THE EFFECTS OF LYCRA SLEEVES ON ACROMION-GREATER TUBEROSITY DISTANCE (AGT), MUSCLE ACTIVITY AND SCAPULA POSITION IN PEOPLE WITH POST-STROKE HEMIPLEGIA Praveen Kumar, Lindsay Macleod, Priya Mohan, Catherine Wheeler, Grace Wai Tse

 INTRODUCTION
 METHODS
 RESULTS
 CONCLUSIONS

 • Glenohumeral subluxation
 AGT distance
 Six participants (M-2, F-4)
 • Lycra sleeve has potential to

- Glenohumeral subluxation (GHS) is reported in up to 81% of patients with stroke
- Our previous study found that a Lycra sleeve can reduce AGT distance (GHS) in p e o p l e w i t h chronic stroke (n=5).
- Our another recent study on healthy participants (n=31) found reduction in AGT, changes in scapula measurements and in muscle activity after the application of Lycra sleeve

PURPOSE



Ac –Acromion GT – Greater Tuberosity SUP–Supraspinatus

Scapula measurements 1) Inferior angle (E) to adjacent spinous process (D) 2) superior angle (B) to adjacent spinous process (A)



Six participants (M-2, F-4) with mean age 53±8 years were recruited.

Table 1: AGT distance without and with sleeves

| | AGT Distance (cm) | | | | | |
|---------|-------------------|-------------|--|--|--|--|
| Patient | Without Sleeve | With Sleeve | | | | |
| 1 | 2.30 | 2.00 | | | | |
| 2 | 2.00 | 1.90 | | | | |
| 3 | 2.10 | 1.90 | | | | |
| 4 | 3.00 | 2.90 | | | | |
| 5 | 1.70 | 1.60 | | | | |
| 6 | 2.2 | 2.10 | | | | |

Table 2: Scapula measurementswithout and with sleeves

- Lycra sleeve has potential to alter shoulder biomechanics in people with stroke.
- Changes noted in muscles and scapula position suggests the Lycra sleeve tends to provide better alignment to the shoulder joint.

Recommendations

 Further research is required to establish the effectiveness of the Lycra sleeve using a welldesigned randomised controlled trial.

To investigate the changes in shoulder biomechanics following application of Lycra sleeves in people with poststroke hemiplegia

PARTICIPANTS

- People with stroke who gave informed consent were recruited through Bristol Area Stroke Foundation
- Measurements were taken before and immediately after application of the sleeve

Variables considered were



Muscle Activity – EMG



Lycra Sleeve in-situ





Table 3: EMG activity without andwith sleeves

| Without Lycra | | | With Lycra | | | | |
|---------------|----|----|------------|----|----|----|----|
| M1 | M2 | M3 | M4 | M1 | M2 | M3 | M4 |
| | | | | | | | |

KEY MESSAGE

Application of Lycra sleeve

- Reduces AGT distance
- Alters scapula position
- May change activity in muscles around the shoulder region

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- 2) Bristol Area Stroke Foundation



2) Scapula position

3) Muscles in shoulder region (biceps, triceps, deltoid, and supraspinatus)



ANALYSIS

Only descriptive statistics of AGT distance scapula measurements and EMG activity are presented for individual patient with and without the Lycra sleeve. No statistical analysis were undertaken due to small sample size.

 1
 0.179
 0.172
 0.169
 0.158
 0.174
 0.174
 0.178
 0.169

 2
 0.170
 0.174
 0.171
 0.158
 0.171
 0.173
 0.171
 0.157

 3
 0.166
 0.172
 0.168
 0.172
 0.174
 0.179
 0.178
 0.176

 4
 0.174
 0.173
 0.176
 0.172
 0.175
 0.175
 0.178
 0.169

 5
 0.175
 0.171
 0.174
 0.175
 0.175
 0.178
 0.169

 5
 0.175
 0.171
 0.174
 0.175
 0.178
 0.178
 0.169

 5
 0.175
 0.171
 0.174
 0.175
 0.178
 0.178
 0.182

 6
 0.173
 0.175
 0.182
 0.173
 0.177
 0.176
 0.173
 0.172

 M1-Biceps
 M2-Triceps

 M3-Deltoid
 M4-Supraspinatus
 Values in red shows changes noted with sleeve on
 0.172

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