Training For The Triple Jump

The

Aston Moore

Way

Establish Your Technical Style/Model

- Go anywhere in the world, the triple jumps is still just a hop, step and a jump
  - So, what do I mean by technical style style
    - Russian Style – Polish Style – American Style
- Once you adopt your technical style, that dictates what you do and how you implement your training programme
  - I am not here to push my style of triple jumping – But I want you to decide firmly your way of seeing this event.
- I like the way the Cubans put it together (in a general sense)
  - I then draw on any number of the models that are out there, depending on the athlete in front of me.
  - I fit the event around the athlete – not the other way around

How I See The Run Up

- The run-up serves two purposes
  - Accuracy – within 5cm
  - Horizontal Velocity

	Men	Women
Triple Jump	10.2m/s – 10.8m/s	9.2m/s – 9.6m/s

- Establishing its rhythm and structure accomplish both purposes
  - First 6-8 strides establish accuracy
  - Acceleration continues over the next 3-5 strides as the jumper transit into upright running and maximum/optimum speed
  - The next 5-8 strides is where the jumper begins to prepare for the take-off
    - Steering

How I see The Hop

- The hop begins with its preparation
  - It is not as marked as in the long jump, but a preparation nevertheless.
  - The jumper should be launched forwards and upwards from the take-off board
- I like to see the free knee being punched forwards and then drops (almost straight) underneath the athlete body – as the hopping leg is presented in front of the body in preparation for the landing
  - Female athletes and the free knee
  - Arm action, single or double
- In the preparation for the hop landing I ask the athlete to imagine they are preparing to land from a step

How I see The Step

- The hop landing is the take-off for the step
  - The athlete reach ahead with the stepping leg, then, pull the leg back toward their centre of mass as they execute a dynamic landing
    - Heel first

- As the hop leg comes into landing, the step leg is swung and driven into a position in front of the body as the jumper take-off into the step - to be held there momentarily.
  - Foot underneath knee

- The athlete reach and pull the step leg back toward their centre of mass as they land to take off into the jump phase

Phase Ratios/Session Organisation

- Three optimum phases distribution
  - Style dependant
  - Proper phase distribution can give you immediate performance improvements

- If either the hop or the step is too long it will affect the “take-off velocity” of the following phase

- Session Organisation
  - Learning takes place only if successful jumps out-weigh unsuccessful jumps
  - Assess strides where learning takes place
    - 7 – 9 strides
    - Most jumps are performed from this place
    - Mixed with jumps of a higher intensity

My Triple Jump Model

- The picture I have in my mind is:
  - A fast attacking run up into a dynamic take-off
  - Totally quietness of the upper body in all phases
  - Flight positions that prepare the athlete for a dynamic landing
  - Purposeful - **fast** - **reach** – **pull** and **extension** into each of the phases (force production)

Plyometric Training For Jumpers

Aston Moore

Introduction

- There is nothing new in what I am about to disclose about plyometrics
  - Once you understand enough about how plyometric activities works, you will see that some exercises are just **variations on a theme**
- I don't want to spend too much time talking about the physiology which underpins plyometric training
  - To illuminate a room, I don't need to understand anything about electricity, all I need to know is how to flip a light switch
- I want to spend most of my time explaining **how** and **why** I do what I do and **show** you what I look for in these activities
- Made sure I understand the core concept
  - Applied them to my philosophy about jump training

What is Plyometrics?

- Plyometric activity, is a quick powerful movement involving the Stretch Shortening Cycle (SSC).
  - A SSC is when a muscle is stretched before it contracts. This eccentric - concentric coupling is referred to as the SSC.

- There are two mechanism at work in a SSC
  - Stored Elastic Energy
    - If a concentric contraction is preceded by a quick eccentric action, the force generated by the concentric contraction is significantly more powerful due to stored elastic energy
    - How does that work?
      - During the eccentric phase, the connective tissue is stretched, and energy is stored
      - As the muscle shortens (concentric contraction), the stores energy is recovered and contributes to the force the muscle can generate.

How Does Plyometrics Works

- Stretch Reflex
  - Muscle Spindle
    - Within the muscle complex there is an organ called the muscle spindle.
    - The spindle is sensitive to stretch, and is activated during violent stretching of the spindle itself and the surrounding muscle fibres.
    - Once activated, the spindle sends a signal to the surrounding muscle to contract, thus relieving the stretch on the spindle
  - Golgi Tendon Organ (GTO)
    - This is a tension relieving mechanism, which is situated within the tendons near the point of attachment of the muscle fibre to the tendon.
    - When potentially dangerous forces develop in the tendon, the GTO fires and causes the muscles to relax which limits the amount of tension in the tendon
      - For years I use to wonder how does that help me to become more powerful

How Does Plyometrics Works?

- The ability to use stored elastic energy is affected by the *rate and magnitude* of stretch.
  - Muscle power output is enhanced if the preceding eccentric contraction is of a small range and performed quickly.
    - The quick change in direction is the important factor
  - Training should be designed to improve the time it takes to switch between the eccentric contraction and the start of the concentric contractions.

- Too much energy and therefore power can be lost if knee flexion too acute or if the amortisation phase is too long.

Benefits of Plyometric Training

- Better recruitment of motor unit
- Handle greater loads at greater speeds
  - The greater the load and stretch in the eccentric phase, the greater power out put in the subsequent concentric contraction.
- The stretch reflex mechanism increases power output by:
  - Recruiting additional fibres that would not normally be recruited in ordinary concentric contraction.
- The potential inhibition of the GTO.
  - GTO limits the amount of force produce within the muscle, its stimulation threshold becomes the limiting factor.
  - With stressful plyometric training the GTO can become less sensitive to stress and thereby allow greater loads and the potential for greater force to be developed.

A Tale of Two Methods

- There are two ways you can put together a plyometric session
  - As a Separate element of training
    - Has its own periodisation phases
      - Target sub-division of the SSC (eccentric-Isometric-concentric)
    - Drawbacks
      - heavy on the loads and volumes
      - Counter-productive with reference to technical training
  - As an Integrated element of training
    - It occurred to me that Plyometrics was just another form of strength training and as such…
      - Part of the strength training element which leads to “Power or Explosive Force”
    - Periodised/weaved appropriately within the strength element
    - Less interference with the jumps technical elements

Integrated Plyometric Method

- Many coaches get themselves into trouble with Plyometrics by going to the end game (DEPTH JUMPS) without following proper progression

- Design a strength training periodised year which included plyometric activities, with the end goal being the highest expression of "Dynamic /Explosive Strength", it should have the following progression:
  - Single **counter-movement Jumps**
  - **Consecutive Jumps in-place**
  - **Consecutive Jumps with displacement**
  - **Barbell Exercises** (Maximum Strength)
  - **Explosive Jumps** with Barbell mixed with plyometrics (Complex/Contract)
  - **Depth Jumps** mixed with barbell exercises (Complex/Contract)
- The demands become increasingly more difficult – each phase prepares the athlete for the next

A Tale of Two Methods

Training Objectives	General				Specific						
Strength Resist Method					Foundation 3-5x5x75-80%	Maximum Strength 3-5x5x80-90%	Maximum Strength 4-6x3-2x90-95%	Dynamic Strength (consecutive jump squats 20-30%), 2:1	Dynamic Strength Complex (Vertical jump squats 50-70%)	Explosive Strength Complex (Maximum Strength (2) 2-3x90-95%)	Speed Strength 3x4-6x70%
Strength Plyo Method	Singular Maximum Explosive Jumps (Forward &Upwards)	Vertical Jumps (in-place), Jumps Onto Box, Box Jumps (Low/High)	Multiple Consecutive Hop/Stops Jumps with Forward Displacement (sub-maximal)	Sub-maximal Hops and Bounds (40-60m). Hurdle Jumps (spaced),				Maximal Hops and Bounds (30-40m). Hurdle Jumps (close) 1:2	Explosive Strength Complex (Intensive Bounds 20-40m)	Explosive Strength Complex (Depth Jumps)	Speed Bounds and Hurdle Jumps (close) (Power Sets)

- The above progression could also be a 3-4 stage LTAD for jumpers

Integrated Plyometric Method

- Allows you to focus on the engine as well as technique improvements
  - There are times when only plyometrics are done and times when only gym work is done
  - It allows you to teach simple movements while developing "Explosive Force"
  - It allows you to develop "Explosive Force" while building on movement efficiency

- Recognise that ALL plyometric activities are part of a continuum
  - Reactive Str. ⟷ Explosive Str.
  - It's not what you do, it's the way that you do it

Know What You Are Training For

- Reactive Exercises – (quick response)
  - Any exercise that allow you to get off the ground quickly
    - What does quickly mean??
    - Minimal knee flexion
    - Ball of the feet
    - Impulse mostly below the knee
  - Helps to stiffen the system

- Power Exercises – (medium response)
  - Any exercise where both force and suddenness of movement is required in more or less equal quantities
    - Knee Flexion is more acute
    - Whole foot contact – most of the time
    - Impulse involves a greater use of the hip and knee

- Exercises can be Single or Double
  - It doesn't matter, it's a question of ability

What About Volumes

- Plyometrics are strength exercises, therefore the same rules apply
  - Repetitions
    - 1-3 repetitions = Maximum Force
    - 3-5 repetitions = Power
    - 7-10 repetitions = Power Endurance
  - Sets
    - 7-10 = Maximum Force
    - 4-6 = Power
    - 3-4 = Power Endurance
  - Overall Volumes (Per Session)
    - 50-75 Contacts = Competition Phase
    - 100-150 Contacts = Specific Phase
    - 200-300 Contacts = General Phase

First - Do No Harm

Where the rubber meets the road or your feet hits the ground

- Work from the ground up
  - Feet
    - Most plyometrics activity with the outcome of “impulse force” should be executed with a whole foot contact
    - Look for signs of feet abnormalities – pronation
  - Knees
    - Rolling Shins
    - Knock Knee
    - Proper force absorption
  - Relationship Between Torso, Hips and Feet
    - Must be aligned
      - Upright or Forward lean

DEMONSTRATION

QUESTIONS?

Aston Moore
Senior National Performance Institute Coach – Horizontal Jumps
M: +44(0)7718526370

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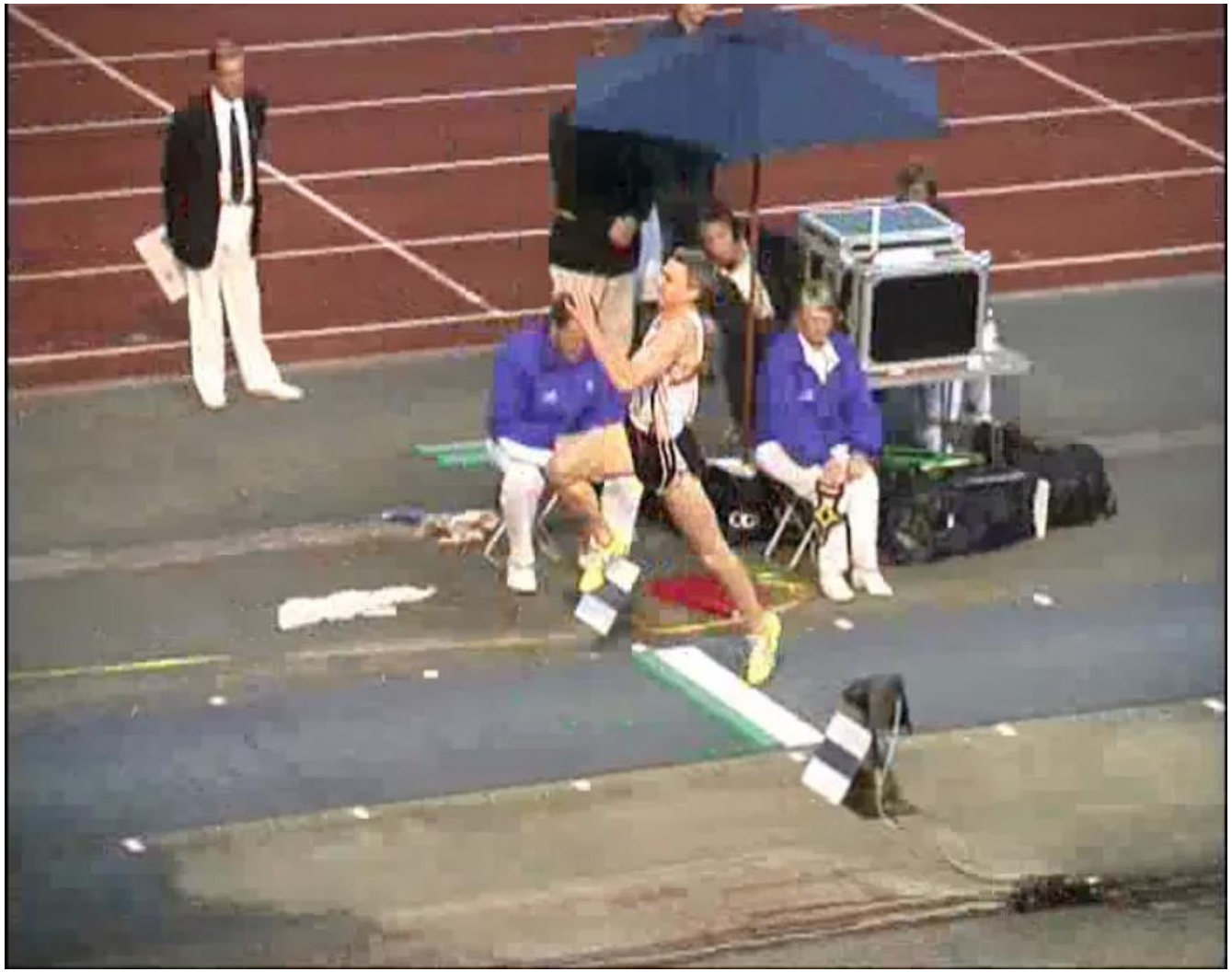

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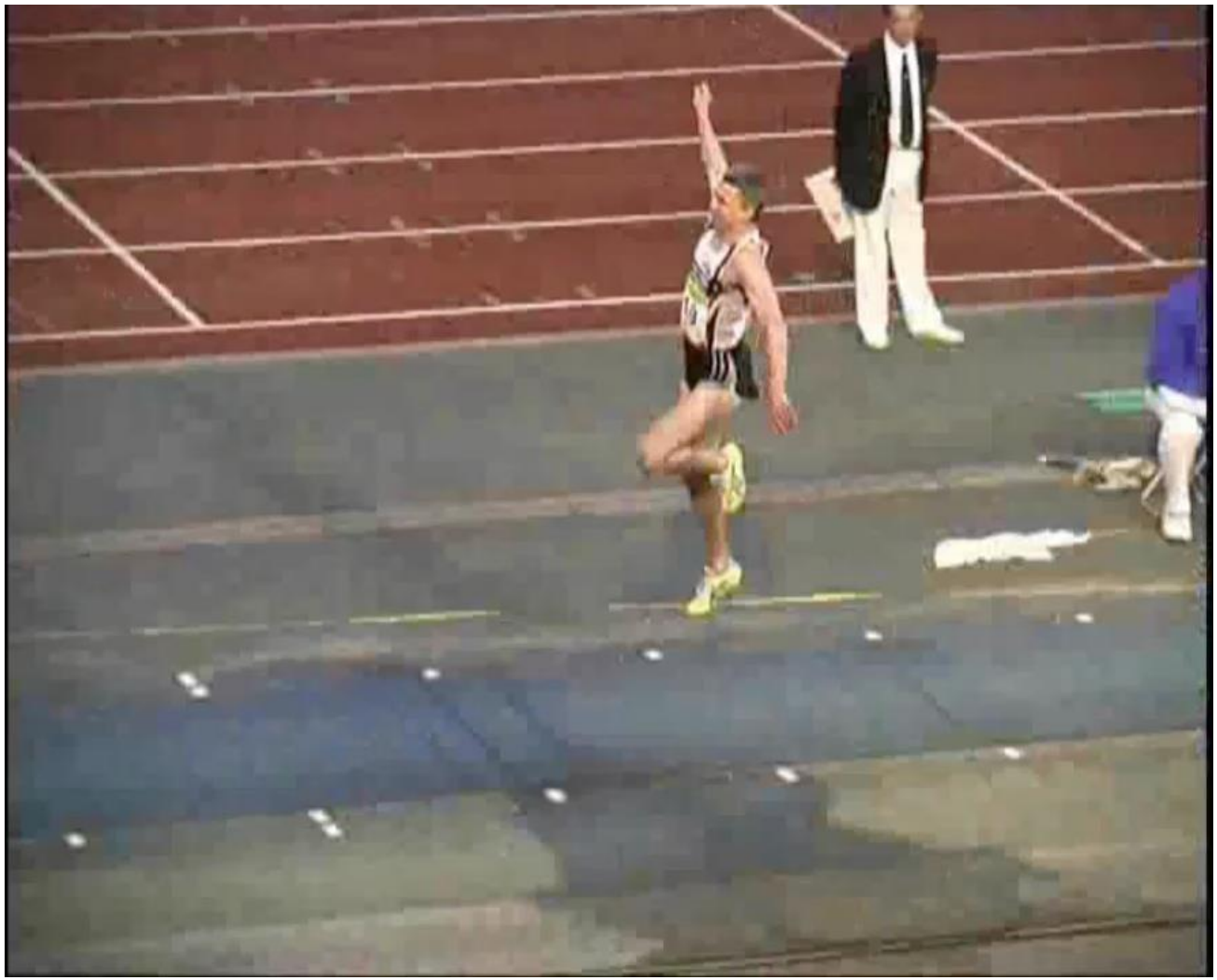

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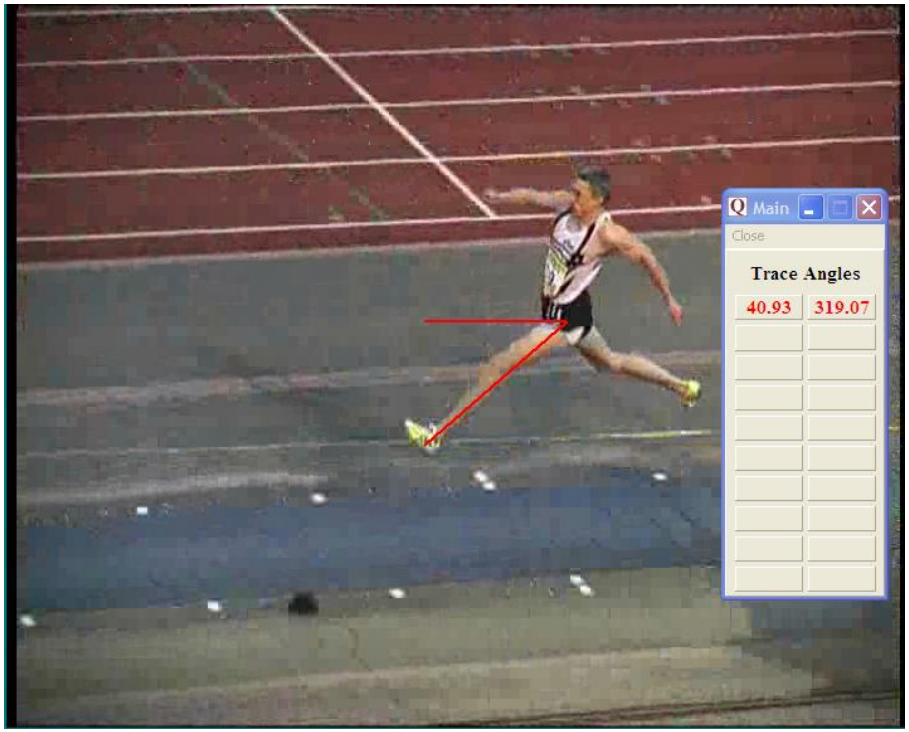
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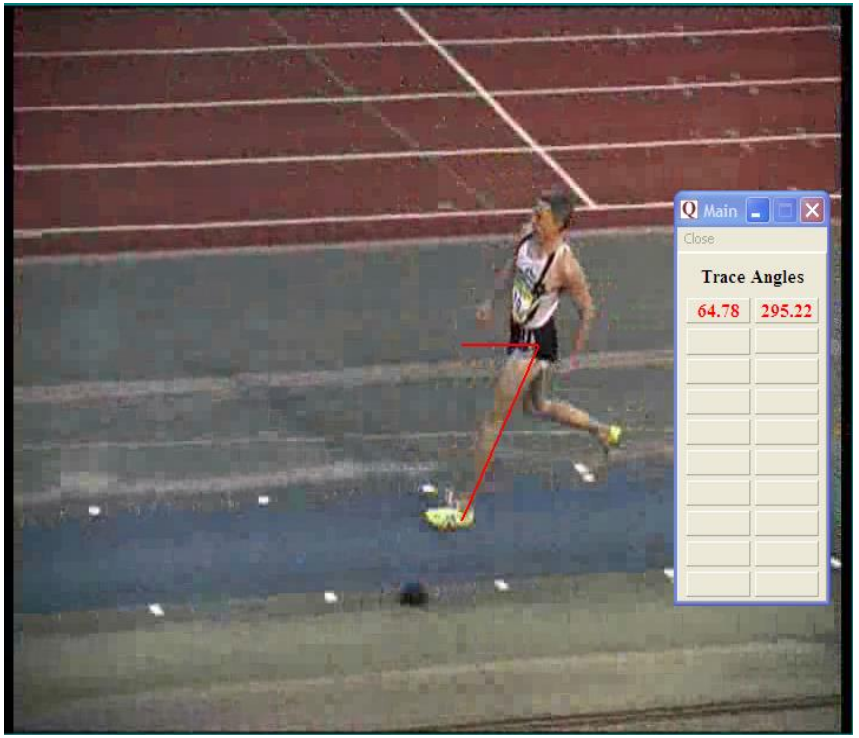
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