

# Sports Medicine & Movement Laboratory

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## Acute Effects of the Pitcher's Nightmare Swing Trainer® on Baseball Swing Kinematics

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### ABSTRACT

**Background:** The Pitcher's Nightmare Swing Trainer® (PNST) is a resistance training aid for the baseball or softball swing, designed for the on-deck circle and practice to improve a hitter's positioning and swing efficiency during an actual game.

**Purpose:** The purpose of this study was to assess the acute kinematic changes that occur on the youth baseball swing following use of the PNST.

**Methods:** Kinematic data were collected on 10 subjects ( $13.2 \pm 1.9$  years of age;  $161.8 \pm 17.4$  cm;  $54.4 \pm 15.9$  kg) at 240 Hz using Flock of Birds electromagnetic tracking system (Track Star, Ascension Technologies Inc., Burlington, VT., USA) synced with The MotionMonitor™ (Innovative Sports Training, Chicago, IL., USA). Participants were required to perform five swings off of a tee with intention to hit line drives up the middle. At the completion of a three-minute rest, the participants were equipped with the PNST and asked to perform 20 low effort dry swings. Subjects were then asked to hit 5 baseballs off a tee while wearing the PNST and then 5 more off the tee without wearing the PNST. Data were analyzed for the pre-PNST and post-PNST hits.

**Results:** A repeated-measures multivariate analysis of variance revealed no significant differences pre and post PNST for center of mass over base of support (COMtoBOS) or segmental velocities ( $\Lambda = 0.68$ ,  $F_{4,6} = 0.72$ ,  $p = 0.608$ ).

**Conclusion:** The absence of a significant decrease in segmental velocities could expose the PNST as an appropriate warm-up tool and beneficial training aid. Because the PNST is not detrimental to segmental velocities in the acute sense, it should be considered a practical sport-specific training aid. It should be noted that the participants in the current study acknowledged that there was some effect from the PNST device causing the bat to feel lighter or even weightless after usage. Thus, players and coaches should view the PNST as an option for an on-deck tool to assist hitter's in the preparation for there at-bat. Future research should examine if the PNST alters muscle activation of the swing, has a post-action potentiation effect, and makes the swing more efficient. Also, future studies should observe the changes to a hitter's swing following training use of the PNST. Next, an intervention study on the training effect of PNST should be conducted to see its effects as a practice tool.

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***This abstract is a brief overview of a manuscript submitted for publication. The full manuscript will be sent to you once it is accepted for publication.***

The Sports Medicine & Movement Laboratory will seek to continue this line of research regarding the effects of the Pitcher's Nightmare Swing Trainer® on the baseball swing. Specifically, we will be seeking looking to determine the training effects following an intervention with the PNST.

Further information can be found at [www.sportsmedicineandmovement.com](http://www.sportsmedicineandmovement.com) as well as <https://scholar.google.com/citations?user=ae6HxHgAAAJ&hl=en>. Specific inquires can be send to [golver@auburn.edu](mailto:golver@auburn.edu). Thank you again for your participation in our research and we look forward to your further participation. Thank you!