Youth Specialization-Developmentally Appropriate High Jump Teaching Progression.

Dr. Matt Lydum
YouthSportCoaching.info
1:30pm-2:20pm
Evergreen 1 and 2
Dr. Matt Lydum

Problems with the Flop

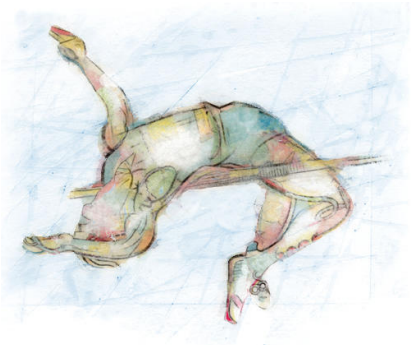
- It is extremely technical
  - Takes a lot of time and a lot of coaching to get it right
- It is dangerous
  - Incorrect takeoff positions can cause athletes to miss the pit or jump into the standards
  - Incorrect takeoff angles can cause athletes to land on the bar and injure (or just really hurt) their back
- It can only be done with the proper equipment
- Athletes can't see the bar during clearance
- Clearing a bar that can't be seen is so technical that many athletes worry so much about the arch that they…

barely jump

biomechanics

With effective technique athletes can clear crossbars higher than they lift their center of mass (COM).

That is to say the body's average position, or gravitational center, can pass *under* a crossbar.



Arch Misconceptions

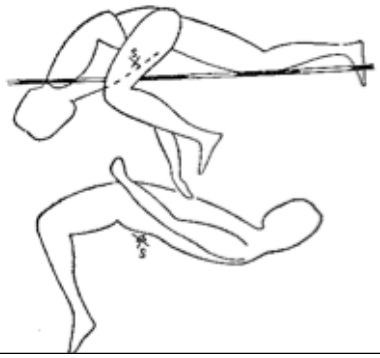
One problem is that when many athletes arch their spine, it pooches out their booty.

Really it should be an overall head to toe drape to maximize displacement of the COM while not allowing booty pooch.

Two Alternatives: Scissor & Straddle

- **Scissors**
  - Commonly used as a warm-up
  - Short diagonal approach (5-10 steps)
    - Not a curve
    - Less than 45° (remember the shape of the old aprons?)
  - Outside leg take-off
  - Inside leg whips up with bent knee and straightens toward the top of the range of motion
  - Using a scissor action, as the inside leg clears and lowers, the outside leg lifts up and over
  - Athletes land on feet or fall back into the pit

- **Straddle**
  - short approach, jump off inside leg, sweep elongated outside leg up and over bar while pushing vertically into the ground



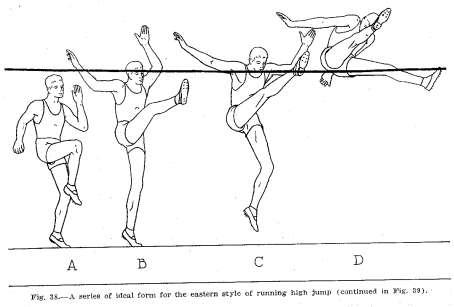


Fig. 38.—A series of ideal form for the eastern style of running high jump (continued in Fig. 39).

Take off position about 1/3 of the crossbar from the standard, about 1-2 feet from the bar

Teaching the high jump

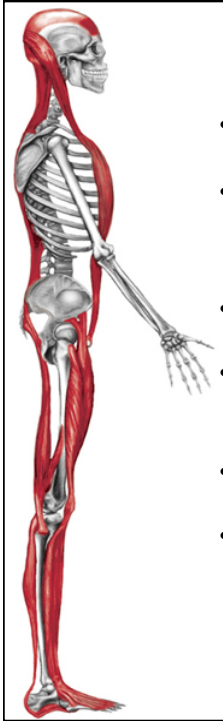
- Teach big fundamentals, rather than minutia
  - Tall posture
  - Rhythm
  - Fast ground contact time on the approach
- Don't over-coach the penultimate step
  - Athletes should be tall and quick near the takeoff
  - Avoid going too low
- Set up drills so that kids can get lots of reps. rather than wait in line.

Biomechanics of Growth & Development: Implications for Track & Field Coaches

Dr. Matt Lydum
YouthSportCoaching.info

2015 Northwest Track & Field Clinic
Feb. 6, 2015 2:45pm-3:35pm
Evergreen 1 and 2

1. Posture
2. Breathing
3. Growth Spurts
4. Levers & Strength
5. Fascia

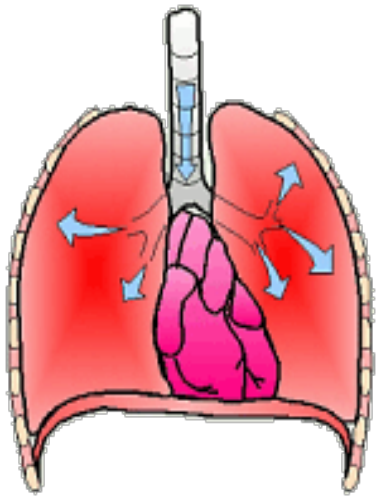


Posture

- Huge problem that's getting worse
  - "Sad Dog, Happy Dog" Kathleen Porter
- Weakening bones:
  - Injury epidemic
    - Hoch, A. Z., Pepper, M., & Akuthota, V. (2005). Stress fractures and knee injuries in runners. *Physical medicine and rehabilitation clinics of North America, 16*(3), 749-777.
  - Wolff's Law
- Starts at foot/arch, then hips, core, heart & lungs, neck, head and spinal alignment
- Foot posture:
  - Arch
  - Sweet spot (center of pressure)
- Poor posture significantly increases torque on growing bones and connective tissue
- Impeccability of technique,
  - An ameliorative for weak bones caused by sedentary lifestyles.
  - Not dichotomous with staying loose

Biomechanics of Breathing

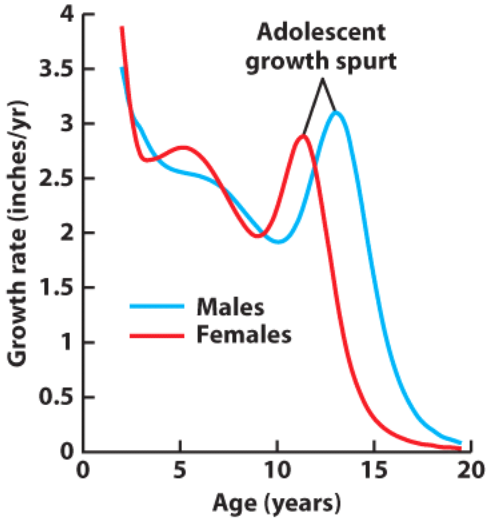
- Asthma epidemic
  - critical period for development
- Thoracic breathing
  - intercostal muscles
  - open and lift back without tensing/tightening shoulders
- Diaphragmatic breathing (belly)
  - paradoxical breathing (side ache)
  - push belly out
- Breathing and growth and development
  - Untreated mouth breathing problems



Gen Dent. 2010 Sep-Oct;58(5):e18-25; 26-7; 79-80. Mouth breathing: adverse effects on facial growth, health, academics, and behavior. Jefferson Y.

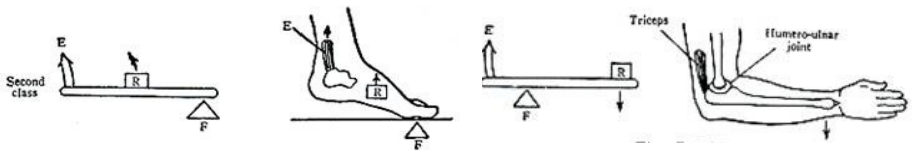
Growth Spurts

- Epiphyseal plates
- Growth rates:
  - Connective tissue
  - Bone
  - Muscle



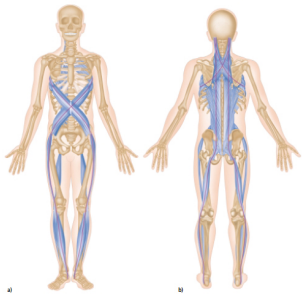
Levers & Strength

- Bone growth relative to connective tissues.
- Feeling uncoordinated as motor programs need to be rewritten.
- With uncontrolled speed or posture long bones of the limbs become dangerous levers.
  - strains, tears, and avulsion fractures.



Biomechanics of Fascia

- Thread like fibers beginning in the sarcomere and extending to/ becoming the tendon.
- Mainstream understandings:
  - Plantar fasciitis
  - Foam rollers
- Alternative ideas:
  - Somatic memory
  - Tensegrity



Outreach, Induction & Talent Identification

Dr. Matt Lydum
YouthSportCoaching.info

2015 Northwest Track & Field Clinic
Feb. 6, 4:00pm

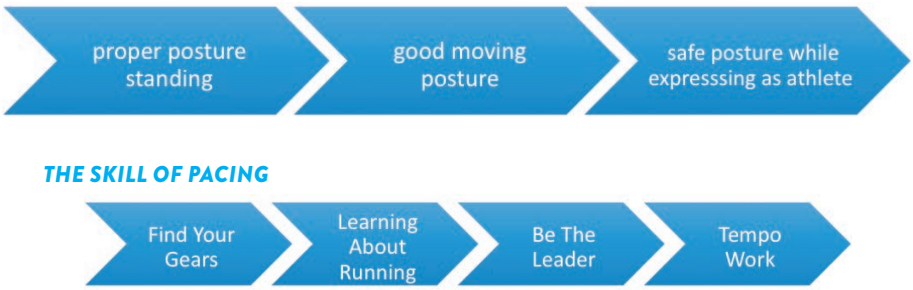
Design Considerations for RJT

- Scalable and modifiable
  - The activities are presented as "stations"
  - Little or no equipment
  - Resources
    - Six Week Plan, Addendum, Core Plan
- Aligns with SHAPE America
  - SHAPE America's vision
    - "Healthy People – Physically Educated and Physically Active!"
  - Children's health crisis
    - Posture, balance, and breathing as skill
  - Developmentally appropriate
    - Simple to complex
  - SHAPE America Standards
    - Focus on skill development

Design Considerations for RJT

- Aligns with SHAPE America, continued.
  - Obvious skills
    - Running
    - Jumping
    - Throwing
  - Less obvious skills
    - Posture
    - Breathing
    - Balance
    - Imagination
    - Pacing
    - Self-regulation

RJT Teaching Progressions



BALANCE → RUNNING → JUMPING → HURDLING

RunJumpThrow is FUN!

- Expressing our humanity through movement is fun, natural, and healthy.
- Not expressing ourselves through movement creates alienation from our own bodies that leads to poor health.
- Naturally, 7-12 year old children want to move, but with weak bones and lungs, it can hurt.
- Learn the skills of breathing, posture, and balance and running is fun again!
- Participation is FUN! Design stations with very short wait-time in lines. Relays are FUN!
- Success is FUN! Modify so all children can be successful at their own level.

Design Considerations Conclusion

- RunJumpThrow is designed with the contemporary realities of children's health and development as the starting point.
- Focus on teaching ***posture, breathing, and balance*** as skills that can be improved to ameliorate the problems associated with sedentary behavior.

Make it FUN so kids want to keep moving!