Immediate effects of kinesiotaping on acromiohumeral distance and shoulder proprioception in individuals with symptomatic rotator cuff tendinopathy

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INTRODUCTION

SHOULDER PAIN

≈ C$ 130,000,000

Total annual expense 2012-2015 with shoulder injuries according to a technical report (CNSST).

CNSST (2015)

Rotator cuff tendinopathy is reported to be present in 85% of patients with shoulder pain.

Ostor et al. (2005)
Sangwan et al. (2015)
INTRODUCTION

ACROMIOHUMERAL DISTANCE AND PROPRIOCEPTION

Narrowing of the subacromial space

Seitz et al. (2011)

Proprioceptive deficits

Lin et al. (2011) / Murray et al. (2001)

Shoulder neuromuscular control

de Oliveira et al. (2017)

WHAT IS KINESIOTAPING?

An adhesive elastic tape, water proof, and without any type of drugs. It is hypoallergenic, latex-free, and composed of 100% cotton.

INTRODUCTION

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INTRODUCTION

OBJECTIVES OF THE STUDY

This study aims to investigate the immediate effects of kinesiotaping on the AHD and active shoulder joint repositioning in individuals with RCTe.

Hypotheses

Kinesiotaping will increase AHD and improve the active shoulder joint repositioning immediately after its application in individuals with RCTe.
PARTICIPANTS

23 subjects diagnosed with RCTe. Mailing list from Laval University.

METHODS

Inclusion criteria  

Alqunaee et al. (2012)

- Painful arc of movement (shoulder flexion or abduction).
- Neer or Kennedy-Hawkins’s impingement sign.
- Pain on resisted external rotation, abduction or empty can test.

Sample size

G*Power 3.9.1.2

- $\alpha = 0.05$
- Power $[1-\beta] = 0.95$
- Effect size = 0.817
METHODS

STUDY DESIGN

Cross-sectional design.

Eligibility criteria
Demographic data
Active joint repositioning
AHD
KT application
Active joint repositioning
AHD

without kinesiotaping

with kinesiotaping

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**METHODS**

**OUTCOMES**

**Active joint repositioning**

at low- (45°-65°) and mid-range (80°-100°) during forward shoulder flexion and horizontal abduction.

3 trials: 1 eyes opened / 2 eyes closed

**IMU wireless sensor**

**Absolute error (Δ)**

\[ Δ = \text{mean (trial2, trial3)} - \text{trial1} \]
OUTCOMES

Acromiohumeral distance
at rest (0°) and 60° shoulder abduction.
IMMEDIATE EFFECTS OF KINESIOTAPING ON ACROMIOHUMERAL DISTANCE AND SHOULDER PROPRIOEPTION IN INDIVIDUALS WITH SYMPTOMATIC ROTATOR CUFF TENDINOPATHY

METHODS

Kinesiotaping techniques

1. **Y-shape**
   - tension: 15-25%.
   - surrounding the deltoid muscles.
   - from insertion to origin to provide inhibition and muscle relaxation.

2. **I-shape**
   - tension: 50-75%.
   - passing over the supraspinatus, trapezius, glenohumeral joint, and middle deltoid, for functional correction.

3. **I-shape**
   - tension: 50-75%.
   - placed with inward pressure, from coracoid process to posterior deltoid, just slightly below the coracoacromial arch, for mechanical correction.
RESULTS

ACTIVE JOINT REPOSITIONING

A 3-way ANOVA for repeated measures

no interactions among the factors (movement, range, intervention) \((p=.773)\).
RESULTS

ACROMIOHUMERAL DISTANCE

<table>
<thead>
<tr>
<th></th>
<th>No KT</th>
<th>With KT</th>
</tr>
</thead>
<tbody>
<tr>
<td>at rest (0 deg)</td>
<td>11.19</td>
<td>11.46</td>
</tr>
<tr>
<td>60º shoulder abduction</td>
<td>8.94</td>
<td>9.88</td>
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</tbody>
</table>

2-way ANOVA for repeated measures

0.94mm

±0.21(SE) was the increase of the AHD with kinesiotaping, at 60º shoulder abduction, in average (p<.001).

Exceeded the MDC of 0.70mm.

At rest, the increase was 0.27mm±0.25mm, in average (p=.299).
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Limitations AND strength

Limitations
- Only immediate effects were examined.
- Proprioceptive ability classification.
- Others aspects of proprioception.

Strength
First study investigating the effects of kinesiotaping on symptomatic individuals with RCTe.
Immediate effects of kinesiotaping on acromiohumeral distance and shoulder proprioception in individuals with symptomatic rotator cuff tendinopathy at 60° shoulder abduction in symptomatic individuals with RCTe.

Increase AHD on low-range and mid-range active shoulder joint repositioning in individuals with RCTe.

no immediate effects on low-range and mid-range active shoulder joint repositioning in individuals with RCTe.

CONCLUSIONS
Immediate effects of kinesiotaping on acromiohumeral distance and shoulder proprioception in individuals with symptomatic rotator cuff tendinopathy

THANK YOU!

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