

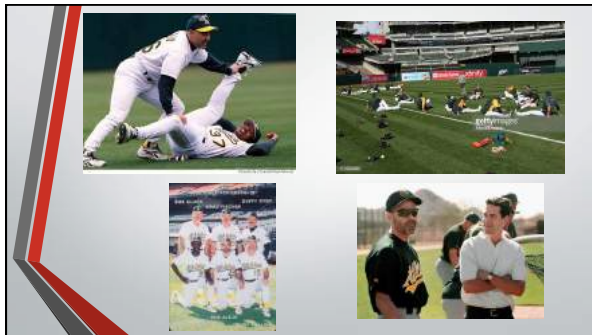
BOB ALEJO

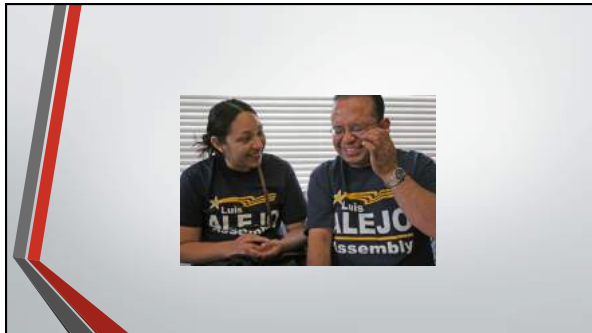
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Much thanks!
Ron McKeefery
PLAE
You!




Baseball Strength and Conditioning: Perspective
from a Seat on a Major League Bench.
Bob Alejo CSCS, RSCC*E
Director Sports Science, Power Lift
"You do what with major league players?!"






Traditional and Current Hurdles

- Mysticism- intelligence without educational recourse
- Imposed Ignorance
- Innovation vs. common sense (practicality, intuition)
- "I got my guy."
- sss
- Old thinking!

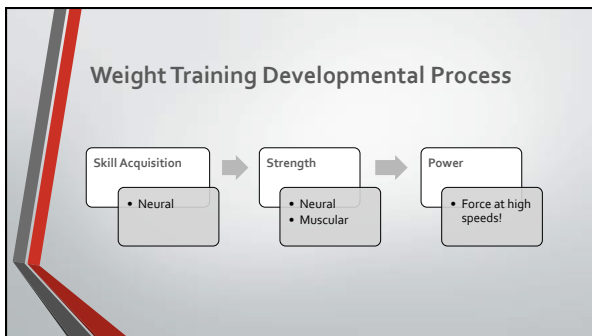


Done that....and continuing to do it!

- Programming strength as the fundamental aspect of performance
 - Squat, press, pull
- Periodized training
- Following the science
- Tiered programming
- Designing programs from test data









J.Hoffman, J.Vasquez, N. Pichardo, G. Tenenbaum. Anthropometric and performance comparisons in professional baseball players. 2009

- A, AA, AAA, MLB PLAYERS
- Ht, wt, % body fat, grip strength, VJ (Harman), 10yd sprint, pro agility, 30sec cone jump, 300yd shuttle
- Abstract summary: Agility, speed, and lower-body power appeared to provide the greatest predictive power of baseball-specific performance.

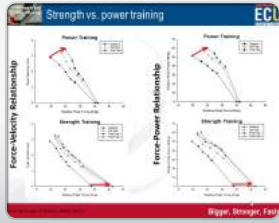
Strength training vs. power training

"With athletes that we profile as weaker, inexperienced or both do we start with power training (plyometrics, cleans, snatches, etc.) or do we get them strong first?" Latest in Strength and Conditioning - ACSSE 2013 Keynote Address. Robert Newton Part 1 of 2.

**Usually freshmen or beginners.*


Q- Strength training vs. Power training?

- All groups 3x/week for 10 weeks
- Strength SQ 1RM: 1.28
 - Str 75-90% 1RM BSQ
- Power SQ 1RM: 1.32
 - Power 0 & 30% 1RM JSQ
- Cormie, McGuigan & Newton. 2010




Q- Does strength affect the ability to adapt to power training? Yes- faster and with greater magnitude!

- Stronger SQ 1RM: 1.97
- Weaker SQ 1RM: 1.32
- 3x/wk, 10 weeks; 0 & 30% 1RM JSQ only.
- Cormie, McGuigan & Newton. 2010



Ability to adapt to power training ECU

Pretty simple



Key Point ECU

Strength training is equally effective as power training at ↑ power in relatively weak individuals.

Off-Season Training

- Reset physical goals and expectations
 - Off-Season and In-Season
- Re-acquire strength and power levels.
 - Maybe establish higher levels.
- Re-acquire conditioning, speed levels
- Reassemble training technique

Off Season Lifting

	CYCLE I		CYCLE I		CYCLE II		CYCLE III	
	Week 1	Week 2	Week 3	Week 4	Wks 5-8	Wks 9-12		
Core Lifts	8's	8's	8's	8's	5's	3's		
Supplemental Lifts	4's	6's	8's	12's	8's	5's		
or	12,10,8	12,10,8	12,10,8	12,10,8	10,8,6	8,6,4		
or	1x12	2x12	3x12	3x12	3x8	3x5		

• Off-season repetition periodization for MLB. The 12-week schedule allows for one-month post-season recovery, holidays and the weeks leading to preparation for spring training (packing, travel, family, etc.).

Ascending Repetitions

	Week1	Week2	Week3	Week4	Week5
a)	3x4	3x6	3x8	3x10	4x10
b)	1x10	2x10	3x10	4x10	4-5x10

- Limits the amount of soreness associated with early training cycles.
 - Typically too much too soon, soreness or both limit progress for too long!
- Great method for learning techniques and gaining strength at the same time with beginning athletes.

Off Season Conditioning

- Re-acquire base conditioning.
- All training points to speed and speed-endurance.
- Calculated anaerobic loading.

Spring Training Lifting

- Four-week cycle
- In-season frequency format
 - Fielders- individualized; typically Day 1- chest, Day 2- back, Day 3- shoulders, Day 4- Arms, Day 5- legs (could be split into quadriceps/posterior chain)
 - Pitchers- Starters- Day 1- upper or lower body (preference), Day 3- what was not done Day 1. Relievers- individualized.

Spring Training Conditioning

- 2/21- S-Pitchers Testing
- 2/22- M-Pitchers- Stride 10x70yds w/21 x3 w/1:30; Laterals 6x10 w/20 @5yds
- 2/23-T- OFF
- 2/24-W- Pitchers- LJ/Vertical 2x5, Repeat squat jump 2x5; Sprint 15x5yds
- 2/25-TH- OFF
- 2/26- F-Pitchers- Stride 10x20yds w/6 x2 1:30; Pick ups 2x10
- Fielders- Testing
- 2/27- S-Fielders- Stride 10x30yds w/9 x3 1:30; Laterals 4x10 w/20
- 3/5- F-Fielders- Tuck Jumps 3x5, Quadruple LJ 6; Base paths, 4 stations, Sprint 15x7yds run through the base and repeat at new base
- 3/6- S- Pitchers- Stride 10x40yds w/12 x2 1:30; Pick ups 4x10
- 3/7- S-Fielders- Backward run 6x20yds; Stride H-2, 2-H, 1-3; Post game 10x25yds w/7
- 3/8- M-Pitchers- LJ/Vertical 5x5, Repeat squat jump 5x5; Sprint 2x5yds, 12x12yds
- 3/9- T-Fielders- 10 LJ, 10 Squat Vertical; Sprint 12x10yds; Post Game 10x20yds w/6

inseasonmaintenanceprogram

- Doesn't exist under typical or normal conditions.

In-Season Strength and Conditioning

- High intensity, low-very low volume, frequency based on playing schedule, very short duration
- Writing a maintenance program or focusing on injury prevention (terrible term; no such thing) is to create the loss of strength, speed and endurance and foster injury.
- Injury management- Intensity, not volume, decreases the risk, incidence and severity of injury by way of physiology.
- No game is enough to condition in-season: Conditioning In-Season is a must! But watch the volume.

In-Season Training Cycles

MLB In-Season Repetition Scheme

April-May

- Core lifts- 5 Reps (3 Reps)
- Supplemental lifts- 12 Reps (4-8 Reps)

June-July

- Core lifts- 3 Reps (2 Reps)
- Supplemental lifts- 8 Reps (5-12 Reps)

August-September

- Core lifts- 1 Rep (1 Rep)
- Supplemental lifts- 5 Reps (4-8 Reps)

Pitchers

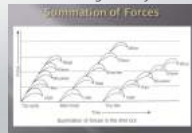


Let's get one thing straight!

"Every conversation that includes pitching, velocity and arm health has to be underpinned with only one consistent thought and caveat: Arm health and velocity for a pitcher is never any one or two muscles or any one method." *Alejo, B. Myths and Misconceptions of Training the Overhead Athlete. Simplifaster.com*

From the toes to the fingertips

• "...the effects of increased pelvis and upper torso rotational velocities (Stodden et al., 2001), trunk tilt forward at ball release, increased shoulder and elbow proximal force, increased elbow flexion torque, decreased horizontal adduction at foot contact, and changes in relative temporal parameters suggest that when a pitcher increased ball velocity, **it was due to a more effective transfer of momentum in the kinetic chain.**" *Relationship of Biomechanical Factors to Baseball Pitching Velocity: Within Pitcher Variation. Stodden et. al., 2005.*




Aerobic Training for Pitchers

- Physiology IA
 - High intensity interval training increases Max Voz and anaerobic capacity (Isn't pitching work: rest?)
 - Montez has recorded average pitching heart rates between 160-180bpm, one report of 200bpm
 - More work at a higher intensity, in a shorter time. Strengt is a
 - Flush What? Potteiger et al., Szymanski demonstrate production and accumulation of lactate are negligible; never limiting pitching performance.

Poles at ¾ speed!?

- Only a track athlete knows what ½ and ¾ speed is.
- To ensure optimal levels of fitness, the training has to be quantitative-seconds, minutes, yards or meters, and pace.



Same old nonsense!

- "I know a player who lifted weights and he a) hurt himself lifting or b) was continually injured during the season."
- "Weight training will make me too tight or muscle bound to throw or swing."
- The forearms are the most important muscles in hitting.
- Weight training in the off-season is fine, but weight training during the season is counterproductive.
- The training program should target the core.
- Heavy lifting is not good for the baseball athlete.
- There are certain exercises that a baseball athlete must not perform.
- Weight training will make better pitchers/hitters out of an athlete.
- "That guy trains for an hour. What an awesome program!"
- "That guy must have a great program because he's a good hitter/pitcher."

Strong Forearms, Strong Hitter!?! No!

- Strong body, strong grip, strong forearms, strong hitter!
Yes!
- EFFECT OF WRIST AND FOREARM TRAINING ON LINEAR BAT-END, CENTER OF PERCUSSION, AND HAND VELOCITIES AND ON TIME TO BALL CONTACT OF HIGH SCHOOL BASEBALL PLAYERS. Szymanski, DJ, et.al. *J. Strength Cond. Res.* 20(1):231-240. 2006
- Note- forearm strength and grip strength are different, trained in different ways.

Weight Training Will Make You A Better Ballplayer!

- Stronger maybe, better is questionable.
- If you can't hit then you will be really strong hitting .211
- If you can't throw strikes then you will be really strong with a 9.11 ERA
- One exception- Strength and conditioning will make young athletes better.

Summary

- Given healthy, cleared athletes, there are no forbidden exercises for baseball athletes.
- Don't skip any floors on the way to the penthouse.
- Total body strength is the best bet for ↑ bat head and throwing velocity.
- High intensity/low volume lifting in-season enables the best performances and health.
- Don't pamper the pitchers.
- Be patient with off-season and pre-season training.

Grateful!

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