

GLUTEAL TAPING ON RUNNING PERFORMANCE OF HEALTHY YOUNG ADULTS: A RANDOMIZED CONTROLLED PILOT STUDY

Cerdenia JT, Ang A, Asuque JD, Bucasas PA, Datinguino L, De Belen JJ,
Eugenio EC, Maralit SM

ABSTRACT

Objective: To determine the effect of gluteal taping on gluteal muscle activity, running speed and stride length. **Methodology:** University students were recruited to participate. Of 46 students who gave consent, 33 were included and randomly allocated into a TAPE group (N=15) or a control (NMES) group (N=18). Baseline running time over 100 m, stride length and gluteal muscle EMG activity were measured. These were followed by either gluteal taping (TAPE) or 10 minutes of electrical stimulation (NMES). Running time, stride length, and EMG activity were then re-measured. Data were analyzed using planned contrasts within an ANOVA framework with significance testing done at $p < 0.05$. **Results:** Running time decreased in both groups but this only approached statistical significance ($F=3.94$, $p=0.057$); there were no significant differences between groups. Changes in stride length were variable and were not statistically significant ($F=0.09$, $p=0.766$); no significant between-group differences were noted. EMG activity of the gluteus maximus decreased after both taping and NMES but this was not statistically significant ($F=0.511$, $p=0.480$). **Conclusion:** This study has demonstrated that gluteal taping decreases running time over a 100-m distance in healthy young adults but not to a statistically significant level.

Key words: *running, gluteal taping, stride length*

COMMENTARY

Taping has been gaining prominence since its inception into use as an armentarium in physiotherapy. Its primordial role in unloading inflamed joints, which do not respond to stretch, has been hypothesized and tested.¹ Taping techniques can be viewed as a successful and safe method in creating an internal biomechanical environment. This may result in the restoration of tissue homeostasis and associated resolution of pain.

In this study, Mueller tape was used on the buttocks to increase hip extension on terminal stance. A stretch on the hip flexors enhances the rapid burst of activity which is responsible for initiating swing.² This technique could change the pull or orientation of the fascia. Thus, the objective of this study is to test for the effect of taping in changing the biomechanics of walking was adequately founded.

The methods used for this study were clearly documented and the number of drop-outs was minimal. The incorporation of random selection of participants and methods to ensure homogeneity at baseline using valid and reliable primary outcome measures of interest could have strengthened the

basis for the findings. The outcome measures used for this study included time to run a 100-meter distance, stride length while walking, EMG, and a post-measurement questionnaire. It was not clear whether current literature supporting the validity and reliability of these tests exist. In the absence of such, incorporation of tests for validity and reliability of these measures could have increased the accuracy and acceptability of the results.

Admittedly, it is hard to control extraneous factors in this study. Adherence of the tape on the skin, lack of skin preparation prior to taping and use of crude measurements have directly affected the results. Improved, reliable and valid outcome measurement tools are therefore imperative. Since the study involved participants who do not complain of any symptoms, comparing the TAPE group to a no-intervention group will be easier and basic than comparing it to an NMES group. Neuromuscular electrical stimulation (NMES) may have introduced effects that were different from and difficult to compare to those produced by the TAPE.

This study used convenience sampling to select its participants. This limited the external generalizability of any conclusions made by the study. Generalizing the results to the target population may not be appropriate and quite risky. Since the participants were taped and directly observed by researchers, they could have performed differently during the test. The results may change if and when there were no researchers observing them. The use of video recordings or inconspicuous methods of observation may have reduced biases.

The study hypothesized that gluteal taping will increase running speed by increasing the step length. However, the study concluded that gluteal taping decreases the running time over a 100-meter distance in healthy young adults, with a p value = .057. This result fell short of their set p value of <0.05. Though the merits of the study cannot be reduced to mere numbers, the conclusions of the study should have been qualified to emphasize the clinical implications of the findings in spite of the lack of statistical significance.

A well-constructed randomized controlled trial with a sample population tested for homogeneity is

highly recommended for future studies. The use of reliable and valid outcome measures cannot be over-emphasized. A well-designed methodology will strengthen the claim that taping does potentially and advantageously alter the biomechanics of gait.

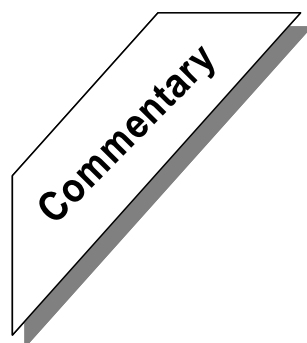
Valentin C. Dones III, MSPT, PTRP, COMT, MP, DMS

*Faculty Member
College of Rehabilitation Sciences
University of Santo Tomas*

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IMPROVEMENTS IN MAXIMAL OXYGEN CONSUMPTION AMONG ELDERLY TAI CHI CHUAN PRACTITIONERS

Dizon JMR, MSPT, PTRP; Briones MC; Cundangan MC; De Leon J; Lagman E;
Precilla L; Pua JH; Racela AMR

ABSTRACT

Background and purpose. This study was undertaken to provide information about the therapeutic effects of Tai Chi Chuan in improving the maximal oxygen consumption (VO_{2max}) of the elderly. **Participants.** Twelve residents (11 females, 1 male) of Metro Manila with a mean age of 60.42 +/- 6.72 years were included in the study. **Methodology.** Tai Chi with 24 basic postures was used as the exercise protocol, 5 times a week for 6 consecutive weeks. The Bruce Treadmill Protocol together with the COSMED K4 b² metabolic cart was utilized to assess VO_{2max} prior to and after 6 weeks of Tai Chi sessions. Pre and post-test values were analyzed using the COSMED K4 b² ver 6.0. **Results.** Statistical analysis revealed a significant improvement in VO_{2max} after 6 weeks with a mean increase of 6.20 +/- 4.39 ml/kg/min. **Conclusion.** This study proves that Tai Chi training can improve cardiovascular endurance as measured by VO_{2max} among geriatric individuals.

Key words: *Tai Chi Chuan, Maximal Oxygen Consumption, VO_{2max}*