

Intelligent Training - Pathway Physiology

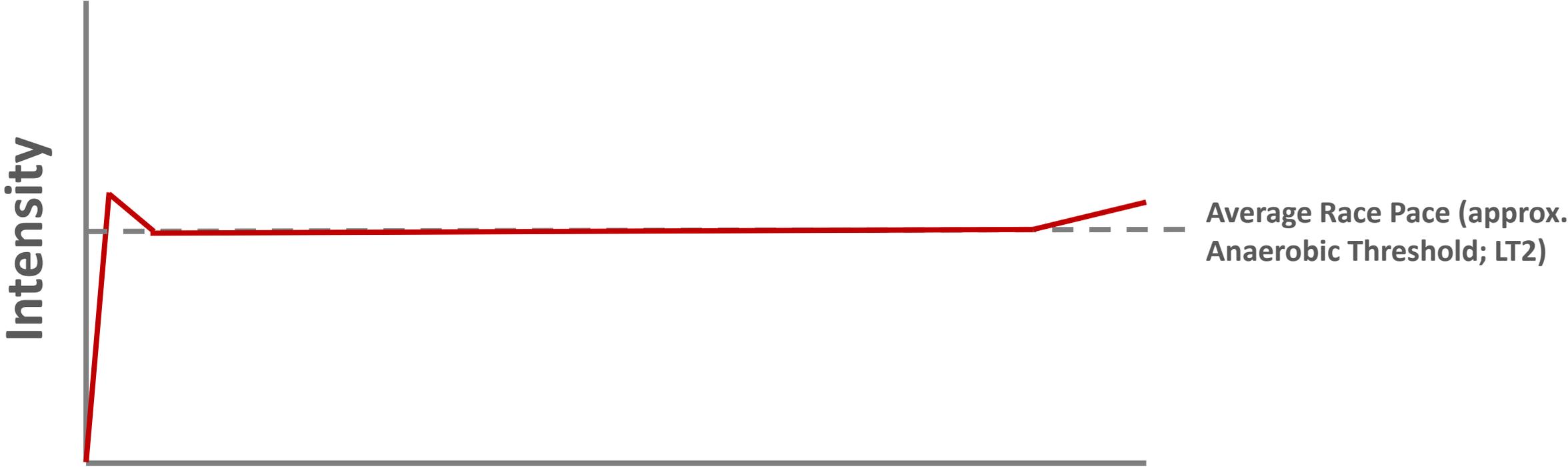


Dr Ben Holliss and Luke Watson

Aims of this Session

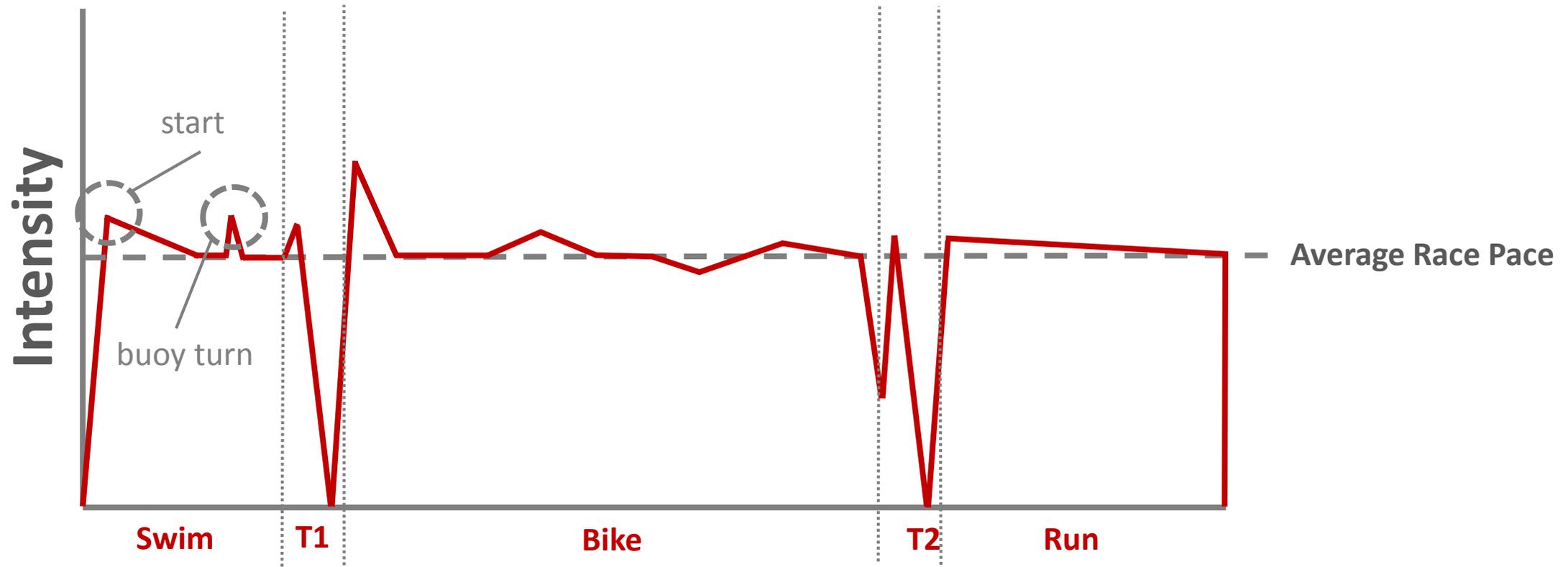
1. Understand the physical demands of and preparation for draft-legal triathlon
2. Share some training and racing advice
3. Give some practical tips on monitoring your training and recovery

Physical Demands of Racing 10 km

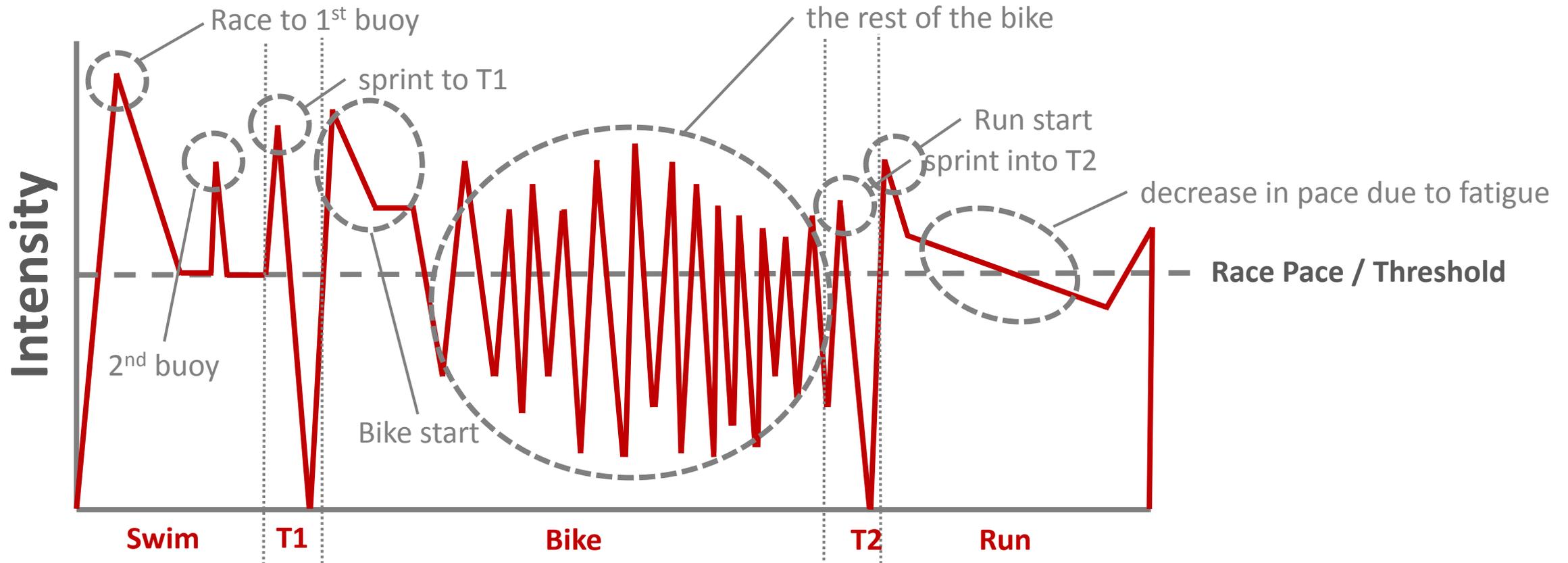


+ RE
+ %VO2max

Physical Demands of Non-drafting Triathlon



Physical Demands of Draft-Legal Racing



In Summary...

1. Energy distribution is very uneven with multiple hard efforts throughout
2. Very different fatigue profile to steady-state time-trialling
3. Racing well relies on making good decisions on when to conserve energy or apply the harder efforts – *Intelligent Racing*

Implications for Training

Is your training helping you to:

- a) manage relentless changes of pace?
- b) better prepare for senior racing?



What does your training look like?

Questions...

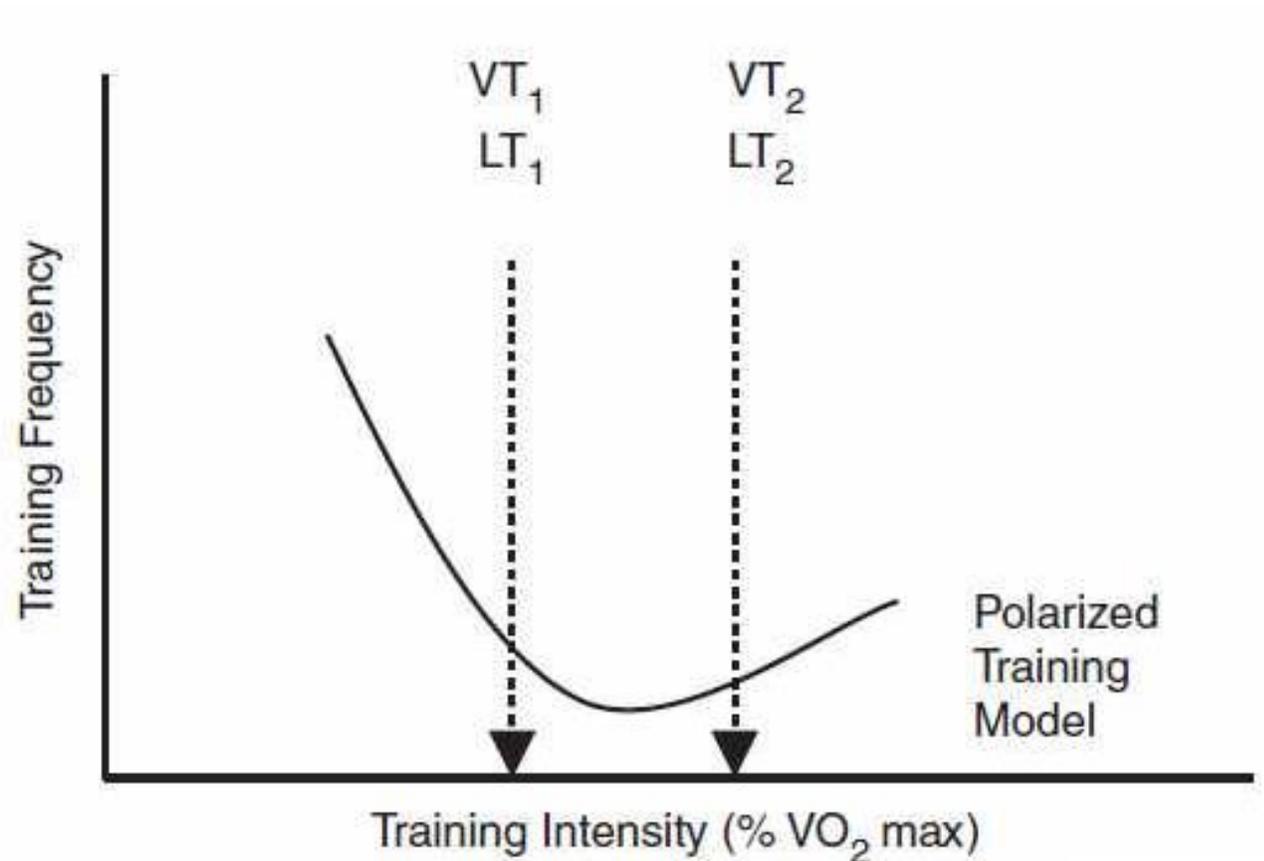
1. How many hard (race pace or above) sessions do you do in a week?
2. How many easy (aerobic) sessions?
3. What is the ratio of hard:easy?

Importance of Aerobic Training

- Exercise economy (conserve energy)
- Capacity to tolerate increasing training loads
- Neuromuscular programming (e.g. “feel” for water)
- Capillarisation – oxygen delivery (steady-state)
- Allows you to actually go hard when asked to (hard effort vs high absolute intensity)

Polarised Training

- Senior elite endurance athletes spend ~80% of training at/below their lactate threshold (LT1)
- Surprisingly little time is spent at their anaerobic threshold (LT2)
- Less high intensity volume than one might imagine
- BUT - high intensity sessions are intense – not just hard effort!
- More important than periodisation!



Seiler & Kjerland (2006)

Training Advice

Some key training advice for developing triathletes based on our collective experience...



#1. Balance of Hard / Easy Training

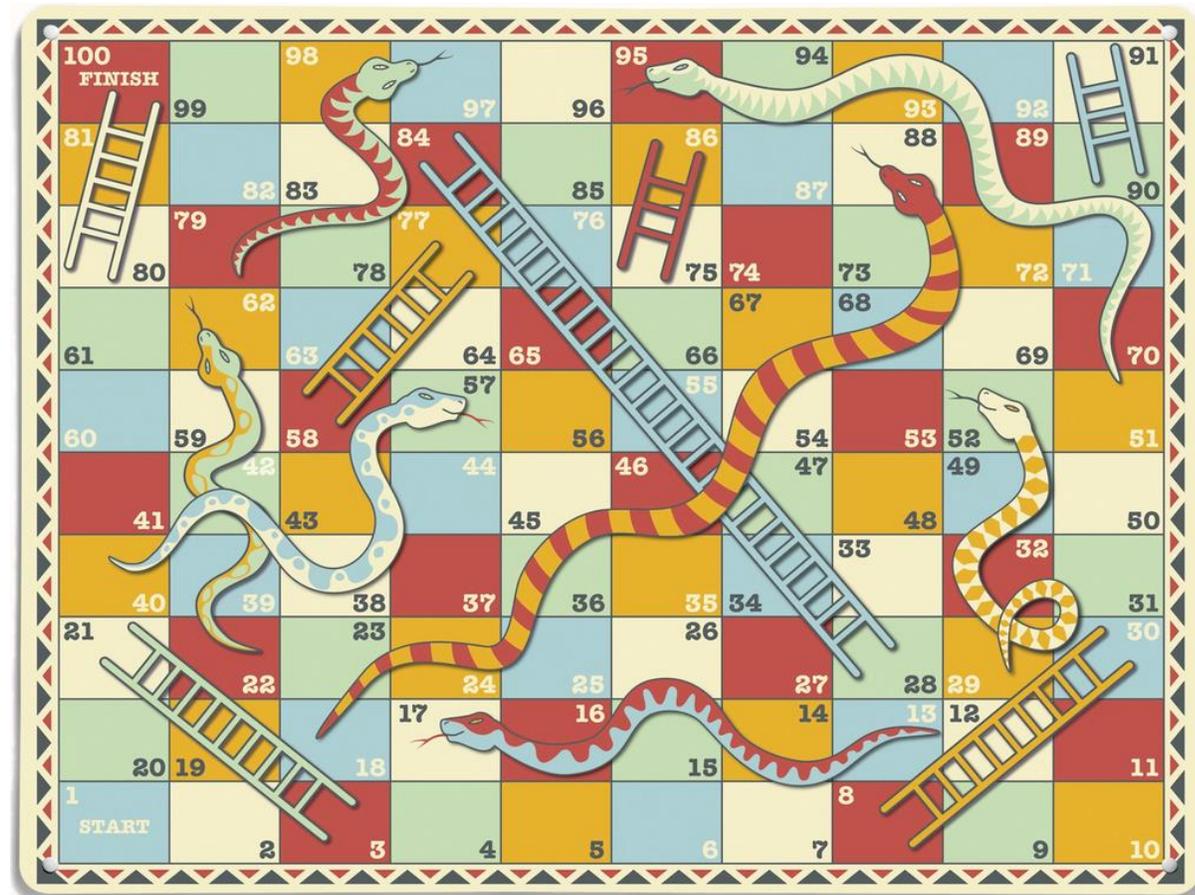
Training in three sports doesn't mean you should do three times the quality!!!

Remember the physiological benefits of aerobic training!? What happens if you miss all the easy swim sessions!?

#2. Reality of Progression



VS.



Thank you Peter Keen(!)

#3. Back to Back Sessions

1. Often necessary for athletes who are still at school and have limited training time in the week
2. Doubling up on hard sessions (e.g. hard run followed by hard swim) will result in:
 - A poorer quality second session
 - Glycogen store depletion = high risk of illness
3. Think about:
 - Planning/scheduling of training week
 - Refuelling/rehydrating
 - Napping/relaxation

#4. Swimming/Running

1. Speed/capacity is important while younger (e.g. 50-200 m swim, 400-1500 m run) **BUT...**
2. Need a broad range of sessions to support 750 m swim and 3-5 km running
 - Work:Rest Ratios
 - Length of Reps
3. Some strength work may help – hill reps, paddles, band etc

#5. Cycling

Triathlon running is affected significantly by cycling conditioning

Youth – Generally swim leads weekly volume

Junior – Cycling gets close to swim volume

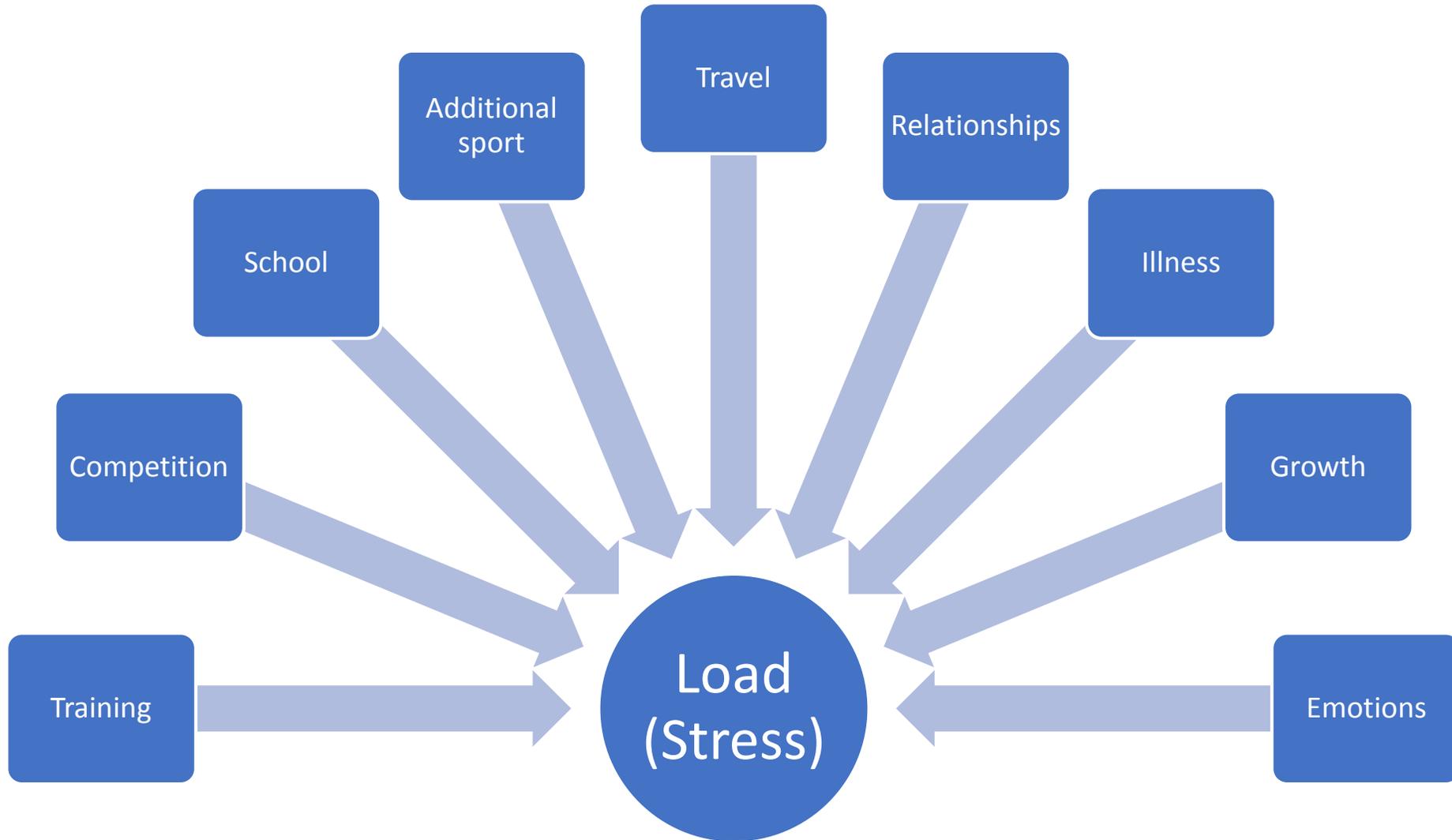
Senior – Cycling is highest weekly volume – now key for both senior ITU men/women (CWG!)



#6. Racing Frequency

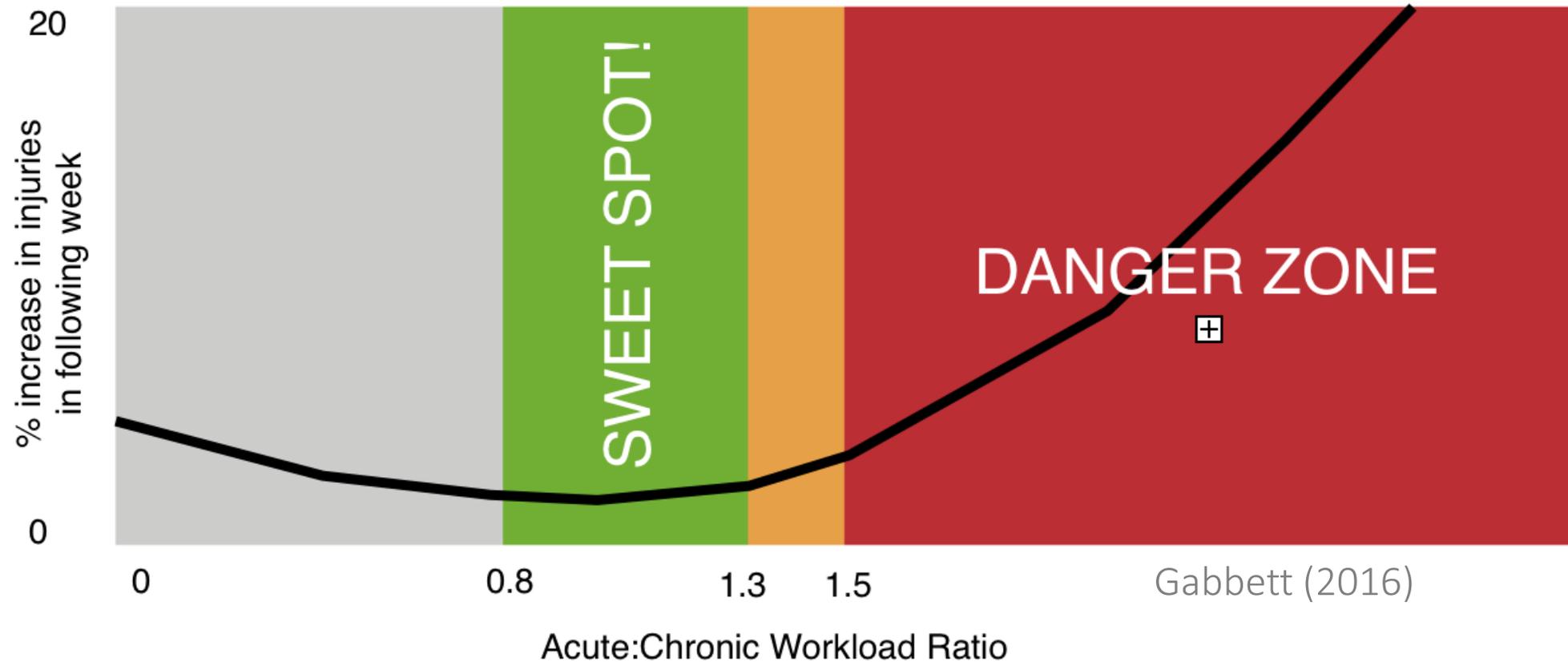
1. Younger athletes (e.g. tristar) can get away with a lot of racing
2. Youth & (especially) Junior athletes need to make choices around race options and training / racing balance
3. Be clear about the PURPOSE of racing
(process vs outcome!)

#7. Load (Stress)



#8. Consistent Training

Consistent training “load” is beneficial for adaptation, but it is also protective of illness and injury...



#9. Recovery Strategies

- Sleep
- Fuelling/Hydration
 - Well-timed, appropriate fuel sources
 - Carbs, proteins, fats and micronutrients
- Stretching / Mobilisation
- Appropriately balanced training period

*If you do the above, you need **nothing else**
(even as a senior international athlete!)*

#9. Recovery Strategies

- Sleep
- Fueling & Hydration
 - Well-timed
 - Carbohydrate
- Stretching
- Approaches

Anything else that artificially speeds up recovery reduces the adaptive stimulus from training!

If you do anything else, you lose nothing else (even as a senior international athlete!)

#10. Sleep

Important for...

- Physiological recovery
- Skill acquisition
- Making good decisions
- Maintaining immune function
- Growth and maturation
- Enjoying life(!!)

Get as much as sleep as regularly as you can...

- Set yourself some ground-rules (athlete-led, not parent-led)
- Nap straight after school if early AM swimming and training in the evening?
- Go to bed 20-30 min earlier every night?
- Phone on the other side of the room?
- If in doubt, monitor your sleep, then reflect on what's going on for you individually? Beware of APP's (not the most reliable).

SLEEP HYGIENE

A Guide To Sleeping Better

Dos & Don'ts



KEEP A ROUTINE
Get into a rhythm by going to bed and getting up at the same time!



SLEEP IN THE BEST TEMPERATURE
Ideally between 18-22°C.



CLEAR YOUR MIND
Try not to bring worries or to-do lists to bed. Focus on relaxing.



DON'T EAT HEAVY MEALS BEFORE BED
Fatty meals make sleeping uncomfortable.



YOUR BED IS NOT AN OFFICE
Let your body associate the bed only with sleep and sex.



TAKE A HOT SHOWER
As body temperature cools, you naturally become more tired.



HAVE A SNACK
It's hard to go to bed while you're hungry. Opt for something light.



KEEP A SLEEP DIARY
Track your progress and identify problems with a journal.



AVOID ALCOHOL, CAFFIENE & SMOKING
All three stimulate the body to stay awake.



DON'T CLOCK WATCH
It reinforces negative thoughts and causes anxiety.



EXERCISE REGULARLY
Regular exercise aids in better sleep and getting tired at night.



HAVE A SLEEP RITUAL
Get in the right mood & mindset with a warm bath or calming music.



GET SOME SUN
Regular sun or light exposure during the day will make you more tired later.



AVOID NAPS
It is recommended to not nap after 3pm or for longer than 1 hour.



PUT YOUR PHONE AWAY
Stop using electronic devices 45 minutes before bed.



TRY AGAIN
If you can't sleep don't force it. Relax outside your bedroom (no TV!) then try again.



MAKE THE RIGHT SPACE
Create a comfortable environment conducive for sleeping.



KEEP HANDS & FEET WARM
Cold hands and feet constrict vessels, keeping you awake.



DON'T SLEEP IN A NOISY PLACE
You are more likely to wake up at night.



AVOID EXERCISE BEFORE BED
Raising core temperature and energy levels close to bedtime can make sleeping hard.

How much Training?

1. Very individual - depends on many factors e.g:
 - Age – actual age, physical age, training age
 - Training history/background
 - Strengths/weaknesses
 - Other commitments e.g. school, exams
2. Use a coach – Academy/club to advise
3. Be wary of external comparisons

Training/Recovery Monitoring

Some simple monitoring techniques:

1. State of recovery (1-5 scale)
2. Quality of sleep (1-5 scale)
3. Resting heart rate (bpm)
4. Motivation to train (1-5 scale)
5. Quality of race/training efforts – objective/subjective
6. Load = RPE x duration (*log it however you like*)

Summary: Key Points

- Draft-legal racing is not steady-state
- Training needs to reflect and prepare for this
- Aerobic training is vital to support harder efforts
- Optimal training load is individual and changes over time as athletes develop
- Focus on monitoring training load, schedule & recovery strategies
-  Get the basics right!

Discussion...

