

HOW TO TRAIN FOR THE HIGH JUMP

DUSTY JONAS

UNIVERSITY OF NEBRASKA - LINCOLN

DEMANDS OF THE EVENT & TRAINING GOALS

- A HIGH JUMPER NEEDS TO BE ABLE TO RUN A 20-30M APPROACH (3-4 SECONDS) AND TAKE 8-12 JUMPS AT MAX EFFORT OR NEAR MAX EFFORT
- BE AS FAST, LIGHT, AND REACTIVE AS POSSIBLE
- BE ABLE TO EXECUTE A HIGH JUMP APPROACH CONSISTENTLY AND CORRECTLY REGARDLESS OF WEATHER CONDITION



ASPECTS TO BE TRAINED

- APPROACH, APPROACH, APPROACH!!! (TECHNIQUE AND RHYTHM)
- SPEED (ACCELERATION AND MAX VELOCITY)
- PLYOMETRICS/MULTI-JUMPS/THROWS (REACTIVE STRENGTH AND EXPRESSION OF EXPLOSIVE STRENGTH)
- STRENGTH (MAX STRENGTH AND POWER + BODYWEIGHT STRENGTH CIRCUITS)
- TRAINING TO BE A TOTAL ATHLETE

APPROACH DEVELOPMENT

- THERE IS NO FOSBURY FLOP WITHOUT A GREAT APPROACH – IF THE APPROACH IS NOT CONSISTENT, MAXIMAL HEIGHT WILL NEVER BE ACHIEVED AND THE RISK OF INJURY INCREASES
- EMPHASIS ON ACCELERATION AND CURVE RUNNING MECHANICS WITH MULTIPLE DRILLS AND EXERCISES ON THE CURVE IN PRACTICE
- WE SPEND 6-8 WEEKS IN THE FALL MASTERING APPROACH BASICS BEFORE WE EVER TAKE A JUMP FROM AN APPROACH OF ANY LENGTH



ACCELERATION DEVELOPMENT & MAX VELOCITY

- I COACH A STANDING OR ROLLOVER START IN THE HIGH JUMP FOR CONSISTENCY'S SAKE – ATHLETE & EXPERIENCE DEPENDENT
- BEING ABLE TO OVERCOME INERTIA AND ACCELERATE QUICKLY AND CONSISTENTLY BECOMES INCREASINGLY IMPORTANT
- THIS ASPECT OF TRAINING SETS UP THE ENTIRE APPROACH
- USED TO DEVELOP SPEED AND TRANSITION INTO THE POSTURES THE ATHLETE WILL USE IN THE APPROACH RUN
- WE TRAIN ACCELERATION OR VARIATIONS OF IT DURING THE ENTIRE YEAR (5-30M)

ACCELERATION DEVELOPMENT & MAX VELOCITY

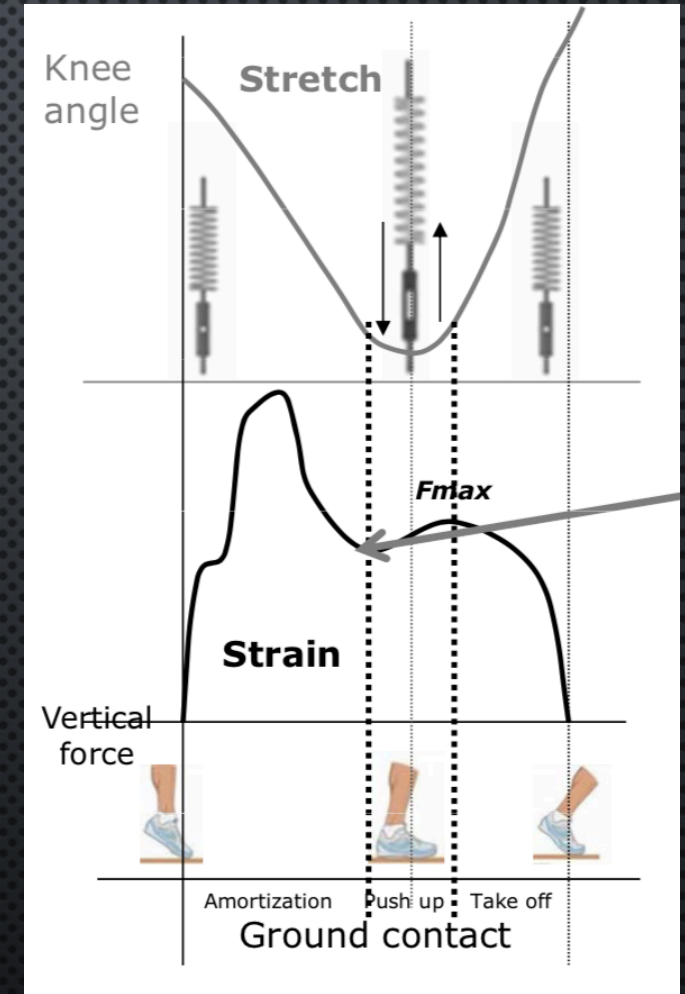
- MAX SPEED CAN ONLY LAST FOR 3-5 SECONDS – SOMETIMES LESS!!!
- AS THE ATHLETES MAX VELOCITY INCREASES SO SHOULD THE VELOCITY OF THE APPROACH – A HIGH TIDE RAISES ALL SHIPS
- WE TRAIN THIS ASPECT 1-2X PER WEEK WITH FLYING RUNS (10's, 20's, 30's) OR SPRINT FLOAT SPRINT COMBINATIONS (10M-10M10M, 10M-20M-10M, 20M-20M-20M, ETC) USUALLY NOT OVER 30M SEGMENTS
- MAX VELOCITY WORK IS VERY TAXING (93%+) SO THE VOLUME CONTROL BECOMES KEY (150M-300M) IN A SESSION – NORMALLY 5-6 RUNS WITH FULL RECOVERY
- MEASURE AND RECORD! YOU CANT IMPROVE ON SOMETHING THAT YOU DO NOT MEASURE!
- VERY TAXING ON THE CNS

REACTIVE STRENGTH

- REACTIVE STRENGTH – DEMONSTRATES AN ATHLETES ABILITY TO QUICKLY AND EFFECTIVELY CHANGE FROM AN ECCENTRIC TO A CONCENTRIC CONTRACTION – HOW FAST CAN THE ATHLETE AMORTIZE THE GROUND CONTACT?
- TRAINED WITH PLYOMETRIC EXERCISES
- BEING ABLE TO APPLY FORCE QUICKLY AND EFFICIENTLY IS A HIGH PRIORITY – A JUMP IS A DEFLECTION NOT A PUSH!

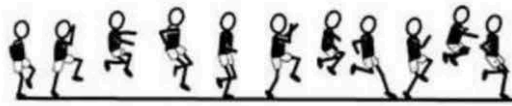
PLYOMETRICS & MULTI-JUMPS

- PLYOMETRIC: AN OVERLOAD OF ISOMETRIC TYPE MUSCLE ACTION WHICH INVOKES THE SSC
- STRETCH SHORTENING CYCLE (SSC) – ACTIVE STRETCH OF A MUSCLE FOLLOWED BY AN IMMEDIATE SHORTENING OF THAT SAME MUSCLE (ECCENTRIC → ISOMETRIC → CONCENTRIC)
- USE TO IMPROVE RATE OF FORCE DEVELOPMENT AND THE SSC OF THE MUSCLE TENDON UNIT
- TYPICALLY INVOLVES GROUND CONTACT TIME OF LESS THAN 150MS
- EXAMPLES WOULD BE DEPTH JUMPS, HURDLE HOPS, BOUNDING, SPRINTING
- HIGHLY TAXING ON THE CNS – USE SPARINGLY WITH LOW VOLUMES/HIGH INTENSITY/FULL RECOVERY



PLYOMETRICS & MULTI-JUMPS CONT...

Short coupling time jumping and bounding exercises (the short time of force employment)



Alternate Leg Bounding



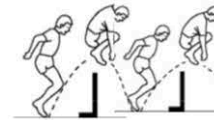
Single Leg Hops



Box Jumps on and off of a low box



Consecutive jumps over obstacles or boxes

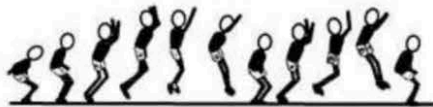


Side-to-side double leg bounces

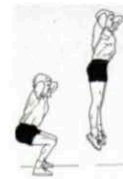


Side-to-side single-leg bounces

Long coupling time jumping exercises (the long time of force employment)



Repeated Long Jumps



Multiple consecutive standing jumps



Box Jumps on and off of a high box

PLYOMETRICS & MULTI-JUMPS CONT...

Multi-Jump Circuits (Schexnayder – SACSpeed Training Inventory)

<u>Mercury</u>	<u>Venus</u>	<u>Mars</u>	<u>Jupiter</u>	<u>Ancillary Depth Jumps</u>	<u>Uranus</u>
Ankle Bounces	Line Hops	Tuck Jumps	Box-SLJ	Box Rebounds	RRR
Side Straddled Hops	Buttkick Jumps	Ski Jumps	Box-Hurdle	Lateral Box Rebounds	LLL
Front Straddled Hops	180's	Single Leg Lateral Turns	Box-Box-SLJ	Twisting Box Rebounds	RRLl
Crossover Hops	Rocket Jumps	Straddle Jumps	Box-Box-Hurdle	Single Leg Box Rebounds	LLRR
Diagonal Hops	Speed Skaters	Single Leg Medial Turns			RLRL
Bunny Hops	Wideouts	Lane Hops			LRLR
Zig-Zag Bunny Hops	Squat Freeze Jumps	Single Leg Squat Jumps			
<u>Saturn</u>	<u>Neptune</u>	<u>Pluto</u>	<u>Bounding Series A</u>	<u>Bounding Series B</u>	<u>Bounding Series T</u>
Standing Long Jump	Jog-RRR	LLL...	RRR...	Straight Leg Bounds	Skips for Height
3 Double Leg Bounds	Jog-LLL	RRR...	LLL...	LRLR...	Skips for Distance
Standing Triple Jump	Jog-RLRL	LLRR...	RRL...	RRLl...	Run-Run-Jump (L-R)
Double-Double	Jog-LRLR	Medial Hops (L-R)	LLR...		
		Lateral Hops (L-R)	RRLl...		
			RLRL...		

THROWS

- WE USE THROWS FOR SEVERAL REASONS:
 - EVALUATION OF MOVEMENT – EXPRESSION OF POWER OR DEFICITS IN MOVEMENT EFFICIENCY
 - CNS READINESS – EXPLOSIVE STRENGTH
 - TEACHES APPLICATION OF FORCE
 - TRAINING VARIETY
 - GENERAL STRENGTH MOVEMENTS
 - CAN PAIR WITH PLYOMETRIC EXERCISES
 - EXAMPLES: UNDERHAND FORWARD, OVERHEAD BACK, HEIGHT, CHEST PASS, LUNGE THROW, ETC.

STRENGTH TRAINING

- GOALS OF STRENGTH TRAINING FOR JUMPERS IN GENERAL:
 - DEVELOP AN APPROPRIATE LEVEL OF MAX STRENGTH EACH YEAR
 - NOT ADD AN EXCESSIVE AMOUNT OF MASS – ESPECIALLY ABOVE THE BELLY BUTTON
 - TRAIN MOVEMENTS NOT MUSCLES
 - SHOULD BE COMPLIMENTARY TO THE TRACK
 - MUST PROGRESS LOGICALLY AND INDIVIDUALLY
- THINGS TO CONSIDER
 - AGE (CHRONOLOGICAL AND TRAINING)
 - GENDER
 - TIME OF THE SEASON
 - IS IT A MULTI-SPORT ATHLETE?

STRENGTH TRAINING CONT...

- MAX STRENGTH: GREATEST AMOUNT OF FORCE A MUSCLE OR MUSCLE GROUP CAN PRODUCE REGARDLESS OF TIME FRAME (HEAVY DEEP BACK SQUAT OR DEADLIFT)
- POWER: ABILITY TO PRODUCE AS MUCH FORCE AS QUICKLY AS POSSIBLE (OLYMPIC LIFTS OR PARTIAL OLYMPIC LIFTS I.E. CLEAN JUMP, HIGH PULL, MODERATE TO HEAVY MED BALL THROWS)
- SPEED-STRENGTH: MOVING A LIGHT WEIGHT AS FAST AS POSSIBLE (20-40% OF 1RM @ 1.1-1.5 M/S) I.E. SQUAT JUMPS, LIGHT OLYMPIC LIFTS, LIGHT MED BALL THROWS
- MAX STRENGTH IS IMPORTANT BUT ONLY IF IT IS BEING CONCURRENTLY DEVELOPED WITH POWER OR SPEED STRENGTH
- IF THE STRONGEST ATHLETES ON EARTH WERE THE BEST HIGH JUMPERS, MOST NFL LINEMAN WOULD BE GREAT HIGH JUMPERS

STRENGTH TRAINING CONT...

Percent 1RM	Approximate Number of Repetitions	Optimal Total Reps per Workout (with range)	Training Effect
95-100	3 to 1	7 (4-10)	Max Strength
85-95	6 to 3	10 (6-14)	Strength
75-85	10 to 6	15 (10-20)	Hypertrophy and Endurance
65-75	20 to 10	18 (12-24)	Explosive Power, Endurance, Some Hypertrophy
55-65	35 to 20	24 (18-30)	Endurance
45-55	50+ to 35	100 (50-150)	Endurance

Based on Prilepins Chart -<https://powerathletehq.com/2014/07/28/prilepins-chart/>

GENERAL STRENGTH/FITNESS CIRCUITS

- BODYWEIGHT EXERCISES PERFORMED IN ALL PLANES OF MOVEMENT
- COULD BE USED IN CONJUNCTION WITH TRADITIONAL STRENGTH TRAINING (2 DAYS GYM – 2 DAYS CIRCUITS)
- CAN BE USED TO TARGET CERTAIN MUSCLE GROUPS OR MOVEMENTS
 - UPPER BODY
 - LOWER BODY
 - TOTAL BODY
 - CORE
 - COMBINATIONS OF THE 4
- USED TO DEVELOP AEROBIC CAPACITY, ENDOCRINE FITNESS, AID IN COORDINATION, HELP PREVENT OVERUSE SYNDROMES
- ADDS VARIATION IN TRAINING
- CAN BE USED FOR RECOVERY INSTEAD OF THE ARBITRARY 100M TEMPO WORKOUTS

GENERAL STRENGTH CIRCUIT EXAMPLES

General Strength Circuits (Schexnayder – SACSpeed Training Inventory)

Taurus

Pushups
Prisoner Squats
V-Sits
Back Hypers
Pushups w/Clap
Rocket Jumps
Dips
Cossack Extensions
L-Overs
Wrestler's Bridge
Swimming
Burpees

Gemini

Single Leg Toe Raises (L-R)
Squat Toe Raises
Side Foot Toe Raises (L-R)
Closed Everted Toe Squats
Toe Lunge Walk (L-R)

Leo

Single Leg Squat (L-R)
Stationary Lunges (L-R)
Lunge Jumps (L-R)
Incline Pushups
Dips
Decline Pushups
Lateral Squats
Prisoner Squats
Rocket Jumps
Kneeling Good Mornings
Yogis (Front/Back)
Alternate Pelvic Tilt Heel Slides
V-Sits
L-Overs
Crunches
Squat Lunge Walks

Cancer

Prone Elbowstand Leg Lifts (L-R)
Supine Elbowstand Leg Lifts (L-R)Prone
Handstand Leg Lifts (L-R)
Supine Handstand Leg Lifts (L-R)
Side Elbowstand Top Leg Lifts (L-R)
Side Handstand Top Leg Lifts (L-R)
Side Elbowstand Bottom Leg Lifts (L-R)
Side Handstand Bottom Leg Lifts (L-R)

Aquarius

Forward Leg Lift (L-R)
Forward Leg Lift/Flex (L-R)
Forward Leg Lift/Circle (L-R)
Russian Cossacks (L-R)
Bridge/Knee Extension (L-R)
Reverse Leg Lift/Flex (L-R)
Half Hypers (L-R)
Lunge Twist/Good Morning (L-R)
Half Crunches (L-R)
Crunches
Alternate Pelvic Tilt Heel Slides

Pillar

V-Sits
Back Hypers
Side Ups (L-R)
Leg Toss/Toe Touch/Hip Lifts
Crunches
Side Lifts
Back Hypers w/Twist
Crunches w/Twist L-Overs
Russian Cossacks (L-R)
Wrestler's Bridge
Pelvic Tilt Isometric
Pelvic Tilt Bicycle
Pelvic Tilt Crunches

Scorpius

Forward Squat Walk
Backward Squat Walk
Lateral Squat Walk (L-R)
Pushup Walk

TRAINING EXAMPLES – WEEKLY TEMPLATE

Off-Season (General Prep)	
Monday	Warm Up Jumps Circuit Acceleration Buildups or Technical Runs Weights
Tuesday	Warm Up General Strength Circuits General Technical Work Dynamic Flexibility/Mobility
Wednesday	Warm Up Hills or Resistance (Stadium Stairs) Plyos/Multi Jump/Bounding Series Weights
Thursday	Warm Up General Strength Circuits General Technical Work Dynamic Flexibility/Mobility
Friday	Warm Up Jumps Circuit Acceleration Buildups or Technical Runs
Saturday	Warm Up Extensive Tempo or General Fitness Circuits
Sunday	Passive Rest

Specific Prep	
Monday	Warm Up Jumps Circuits (Foot Prep Circuits) Med Ball Throws Acceleration/Max Speed Weights
Tuesday	Warm Up Specific Technical Work Resisted Drills Position Work/Mobility
Wednesday	Warm Up Plyometric/Multi-Jumps Weights
Thursday	Warm Up Specific Technical Work Non Resisted Drills Position Work/Mobility
Friday	Warm Up Jumps Circuits (Foot Prep Circuits) Med Ball Throws Acceleration/Max Speed/SSE Weights
Saturday	Warm Up Extensive Tempo or General Fitness Circuits
Sunday	Passive Rest

Competition Season	
Monday	Warm Up Jumps Circuit (Foot Prep Circuit) Acceleration/Max Speed Weights
Tuesday	Warm Up Specific Technical Work Drills (Light Resist or No Resist) Position Work/Mobility
Wednesday	Warm Up Plyo/Multi Jumps/Throws OR Speed Endurance Weights
Thursday	Warm Up Light Technical Position Work/Mobility
Friday	Pre-Meet (Stimulus)
Saturday	Competition
Sunday	Passive Rest

QUESTIONS?

FEEL FREE TO CONTACT AT
DJONAS@HUSKERS.COM