RAPID RESEARCH

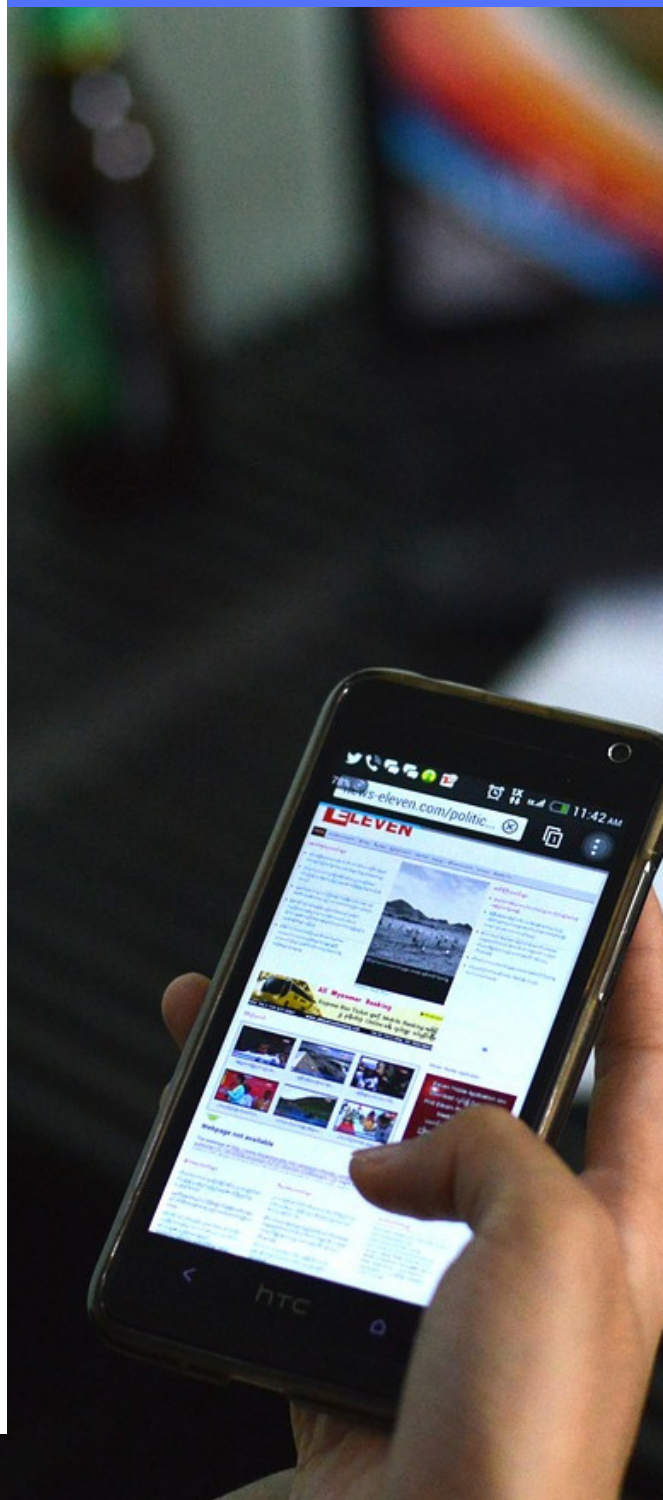
@physicaltherapyresearch

June 2022

Inside This Week:

Plyometric Training

- Plyometric v. Resistance Training for Hypertrophy
- Sprint & Plyometric Training for Endurance Runners
- Can Plyometrics Increase Vertical Jump Height?



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PLYOMETRIC V. RESISTANCE TRAINING FOR HYPERTROPHY

Click for Full Text (Grgic et al. 2021)

This review critically evaluated studies comparing the effects of plyometric vs. resistance training on skeletal muscle hypertrophy

KEY FINDINGS

8 studies included;
6 compared plyometric vs. resistance training on muscle hypertrophy
2 explored plyometric & resistance vs. isolated resistance on acute anabolic signaling or muscle hypertrophy.

Plyometric & resistance training produced similar effects on whole muscle hypertrophy for lower extremeties.

Plyometric training has a greater potential to increase muscle size than previously thought.

Combining plyometric and resistance exercise does not seem to produce additive effects on anabolic signaling or muscle growth.

MAIN TAKEAWAYS

Plyometric and resistance training interventions may produce similar effects on whole muscle hypertrophy.

Effects of plyometric training on hypertrophy on the muscle fiber level is currently unknown.

Limitations include:

- Findings limited to musculature of the lower extremities
- Training interventions used lasted only up to 12 weeks
- Previously untrained participants.

SPRINT & PLYOMETRIC TRAINING FOR ENDURANCE RUNNERS

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Click for Full Text (Lum et al. 2019)

The study compared the effects of intermittent sprint training (IST) and plyometric training (PT) on running economy (RE). In order to investigate whether the effects of IST and PT would benefit running performance over a 10-km distance.

KEY FINDINGS

14 male endurance runners allocated into either:

1. Intermittent sprint training group
2. Plyometric training group

Training included 12 sessions of either, 2x/week.

Both groups showed significant reduction in weekly training mileage during the intervention period.

Both groups showed significant improvements in the 10-km time trial performance and peak power.

Both groups showed significant improvement in relative peak power.

MAIN TAKEAWAYS

IST and PT led to improvement in 10-km time trials, despite reduction in weekly training mileage.

Running performance improvement was accompanied by an improvement in peak jumping power.

Results likely from improvement in muscular power.

IST should begin with a sprint distance of 30-m, increasing distance by 5-10 m every 2 wks up to 50 m.

Runners should complete 4 sets, 3-4 reps of sprints per session.

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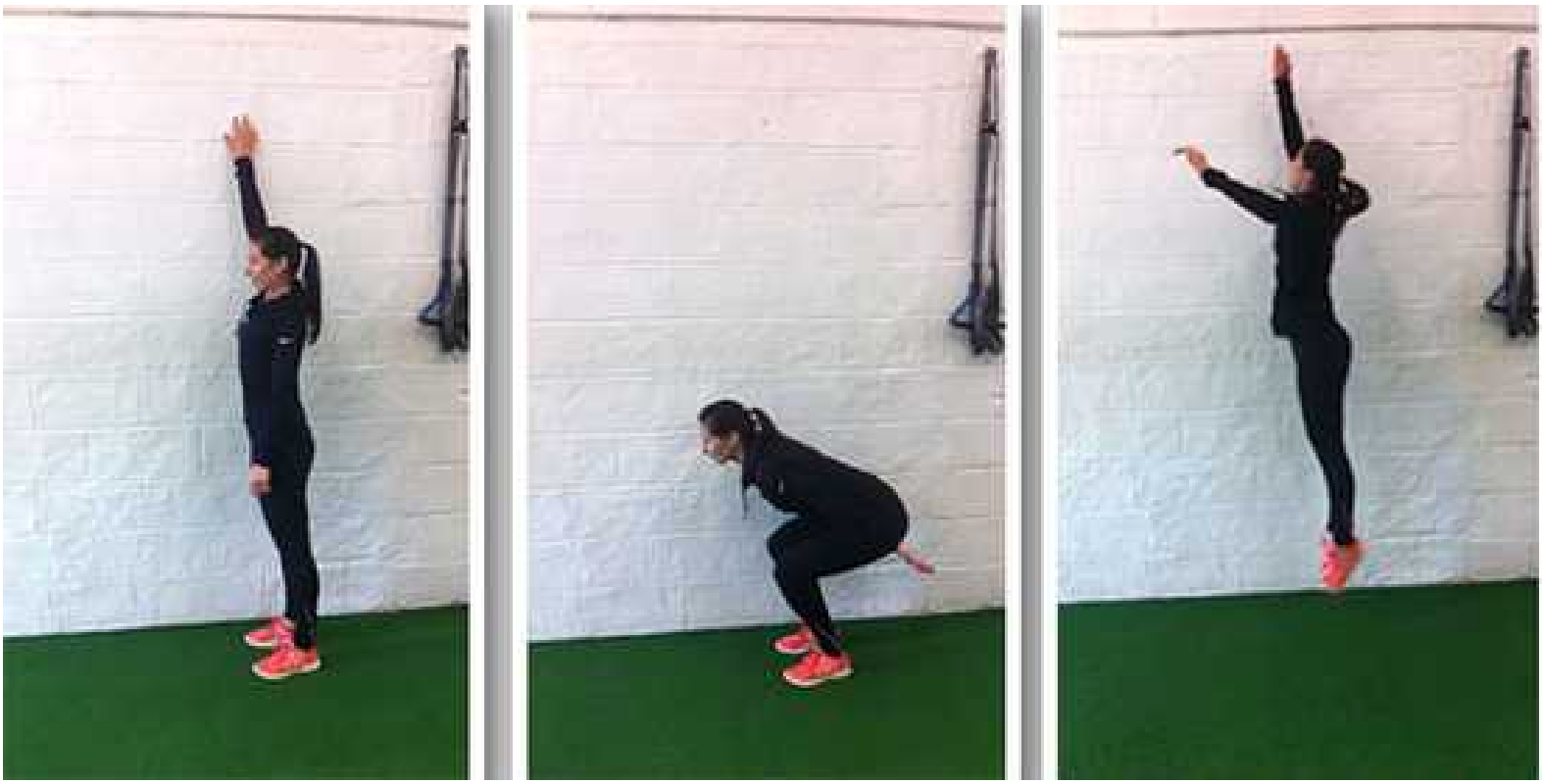
CAN PLYOMETRICS INCREASE VERTICAL JUMP HEIGHT?

Click for Full Text (Ramirez-Campillo et al. 2020)

This systematic review evaluated whether implementing specific exercise strategies involving resistive exercises are more effective than a general exercise strategy for the treatment of patients with subacromial impingement syndrome.



KEY FINDINGS

14 studies included for meta-analysis.
A moderate effect size was observed for VJH, with moderate heterogeneity and no publication bias.

Analyses revealed no significant differences for Plyometric Jump Training program:
Duration (≤8 vs. >8 weeks)
Frequency (≤2 vs. >2 sessions/week)
Total number of sessions (≤16 vs. >16 sessions)
Sex (female vs. male)
Age (≥19 vs. <19 years of age)
Volume (>2,000 vs. <2,000 jumps)

MAIN TAKEAWAYS

Plyometric jump training is effective to improve vertical jump height.

Improvements can be achieved by both sexes from various age groups, with programs of relatively low volume and frequency.

Though PJT seems to be safe for volleyball players, it is recommended that an individualized approach, based on player positions.

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MEMBERS

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Help us by giving 1 minute of your time to leave feedback for us.

We would greatly appreciate any feedback you have, as it helps us continually improve!

Leave Review