Pilot Study: Individualized Lower Half Training for Pitchers - Updated

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Executive Summary:

Pitcher development in baseball is critical for an organization's success, and it includes a focus on metrics such as velocity, control, and injury prevention. This paper presents the findings of an 8-week pilot study conducted at the NewtForce Research and Development Center. The study aimed to utilize Ground Force insights from the Newtforce mound to enhance lower half pitching mechanics, ultimately leading to the development of more efficient and usable velocity. The study involved five subjects with a mean age of 16.9 and yielded promising results.

Introduction:

This pilot study, conducted from August 21, 2023, to December 15th, 2023, at the NewtForce Research and Development Center, aimed to assess the impact our 8-week individualized lower half training program had on these essential metrics starting initially with velocity.

Methodology:

Study Overview:

- Duration: 8 weeks
- Number of Subjects: 5
- Mean Age: 16.9
- Mean Height: 72.6 in
- Mean Weight: 196.9 lbs.

Testing Phases:

Initial Testing (Day 1):

- 10-15 throws with a 5 oz. high school regulation baseball.

- 6 shot put style throws with a 6 lb. medicine ball.
- Testing on a NewtForce mound.
- 5 oz. baseball velocity measured using a Trackman portable unit.
- Individualized medicine ball programs based on ground force profiles and movement patterns provided.

Second Analysis (4 weeks after initial testing):

- 6 throws per subject with a 6 lb. medicine ball on a NewtForce mound.
- New individualized medicine ball programs based on reassessment of ground force profiles and movement patterns.
- Continued training with the new programs for approximately 4 weeks.

Final Testing (8 weeks after initial testing):

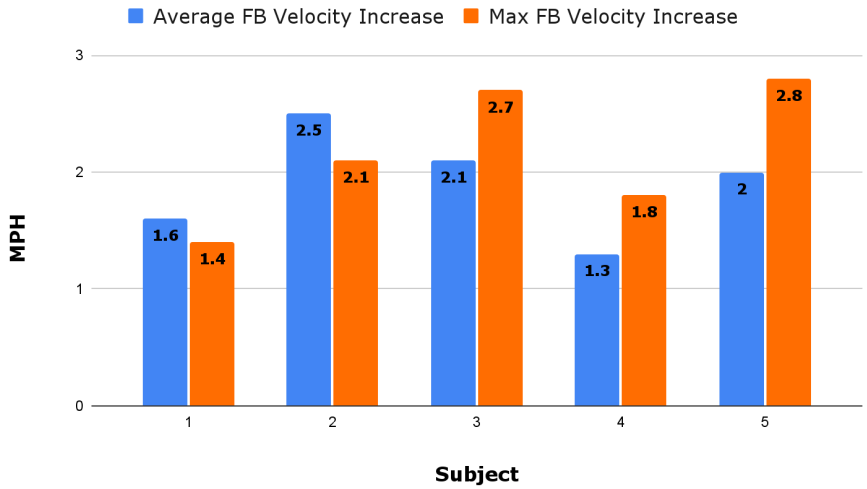
- 10-15 throws with a 5 oz. high school regulation baseball.
- Testing on a NewtForce mound.
- 5 oz. baseball velocity measured using a Trackman unit.

Results:

Average Velocity Metrics:

- Mean Average FB (Fastball) velocity increased by 1.9 mph over the 8-week study period.
- Mean Max FB velocity increased by 2.1 mph over the same duration.
- All subjects in the study experienced notable improvements in their FB velocity.

Subject-Specific Improvements:



Discussion:

The results of this pilot study demonstrate significant improvements in various key metrics associated with pitcher development, including velocity. These findings hold valuable implications for player development directors and college pitching coaches looking to optimize their training programs and enhance the performance of their pitchers.

1. Training Duration and Frequency:

The 8-week training program, featuring individualized medicine ball training three days a week for approximately four weeks between each analysis, yielded notable improvements in pitching performance. This structured regimen allowed for consistent practice and adaptation, reinforcing the importance of regular, targeted training sessions in pitcher development.

2. Mechanics and Ground Force Profiles:

Our study's individualized training programs, based on ground force profiles and movement patterns, played a pivotal role in achieving the observed velocity gains. By tailoring training to each pitcher's unique needs, we were able to address specific deficiencies and enhance the efficiency of their mechanics.

3. Velocity Gains:

The average fastball velocity increased by a notable 1.9 mph over the 8-week period. Equally significant was the 2.0 mph increase in maximum fastball velocity. These improvements are of paramount importance for pitchers aiming to stand out in competitive environments such as MLB and college baseball. Increase in efficient and usable velocity not only makes pitchers more appealing to scouts and coaches but also increases their effectiveness on the mound.

4. Future Directions:

Building upon the success of this pilot study, there is significant potential for further research and program refinement. Future studies could explore the long-term effects of individualized training, as well as its applicability to different age groups and skill levels. Additionally, the integration of motion capture could provide even deeper insights into the mechanics and performance of pitchers.

Conclusion:

This pilot study conducted at the NewtForce Research and Development Center demonstrates the potential for significant improvements in the lower half over an 8-week training period. The focus on individualized training programs, based on ground force profiles and movement patterns, led to notable increases in fastball velocity from the lower half, highlighting the importance of tailored development strategies. Player development directors and college pitching coaches can consider implementing similar programs to enhance their pitchers' performance.