PILOT DYNAMIC vs STATIC STRETCHING ON SPRINT TIMES

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Introduction

Stretching is essential for athletes, but the most effective type of warm-up is still debated. Dynamic stretching has been shown to boost power, speed, and muscle activation, while static stretching increases range of motion and can temporarily decrease strength and explosiveness [1-5]. **This project investigates how different warm-up methods affect athletic performance in NAIA collegiate athletes.**

Methodology

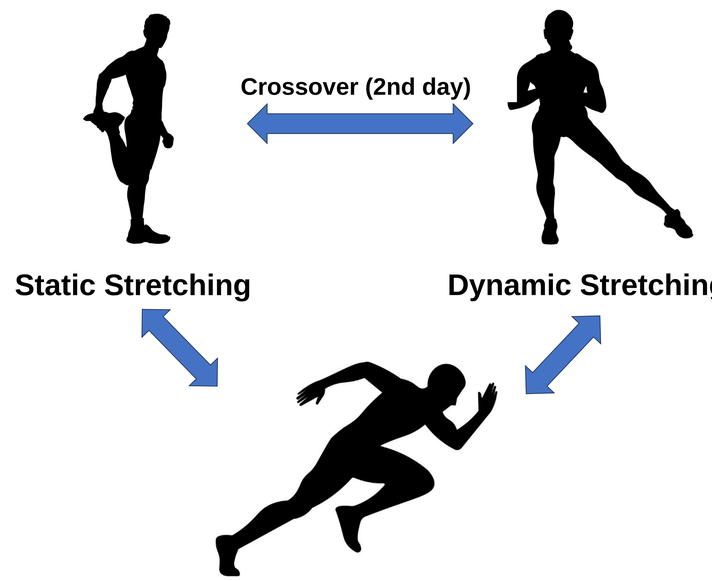
This study aims to compare how dynamic versus static stretching affects 40-yard sprint performance in NAIA collegiate athletes.

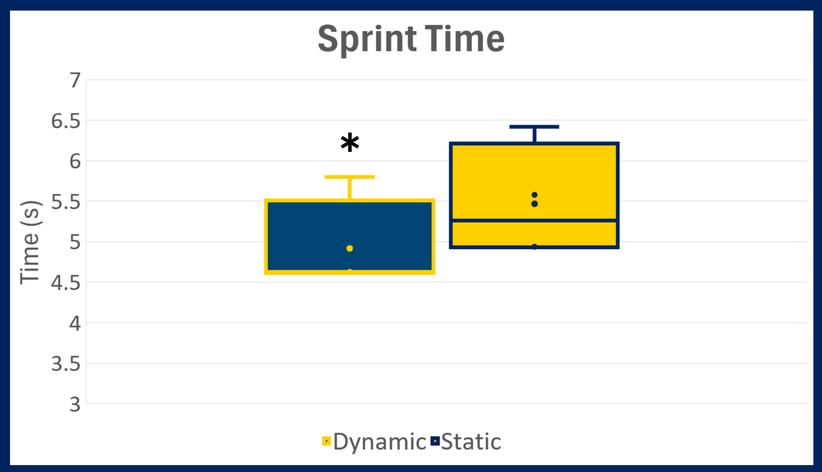
- A crossover design was used (n = 4).
- The dynamic warm-up consisted of a 10-minute movement-based warm-up
- The static warm-up consisted of lower-body isometric stretches held for 30 seconds each.
- Sprint times for a 40-yard sprint were recorded for all participants.
- Statistical analysis was completed in Excel, and group means were compared using a paired t-test to determine significant differences in sprinting performance.

Athlete Makeup

Athlete 1: Basketball (6′8″, 215 lbs., 22 yrs)
Athlete 2: Track/Field (5′9″, 160 lbs., 19 yrs)
Athlete 3: Basketball (6′0″, 180 lbs., 23 yrs)
Athlete 4: Soccer (5′7″, 120 lbs., 21 yrs)

Effects of Different Warm-ups on Sprint Time





Results

Dynamic stretching before sprinting led to significantly faster sprint times. Sprint times after dynamic stretching (4.92 ± 0.59 sec) were significantly faster ($p = 0.018$) than after static stretching (5.47 ± 0.70 sec). This supports our hypothesis that dynamic stretching would lead to faster times.

Conclusion

- Limitations included a small sample size and short duration of the intervention.
- **A dynamic warm-up showed significant benefits in sprint performance.**
- Our study was composed of athletes in multiple sport domains and confirms the findings of Winchester et al.'s soccer study [5].
- Dynamic stretching prepares the body for movement by increasing mobility and activating the muscles
- Static stretching is more effective after exercise, when the muscles are already warm and can safely experience a deeper stretch

Understanding these differences helps researchers and practitioners determine which methods are most effective for improving physical performance.

References

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