

The Art of Throwing: A Shot Put Technical Manual: Shorts Edition

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Introduction

Throwing has been a passion of mine since I first picked up a shot put in high school. It became my identity, my drive, and my challenge. Over the years, as a collegiate athlete at Monmouth University and through my professional journey in physical therapy, I've refined my understanding of what makes an effective and consistent throw. This book synthesizes those insights, aiming to help athletes and coaches alike achieve technical excellence in the shot put.

Throwing is about efficiency, balance, and power. It's about channeling your strength and skill into a single, repeatable motion. This manual outlines a technical model for the shot put, critiques common errors, and provides actionable strategies to help athletes maximize their potential. Let's begin the journey toward mastering the art of throwing.

Chapter 1: Understanding Efficient Throwing

Throwing is not just an act of brute strength; it's a blend of precision, efficiency, and biomechanical understanding. At its core, the throw is about transferring energy into the shot to achieve maximum acceleration and velocity at release.

Key Concepts

- Force and Acceleration:** The implement must accelerate consistently through the throw, with the highest velocity achieved at release. Each technical decision should align with this principle.
 - At its root, distance of your throw is predetermined following release (for shot put) by angle of release with the speed of the implement at its departure.
- Speed Through the Circle:** Maintaining a ***gradual and controlled increase*** in speed throughout the throw prevents disruptions that sap energy and limit distance.
 - Gravity will be the primary driver of this model of throwing while in single support phases with acceleration being increased during double leg stance phase at the finish. This model **requires** the start setup that will be described that allows for

gravity to be used in this fashion. This will ensure consistent and reliable acceleration throughout the throw with minimal deviations which will resist an uneven increase in speed throughout the throw and decrease the stability requirement from your throw as speed continues to increase.

3. **Proximal Stability for Distal Power:** Core stability is the foundation of an effective throw. A stable trunk allows the arms and legs to generate maximum force and efficiency.
 - a. This can be seen via the relationship between the angle of shoulders and hips throughout the throw and large angle discrepancies will be key places to help diagnose the throw's inefficiencies.

4. **Balance and Alignment:** Proper alignment of the shoulders and hips ensures that the body works harmoniously, preventing compensatory movements and maximizing efficiency. Altered movements from the technical model are descriptive of two potential causes
 - a. An inability to maintain balance that will force a compensation at the trunk to make up for a weakness or coordination deficit

or
 - b. An anatomical or functional mobility/ range of motion of deficit that can potentially be addressed that limit optimal usage of gravity or inability reach a specific joint position which can be adjusted following elimination of chances of change
 - i. Example being CAM lesion limiting IR or Ankylosing Spondylitis restricting spinal joint mobility. When in doubt, assume it is merely a functional restriction

By grounding your technique in these principles, you create a framework for consistent, powerful, and repeatable throws that allow for consistent adaption, transfer of training strength and power to throwing as well as being able to consistently produce throws which will also aid in development.

Chapter 2: The Technical Model of an Ideal Throw

An ideal throw is a carefully choreographed series of movements. Each phase builds on the previous one, creating momentum and power while maintaining balance and alignment.

Out of the Back

The "out of the back" phase is where the foundation is laid. This phase is deliberate, reproducible, and sets the tone for the rest of the throw.

Objective

- Establish balance and alignment between the shoulders and hips.
- Maintain a tall posture to preserve potential energy.
- Gradually increase speed while staying controlled.

Key Movements

1. **Lateral Shift:** The hips shift laterally, like closing a car door with your hip, to center weight over the back leg while maintaining alignment.
2. **Tall Positioning:** Staying tall preserves potential energy, allowing gravity to assist in building momentum naturally.
3. **Proper Shoulder and Hip Alignment:** The shoulders should remain slightly closed to the circle, aligned with the hips, and avoid premature squaring.

Common Mistakes and Fixes

- **Shortened Positioning:** Avoid collapsing the torso or crouching.
- **Over-Rotation:** Prevent excessive turning by focusing on the left foot as a guidepost.
- **Premature Squaring:** Keep the left arm long but not crossed excessively in front of the chest.

Proper execution here ensures a smooth and efficient transition into the circle.

The Middle Phase

The middle phase bridges the setup from the back to the explosive finish. This is where momentum is maximized while balance and alignment are maintained.

Objective

- Preserve alignment between shoulders and hips.
- Gradually increase speed without abrupt changes.
- Set up a balanced and powerful position for the finish.

Key Movements

1. **Using Gravity:** Leverage gravity for controlled acceleration, letting it guide you into the circle.
2. **Single-Leg Support:** Maintain trunk stability and avoid leaning excessively while balancing on the right leg.
3. **Right Foot Placement:** Place the right foot in the middle of the circle without unnecessary vertical movement.

Common Mistakes and Fixes

- **Over-Rotation:** Focus on controlled shoulder and hip movement.
- **Loss of Momentum:** Visualize the throw as one continuous motion to prevent pauses.
- **Unstable Foot Placement:** Practice drills to ensure consistent timing and landing.

This phase is about fluidity and setting up an explosive finish.

The Finish

The finish converts the energy built up during the throw into the shot. It requires explosive power, precise timing, and controlled stability.

Objective

- Transfer maximum force into the shot.
- Maintain balance and stability for an efficient release.
- Achieve a clean, high-velocity release.

Key Movements

1. **Block Leg Action:** The left leg stabilizes the motion, allowing the right side to drive through dynamically.
2. **Explosive Hip and Arm Action:** The hips lead, followed by the arm, ensuring the shot is released with maximum velocity.
3. **Upper Body Coordination:** The left arm guides the motion without overly pulling or dragging the torso forward.

Common Mistakes and Fixes

- **Jumping at the Finish:** Focus on forward, not upward, motion.
- **Early Release:** Improve core stability to maintain timing.
- **Late Release:** Emphasize continuous acceleration and natural release.

A strong finish ensures the throw ends with optimal force transfer and balance.

Chapter 3: Common Faults and Fixes

Even the best athletes encounter technical challenges. This chapter identifies common faults and their solutions.

Faults

1. **Wide Left Block Leg:**
 - *Cause:* Misaligned center of mass and/or attempt to create stretch.
 - *Fix:* Maintain slight separation between hips and shoulders throughout throw.
2. **Jumping at the Finish:**
 - *Cause:* Excessive vertical motion.
 - *Fix:* Land the right foot promptly in the circle and focus on forward acceleration.
3. **Early Shot Release:**
 - *Cause:* Trunk instability or rushed separation.
 - *Fix:* Set proper alignment out of the back and improve core control.
4. **Late Release:**
 - *Cause:* Overcompensation for earlier misalignments.
 - *Fix:* Focus on fluid, continuous motion throughout the throw.

Chapter 4: My Optimal Throw

From years of personal experience, I've found that an optimal throw is rooted in efficiency, balance, and power. Starting with tall positioning out of the back, the throw progresses smoothly through the circle, leveraging gravity and proper alignment to maximize momentum. A strong finish caps off the throw, transferring every ounce of energy into the shot.

Key takeaways:

1. **Maintain Tall Positioning:** Preserve potential energy and utilize gravity effectively from the beginning of the throw onwards.
2. **Smooth Speed Curve:** Avoid choppy movements by accelerating progressively, likely with use of gravity as the source of acceleration.
3. **Alignment and Stability:** Keep shoulders and hips aligned through every phase. Changes in alignment is likely due to postural stability deficits and will negatively impact positioning going through the throw.
4. **Consistency:** Practice techniques that are reproducible under pressure. This outlook on throwing focuses on this tenet.

Chapter 5: Training for Throwing Excellence

Physical preparation complements technical skill. Core stability, hip strength, and explosive power are essential for consistent performance.

Key Areas to Train

- **Trunk Stability:** Enhance balance and rotational power.
- **Hip Strength and Balance:** Build stability during dynamic phases.
- **Explosiveness:** Develop power through plyometric and weight training.
- **Coordination:** Reinforce efficient movement patterns through drills.

Conclusion

Mastering the shot put is a journey of precision, discipline, and refinement. By focusing on efficiency, alignment, and consistent execution, athletes can unlock their full potential. This manual serves as a guide to achieving technical mastery and throwing excellence. Stay tall, stay balanced, and keep throwing far.