Workplace assessment for occupational health: a case study

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The article that starts on page 4 highlights the importance of a workplace assessment, and the benefits an effective assessment can deliver in the long-term management and prevention of work relevant musculoskeletal disorders. Here, the authors follow on from the discussion of the assessment and treatment of the individual employee and explain the combined process of clinical follow-up with a workplace assessment undertaken by the physiotherapist with specialist skills in occupational health and ergonomics who had undertaken the two initial clinical assessments described in the case study on page 6.

LEARNING OUTCOMES
TO SUPPORT PHYSIO FIRST QAP

1 Learn more about the specialist role of a physiotherapist with skills in occupational health and ergonomics.
2 Understand the positive benefits of workplace assessment on patient outcomes.
3 Realise how to develop a role into occupational health and ergonomics with suitable training.

SUBJECTIVE OUTCOME MEASURE	SCORE AT INITIAL APPOINTMENT	SCORE AT FOUR-WEEK FOLLOW-UP / 30 NOVEMBER 2021	SCORE AT EIGHT-WEEK FOLLOW-UP / 28 DECEMBER 2021
VAS	7/10	3/10	1/10
QuickDASH	43/100 63/100 (work module)	30/100 50/100 (work module)	11/100 25/100 (work module)
OBJECTIVE OUTCOME MEASURE	**SCORE AT INITIAL APPOINTMENT**	**SCORE AT FOUR-WEEK FOLLOW-UP / 30 NOVEMBER 2021**	**SCORE AT EIGHT-WEEK FOLLOW-UP / 28 DECEMBER 2021**
JAMAR average grip strength	38.6kg right 45.4kg left	43.1kg right 50.2kg left	54.4kg right 52.5kg left

TABLE 1: Changes in scores on each subjective and objective outcome measure at initial and follow-up appointments

Introduction

Mr D, 42, began physiotherapy assessment and rehabilitation, based on a biopsychosocial approach, for right lateral elbow pain. His initial assessment included the use of outcome measures and functional measurement tests and a follow-up session that reassessed these same measures. Subjective and objective improvements were seen during a follow-up clinical assessment, and the following outlines the further clinical review undertaken in Mr D's treatment and return to work process.

Clinical assessment 28 December 2021

During this appointment, four weeks after the first follow-up on 30 November 2021, Mr D was once again assessed against subjective and objective outcome measures (table 1). The subjective outcome measure showed a VAS score of 1/10 which was an improvement on 7/10 score he had registered at his initial assessment, and a reduction on the 3/10 score registered on 30 November 2021. Similarly, the QuickDASH score had reduced to 11/100 for general pain and disability levels, and 25/100 for the work module; down from 30/100 and 50/100 respectively from the 30 November appointment.

The objective outcome measures showed an average grip strength of 54.5kg in his, now pain-free, right hand, a score above the expected normative value of 50.4kg for Mr D's age and gender. Additionally, there was no pain on palpation to the lateral epicondyle and surrounding areas, and the patient had full muscle power with resisted wrist extension.

It was concluded that Mr D's much improved subjective, objective, and functional measures indicated that he was fit to return to normal duties at work, providing that the workplace assessment determined a safe return to work.

Ergonomic workplace assessment

To assist with the treatment outcome, pain modification and return to work, a workplace assessment of Mr D's role and job demands was deemed appropriate and had been recommended in his first Allied Health Professionals (AHP) Health and Work Report. Guidelines for management of tennis elbow also

> "IT IS IMPORTANT THAT ALL STAKEHOLDERS ARE INCLUDED IN A WORKPLACE ASSESSMENT TO ENSURE COMMITMENT TO PRACTICAL SOLUTIONS"

recommend modification of activities that cause symptoms in the short-term, while maintaining activity levels as much as possible (NICE 2017).

It is important that all stakeholders are included in a workplace assessment to ensure the evaluation is as comprehensive as possible and that there is a commitment to the recommended practical solutions (HSE 2014). In this case, the "walk through" assessment was undertaken with both Mr D and his line manager and concentrated on the employee's task of "main switch testing".

JOB DEMANDS ANALYSIS

Mr D works at a logistics site and his main duty involves main switch testing, which involves the daily processing of approximately 40 electrical units, although this number can vary slightly depending on rate of delivery and the fault rate of the items being tested. To further undertake a workplace assessment, it was necessary to break down each of the elements involved in the task of main switch testing:

- It was undertaken at a static bench that was 850mm high.
- There are four screws a unit, and testing involved turning each screw twice.
- A manual screwdriver was used at a torque of four Newton metres (4Nm) which is approximately 400 grammes of force at the end of a one metre bar. Some operators feel that a manual screwdriver, rather than an electric one, must be used due to the sensitivity required for testing these units.
- A degree of force is required to fully insert each screw on the unit. The wrist and forearm muscles, as well as other soft tissue structures, are actively loaded during this procedure.
- It was noted that the screwdriver used by Mr D had a diameter of only 30mm, whereas the nominal diameter of single handles, such as a screwdriver, should be approximately 40mm. Also, the grip material was quite hard which is likely to be less comfortable than a soft, compliant, textured handle.

During the assessment, Mr D was seen to stand at quite a distance from the workbench and this appeared to have an adverse impact on his spinal and upper limb posture. He also adopted extended wrist postures for prolonged periods of time when carrying out his work.

An alternative workbench, set at a height of 1,125mm was located, and this seemed to encourage Mr D to adopt a much improved spinal and upper limb posture when operating the main switch testing task. Pheasant & Haslegrave (2005) recommend that "light" tasks such as using a screwdriver are undertaken at a work height of between 50mm-100mm below standing elbow height. As Mr D's standing elbow height was 1,205mm, including 25mm to allow for shoes, a workbench height of 1,125mm was deemed suitable. It was discussed and agreed with Mr D's line manager that this workbench could be moved to the main switch testing area for Mr D's use.

REPETITIVE TASK ASSESSMENT

The use of manual screwdrivers in Mr D's job involved repetitive upper limb activity intermittently throughout his shift. An assessment of repetitive tasks (ART) was completed, at the higher workbench now being used by Mr D. This process reviews tasks of the upper limbs that are repeated every few minutes (HSE 2010) to help identify those that involve significant risks, and to subsequently help to direct risk reduction measures. Further information on ART can be found at **https://www.hse.gov.uk/msd/uld/art/index.htm.**

The ART assessment outcomes provide a task and an exposure score (table 2) that enable comparison with other risk assessments, and the prioritisation of those tasks or areas within a job that may require further attention in ensuring the occupational health of the employee.

Mr D's ART score for main switch testing was six, indicating a low exposure level for both the right and left hand when the task was undertaken for 30 minutes. When the time period was increased to an hour, the score increased to 12, or medium exposure level, and a further increase to two hours raised the score to the high exposure level of 24. This highlighted the importance of implementing a risk reduction measure of limiting Mr D's activity on his work task to 30 minutes at a time.

OUTCOME OF ART

The ART red risk factor for wrist posture, indicated that Mr D might require task modification when undertaking his job of main switch testing.

The overall outcome of the ART tool highlighted the importance of limiting employees undertaking this task to an exposure of 30 minutes at a time.

Subjectively, Mr D reported that he believed the task of main switch testing had previously exacerbated his right arm pain, although since being on modified duties, and undergoing recent physiotherapy intervention, this pain had resolved.

EXPOSURE SCORE	PROPOSED EXPOSURE LEVEL	
0-11	Low	Consider individual circumstances
12-21	Medium	Further investigation required
22 or more	High	Further investigation required urgently

TABLE 2: ART exposure score and proposed exposure level

ACTION PLAN

Based on the findings from the workplace and ART assessments, recommendations on follow-up actions were made for Mr D's return to normal work duties. This included moving the higher workbench to the main switch testing area, as agreed with the line manager, so that it was available for Mr D to use at each work shift. In addition, Mr D was shown how, by standing close to the workbench with his arms close to his sides, he could operate the screwdriver with a more neutral wrist posture.

The provision of an alternative design of screwdriver with a larger diameter and softer handle to that normally used by Mr D was advised. Ideally, the alternative screwdriver should also include a built-in ratchet to reduce force generation and, in the longer term, an evaluation of the use of a mounted torque electric screwdriver with resistance sensitive feedback could be undertaken, although this would need to be done in tandem with a "user trial" owing to the potential for introducing different risks such as vibration exposure, and the effects of using a heavier tool.

A 30-minute break from the task of main switch testing should occur after every 30 minutes of operation, perhaps with a rotation to another task that did not involve intensive gripping or repetitive use of the hand and wrist. Ideally, the alternative task should be one that requires full body movement such as walking or dynamic lifting.

As a direct result of this assessment, the OH physiotherapist recommended further strategies to help prevent the occurrence of work relevant musculoskeletal disorders (WRMDs) among all employees. This included the task of main switch testing be limited to 30 minutes without a break, and for shifts to be limited to four hours in total. The company agreed to implement this advice for all staff.

Return to work advice

Following the clinical and workplace assessment, it was recommended that Mr D could return to his normal work duties from 29 December 2021. Mr D and his line manager agreed with this assessment and his line manager stated she would investigate the provision of alternative screwdrivers as soon as possible.

> "AS A DIRECT RESULT OF THE OH PHYSIOTHERAPIST RECOMMENDATIONS, THE COMPANY AGREED TO IMPLEMENT STRATEGIES TO PREVENT WRMDS FOR ALL EMPLOYEES"

Mr D was keen to ensure that his work colleagues were also provided with training to help improve their working postures and engage in other strategies to help prevent WRMDs. It was decided that a physiotherapist would undertake awareness training with all staff, and that Mr D would receive additional training to enable him to take on the role of Health and Safety Champion so that he could help to support his work colleagues and line manager in prevention of ill health and injury at work.

Mr D was advised to report any future problems to his line manager as soon as possible so that further support could be provided.

No further AHP Health and Work Report was required as Mr D was returning to normal duties.

REVIEW SUPPORTING QAP

I enjoyed reading both of these articles from the ACPOHE group, and appreciate the clinical thought processes shown in the case studies and, for anyone needing evidence for HCPC checks, this is an excellent framework of how to write a good case study.
The relevance of the flag system, choice of evidence-based objective measures and the importance of outcome measures in evaluating our intervention aligns completely with our Physio First QAP/QAC scheme.

Reviewed by
Amanda Marsh

Conclusion

A workplace assessment can be highly valuable in highlighting work factors that influence many WRMDs. Further training in this area is recommended, and ACPOHE run courses such as Introduction to Applied Ergonomics for Physiotherapists (see details at the end of this article).

There is, however, much that can be done within an outpatient clinic setting to help support the individual in their work situation. Asking the patients about work factors and suggesting they take photographs or videos to help identify any potential work issues, can inform how rehabilitation is modified to meet their work demands and can be a great place to start. Relevant functional measurement tests should be included into the patient assessment, and the AHP Health and Work Report utilised.

Further training on completing the AHP Health and Work is available through the Free Guest Access of our new Work and Health Learning and Development hub, please see: **https://acpohelms.co.uk/login.php**

About the authors and contact details

Full details on the authors and their contact details can be found on page 10.

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