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Subacromial Impingement Syndrome and Kinesio Taping Method: glenohumeral and scapulothoracic approach in a group of professional male volleyball players.

Randomized pilot trial.

ABSTRACT

To work properly the shoulder complex requires coordinated movements of more than an articulation: sternoclavicular, acromionclavicular, glenohumeral, and scapulathoracic. The movement of these joints is produced by several muscles, which must be able to work in synergy; pathological changes of one or more components of this complex may modify the physiological biomechanics of the shoulder. The main role of the shoulder is to position the hand in the space for the activities of daily life. Secondly, the shoulder represents the structure where the forces coming from the muscles of the trunk and inferior limbs “converge” in what are termed "overhead" sporting activities (above the head): so the muscles of the arm, forearm and hand are involved with their more and more refined motor patterns. The mobility and the stability of this joint are therefore necessary for the efficient execution of each specific movement, particularly in these types of sports.

The subacromial impingement represents one of the most common causes responsible of pain and dysfunctions in the shoulder joint. It is a repeated friction in time between the rotator cuff and the coracoacromial arc in the movements of elevation of the arm: a real "friction", particularly the supraspinatus muscle, against the above osteofibrose arc. What described occurs when the limb is in anteroposition, but especially in abduction and internal rotation with respect to the trunk: a characteristic attitude of many "overhead" sports gestures.

In the literature many studies have been reported on the etiology and assessment of the impingement syndrome in the shoulder of the athlete, while not many studies have been published on the treatment of this pathological syndrome with Kinesio-Taping.

This study intends to evaluate the effectiveness of the use of Kinesio-Taping in the conservative treatment of subacromial impingement syndrome using two techniques targeted to two different districts.

Two groups of patients will be evaluated: the Kinesio-Taping will be applied in the first group at the level of the scapular-thoracic, while it will be positioned at the level of the glenohumeral joint in the second group.

For an objective evaluation of the improvements the following two scales of assessment will be submitted to the subjects, both at the beginning and at the end of treatment:

- VAS (Visual Analogue Scale): for pain assessment
- Constant-Murley Shoulder Score: for the specific evaluation of the shoulder.

Also the answer to the following tests, designed to bring the great tuberosity of the humerus to the coracoacromial roof, will be taken into consideration:

- Hawkins' Test
- Neer's Test
- Yocum's test

Of the results obtained, the ones with statistical relevance or almost can be referred to the sole revaluations carried out using the VAS Scale (during the Hawkins test); there is no significant data with regard to the revaluations carried out using the Constant-Murley Scale.

At “t3” (after four weeks), we found in group A (glenohumeral approach), compared with group B (scapulothoracic approach), a statistically significant improvement in the VAS Scale administered during the Hawkins test ($p=0.04$).

Another data that comes close to the limits of significance can be found in the interval “t0-t3” referring to group A only ($p=0.08$). This highlights, therefore, how the group treated with the glenohumeral approach obtained better scores at the end of the trial compared to the group treated using the scapulothoracic approach.

By observing the data gathered via the Constant-Murley Scale at “t3” it can be seen that in spite of the fact that they have no statistical relevance, there are better values in group A than in group B: more specifically, the items on the scale linked to “pain” and “strength” are the ones that have registered a better increase in terms of points.

Also, by observing the data found in the two previous chapters, it can easily be seen how the data collected in group A at the various intervals is almost always better if compared with that from group B.

Finally, it must be pointed out how the instruments used in this trial can be used by teams of this level: in fact, by using the periodical administration of the evaluation scales used (VAS Scale and Constant-Murley Scale) and the orthopaedic tests (Hawkins, Yocum, Neer) it is possible to monitor each player. This may avoid or delay the onset of one of the most important syndromes in overhead sports athletes, i.e. Shoulder Impingement Syndrome.

The first aim of the study was to find out whether the treatment with the previously described Kinesio Taping Method could have a positive influence in a framework of Impingement subacromial syndrome: the results reported in the previous chapter show that both groups improved with respect to their initial situation.

The second aim of the work, in addition, was to compare the two techniques, the glenohumeral and scapulothoracic one, and verify which treatment was the best.

The analysis of the results shows that the glenohumeral approach was the most effective in the treatment of SIS using Kinesio Taping Method.