

PURPOSE

The purpose of this study is to identify the impact of a distracted jump training protocol on landing mechanics in both a distracted and focused jump landing task.

INTRODUCTION

During a jump landing task an athlete is exposed to multiple injury risks. These risks are greater when an athlete is not properly trained and has poor technique. Jump training protocols have been developed to improve technique, but there is question as to if these improved mechanics translate to in game situations when an athlete is focused on a game specific task. Literature has shown that attention can affect landing mechanics. Currently, most jump training programs do not include a distraction element, so it is unclear if adding these elements will further improve landing mechanics during a game specific task.



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HYPOTHESIS

We hypothesize that after distracted training, athletes will land with similar increased knee flexion and decreased ground reaction forces during distracted and focused landing tasks.

EFFECTS OF DISTRACTED JUMP TRAINING ON MECHANICAL DIFFERENCES IN A JUMP-LANDING TASK

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METHODS

- Target Population Recreationally active individuals ages 18 25 with no current lower extremity injury.
- Pre and Post Test 3D Motion Capture
- During motion capture a marker set encompassing the trunk and both legs was used.



- Three conditions, focused, static distraction, and walking jump, were captured at 240 Hz with an 8 camera Qualisys system and 2 ATMI force plates set at 2K gain. Three successful conditions were captured for each trial.
 - Successful Trial When the participant landed with their feet on separate force plates and arms extended overhead
 - For the static distraction and walking jump conditions a ball was suspended at a standard height for each participant

Static Distraction Ball Height (m) = Max Reach Height (m) x 0.20 + Participant Height (m)

- Jump Training
 - After Pre-tests participants would have undergone 8 weeks of jump training 3 days/week
 - To stay eligible for the study participants must attend 2 out of 3 trainings per week
 - Due to COVID-19 no training was able to take place.

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DATA ANALYSIS

analyzed in Visual 3D



Focused Condition

EXPECTED RESULTS



CONCLUSION

In conclusion, if training were to have been implemented and ulletbeen successful there may be less difference between mechanics in the focused and distracted conditions. Coaches, trainers, and physical therapist could benefit from adding distraction into their injury reduction protocols.

Data was processed in Qualisys Track Manager and • Visual 3D was used to create a virtual skeleton of each participant. This skeleton was used to calculate joint angles, torque, and forces.



Static Distraction