



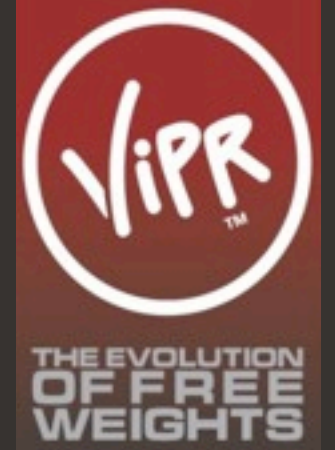
TRAINING  
FOR SPORT

MICHOL DALCOURT

# LEARNING OBJECTIVES



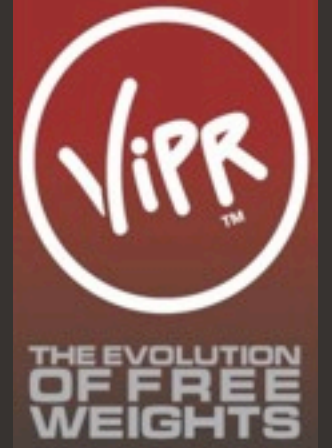
- Understand the Demands of Sport
- Learn how to apply specific stability / strength / agility drills that will transfer to sport
- Learn about:
  - vector variability
  - odd position lifting
  - pre-position loading
  - Lifting / Shifting patternsand how it is integral to sport.



## Push-Up Test

Training for Sport ... what does it mean?

SPORT



Understanding Gravity/GRF

Understanding Timing

Understanding Movement Stability

Understanding Dynamic Strength Production



# Understanding Gravity/GRF



Gravity



Physical Sciences:

*Newton's 3 Laws*

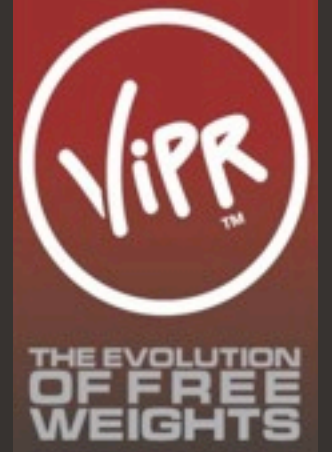
- 2 Forces that put energy into the body
- Allows muscles to turn on AND off

Ground Reaction



Gravity into  
Ground Loading

Ground-based training such as ViPR  
will reinforce these authentic  
patterns and effects ...

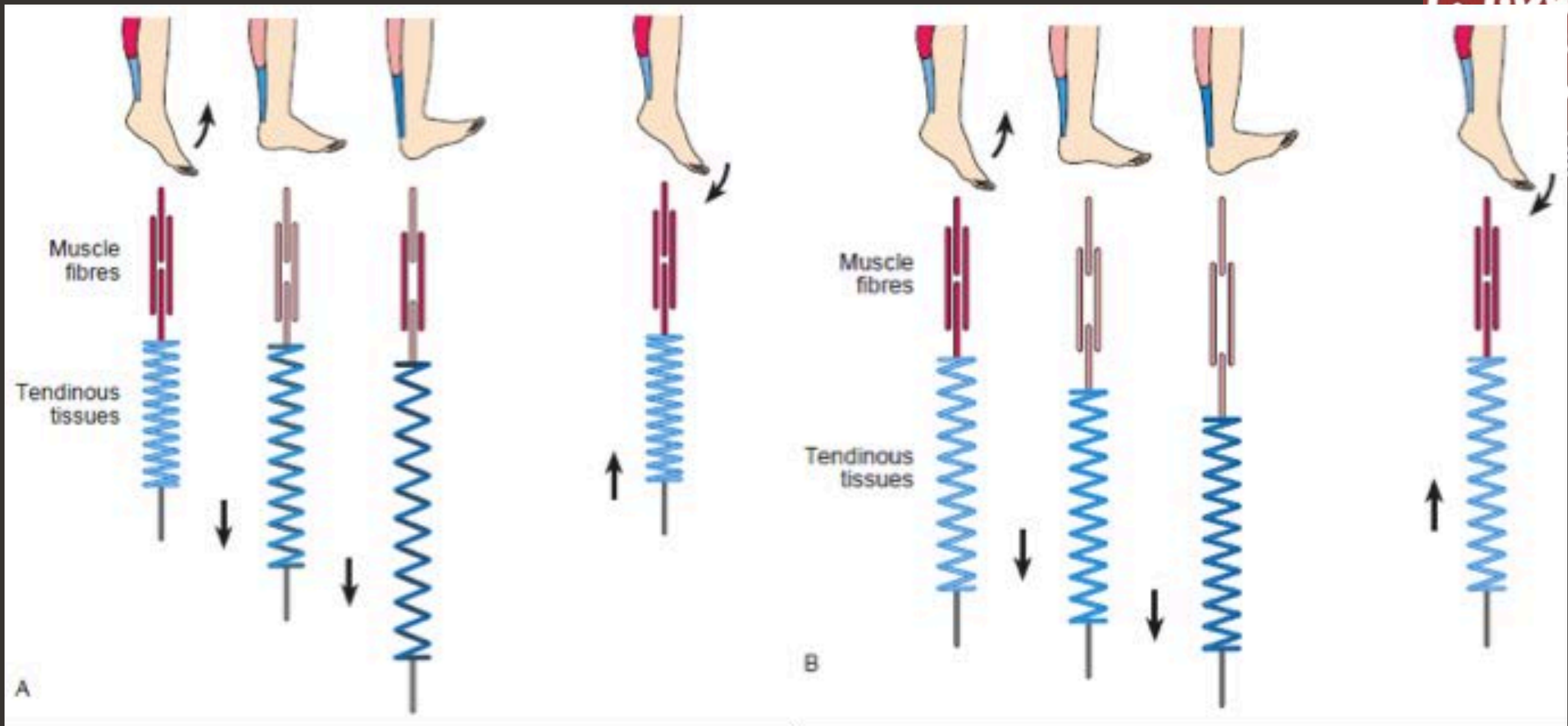


# Understanding Timing



# Catapult Mechanism

Kawakami (2002)



## Elastic Recoil of Fascial Tissue

A - Less Length Change in Muscular Units (i.e. less eccentric muscle load)

VS.

B - More Length Change in Muscular Units (i.e. more eccentric muscle load)



# Training for Sport

## IMPORTANT CONSIDERATIONS:



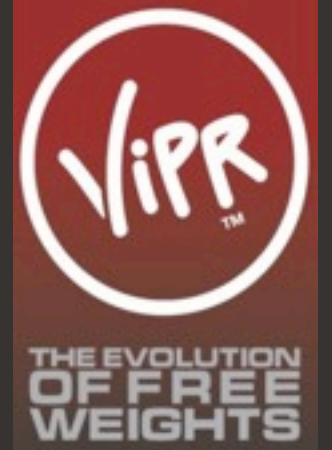
- Train in intervals (allows the tissues to hydrate)
- Maintain upright positions (to facilitate ascending and descending chain reactions)
- Multi-Dimensional Movement (allows enhanced tissue mobility and regeneration)
- Rhythmical Movement (allows tissue and joint dynamics to synchronize)
- ONLY MOVE TO YOUR OWN THRESHOLD (always begin with a smaller Range of Motion)



# Understanding Movement Stability



THE EVOLUTION  
OF FREE  
WEIGHTS



# Understanding Dynamic Strength Production

# Strength - Shifting / Lifting



Some critical questions to ask when looking at traditional strength exercises are:

1. Kinematic Sequence:

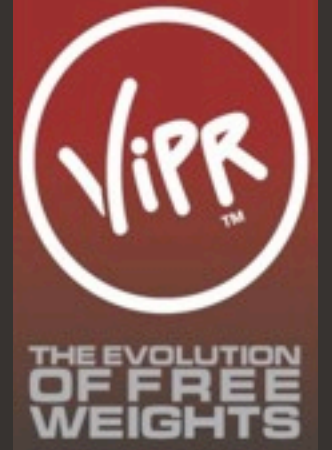
2. Movement Based Strength Training:

3. Strength for What:

4. Ability to Transfer:



# Strength - Shifting / Lifting



## Key Guidelines

Neurological progression / demands - Known - Unknown (starting with weight --> pick up lifts)

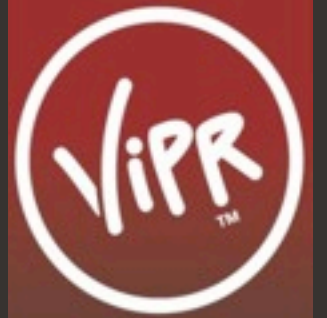
Muscular Force progression (force / speed)

Fascial force progression (vector variability / loading rates)

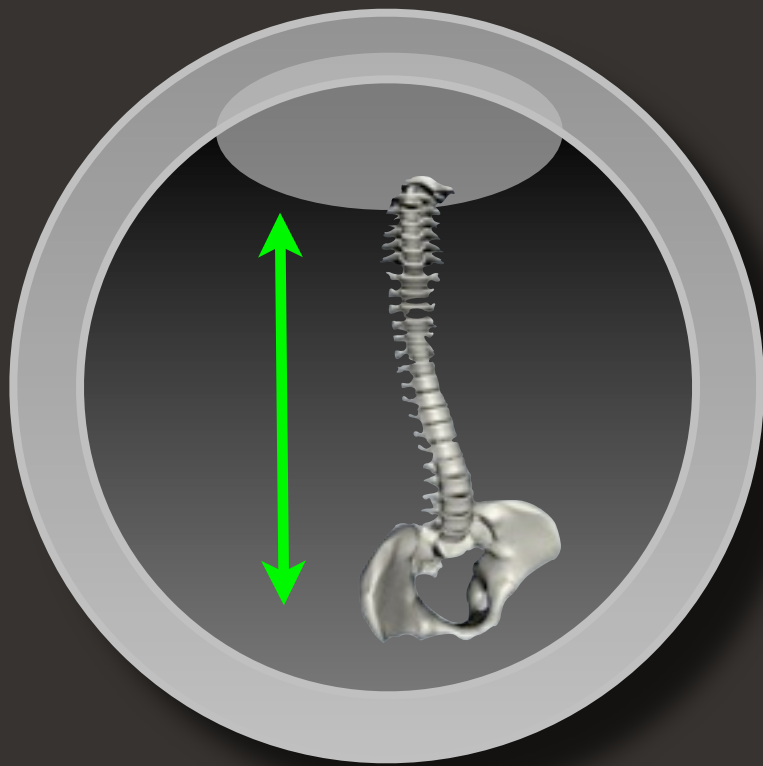
Intent driven tasks (moving ViPR into different positions)



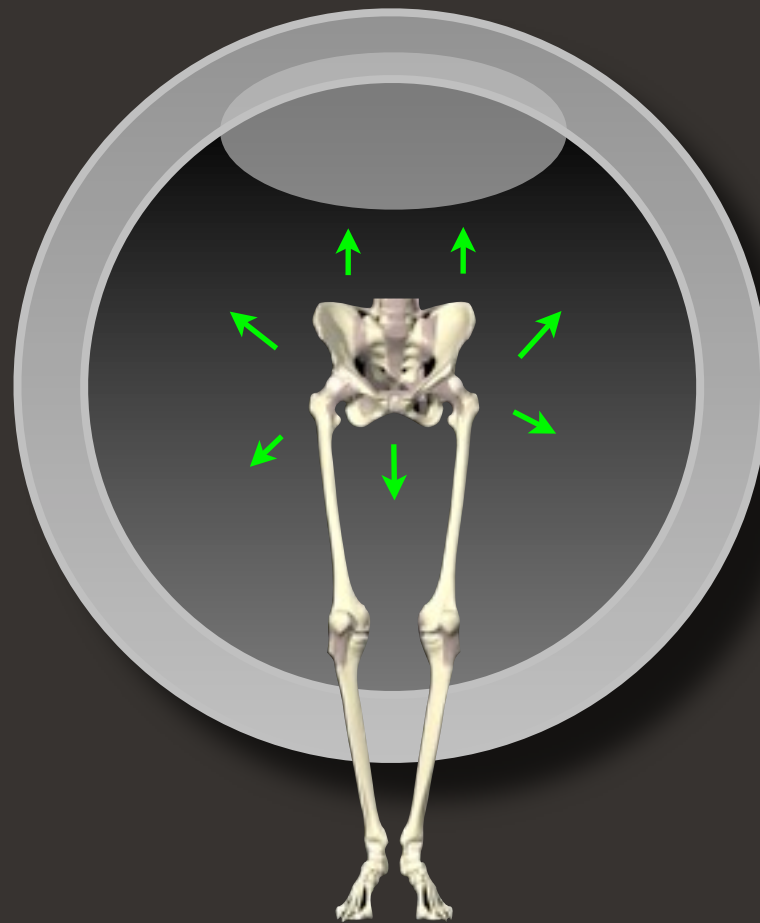
# Cuing



THE EVOLUTION  
OF FREE  
WEIGHTS



1. Maintain  
Length in the  
Spine



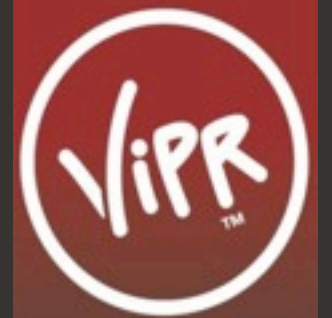
2. Initiate  
Movement with  
the Hips



3. Reach with the  
Scapula

# Screening

Adequate Motion Observed?



THE EVOLUTION  
OF FREE  
WEIGHTS



Foot / Ankle Complex



Hip Complex



Thoracic Spine

# Screening



Rhythmical Motion Observed?

# Strength - Lifting

## Cylinder Lift



The Cylinder lift offers a unique way to progressively tax strength, with stability and neural demands. The Cylinder lift begins with a pendulum to an inverted pendulum to higher you lift it. Also, rhythmical motion and proximal to distal acceleration involves motor learning, so be patient and do not progress too quickly. It is important to follow the sequence of basic to advanced so that tissue adaptation can occur. It is highly recommended that you perform each level (basic, intermediate, advanced) for 30 sessions minimum before progressing to a more challenging version.

### Objectives:

- To establish rhythmical movement
- To master technique of controlling the ViPR on the way up as well as returning ViPR to the ground with a measure of control before progressing
- To master the technique of the 'drive and slide' (meaning driving the legs and sliding the hands along the sides of the ViPR)  
- Since this drill has a distinct power component, this must be mastered at slower speeds in the basic patterns before progressing
- To introduce full body strength responses from the finger tips to the toes
- To master linear loading before triangulating it
- When beginning to learn the technique, DO NOT fatigue the central nervous system. Temporary local muscular fatigue is acceptable, but exhaustion is not.

# Strength - Lifting

## Cylinder Lift



### Basic:

- Basic --> From on end with all variations

- on end hold lift

- with pulses, load to shoulder

- with pulses up and down

# Strength - Lifting

## Cylinder Lift



## Intermediate:

This builds progression as you will now impart load to your body at the end range, as opposed to carrying weight to your end range and back (as seen in most traditional strength movements). Techniques needs to be perfected before progressing.

Intermediate --> From on ground with all variations

- between legs
- lateral to legs
- transverse to legs



# Strength - Lifting

## Cylinder Lift



## Advanced:

Neural demand and balance challenges are maximized with these Advanced loading patterns. Ensure that the individual possesses efficient and stable movement through the foot/ankle, hip, and thoracic spine.

Advanced --> From on ground to locomotion / level change / reduced BOS with all variations

1 leg

- between legs to pistol squat
- between legs to crouch shuffle (anterior / posterior)
- between (or lateral or transverse) to swing dancers
- between (or lateral or transverse) to swing dancers with locomotion

# Strength - Lifting

## Pick Up Lifts



Pick Up Lifts are unique in that they load to motion towards the end range. Typically, an individual travels to their end-range with load (in a typical training situation) and the nervous system can anticipate how much stability is required. By 'picking up' load at or near end-range, there can be no anticipation (i.e. feedforward) by the Nervous system. This has a high degree of carry-over to life, however it is MORE PROGRESSED in regards to neural demand. ENSURE that the client/athlete has good foundational stability and strength before prescribing these Pick Up Lifts. It is important to follow the sequence of basic to advanced so that tissue adaptation can occur. It is highly recommended that you perform each level (basic, intermediate, advanced) for 30 sessions minimum before progressing to a more challenging version.

### Objectives:

- To establish rhythmical movement

- To master technique and execution of end-range stability and strength

- To challenge the feedback elements of the nervous system

- To introduce full body strength responses from the toes to the finger tips

- To master linear loading before triangulating it

- When beginning to learn the technique, DO NOT fatigue the central nervous system. Temporary local muscular fatigue is acceptable, but exhaustion is not.

# Strength - Lifting

## Pick Up Lifts



### Basic:

The goal with these pick up lifts is to provide a planar progression and introduce end-range stability and strength.

#### Basic -->

- Anterior step to pick up floor to hip (on tube -single handle hold)
- Lateral lunge with floor to overhead pick up (neutral hold)
- Transverse lunge with floor to shoulder pick up (neutral hold)

# Strength - Lifting

## Pick Up Lifts



## Intermediate:

At the intermediate level, we progress to asymmetrical end-range loading with increased movement complexity.

Intermediate -->

- On end - Anterior lunge with floor to overhead pick up (offset hold)
- On end - Lateral lunge with floor to overhead pick up (neutral hold)
- On end - Transverse lunge with floor to shoulder pick up (neutral hold)

# Strength - Lifting

## Pick Up Lifts



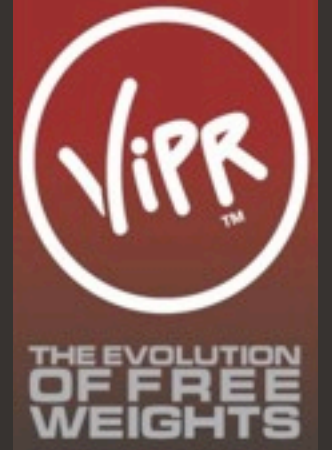
## Advanced:

Neural demand, leverage and Range of Motion challenges are maximized with these Advanced loading patterns. Ensure that the individual possesses efficient and stable movement through the foot/ankle, hip, and thoracic spine.

### Advanced -->

- On end - Squat to 180 turn into anterior lunge with ViPR arc overhead (sagittal)
- On end - Squat to crossover lateral lunge with ViPR arc overhead (lateral)
- On end - 1.5 stance low crouch to pick up cylinder lift (floor to overhead) - at speed

# Strength - Shifting



## Pendulum Shifts

Pendulum Shifts offer a unique way of loading the body. ViPR swings like a pendulum and must be dynamically stabilized through multiple angulations. Neural, mechanical, and stability demands through the kinetic chain will be progressed with the Pendulum Shifts while axial loading will be minimized. It should be noted that adequate core stability must be observed PRIOR to prescribing these drills.

Timing/sequencing will be challenged and improved with more exposure to the Pendulum Shifts. It is also recommended that an individual 'chunk' the exercise (i.e. learn the movement in chunks) so that improved motor learning can be achieved. It is important to follow the sequence of basic to advanced so that tissue adaptation can occur. It is highly recommended that you perform each level (basic, intermediate, advanced) for 30 sessions minimum before progressing to a more challenging version.

### Objectives:

- To establish rhythmical movement
- Master the sequencing of the shift before adding extensive load
- Since this drill has a distinct timing component, this must be mastered at slower speeds in the basic patterns before progressing
- To introduce full body strength responses from the finger tips to the toes
- When beginning to learn the technique, DO NOT fatigue the central nervous system. Temporary local muscular fatigue is acceptable, but exhaustion is not.



# Strength - Shifting

## Pendulum Shifts



### Basic:

The goal here is to establish rhythmical timing of the Pendulum Shift and to sustain dynamic stability.

Basic -->

- squat hold with swing
- Cylinder holds lateral lunge with swing
- Cylinder holds t-plane lunge with swing

# Strength - Shifting

## Pendulum Shifts



## Intermediate:

The amplitude of the swings are now larger as momentum is progressed to challenge neural and mechanical work. Adequate grip strength must be present by this level of progression

Intermediate -->

- Sagittal lunge with pendulum shifts
- Lateral lunge (pivot) with pendulum shifts
- T-plane lunge with pendulum shifts

# Strength - Shifting

## Pendulum Shifts



### Advanced:

Neural demand, timing, balance and agility challenges are maximized with these Advanced shifting patterns. Ensure that the individual possesses efficient and stable movement through the foot/ankle, hip, and thoracic spine.

#### Advanced -->

- anterior shuffle into a grab and sagittal pendulum shifts - at speed
- lateral shuffle into grab and lateral pendulum shifts - at speed
- pre-position (sagittal swing lateral to the body) - sagittal pivot lunges

# Strength - Lifting

## Squat Pops



Squat Pops are a speed strength exercise that have elements of explosive strength/power. They are an excellent way to summate forces as the drills do not require the individual to decelerate the load once they accelerate it. Neurologically, this is extremely important and will have positive effects and carryover to athletics. Once again, rhythmical motion and proximal to distal acceleration involves motor learning, so be patient and do not progress too quickly. It is important to follow the sequence of basic to advanced so that tissue adaptation can occur. It is highly recommended that you perform each level (basic, intermediate, advanced) for 30 sessions minimum before progressing to a more challenging version.

### Objectives:

- To establish rhythmical movement
- To master technique of exploding through the acceleration phase with the ViPR
- Since this drill has a distinct power component, this must be mastered at slower speeds in the basic patterns before progressing
- To introduce full body strength responses from the toes to the finger tips
- To master linear loading before triangulating it
- When beginning to learn the technique, DO NOT fatigue the central nervous system. Temporary local muscular fatigue is acceptable, but exhaustion is not.

# Strength - Lifting

## Squat Pops



### Basic:

The goal here is to establish rhythmical timing of lifting from the ground up. Explosive unload (i.e. acceleration) is NOT important during this phase. Tissue tolerance and neural timing are established here. Important the motion should be observed from the foot/ankle, hip complex, and thoracic spine

Basic --> level change - no release - various footprint - static handprint (ViPR parallel to ground)

- Squat to elbow extension / shoulder flexion (ViPR loaded on arms)
- Squat with rotation to elbow extension / shoulder flexion (ViPR loaded on arms)
- XWX squats (with lateral hip shift) with elbow extension / shoulder flexion (ViPR loaded on arms)

# Strength - Lifting

## Squat Pops



## Intermediate:

Here we build the neural complexity and demand/force on the tissues. At the intermediate level, we accelerate the load, and there is now a requirement to catch the weight. Good eccentric motor control and fundamental strength is essential for this phase.

Intermediate --> Level change - release - various footprint - static handprint (ViPR parallel to ground)

- Squat to pops and catch (rhythm and timing)
- Split squats to pops and catch
- golfers squat to pops and catch



# Strength - Lifting

## Squat Pops



## Advanced:

Neural demand and Range of Motion challenges are maximized with these Advanced loading patterns. Ensure that the individual possesses efficient and stable movement through the foot/ankle, hip, and thoracic spine.

Advanced --> Level change / locomotion - release - various footprint - various handprints

- Squat to pops and bounce catch
- Squats to pop release to turn around catch (180 degree turn)
- Squat to pop and catch to crouch squat 180 degree jump
- 4 squats at speed to pop

Resources:

[www.ViPRfit.com](http://www.ViPRfit.com)

ViPRfit Facebook

[www.PTontheNET.com](http://www.PTontheNET.com)

On-line Education  
Exercise Library  
Pre-Made Programs  
Certifications



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