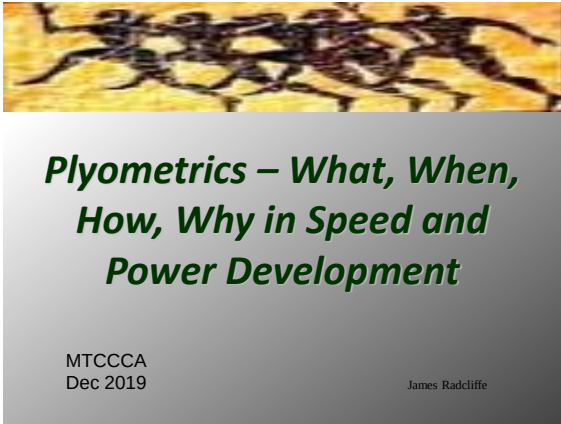




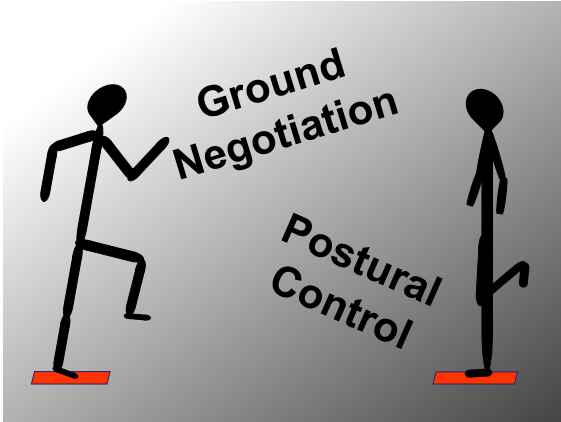
1



2



3



4

KEY POINTS

#1
Body Posture
Cues



#2
Increase
Strength-
Power-Impulse

Seagrave & O'Donnell 1990

5

How? = Technical Progressions

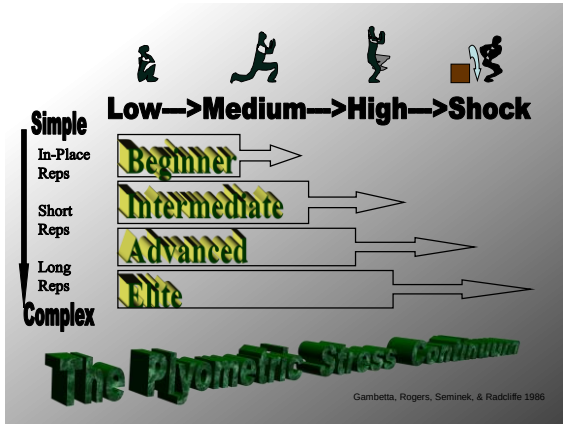
Front Side
Back Side
Mechanics

Short
Long
Ground Time

Average Air Time
Short or Long

Mann 2013

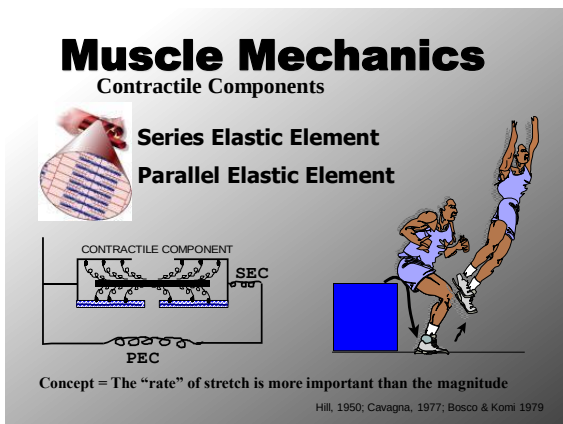
6



7



8



9

The Amortization Phase

Defined as: "the letting out or deadening of something"



Verkhoshansky 1968 & 69; Webster, 1969; Kent, 1998

10

Classification

Short vs. Long Responses [coupling]



CONTACT		FLIGHT
DOWN	UP	
Ground Contact Time		"Sprinting" 100- "Bounding" 250 ms "Shock" "Jumping" > 250 ms
Amortization Phase	Coupling Time Summation Phase	

0.00 0.10 0.25 0.35 0.50

Schmidtbleicher, 1986; King 1993; Bosch & Klomp 2005

11

No Strain,



No Gain?

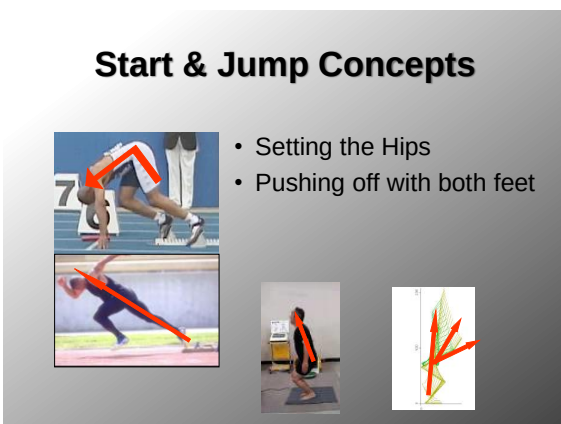
12



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14



15

HIP HINGE

Setting Mechanism
Concentric vs. Eccentric



16

Squat
Tuck
Split/Scissor
Depth

17

Acceleration & Bound Concepts



- Take off and landings from one foot to the other.
- Tilted projection of the hips and acquisition of horizontal distance.
- Maximum ground reaction forces
- PUSH Mechanics

18

HIP PROJECTION

- Directional projection of the hips.
- Maximum ground reaction forces
- PISTON Mechanics



19

Prancing

Skipping

Flipping

Bounding

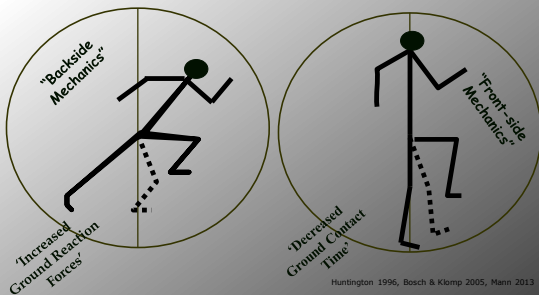
BOUNDS

20

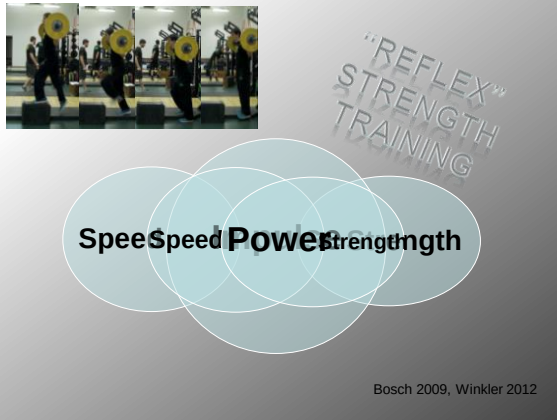
Effective Stride Parameters

Horizontal Loading -----> Vertical Loading

Acceleration----->Reacceleration



21



"REFLEX" STRENGTH TRAINING

Speed Strength Power Endurance

Bosch 2009, Winkler 2012

22

Re-Acceleration & Hop Concepts



- Posture for vertical and horizontal hip propulsion
- Maximize force with minimal "coupling" time.
- Piston/Whip Mechanics.

23



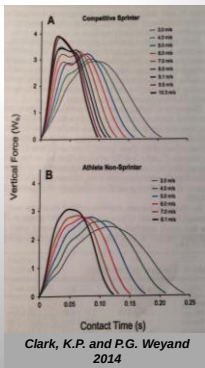
Pogo

Bouncing

Single Leg Pogo

Switches

24



HIP “WHIP”

- Maximize force, minimize time.
- “Swing & Scissor” stretch tension and reacceleration.



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Double Leg

Single Leg Slide Kick

Single Leg

HOPS Combinations

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“Complex Training”

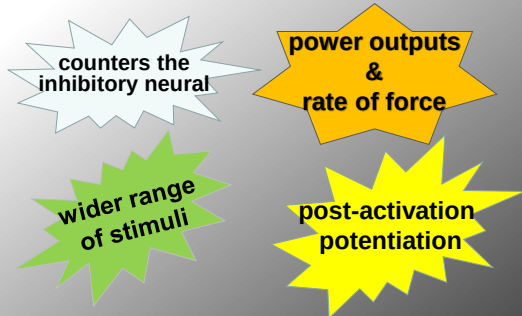
“combines strength work and speed work for an optimal training effect”

“alternation of weight training and plyometric exercises”

Chu 1996, Ebben & Watts 1998

27

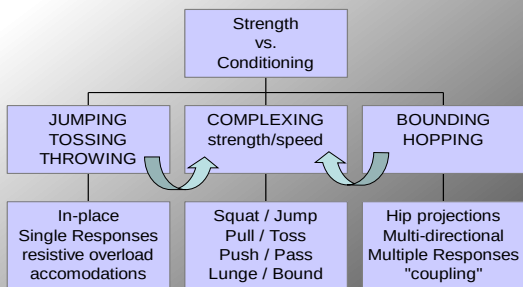
Rationale for "Complexing"



Fees 1997, Harris et al.; 2000, Jones & Lees 2003, French et al.; 2003

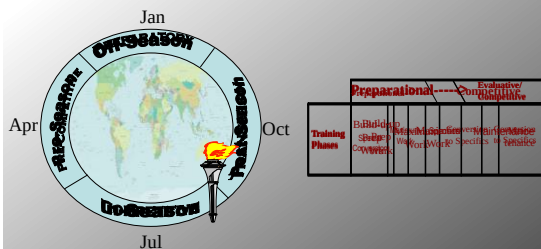
28

COMBINATIONS



29

The Annual Plan



30

The Seasonal Plan

Preparational----->				Evaluative/ Competitive
Strength Training Phases	Build-up Prep Work	Maximum Work	Conversion to Specifics	Main- tenance
Preparational----->				Evaluative/ Competitive
Speed Training Phases	Acceler- ation	Speed	Speed Endurance	Specific Main- tenance
Preparational----->				Evaluative/ Competitive
Elastic Training Phases	Begin Progress- ions BOUNCE JUMP	BOUND HOP SHOCK	Complexes, Combo's & "Shock" Methods	Main- tenance routines

Bompa 1983, Plaff 1993, Radcliffe 1998

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Strength Training for Power Events

MTCCCA
December 2019



33



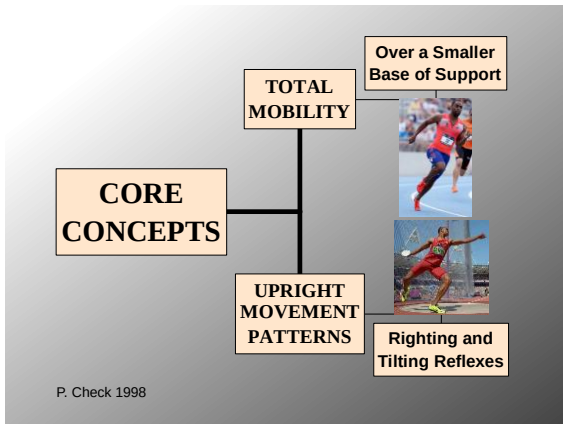
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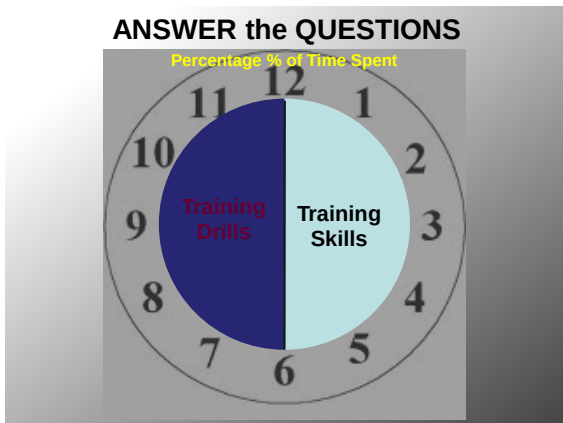
35



36



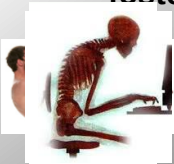
37



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Guidelines for Effective Development

☀️ Exercise progressions that foster proper habits



- ✓ Posture
- ✓ Balance
- ✓ Stability
- ✓ Mobility



jcr '96

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Contextual Strength & Coordination

#1
Body Posture
Cues



#2
Increase
Strength-
Power-Impulse



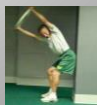
Seagrave & O'Donnell 1990., Bosch 2015

40

Co-Contractions



Intelligent Simultaneous Contractions

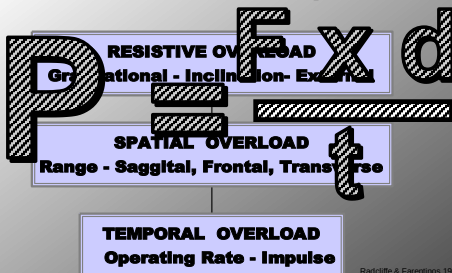


Bosch 2005

41

ADAPTATIONS

Overload Principles



Radcliffe & Farentinos 1984

42

F/t

- Velocity
- Rate of Force Development

“Primary Objective”

Hakkinen & Komi 1986, Zatsiorsky 1995

43

Max Strength

Max Load

Minimal Load

>50%

Minimal Speed

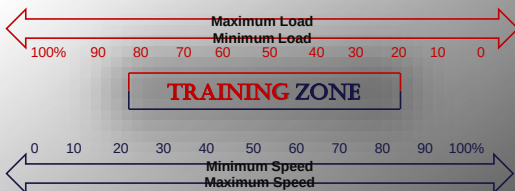
Force values

Max Speed

Zatsiorsky 1995

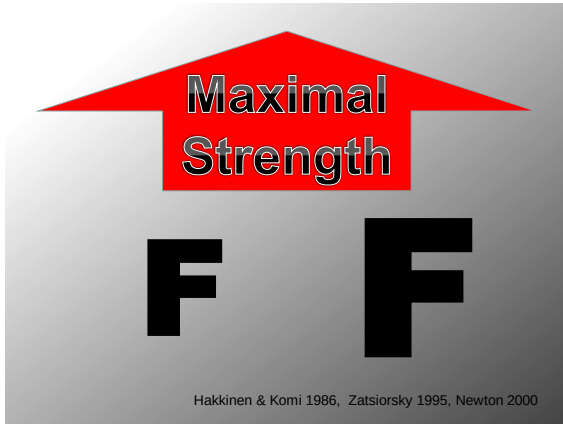
44

Mass-Specific Force

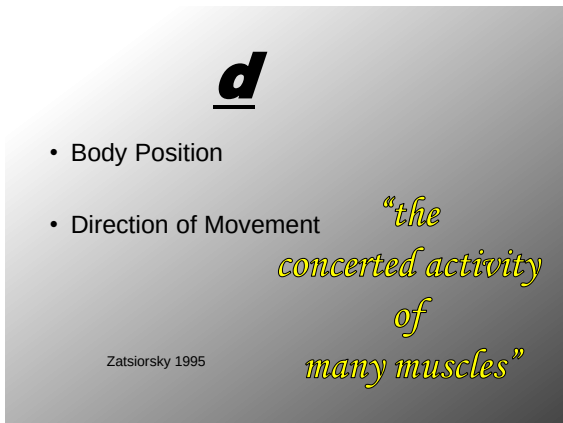


Weyend et.al, 2000, Simmons 2015

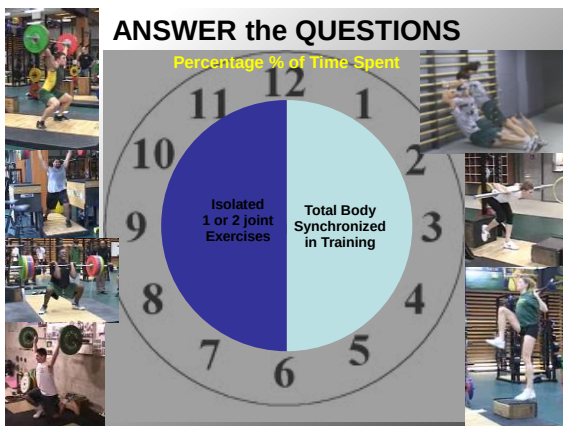
45



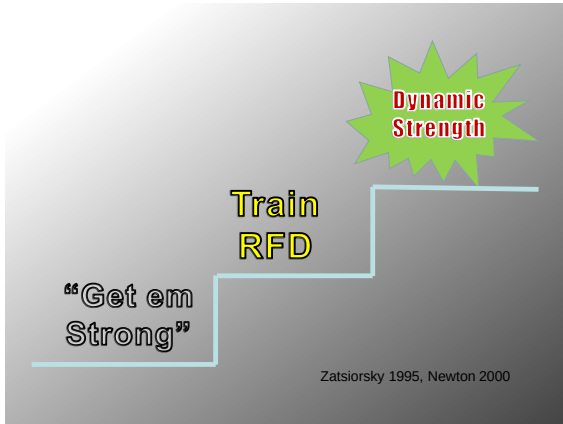
46



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48



49



50



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Hip “Hinge”

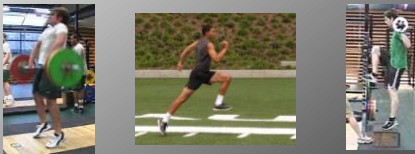
- Setting the Hips
- Flatten or arch the back



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Hip Projection

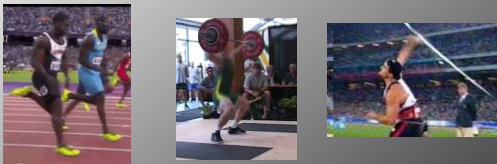
- Extension of the hips.
- Maximum ground reaction forces
- PUSH/PISTON Mechanics



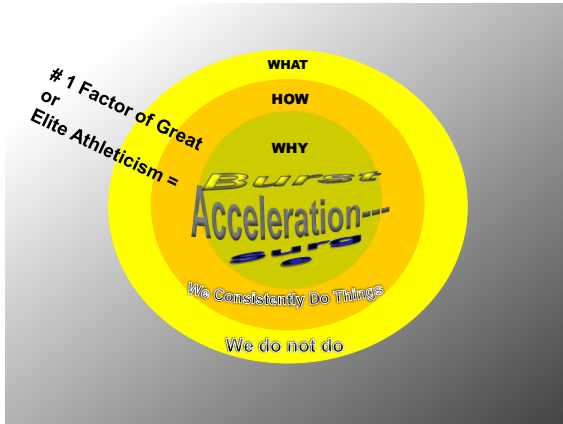
53

Hip Whip

- Controlling posture to enhance synchronized lower body action.
- “WHIP” / “SNAP” action.



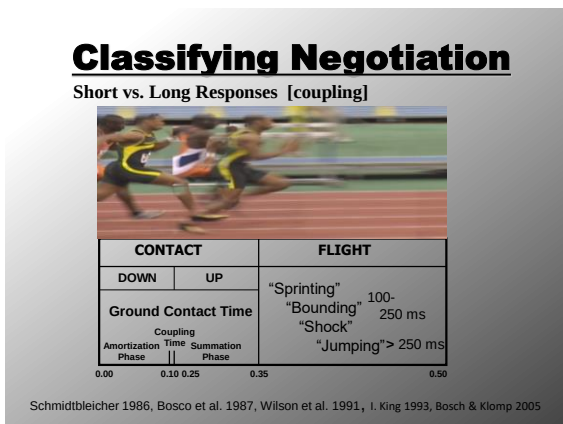
54



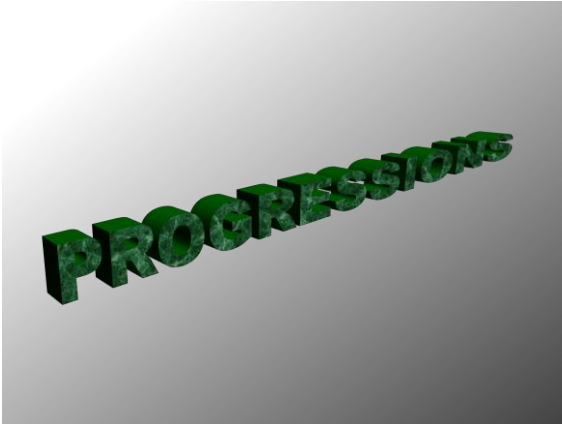
55



56



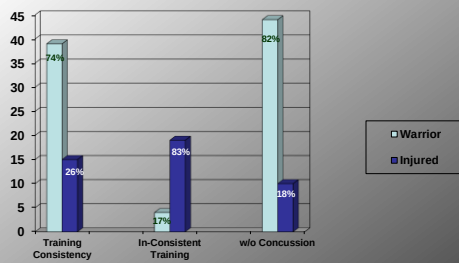
57



58

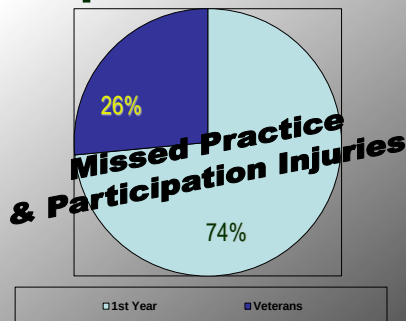
U of O Athletics 2004-2019

Veteran's Conditioning & In-Season Health



59

Preparation Effects



60



**Thank
You**

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