

THE EFFECT OF THE PROPRIOCEPTIVE FACILITATORY TAPE ON MUSCULAR ACTIVITY: EXPERIMENTAL TRIAL IN HEALTHY SUBJECT AND REHABILITATIVE CONSIDERATIONS

Contiero F.¹, Bettuolo M.², Volpe G.³

¹ Bsc(Hons) in Physiotherapy, Padua University, Italy; ² ASSFER Teaching and Research Association, Padua, Italy; ³ Fatebenefratelli Hospital, Venice, Italy

For references and correspondence, email (Francesco Contiero): fracontie@gmail.com

INTRODUCTION

International scientific literature shows more and more interest in the rehabilitative opportunities coming from the use of taping techniques. Although the mechanical-supportive effect of rigid tapes has been considered effective for many years of clinical practice, scientific evidence on adhesive elastic taping techniques is less definite. Moreover most research focuses only on its clinical value and doesn't consider the physiologic (or biomechanical) principles and the anatomical substrates the techniques work on. These are important factors that the clinician needs to know to introduce the use of taping into rehabilitative programs.

According to this consideration, this research project focused on the neurophysiological principles underlying an innovative taping concept developed in Italy, the Proprioceptive Facilitatory Tape (TFP - Tape Facilitatorio Propriocettivo). Based on the current knowledge of the myofascial anatomy and neurophysiology, the concept aims to modify the muscular activity of predeterminate muscle groups. In doing so it differentiates between two application techniques, a facilitatory one and an inhibitory one.

The goal of this work is the experimental verification of the hypothesis. This has been developed through the analysis of scientific literature and myofascial anatomy and physiology. *Is the regulation of the tension of the superficial fascia, obtained by taping the skin over a certain muscle group applying 100% or 0% of stretch of the tape, able to influence its muscular activity?*

MATERIALS AND METHODS

Before the experimental trial, an analysis of scientific literature evidenced what, according to recent researches, the suggested therapeutic aims and studied underlying principles of taping techniques are.

The hypothesis of the project follows bibliographic research about the myofascial body system and the working mechanism of action of the TFP techniques.

The trial divides into quantitative and qualitative analyses. The quantitative one aims to measure the effects of the TFP techniques on the pectoralis major muscle. The qualitative one evaluates through a questionnaire the subjective perception of the taping experience. The *blind* experiment was located in three rooms in a physiotherapy studio. Two physiotherapists carried out the trial on 36 healthy subjects, aged between 18 and 40. Each subject was evaluated, in random order, after both taping techniques (facilitatory and inhibitory) on the right and left pectoralis major muscles. Three different time intervals were considered (before the application, immediately after and after one hour).

The muscular activity was measured using the Passive Range of Motion (PROM) of the shoulder in external rotation, parameter tested with the subject supine and 90° abducted arm.

For the qualitative evaluation, the subjects were interviewed using an unstructured questions survey, collecting their sensations during and after the application.

RESULTS

The results show that there is no confirmation of the effect induced by facilitatory taping. A partial confirmation of the effectiveness of the inhibitory taping technique has been found. However the data collected shows how the effects are likely to decrease over time.

Through the analysis of the answers to the surveys, it has been evidenced that: the subjects often report the absence of particular sensations during/after the taping; sensations of increased muscular tone are reported more often than relaxation; other common sensations have been reported (heat, *numbness* and *muscular fatigue*).

DISCUSSION

The results partially confirm the hypothesis about the inhibitory effect of taping on muscular activity, but its facilitatory effect is not verified.

The low significance of the data collected could be caused by the limits of the trial. Further studies are required to investigate the hypothesis.

Relating the underlying mechanisms of taping to the physiology of the fascial system could be the way to clarify the uses and potential of this therapeutic technique.