

**The Career Arc of Female Distance Runners:  
When Will We Ever Learn?!**

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**LOOKING BACK AT HIGH SCHOOL FROM  
PROFESSIONAL/NATIONAL/WORLD CLASS**

- What can we learn about high school training and performance from professional and world-class runners that applies to *all* HS athletes, especially females?
- Understanding the developmental continuum/career arc from age group/elementary school → middle school → high school → college → post-collegian/national class/pro/world class.
- We expect high school kids to keep gaining knowledge after high school whether they go to college or not; why not expect them to keep improving running performance whether they compete in college or not?

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**“I Don’t Want Her.  
She Was Too Fast as an Age-Grouper.”**

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**WOMEN RUN FASTER THAN GIRLS**

The average age of the 24 women on the U.S. team at 1500-Marathon for the 2016 Rio Olympic or 2019 Doha World Championships was **28**. Ten (42%) were 30 or older and only four (17%) were under the age of 24.

The average age of all of the medalists at 1500– Marathon in the Rio Olympics and Doha World Championships was **27**.

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AVERAGE AGE OF WOMEN'S MEDALISTS BY EVENT AT RIO OLYMPICS AND DOHA WORLD CHAMPIONSHIPS

EVENT	2016 RIO OLYMPICS <i>Age at Olympics</i>	2019 DOHA WORLD CHAMPIONSHIPS <i>Age at World Championships</i>
1500m	26	24
5,000m	29	26
10,000m	29	23
3,000m Steeplechase	23	28
Marathon	30	31
All Medalists 1500-Marathon	27	26

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**TRUE OR FALSE?**

Only three women who set the U.S. High School Record at 1500, mile, 3000 or 2-Mile have made a U.S. Olympic Team but *fourteen* men have done it?

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**TRUE**

**WOMEN**

Francie Larrieu (1500, mile)  
Mary Decker (mile)  
Molly Huddle (2-mile)

**MEN**

Mel Sheppard (mile)                      Tracy Smith (2-mile)  
Louis Zamperini (1500)                  Gerry Lindgren (2-mile)  
Dyrol Burleson (mile)                    Steve Prefontaine (3000, 2-mile)  
Archie San Romani, Jr. (1500, mile)    Craig Virgin (2-mile)  
Tom Laris (2-mile)                        John Trautmann (3000)  
Doug Brown (2-mile)                     Alan Webb (1500, mile)  
Jim Ryun (1500, mile)                    Galen Rupp (3000)

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**Since 1960, Three Women and Nine Men**

**WOMEN**

Francie Larrieu                      Mary Decker                      Molly Huddle

**MEN**

Doug Brown                      Gerry Lindgren    John Trautmann  
Tracy Smith                      Steve Prefontaine    Alan Webb  
Jim Ryun                         Craig Virgin                      Galen Rupp

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**TRUE OR FALSE**

The average high school 1600 PR of the 24 women who made the 2016 U.S. Olympic team and/or the 2019 Doha World Championships team in the 1500, steeple, 5,000, 10,000 or marathon was 4:53.75, a time that would rank 114th on the 2021 national list.

Eight of them (1/3) didn't break 5:00 in high school including four who didn't even run the 1600 in high school.

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**AVERAGE HIGH SCHOOL 1600 PR BY GRADE  
2016 RIO OLYMPIC & 2019 DOHA WORLD CHAMPIONSHIP TEAM  
MEMBERS (1500-Marathon)**

	FRESHMAN	SOPHOMORE	JUNIOR	SENIOR
AVERAGE 1600 PR BY GRADE	5:12.61	5:03.91	4:55.71	4:54.50

U.S. Girls Freshman Class mile record - **4:41.80**.

U.S. High School Records: Alexa Ephraimson (outdoor 1600m, **4:33.29**), Polly Plumer (outdoor mile, **4:35.24**), Mary Cain (indoormile, **4:28.25**).

	FRESHMAN	SOPHOMORE	JUNIOR	SENIOR
NUMBER WHO RAN 1600 PR AS...	0	1	5	7

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**CLASS OF 2018 GIRLS  
TOP-15 AS SOPHOMORES AND TOP-15 AS SENIORS**

	AVG. NUMBER TOTAL HS RACES	AVG. NUMBER FROSH/SOPH RACES	AVERAGE GRADE OF PR	AVERAGE PR
Class of 2018 Sophomore Top-15	110	55 (55)	10.5	10:18.81
Class of 2018 Senior Top-15*	101	41 (60)	11.9	10:12.89

\* Only two of top-15 as sophs were still top-15 as seniors

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"You notice what happens sometimes to female athletes. She hits puberty; *her times get slower or plateau*. She is confused; she is working harder than ever. Clueless adults who are overly invested in her "performance" will grieve, as if her worth is based solely on PRs. This makes you scared of growing up.

Seeing girls go through this is confusing because there is a story once told to you about running: "You get out what you put in." You've heard there is a direct line between effort and improvement, between wanting it more and winning. This is a 'truth' written by men, based on the experience of boys and men. Your male teammates are bathing in testosterone, a dramatic performance enhancer. You will not. *You are about to bathe in different hormones, hormones that, more often than not, temporarily interrupt that promised straight line of improvement.* What you need are knowledgeable coaches and parents who know how to support you during this time, to let you know it is normal, to celebrate you through development, who can zoom out on the big picture, because it is at this time that many girls give up."

Dear Younger Me: Olympian Lauren Fleshman - MileSplit

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### PUBERTY HILL

The career arc of the phenom looks a lot like the race of a runner who sprints away at the beginning of a cross-country 5K on a course that starts downhill, but has a big uphill at the mile mark. They feel invincible sprinting downhill while fresh at the start. They have a big lead—until they hit that uphill and the fast start catches up to them. The competitors who held back a bit on that early downhill now pass them up the hill and hammer the rest of the race. In addition to being more fatigued than the competitors who started a little slower, the early leader is now also distraught and discouraged at having lost the large lead she had earlier. Sometimes fast starters will battle back to join the leaders after the hill, but most will find the gap too much to overcome.

The uphill is part of the course. There is nothing wrong with it. Everyone knew the hill was there, but some coaches prepared their runners for it, and others did not.

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### Peak Height Velocity

The peak height velocity is simply the period of time in which an adolescent experiences their fastest upward growth in their stature – i.e. the time when they grow the fastest during their adolescent growth.

*Science of Sport*

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### Peak Weight Velocity

Peak weight velocity represents the greatest rate of change in body mass. After peak height velocity, there exists a time delay (12-14 months, approximately) **where there is an increase in body mass compared to stature** [6], and it is this period of time which is referred to as peak weight velocity.

Puberty is also a time of significant weight gain, where 50% of adult body weight is gained during adolescence.

*In males, peak weight velocity occurs at about the same time as peak height velocity (>14) and averages 9kg/year [5].*

*In females, peak weight velocity lags behind peak height velocity by approximately 6 months and reaches 8.3kg/year at about 12.5 (age).*

*Science of Sport*

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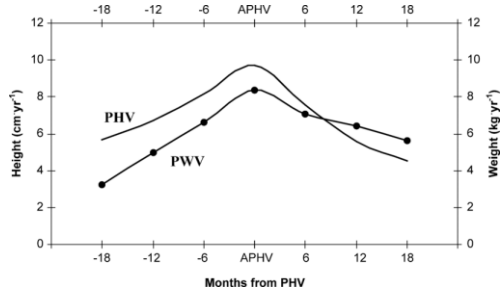
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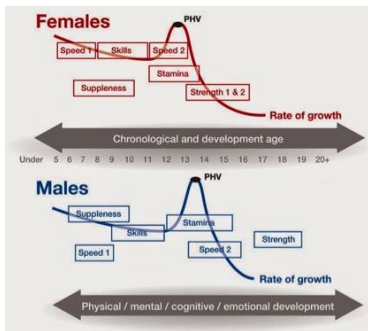
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**NEWTON'S SECOND LAW OF MOTION: F = MA**

“The **FORCE (F)** acting on an **OBJECT** is equal to the **MASS (M)** of that object times its **ACCELERATION. (A)**” *Faster acceleration (A) = Greater Force (F) at Same Mass (M)*

**ROD'S FIRST LAW OF TRAINING DISTANCE RUNNERS**

“The **TRAINING STRESS (F)** acting on a **RUNNER** is equal to the **TRAINING LOAD (M)** times its **RATE OF INCREASE (A).**” *Faster Increase (A)(mileage, etc.) = Greater Force (F) of same training load (M)*

**Greater Training Stress (F) = Reduced Max Training Load**

A faster increase in the training load results in the max training load being smaller, and the athlete never reaches the training loads required to perform at their full potential.

**THIS IS NOT “BURNING OUT.” THIS IS “BURNING UP.”**

**THIS IS LOWERING THE CEILING AND PREVENTING ATHLETES FROM REACHING THEIR FULL POTENTIAL. THIS IS LONG-TERM SACRIFICES FOR SHORT-TERM GAINS.**

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**GRADING COACHES USING F=MA**

**50% - HOW THEY PERFORMED UNDER YOU (M)**

- As a group, how well did they continue to improve over time?
- As a group, was their injury rate above or below average?
- Did they continue to grow in knowledge and enthusiasm?
- What was the overall turnover rate?

**50% - HOW THEY PERFORMED AFTER YOU (A)**

- Did they keep running?
- If they went on to compete in college:
  - Did they continue to improve in college?
  - Did they use all their college eligibility?
- Did they compete in road races or related events after high school?
- Did they stay involved in the sport in some other capacity?

**WE EXPECT HIGH SCHOOL KIDS TO KEEP IMPROVING IN KNOWLEDGE AFTER HIGH SCHOOL WHETHER THEY GO TO COLLEGE OR NOT; WHY NOT EXPECT THEM TO KEEP IMPROVING RUNNING PERFORMANCE?**

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**THE SUCCESS ADDICTION**

Recent neuroscience research has shown that kids successful very early on “wire” their brains to see the attention and success as the reward. It’s not the love of the sport that drives them, it’s the love of the attention and success from the sport. *Steve Magness*

When they plateau and success wanes, they no longer receive the “reward” of the success or attention and motivation fades. Perhaps more importantly, enjoyment of the sport fades.

As counter-intuitive as it sounds, somewhat restricting success early on actually helps them to learn to love the sport, not the attention, and makes it more likely they will continue later. (Ruth Wysocki) They also continue to be successful through continued improvement.

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**CASE STUDIES**

**RUTH WYSOCKI**

**AGEE WILSON**

**COURTNEY FRERICHS**

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**RUTH WYSOCKI**



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**RUTH WYSOCKI BIO**

- Ran 5:00.5 mile at age 14, but didn't break 5:00 until 18. *"I didn't care, I just loved track so I kept training and competing and doing other events. I was just having fun."*
- California state champ at 400 and 800; high school 800 PR – 2:10.7.
- College PRs 800 – 2:06.80; 1500 – 4:18.9
- Pro PRs 800 – 1:58.65; 1000 – 2:38.36 AR; 1500 – 4:00.18; mile – 4:21.78; 3000 – 8:52.91
- Masters PRs 800 – 2:03.95; 1000 – 2:40.42; 1500 – 4:08.69

**TAKEAWAY**

Unique, singular case of high-level success from age group through high school, college, pro, and masters competition. Key is that she was not affected by the delayed improvement in the mile from 14-18 because she simply loved the sport more than the results. Didn't quit or become discouraged and love of the sport resulted in a magnificent pro and masters career later.

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**HELL HATH NO FURY  
LIKE RUTH WYSOCKI SCORNED...**



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**AJEE WILSON**



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**AJEE WILSON BIO**

- Signed with Adidas and turned pro immediately out of high school after initially committing to Florida State; high school 800 PR 2:00.91
- 800m American Record – 1:55.61; 1500 PR – 4:05.18
- Held age-13 AAU Junior Olympic Record from 2007-2014...at 3000 meters. From the 2014 AAU Junior Olympics Results (=10:58 3200):

Girls 3000 Meter Run 13 years old

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TIMED FINAL

Name	Year	Team	Seed	Finals H#
National: N 10:13.41	8/4/2007	Ajee Wilson, Neptune, NJ		

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**TAKEAWAY**

Competed at a high level in age-group competition but did so primarily outside of her specialty. By competing at 3000, she gained experience without posting times in her specialty that she may have had difficulty duplicating a few years later and could continue to improve at 800.

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**COURTNEY FRERICHS**



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**COURTNEY FRERICHS BIO**

- Ran 5:32 mile at age 10; would not race the distance again for nearly a decade and never ran the 1600 or 3200 in high school.
- Multi-sport athlete in high school, focused on gymnastics and soccer. Best track performance was 2:24.94 800 as a soph (only ran it because of a same-day conflict with district soccer). Originally drafted by HS track coach as a frosh for 4 x 400.



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- Only ran one season of high school XC (senior year), running 18:12 5K PR. Collapsed 100m from finish at state.
- Broke Jenny Barringer’s (Simpson) NCAA steeple record (9:24.41) and finished 4<sup>th</sup> at NCAA XC.
- Holds 3000m Steeplechase American Record – 8:57.77. According to IAAF Scoring Tables, that mark is the equivalent of: 3:54.57 1500, 4:12.43 Mile, 8:18.34 3000, 8:55.04 2-Mile, 14:16.20 5,000 and 29:57.88 10,000.
- 2017 World Championship silver medalist; 2021 Olympic silver medalist.

**TAKEAWAY**

Despite obvious talent at a young age, she did not compete at a high level in track and post faster times. However, training in multiple sports laid a highly athletic foundation for spectacular distance running development from age 18 on.

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**LESSONS FROM THE TRIUMVIRATE’S LEGENDARY SEASON – ALL FROM KANSAS**



L-R: Molly Born (2018), Emily Venters (2017), Cailie Logue (2017)

Molly Born (4:48.87/10:07.80c/16:49)  
Emily Venters (4:49.36/10:16.61/16:56)  
Cailie Logue (4:41.30c/10:09.97/16:45)

- Multiple sports through middle school
- Born didn’t run track until freshman year
- Venters didn’t run XC until freshman year
- Lightly raced
  - Born – no post-season track as a frosh
  - Logue – no post-season XC as a frosh
  - Venters – NXR & Festival of Miles as frosh
- Very moderate training progression; approx. 25-30M/week as frosh to 45-60M/week as seniors

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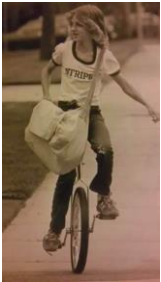
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**JANET SMITH**



1983 Foot Locker Champ

NCAA All-American

Member of 1987 U.S. World XC Championships Team – Team Champions

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**A BETTER WAY**

1. **AVOID POSTING FAST TIMES AT PRIMARY DISTANCES BEFORE AGE 16.** (Frerichs & Wilson) Just like not running the first lap too fast, don't create a problem at the outset.
  - a. Limit or even avoid high-level competition prior to age 16. (Frerichs) (Logue, Born & Venters) - prevents both performances that can be problematic later and the "success/attention addiction." **Avoid over-racing**
  - b. If competing in high-level competition, compete in off-distance events or relays prior to age 16 (Wilson)
  - c. Compete in variety of events without specialization before and during transition (Wysocki)
2. **STAY IN MULTIPLE SPORTS UP TO AGE 15/16.** Continues to build non-specific fitness and athleticism without producing the early results achieved from specific training and racing. Significant gain in bone strength.
3. **RACE ENOUGH PRIOR TO AGE 16 TO TASTE SUCCESS BUT LIMITED ENOUGH TO KEEP THEM HUNGRY FOR MORE.** 5lb Hershey Bar – just because you like something, too much can still be a bad thing.
4. **PREPARE THEM FOR THE EFFECTS OF NORMAL DEVELOPMENT.** Don't make normal physical development a mystery. Be direct. Explain normal body changes, their effect on training and racing, and explain (both to the athlete and their parents) why you're doing what you're doing as part of a longer term plan than just this season.

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**WHAT ARE SOME OF THE WORST THINGS YOU CAN SAY TO A TALENTED, ENTHUSIASTIC, FEMALE DISTANCE RUNNER BETWEEN THE AGES OF 12-15?**

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- “That’s so fast and you’re only [age]! Just think what you’ll do when you’re older!”
- “None of those older girls were as fast at your age!”
- “So fast at such a young age – your future is really bright!”

**WHAT DO ALL THESE HAVE IN COMMON?**

1. They create unrealistic expectations about future performance and improvement.
2. They’re all performance-based. What happens if/when performances stagnate or recede during after puberty?
3. They all falsely assume a that linear improvement comes with age, ignoring puberty.
4. They all ignore normal development, puberty, and a changing body.
5. They will all make her feel like a failure if performances stagnate or recede during/after puberty.

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**WHAT TO SAY INSTEAD**

- Ask if she had fun, and why. Use the reasons why she said it was fun later to remind her why she fell in love with the sport to begin with. Emphasize the joy, not the outcome. Listen for statements that indicate she might be enjoying the success/attention, not the sport, and respond accordingly.
- Praise the effort, not the result.
- *Get ahead of it before it begins.* Explain that improvement isn’t a straight line and directly address the subject of puberty and its effects; explain that the best way to improve long-term is simply to love the sport and the competition, regardless of the temporary ups and downs.
- Sport is like the stock market; some races/days/months/years are better than others but focus on the overall trend up; down times just part of the process.
- Talk about the importance of patience and long-term development. Give examples.

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**MANAGE EXPECTATIONS AS WELL AS PERFORMANCE**

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**One Last Time, Repeat After Me....**

**WOMEN RUN FASTER THAN GIRLS...**

**BUT ONLY IF WE DON’T FIRST TREAT  
THOSE GIRLS LIKE WOMEN**

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