

The Effects of Static Time on Performance Post Warm-Up

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Introduction

Dynamic warm-up is essential to any physical activity in order to perform at an optimal level (Naperalsky & Anderson, 2012). However, static time between warm up and performance may affect overall results.

Purpose

The objective of this study was to determine differences in vertical jump scores as static time increased. The relationship would be compared to observe a positive or negative effect.

Methods

13 participants went through one of two procedures. All jumps were recorded on a force plate where peak force was measured.

Warm-up

- Arm Swings Forward & Backward 10 seconds each (20 total)
- Standing Quad Stretch 15 seconds per leg (30 total)
- Standing Toe Touch 30 seconds
- Jumping Jacks 30 seconds
- High Knees to wall and back (10 m each way)
- Butt Kickers to wall and back (10 m each way)
- Carioca to wall and back (10 m each way)
- Body Weight Squat 30 seconds
- Forward & Back Leg Swings 15 seconds per leg (30 total)
- Lateral Leg Swings 15 per leg (30 total)
- Forward Lunges (10 m)
- Backward Lunges (10 m)



Figure 1. Test Procedure A/Group A



Figure 2. Test Procedure B/Group B

Results

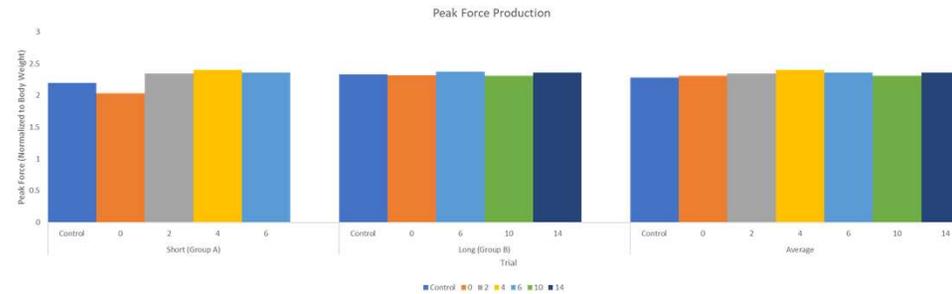


Figure 3. Comparison of average force production in Group A, Group B, and total Average



Figure 4. Researcher recording force plate data

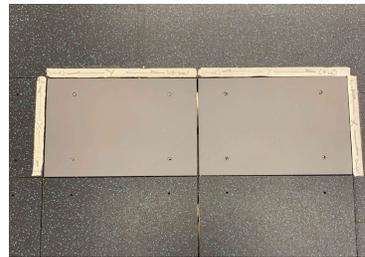


Figure 5. Force plates



Figure 6. Participant performing vertical jump on force plate

Peak force production

On average, there was an increase of 2% from the jump immediately after the warmup to the jump at Minute 6. For Group A, an increase of 4% was seen at the minute 4 jump. In Group B, the greatest increase was seen at the Minute 6 jump, displaying an average gain of 2%. Despite this average increase, the differences from Minute 0 and the respective jumps displayed an insignificant P-value in multiple ANOVA tests.

Acknowledgments

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Discussion

Application

- Differences between tests were not significant which suggests that static time between warm up and performance has no influence

Limitations

- Small sample size. 13 participants may not have been a large enough group to see a significant change between trials
- The inability to control participant efforts. Multiple trials could have resulted in participants giving varying levels of exertion between trials resulting in data that may not represent maximal performance in the vertical jump
- Anaerobic energy system was the primary system used. O² transport not as important as in the aerobic energy system

Conclusion

- Our findings suggest that increasing or decreasing post warm up static time has no significant effect on performance
- Larger sample size should be tested in order to confirm this result
- Further research may also be done to test the effects of static time on different or multiple energy system
- Methodology may also be revised to address the limitations mentioned

References

Naperalsky, M. E., & Anderson, J-H. (2012). Strength & Conditioning Journal, 34(1), 51-54.