

DISSERTATION POSTER

The effect of PNF and dynamic stretching on a person's power.



INTRODUCTION

Stretching techniques of PNF and dynamic stretching are primarily said to ‘increase ROM and flexibility’ as well as ‘improve muscle elasticity’.

(Stockbrugger, Barry A., and Robert G. Haennel 2003)

PNF is performed by using a contract and relaxation sequence on the targeted muscle.

(Etnyre and Abraham, 1986)

Dynamic stretching involves ‘making active movements that stretch the muscles to their full range of motion.’

(medical news today 2021)

The component of power is made up of a combination of strength and speed which is shown through explosive movements using maximum muscular contraction.

(Mackenzie, Brian. 2019)

This component is primarily used within the sport of rugby union when performing different skills.

AIMS

The aim of the project is of the assessment of a possible impact from both of the stretching techniques on a persons power output.

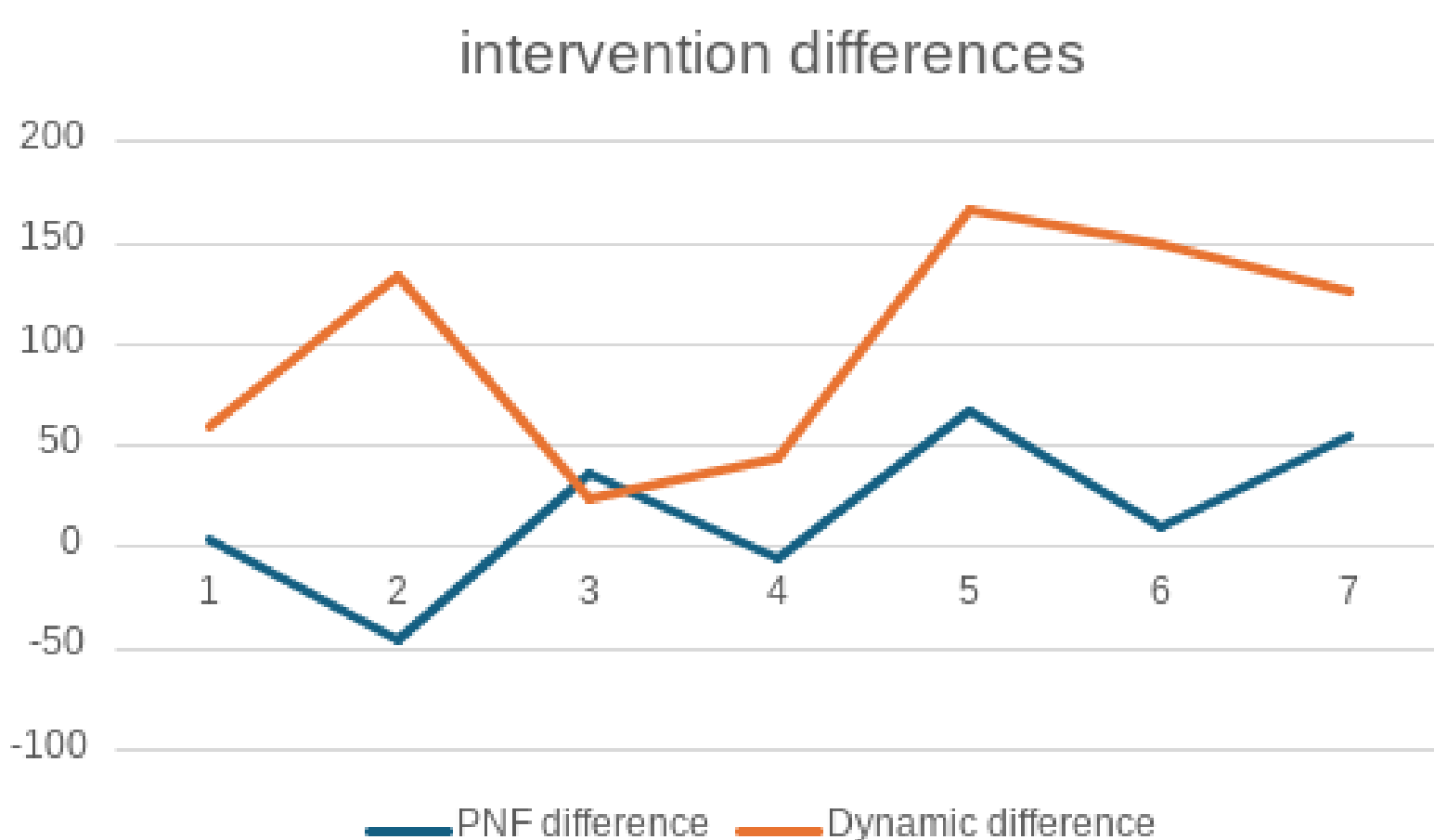
This then allows for the judgement of if one of these techniques should be implemented within a warm up within the sport of rugby union.

METHODS

The Keiser leg press machine was used to create a baseline score of participants power output by calculating in watts the amount of power that each individual exerts through their lower limbs.

Two groups were created to split individuals into those performing PNF and dynamic stretching as their intervention which they then completed with assistance.

The same method of measurement was again used to obtain the result of power output that was influenced by the intervention types.



RESULTS

When studying the results, the before and after test scores were compared to see if a difference was made in the amount of power that was exerted.

The average of these differences were found to create a single result for each of the intervention types.

The graph shows each individuals differences in results from both of the intervention groups.

The PNF stretching group obtained a difference in power ranging from -46 watts to 68 watts with an average of 17.36 watts.

The dynamic stretching group showed to have a power output difference ranging from 23.5 watts and 166 watts with an average of 100.42 watts.

DISCUSSION

In the study the key findings was that the group that underwent the dynamic stretching intervention produced a much higher power output overall than those in the PNF group.

This is shown through the results of the dynamic stretching group having a significant difference within their pre and post intervention results when compared to that of the PNF group.

This gives the idea that the dynamic stretching technique is a reliable and advantageous technique at promoting the increase of the power component especially when being compared to the PNF technique.

When looking back at the aims of the study it shows this has been met due to the findings of dynamic stretching showing to have an impact on a persons power output.

Limited studies explore the comparison of these two stretching techniques in regards to power output.

However one study by Yamaguchi, Taichi, and Kojiro Ishii. (2005) explores the comparison of static and dynamic stretching with its effects on leg extension power.

The conclusion of this study favoured the dynamic stretching technique over the static stretching due to no significant difference in results was found when performing static stretching and the dynamic stretching showing to create an increase in power output after it was performed.

REFLECTIONS

Upon reflecting on my study having a larger amount of participants would help expand the results and increase the reliability of it.

To extend the study I could have discovered the potential lasting effects of the interventions by adding further tests in intervals using the Keiser machine to further the research on the successful stretching technique.

REFERENCES

“Dynamic Stretching: Definition, Examples, Benefits and More.” Www.medicalnewstoday.com, 20 Jan. 2021, www.medicalnewstoday.com/articles/dynamic-stretching#definition.
Etnyre, B. R., and L. D. Abraham. “Gains in Range of Ankle Dorsiflexion Using Three Popular Stretching Techniques.” American Journal of Physical Medicine, vol. 65, no. 4, 1 Aug. 1986, pp. 189–196, pubmed.ncbi.nlm.nih.gov/3740242/.
Mackenzie, Brian. “Components of Fitness.” Brianmac.co.uk, 2019, www.brianmac.co.uk/conditon.htm.
Stockbrugger, Barry A., and Robert G. Haennel. “Contributing Factors to Performance of a Medicine Ball Explosive Power Test: A Comparison between Jump and Nonjump Athletes.” Journal of Strength and Conditioning Research, vol. 17, no. 4, 1 Nov. 2003, pp. 768–774, pubmed.ncbi.nlm.nih.gov/14636108/, https://doi.org/10.1519/1533-4287(2003)0172.0.co;2.
Yamaguchi, Taichi, and Kojiro Ishii. “Effects of Static Stretching for 30 Seconds and Dynamic Stretching on Leg Extension Power.” The Journal of Strength and Conditioning Research, vol. 19, no. 3, 2005, p. 677, https://doi.org/10.1519/15044.1.