Total Vibration Exposure	0	0	0	0	0	0
	Total Work Pace Exposure	0	0	0	0	0	0
	Total Stress Exposure	0	0	0	0	0	0

An OHCOW Tool

		Job Title:			Job Title:		
		Task 1	Task 2	Task 3	Task 1	Task 2	Task 3
Task Name	Insert Task Name	Insert Task Name	Insert Task Name	Insert Task Name	Insert Task Name	Insert Task Name	Insert Task Name
Photo	Insert Photo of Task	Insert Photo of Task	Insert Photo of Task	Insert Photo of Task	Insert Photo of Task	Insert Photo of Task	Insert Photo of Task
A	A2						
B	B3						
C	C1						
D	D2						
E	E2						
F	F2						
G	G1						
H							
J	H1						
K	H2						
L	H3						
M	H4						
N							
P							
Q							
Exposure Legend	Total Back Exposure (Static)	0	0	0	0	0	0
None	Total Back Exposure (Moving)	0	0	0	0	0	0
Low	Total Shoulder/Arm Exposure	0	0	0	0	0	0
Moderate	Total Wrist/Hand Exposure	0	0	0	0	0	0
High	Total Neck Exposure	0	0	0	0	0	0
Very High	Total Driving Exposure	0	0	0	0	0	0
	Total Vibration Exposure	0	0	0	0	0	0
	Total Work Pace Exposure	0	0	0	0	0	0
	Total Stress Exposure	0	0	0	0	0	0

An OHCOW Tool

		Job Title:			Job Title:		
		Task 1	Task 2	Task 3	Task 1	Task 2	Task 3
Task Name	Insert Task Name	Insert Task Name	Insert Task Name	Insert Task Name	Insert Task Name	Insert Task Name	Insert Task Name
Photo	Insert Photo of Task	Insert Photo of Task	Insert Photo of Task	Insert Photo of Task	Insert Photo of Task	Insert Photo of Task	Insert Photo of Task
A	A2						
B	B4						
C	C1						
D	D2						
E	E2						
F	F3						
G	G1						
H	H4						
J	J2						
K	K2						
L	L1						
M	M2						
N	N1						
P	P2						
Q	Q2						
Exposure Legend	Total Back Exposure (Static)		0	0	0	0	0
None	Total Back Exposure (Moving)	42	0	0	0	0	0
Low	Total Shoulder/Arm Exposure	38	0	0	0	0	0
Moderate	Total Wrist/Hand Exposure	34	0	0	0	0	0
High	Total Neck Exposure	8	0	0	0	0	0
Very High	Total Driving Exposure	4	0	0	0	0	0
	Total Vibration Exposure	1	0	0	0	0	0
	Total Work Pace Exposure	4	0	0	0	0	0
	Total Stress Exposure	4	0	0	0	0	0

Benefits of the QEC

- Rapid assessment of job tasks
- Input from both observer and worker
- Validated tool
- Before and after comparison of changes

