

PLYOMETRICS



Presented by Wayde Schulz

BACKGROUND

Graduated from Northern State University – Aberdeen, SD with a BS in Fitness Management.

24 years at St. Alexius Human Performance Center as the Acceleration Coordinator.

Married to Dawn with three boys, Tristan, Brayten and Dawson, and one red lab, River.



PLYOMETRICS

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Quick, explosive movements involving a “prestretch” (eccentric muscle contraction) followed by an explosive (concentric muscle contraction) of a muscle group referred to as a “stretch reflex.”

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STRETCH REFLEX

Capacity of a muscle to resist extension – referred to as the “stretch shorten cycle.”

- A muscle is stimulated by a rapid stretching movement followed by a contraction of the muscle stretched.

Examples:

- Finger stretch
- Straight leg jump versus bent leg jump

The quicker a stretch is obtained, the higher power output that will be developed.

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INVERTED FUNNEL PRINCIPLE

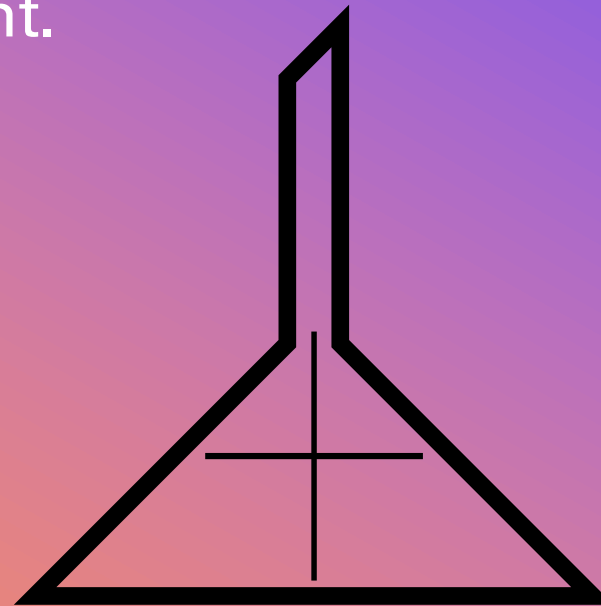
Stability of the upper body and hips while moving quickly and explosively throughout the lower extremities.

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Development of kinesthetic awareness – your sense of where your body is in relation to your environment.

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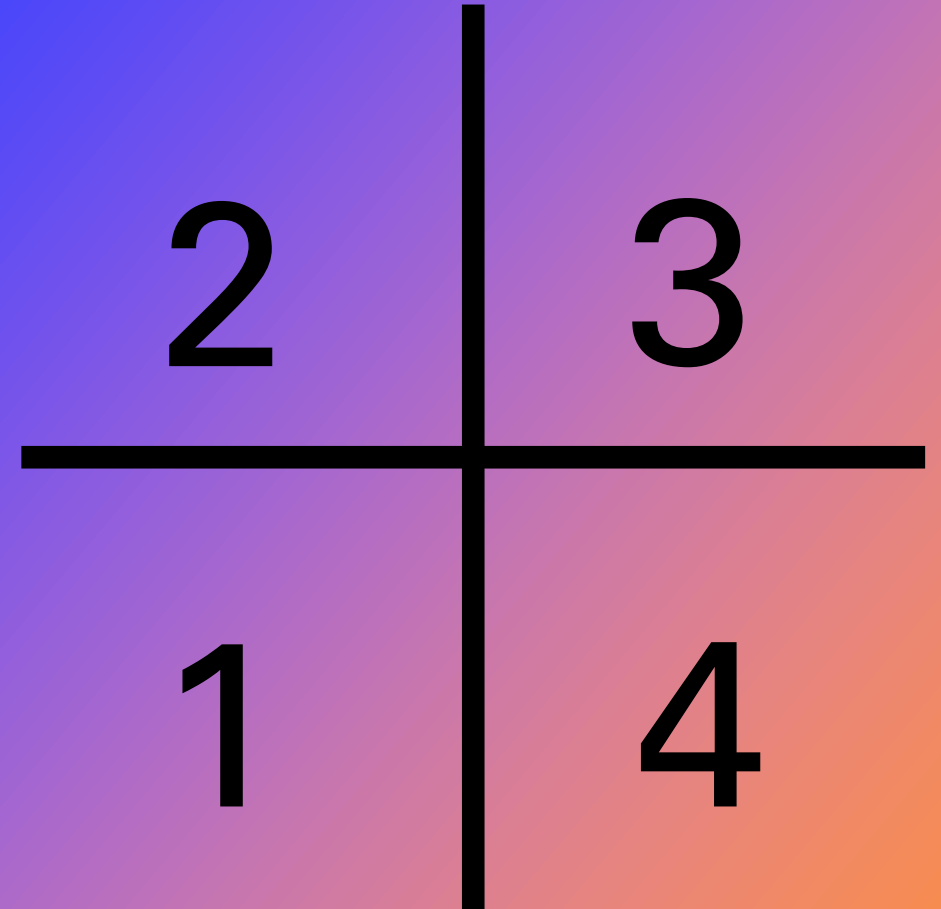


JUMPING SURFACE

Surface should have some degree of shock absorption to decrease joint compression forces.

- At least 10% shock absorption
- Not more than 50% absorption

“Stretch Reflex”



FORM AND MECHANICS

- Ground contact on balls of feet – no flat foot landing!
 - * Plantar flexion + No stretch reflex created
- Hip position always stays squared up – facing forward
- Knee alignment – knees over toes – no valgus
- Accuracy and jumps
- Speed
 - * Limit amortization phase – time between eccentric and concentric contractions “SCC”
- Balance – inverted funnel principle

FREQUENCY OF SESSIONS PER WEEK

- Based off what other therapy sessions are being utilized throughout the week.
- Weeks 1 through 4 - one plyometric session per week
- Weeks 5+ - two plyometric sessions per week
 - * Treadmill work
 - * Retrograde treadmill work
 - * Strength training

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DURATION OF JUMPS

Weeks 1 through 4: +

* Double leg jumps: 8 -10 seconds

* Single leg jumps: 5 seconds

* 1 six inch block: 10 seconds

1-2

1-4

* 2 six inch blocks: 5 seconds

1-4
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DURATION OF JUMPS

Weeks 5 through 8:

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* Double leg jumps: 10-15 seconds

* Single leg jumps: 5-8 seconds

* 1 six inch block: 10 seconds

1-2

1-4

* 2 six inch blocks: 5 seconds

1-2
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1-4

DURATION OF JUMPS

Weeks 9 through 12: +

* Double leg jumps: 15-20 seconds

* Single leg jumps: 10 seconds

* 1 six inch block: 10 seconds

1-2

1-4

* 2-3 six inch blocks: 5 seconds

1-2
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1-4

SETS AND DURATION PER WORKOUT

Weeks 1 through 4:

- * Double leg jumps: 8-10 sets

- * Single leg jumps: 8 sets per leg

- * 1 six inch block:

 - 1-2 (2 sets)

 - 1-4 (2 sets)

- * 2 six inch blocks:

 - 1-4 (2 sets)

- * Double leg jumps: 4 sets

- * Workout duration: 20-30 minutes

SETS AND DURATION PER WORKOUT

Weeks 5+: increase number of sets

- * Double leg jumps

- * Single leg jumps

- * 1 six inch block: + •

1-2

1-4

- * 2 six inch blocks:

1-2

1-4

- * Double leg jumps

- * Workout duration: 30-40 minutes

- * Progression of double leg, single leg, and foam blocks

COUNTING PLYOMETRICS

General rule is to count “One” each time the athlete returns to the starting point.

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Example: 1-2 – Count “One” each time the athlete’s feet return to box 1

If a line is hit or a box is missed the repetition does not count.

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FOAM BLOCKS OR PLYO BOXES

Each contact with the ground is counted as one.

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Example: 1-2 with blocks

- Count one when landing in block 2
- Count another one when landing back in block 1

Foot speed, as well as accuracy, will all play into the total repetitions obtained for each set.

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THANK YOU!

