New Thoughts On Speed and Power Everything Old is New Again

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Speed Training hasn't changed much

Kevin McNair Clip

Seagrave and O'Donnell clip

"I suppose I'll be the one to mention the elephant in the room."

Strength Training Doesn't Impact Speed as Much As We Would Like to Think

- Sprinting is done horizontally at speeds of 10 M/ sec
- Strength training is primarily vertical and, slow.
- "Fast" lifting is about 2M/sec
- We might be wasting a lot of time with velocity based strength training?

Weightlifting?

- bar speeds of the bench press and squat were identified as:
- Speed Strength: 0.8 to 1.0 meters per second
  Strength Speed: 0.6 to 0.7 meters per second
  Maximum Strength: 0.3 to 0.5 meters per second
- Additionally, in reference to the modified Olympic lifts:
- Power Snatch: 1.50 meters per second
  Power Clean: 1.25 meters per second
- Ashley Jones- Power Training for Team Sports- Elite FTS

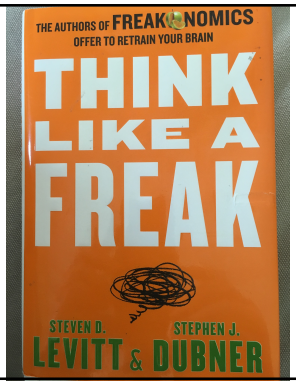
We also overestimate the amount of strength needed

Kurt Hester LA Tech

Minimum Strength Requirements For The Game										
LIFT	OL	TE	RB	WR	QB	DT	DE	LB	S	CB
Clean	300	285	295	265	265	315	300	295	275	265
Back Squat	500	425	445	385	385	525	475	445	405	385
Bench	325	295	300	275	275	345	315	300	295	275

" at some point the level of strength is enough and you have to go and do something else…this point may be earlier than we think"

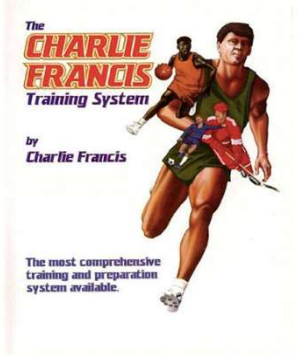
JB Morin (on the Just Fly Podcast)



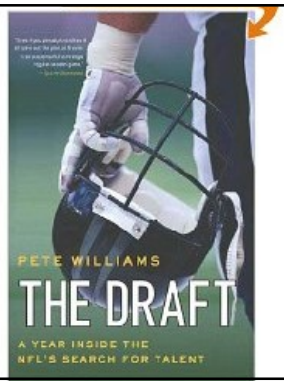
"The Conventional Wisdom is Often Wrong and a Blithe Acceptance of It Can Lead to Sloppy, Wasteful or Even Dangerous Outcomes"

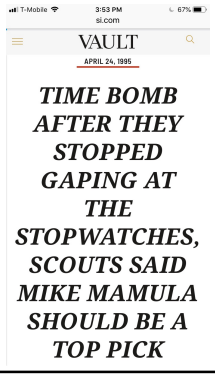
37 Years at the Train Station, Waiting for My Ship To Come In

I'm Not Sure I've Learned Anything *New* About Speed but, I'm a Better Speed Coach Than Last Year



Charlie Francis- Still the guy, even in the grave (1988?)



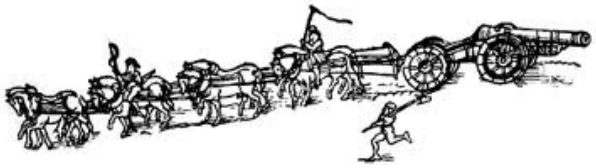


What stopped me from sprinting?

Did " Do No Harm" Scare Us into Doing Too Little?

A Tool or a Test?

What If The Way We Always Did It Was Wrong?



Or, more importantly what if the way we used to do it was right?

Strength Training vs Sprint Training
2 hours vs 2 min?
2 hours vs 0 min?

Do Northerners Just Hunker Down the Winter?

Is that why we get " speed guys" from down south?

Do we need to run track or, run fast?

Space?

" you write a novel in the weightroom and give me the Cliff Notes when working on speed"

Dan Pfaff

Allocation of time and energy?

Drills?

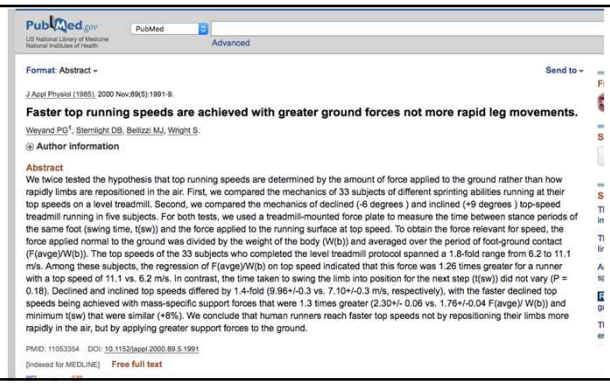
- Drills are cute and great for warm-ups
- You wont get fast doing cute drills with cute names, running with sticks and bags over your head etc. etc.
- These are warm-ups.
- You also wont get fast by lifting weights (sorry, it took me a long time to realize this).
- Lifting weights has a lot of purposes and is a piece of the speed development puzzle.

News Flash…..

" if you want to get fast, you have to run fast!"

More on this later!

We all talk like we understand the idea of specificity but, we like to hide where we feel safe,(in the weightroom).



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J Appl Physiol (1985). 2000 Nov;89(5):1991-9.

Faster top running speeds are achieved with greater ground forces not more rapid leg movements.

Weyand PG[1], Sternlight DB, Bellizzi MJ, Wright S.

Author information

Abstract

We twice tested the hypothesis that top running speeds are determined by the amount of force applied to the ground rather than how rapidly limbs are repositioned in the air. First, we compared the mechanics of 33 subjects of different sprinting abilities running at their top speeds on a level treadmill. Second, we compared the mechanics of declined (-6 degrees) and inclined (+9 degrees) top-speed treadmill running in five subjects. For both tests, we used a treadmill-mounted force plate to measure the time between stance periods of the same foot (swing time, t(sw)) and the force applied to the running surface at top speed. To obtain the force relevant for speed, the force applied normal to the ground was divided by the weight of the body (W(b)) and averaged over the period of foot-ground contact (F(avge)/W(b)). The top speeds of the 33 subjects who completed the level treadmill protocol spanned a 1.8-fold range from 6.2 to 11.1 m/s. Among these subjects, the regression of F(avge)/W(b) on top speed indicated that this force was 1.26 times greater for a runner with a top speed of 11.1 vs. 6.2 m/s. In contrast, the time taken to swing the limb into position for the next step (t(sw)) did not vary (P = 0.18). Declined and inclined top speeds differed by 1.4-fold (9.96+/-0.3 vs. 7.10+/-0.3 m/s, respectively), with the faster declined top speeds being achieved with mass-specific support forces that were 1.3 times greater (2.30+/- 0.06 vs. 1.76+/-0.04 F(avge)/ W(b)) and minimum t(sw) that were similar (+8%). We conclude that human runners reach faster top speeds not by repositioning their limbs more rapidly in the air, but by applying greater support forces to the ground.

PMID: 11053354 DOI: 10.1152/jappl.2000.89.5.1991

[Indexed for MEDLINE] Free full text

The Weyand Study Gave Us Strength Coaches More of a License to Lift!

Enter Tony Holler (58 yr old HS Honors Chemistry Teacher)

- Record, Rank , Publish
- " an ah-ha or a duh" ?

- Q- "How do I get fast?"
- A- " Run fast"

- Q- " How fast?"
- A- " As fast as you can!"

- Q- " How will I know if it's fast?"
- A- " Time it"

I could end right here, but I won't

The Common Denominator?

- Carl Lewis or Ben Johnson
- Lewis was not know as a "lifter" but ran as fast as Johnson
- I was always a Ben Johnson guy (in spite of the drugs) because what he did supported my thought process.
- Was I wrong, or did I miss something?
- More importantly, does it need to either/ or?

Johnson vs Lewis

- Number of Steps 46.2 43.6 (2.6 steps)
- Frequency of Steps 3.7/sec 3.9/ sec
- Avg Length of Steps 2.16 m 2.19 m
- Fastest 10 M .83 sec .83 sec (50-60 m)

- From CFTS

Benefits of Sprint Training

- Unilateral strength at very high movement speeds
- Unilateral power in horizontal and vertical directions
- Elastic power and stiffness at the hip and ankle complex
- Deceleration from very high speeds (though gradual)
- Injury reduction

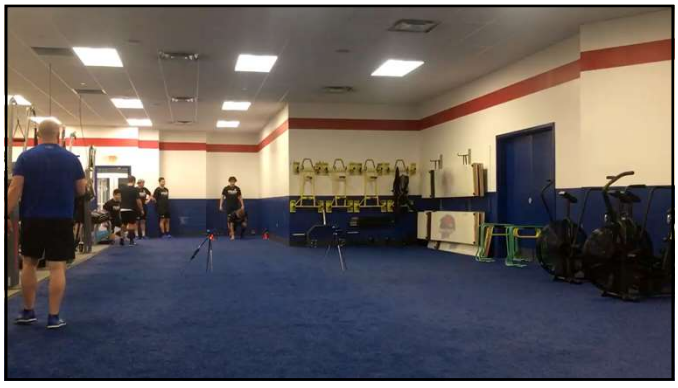
List based on Derek Hansen's Article ***Sprinting Training: The Complete Training System (from Cameron Josse)***

Great Sprinters Move 10 m/sec, Average Sprinters Move 8 M/sec. Great weightlifters move 2 M/sec?

The Holy Grail?

"Speed develops the same CNS pathways as strength training in the weight room. Speed can build strength. Don't discount speed training as a means to get stronger."

Zach Dechant TCU



Mark Boyle N=1

- Jan 2018 1.87
- Jan 2019 1.47

Tony's Rules

- 2-3 reps, 2-3 days per week (we are always 2 days)
- No races?
- Charlie Francis Rule? PR and you're done? (tough to enforce)
- Number of reps in summer 2018
- About 2-3000 per week, 20,000 to 30,000 last summer. Zero reported, sprint related injuries?

Don't Be Scared But, Be Smart

- I was scared and scared made me too conservative
- But, injuries increase drastically over twenty yards
- 10's
- 10 yd Fly's
- 15 yd Fly's?
- Northeast reality?

The Return of the Acceleration Ladder!

- Speed City- Randy Smyth (circa 1985?)

Speed Ladders Don't Make You Faster!

Length vs Frequency

- Michael Flatley has fast feet but, he doesn't go anywhere

The Real Speed Ladder?

Is this where the confusion started?

Stuart McMillan-
Rhythm
Rise
Projection

Why We Shouldn't Listen To *Most* Track Coaches?

- Or NFL coaches, or Division 1 coaches
- Working with "responders" can make the wrong turn out right!
- However, "strength" coaches often ignore track coaches and say things like " they don't have to change direction"
- "run fast, turn left (slightly)"

Why We Should Listen to Good High School Track Coaches!

- Tony Holler
- Rob Assisse
- Listen to people who get average people faster

As S+C Coaches, we don't coach powerlifting or Olympic lifting (but lots of us act like we do)

However we all coach and covet sprinters!

Additional Thoughts

Reexamine Your Posterior Chain Training

- Charlies stuff?
- Sleds?
- Bridging?
- Nordics (if we say it enough does it become fact?)

Hamstring Training - CFTS

- First, the hamstrings have traditionally been trained only as knee flexors, and exercises related to this function, such as thigh curls abound. But, the hamstring must also he trained as a hip extensor. In fact, this is the key hamstring function in sprinting.
- Francis, Charlie. Charlie Francis Training System (Kindle Locations 1969-1971). . Kindle Edition.

Posterior Chain

REVERSE LEG PRESS (HAMSTRINGS AND GLUTEUS)

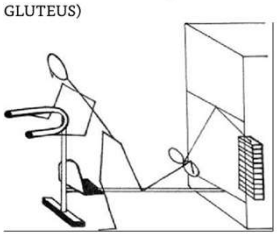
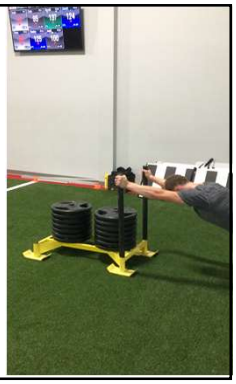


Figure 4-1 Reverse leg Press (Hamstring & Glutes)

Vector Based Strength Training?



Everybody Loves Quads

Bosch Iso's vs "Nordics" vs "Razors", vs Glute Hams

Sled Sprint- Horizontal Olympic Lifting?

- 10% rule?
- Loads that slow you down to 150% of best time?
- 1.5 ten yard = 2.25 ten yard sled sprint
- Reference Cam Josse via JB Morin

JB Morin

- "except in strictly similar friction conditions, expressing loads in %BM is inaccurate"
- Use time vs load!

Sled Sprint

Cam Josse (28 yr old Strength/ Speed Coach

- " I've realized the right load usually falls between 4.00-4.50 seconds when doing a 20 yard sprint and 2.00-2.50 seconds when doing a 10 yard sprint so what I have started doing is just aiming on the faster side of things and finding the weight they can tow that falls between 4.00-4.20 seconds for 20yds and 2.00-2.20 seconds for 10 yards. "

Power Development

- Total system load is the key!
- Idiots talk about % of 1 RM
- Don't put your ignorance on display
- " it is better to be thought stupid than to open your mouth and provide proof"

Teaching Power

- Non bounce ball
- Rubber ball
- Lacrosse ball

Measure 2 x's a week!
Same idea!
Tool vs test again

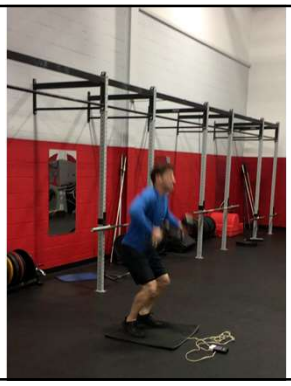
Still My Favorite But Not For Everyone!

Developing Power

- Bryan Mann- paraphrase " Olympic lifts may have gotten a bad rap in the research because so many people do/ teach them poorly"
- " you have to continually coach form."
- " we either had to change the way we do them or, drop them all together"
- Olympic lifts have gotten a bad rep because most coaches teach them poorly and use loads that are too heavy

Power Development

- Total system load is the key or, % of best VJ.
- Idiots talk about % of 1 RM
- Don't put your ignorance on display
- " it is better to be thought stupid than to open your mouth and provide proof"



New Thoughts?

- Back to power skips (Cam Josse)
- Add a bounding *progression*
- Still no real bounds?
- Soft and hard landings? (soft stick vs hard stick)

Conclusion

- **Big Takeaways?**
- **Strength matters but we waste time and energy chasing small gains**
- **You have to sprint!**
- **Sprints means timed, but not races**
- **10 and Fly 10**
- **Power is critical but we probably use loads that are too heavy and too slow**
- **Questions?**