

# Ergonomic risk assessment and evaluation of work-related musculoskeletal disorders among physiotherapists

<b>Submission date</b> 28/08/2023	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 04/09/2023	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 11/03/2024	<b>Condition category</b> Other	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Work-related musculoskeletal disorders (WMSD) are injuries or dysfunctions that affect the muscles, nerves, tendons, bones, joints, ligaments and other soft tissue structures including strains, sprains, and injuries to surrounding structures. Healthcare practitioners, especially physiotherapists through direct patient interaction, are among the occupations with the highest rate of WMSDs due to their occupational load bearing and body positions sustained during the day. Continuous movements in ergonomically adverse positions can lead to the development of MSDs and declined productivity. WMSDs place a substantial load on present society, not only for the reason of their occurrence but also for the expenses related to work absence as a result of such disorders. The frequency rates and missed employed days differ across various considering the discrepancy in the financial circumstances. For instance, in the United Kingdom, about 6.6 million absent on salaried days (2018), in the Netherlands around 28% (2017) and, in Germany about 21% of work nonattendance days (2018) have been reported due to WMSDs. Proper assessment tools may prevent musculoskeletal symptoms associated with ergonomic risks, and WMSDs, one such important tool is the rapid upper limb assessment (RULA) questionnaire. Research has shown that musculoskeletal pain and discomfort experienced by physiotherapists in the back, neck, shoulders, hand, and wrist is the most common. There are many factors that arise from the back that increase the risk of injury and may cause pain, increase pressure pain threshold, decreased proprioception, and decreased quality of life. The aim of this study is to evaluate the WMSDs and level of ergonomic risk using the RULA tool among physical therapists and also to find the correlation of pain intensity, pressure pain threshold, proprioception, and quality of life with RULA among physical therapists.

### Who can participate?

Physiotherapists aged between 28-55 years old who are suffering from low back pain

### What does the study involve?

The participants will be randomly allocated into two groups and their pain intensity, pressure pain threshold, proprioception, and quality of life will be assessed and correlated with their RULA scores.

Then the subjects in Group 2 will be provided ergonomic advice as per their group protocol and Group 2 will be provided ergonomic advice and a pilates program as per their group protocol for a period of 8 weeks. After 8 weeks all the outcome measures will be re-assessed and correlated with their RULA scores.

What are the possible benefits and risks of participating?

Participants will benefit from an improved overall quality of life and are expected to have other benefits like decreased levels of work-related musculoskeletal disorders and ergonomic risk which are essential for performing functional activities.

Possible risks are pain and fatigue which will be assessed and managed immediately by expert medical professionals.

Where is the study run from?

The study will be conducted at various centers and hospitals, in the Kingdom of Saudi Arabia.

When is the study starting and how long is it expected to run for?

March 2023 to March 2024

Who is funding the study?

The Deanship of Scientific Research at King Khalid University through a large group research project under grant number: RGP 2/58/44

Who is the main contact?

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## Contact information

### Type(s)

Principal investigator

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Public

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## **Additional identifiers**

### **Clinical Trials Information System (CTIS)**

Nil known

### **Protocol serial number**

Nil known

## **Study information**

### **Scientific Title**

Evaluation of work-related musculoskeletal disorders and the level of ergonomic risk using Rapid upper limb assessment and their correlation with pain, pressure pain thresholds, proprioception, disability, quality of life, and WORQ scores among physical therapists suffering from low back pain

### **Study objectives**

Null hypothesis: The rapid upper limb assessment (RULA) will not assess the level of ergonomic risk in physical therapists

### **Ethics approval required**

Ethics approval required

### **Ethics approval(s)**

approved 09/05/2023, Research Ethics Committee at King Khalid University (King Khalid University, Al Farah campus, Abha, 61421, Saudi Arabia; +966172418386; ecm@kku.edu.sa), ref: ECM#2023-13040

### **Study design**

Multi-center interventional randomized controlled trial

### **Primary study design**

Interventional

### **Study type(s)**

Diagnostic, Quality of life, Treatment, Efficacy

### **Health condition(s) or problem(s) studied**

# Assessment of ergonomic risk and work-related musculoskeletal disorders among physiotherapists

## Interventions

Current interventions as of 11/03/2024:

The study participants with low back pain are randomly assigned into two groups using a simple randomisation method. The recruited physiotherapists will be divided into two groups. Group 1 will receive only ergonomic advice about their back care and Group 2 will receive a pilates training program, both for 5 days/week for a period of 8 weeks.

The physiotherapists who provide the intervention in this study have extensive experience of more than 10 years in the field of physiotherapy and provide pilates training programs to various patients to change and improve their body strength and posture through breathing, stretching and conditioning exercises. The interventions are provided face-to-face individually at the outpatient physiotherapy departments of King Khalid University, Aseer Central Hospital, Khamis Mushait General Hospital, Armed Forces Hospital - Southern Region, and Khamis Mushait.

Previous interventions:

The study participants with low back pain are randomly assigned into two groups using a simple randomisation method. The recruited physiotherapists will be divided into two groups. Group 1 will receive only ergonomic advice about their back care and Group 2 will receive ergonomic advice about their back care and pilates training, both for 5 days/week for a period of 8 weeks.

The physiotherapists who provide the intervention in this study have extensive experience of more than 10 years in the field of physiotherapy and provide pilates training programs to various patients to change and improve their body strength and posture through breathing, stretching and conditioning exercises. The interventions are provided face-to-face individually at the outpatient physiotherapy departments of King Khalid University, Aseer Central Hospital, Khamis Mushait General Hospital, Armed Forces Hospital - Southern Region, and Khamis Mushait.

## Intervention Type

Mixed

## Primary outcome(s)

Risk factors associated with upper extremity musculoskeletal disorder measured using rapid upper limb assessment (RULA) score at baseline and 8 weeks

## Key secondary outcome(s)

Current secondary outcome measures as of 11/03/2024:

The following secondary outcome measures were assessed at baseline and 8 weeks:

1. Pain intensity measured using a visual analog scale (VAS) score
2. Pain threshold measured using a pressure algometer
3. Proprioception measured using a digital inclinometer
4. ODI measured using a disability scale
5. Quality of life measured using SF-36
6. Functions after rehabilitation measured using the WORQ questionnaire

Previous secondary outcome measures:

The following secondary outcome measures were assessed at baseline and 8 weeks:

1. Pain intensity measured using a visual analog scale (VAS) score
2. Pain threshold measured using a pressure algometer

3. Proprioception measured using a digital inclinometer
4. ODI measured using a disability scale
5. Quality of life measured using a QOLS scale

**Completion date**

14/03/2024

## Eligibility

**Key inclusion criteria**

1. Age 28-50 years old
2. Physical therapists with an experience of at least 5 years of general health care practice
3. Subjects who will be willing to participate in the study
4. Participants scoring more than 3 on the RULA questionnaire

**Participant type(s)**

Health professional

**Healthy volunteers allowed**

No

**Age group**

Adult

**Lower age limit**

28 years

**Upper age limit**

55 years

**Sex**

All

**Total final enrolment**

72

**Key exclusion criteria**

1. Any history of injury or surgery in the neck, upper and lower extremities
2. Any neurological or rheumatic diseases
3. Subjects who will be participating in elite sports or exertional activities
4. Subjects with any congenital or acquired deformities
5. Subjects with acute or chronic orthopedic conditions
6. Subjects with Vestibular impairments
7. Any other medical conditions that interfere with work
8. RULA score less than 3

**Date of first enrolment**

09/05/2023

**Date of final enrolment**

30/01/2024

## Locations

### Countries of recruitment

Saudi Arabia

### Study participating centre

#### King Khalid University

Al Farah campus

Abha

Saudi Arabia

61421

### Study participating centre

#### Asir Central Hospital

Al Rabwah

Abha

Saudi Arabia

62523

### Study participating centre

#### Armed Forces Hospital - Khamis Mushayt

Tamiah

Khamis Mushayt

Saudi Arabia

62413

### Study participating centre

#### Abha International Private Hospital

Shamasaan

Abha

Saudi Arabia

62521

### Study participating centre

#### Khamis Mushayt General Hospital

King Khalid Road

Khamis Mushayt

Saudi Arabia

62457

# Sponsor information

## Organisation

King Khalid University

## ROR

<https://ror.org/052kwzs30>

# Funder(s)

## Funder type

University/education

## Funder Name

Deanship of Scientific Research, King Khalid University

## Alternative Name(s)

Deanship of Scientific Research at King Khalid University Saudi Arabia, Deanship of Scientific Research at King Khalid University, Deanship of Scientific Research, Scientific Research Deanship, ,

## Funding Body Type

Government organisation

## Funding Body Subtype

Research institutes and centers

## Location

Saudi Arabia

# Results and Publications

## Individual participant data (IPD) sharing plan

The data sharing plans for the current study are unknown and will be available at a later date.

## IPD sharing plan summary

Data sharing statement to be made available at a later date

## Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Participant information sheet</a>			04/09/2023	No	Yes

[Participant information sheet](#)

04/09/2023 No

Yes