Effective Year Round Athlete Monitoring Sport Science

Purpose-Direction-Intent

JUSTIN ROETHLINGSHOEFER MS, CSCS, SCCC, LMT
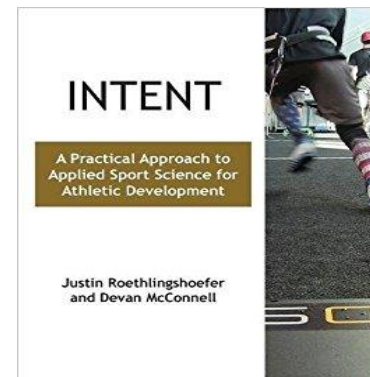
ANAHEIM DUCKS/SAN DIEGO GULLS

AUTHOR OF INTENT

Intent-us.com

- JUSTIN ROETHLINGSHOEFER

- JUSTINR@THEHOCKEYSUMMIT.COM

- @INNERSTRENGTH19

- @THEHOCKEYSUMMIT

- Devan Mcconnell
- dmcconnell29@gmail.com
- @dmcconnell29

INTENT

A Practical Approach to
Applied Sport Science for
Athletic Development
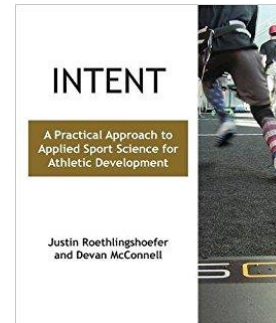
Justin Roethlingshoefer
and Devan McConnell

Thank you

- Polar
- Anaheim ducks
- San diego gulls
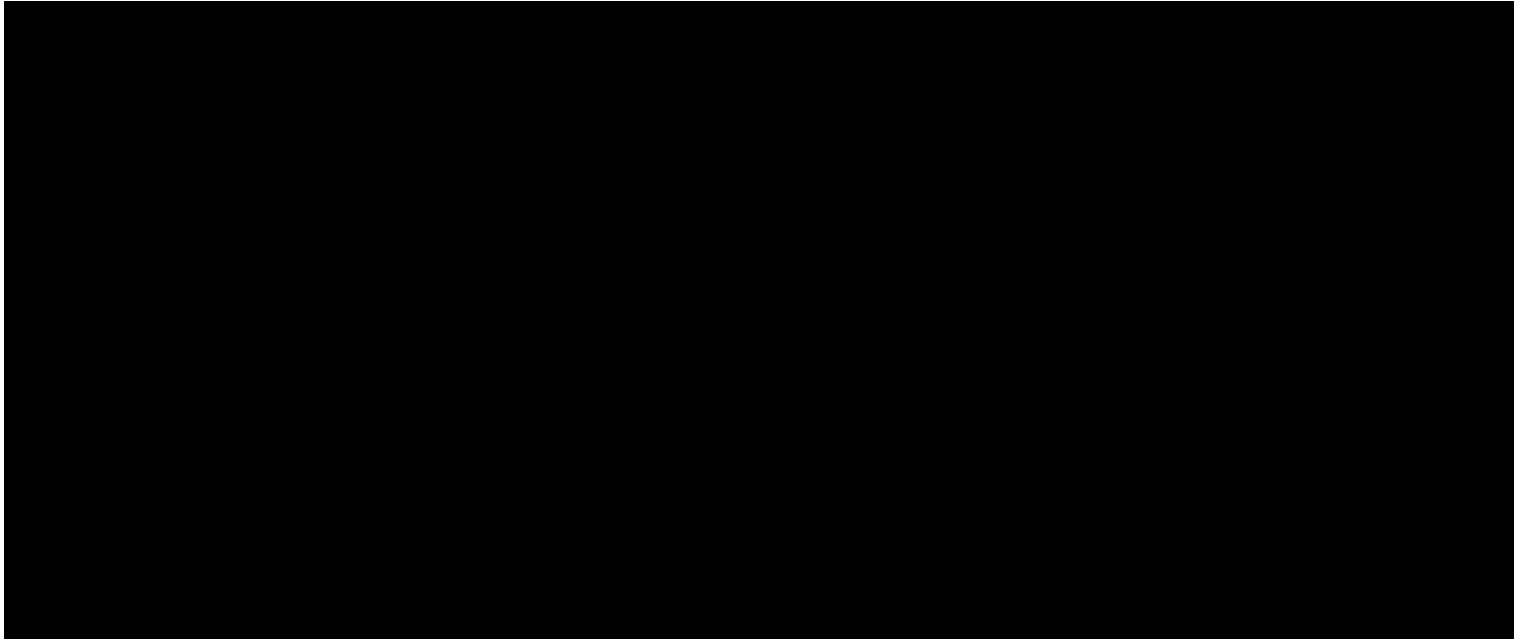- Umass Lowell riverhawks

Humboldt project

Sales from intent at the conference will go to the broncos family fundraiser

Augmented Reality?

- How many of us can relate?

POLAR

The Joey Tribiani

- High HRV or low resting hr (best of the year)
- Low Force Plate Jump
- Faster speed assessment than week previous but not best of year
- average Subjective Questionnaire
- On point for projected weekly training load
- How do you make sense of it?

Monitoring

- <u>What is it?</u>
- — Monitoring refers to the collection and analyzation of various metrics, in order to better understand the "what" and the "why".

- <u>What- what is actually occurring</u>
- <u>Why- why is that happening</u>

POLAR

Analytics

- "…we mean the extensive use of data, statistical and quantitative analysis, explanatory and predictive models, and <u>fact-based management</u> to <u>drive decisions and actions</u>."

- Competing on Analytics

POLAR.

Why do we monitor?

- To gain better insight
- To ask better questions
- To attack the 1%

The most
dangerous phrase
in the language is "we've
always done it this way."

Rear admiral Grace Hopper

POLAR.

Gain Better Insight
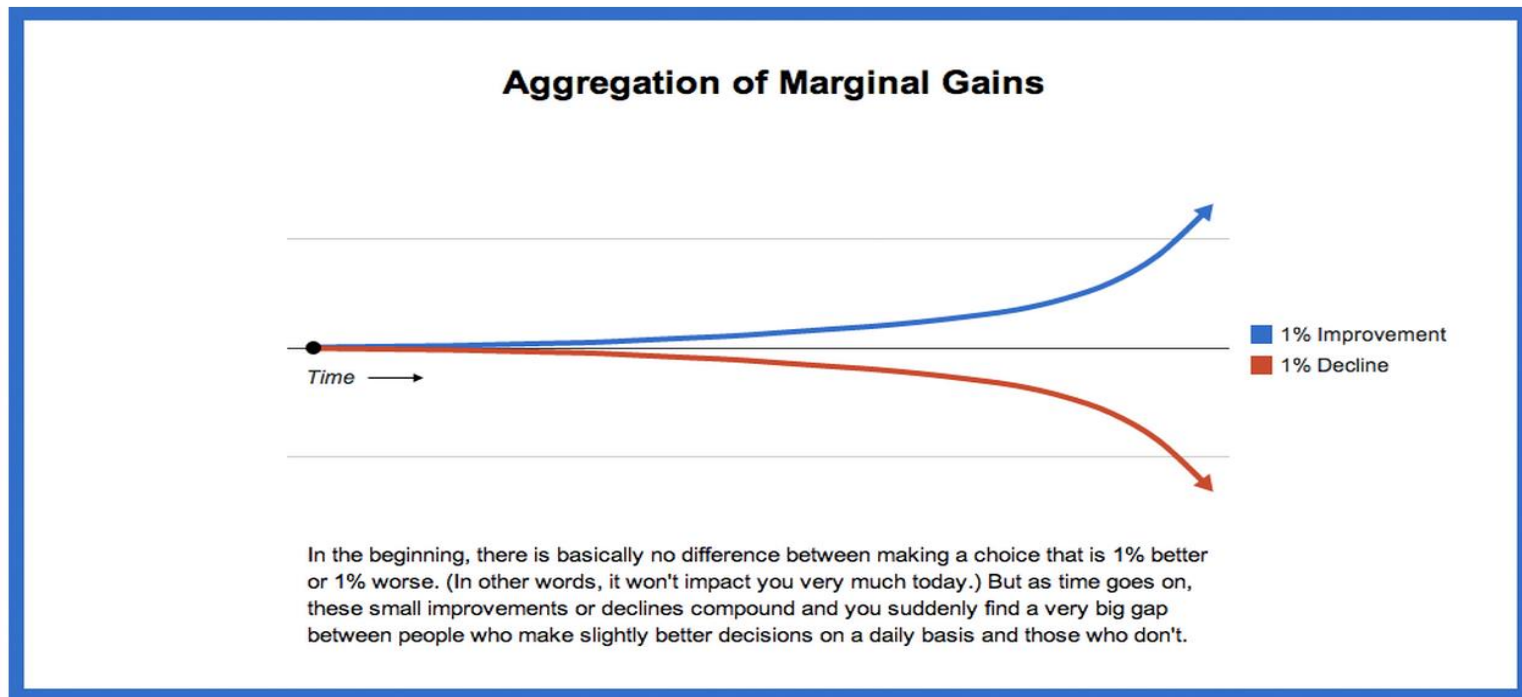

Take the guesswork out of the equation

Ask Better Questions

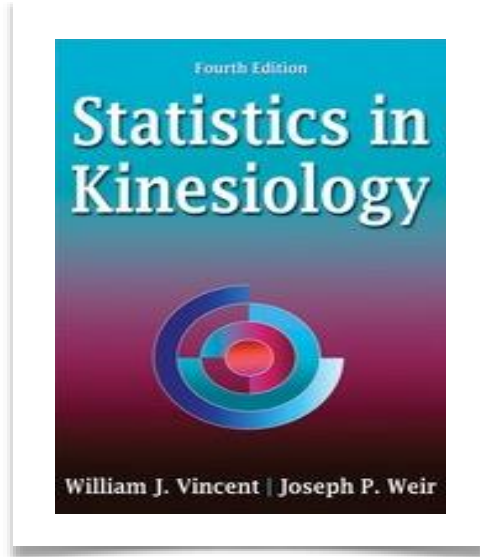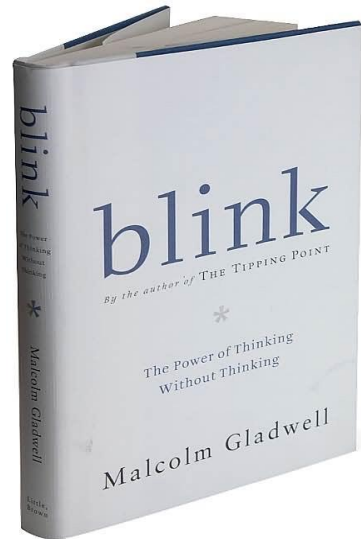Originally I thought "data" would provide *the* answer

Attacking the 1%

Aggregation of Marginal Gains

■ 1% Improvement
■ 1% Decline

Time →

In the beginning, there is basically no difference between making a choice that is 1% better or 1% worse. (In other words, it won't impact you very much today.) But as time goes on, these small improvements or declines compound and you suddenly find a very big gap between people who make slightly better decisions on a daily basis and those who don't.

POLAR

Art vs. Science

POLAR.

Why Not Both?

- Data should add context to what the eyes see

Intent

🏠 Home > 👥 Athlete Central > Soho Strength Lab > Personal Training > Bill Soho >

Dashboard | Bio | Notes | Library | Testing | Reports | Training | Messages | Schedule | Account

Bill Soho

Soho Strength Lab
Personal Training

Weight 164 lb (74.39 kg)

Intent Athlete Readiness

Body Weight Score	5
Resting HR Score	5
Peak Power Score	5
10y Sprint Score	5
Subjective Questionnaire	21

Intent Readiness System

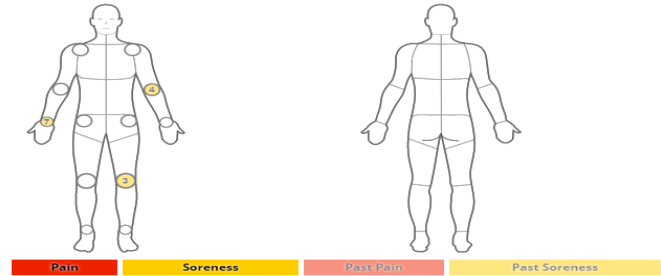| Intent Readiness Score	5
Speed of Movement	5 - Bar Speed = 0.4-+1.0 m/s
RPE of Load	5 - RPE = 8-10
HR Rate	5 - HR = 85-100 %
CNS and Performance State	5 - High Neural Readiness. High Load, Slow Speed---Low Load, High speed. No restrictions

Body Weight

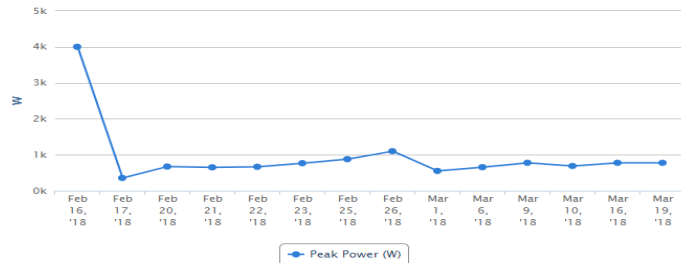Body Weight ─●─ Scale Weigh-in ─◆─ Scale Weigh-out ─■─ -- Team AVG

Resting Heart Rate

─●─ Resting Heart Rate (bpm)

POLAR
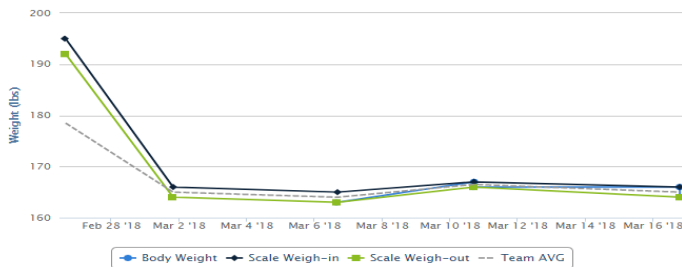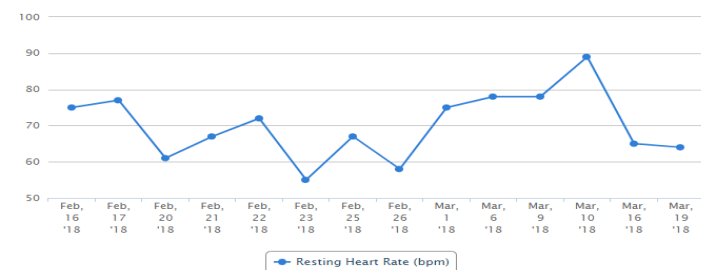
Intent Questionnaire

History	7d Avg	Latest	Trend
Sleep	4	3	-1
Sleep Quality	3	4	+1
How Your Feel	4	2	-2
Fatigue	4	3	-1
Mood	2	4	+2
Stress	3	5	+2

Body vs Past 30 Days

Pain	Soreness	Past Pain	Past Soreness

Intent Peak Power

Peak Power (W)

Intent 10 Yard Sprint

10 Yard Sprint Time (sec)

inTenT

🏠 Home > 👥 Athlete Central > Soho Strength Lab > Personal Training > Nick James >

Dashboard | Bio | Notes | Library | Testing | Reports | Training | Messages | Schedule | Account
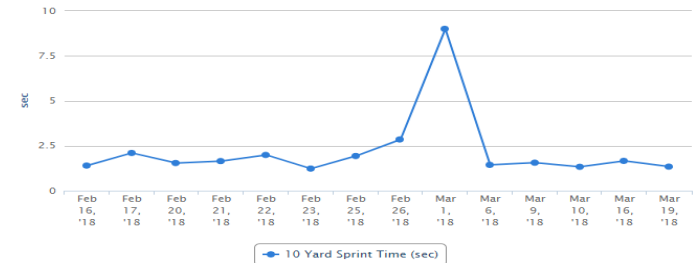
Nick James
Soho Strength Lab
Personal Training

Weight 198 lb (89.81 kg)

Intent Athlete Readiness

Body Weight Score	2
Resting HR Score	1
Peak Power Score	5
10y Sprint Score	1
Subjective Questionnaire	37

Intent Readiness System

Intent Readiness Score	2.25
Speed of Movement	2 - Bar Speed = 0.6-0.8 m/s
RPE of Load	2 - RPE = 5.5-7
HR Rate	2 - HR = 70-80 %
CNS and Performance State	2 - Accumulating Neural Fatigue. Higher Repetition Speed, Moderate Load. Steady State HR work, or low effort intervals or tempos are ideal

Body Weight

Weight (lbs)

225
220
215
210
205
200
195

Feb 14 '18 Feb 15 '18 Feb 16 '18 Feb 17 '18 Feb 18 '18 Feb 19 '18 Feb 20 '18

Body Weight Scale Weigh-in Scale Weigh-out -- Team AVG

Resting Heart Rate

100
90
80
70
60

Feb, 13 '18 Feb, 16 '18

Resting Heart Rate (bpm)

POLAR
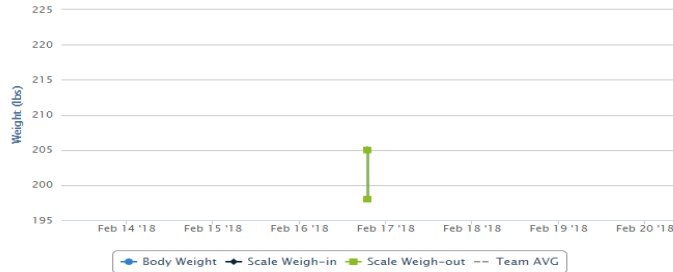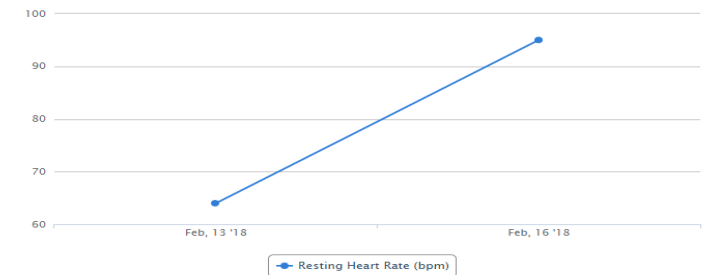
Individualization

Intent Athlete Readiness

Body Weight Score	5
Resting HR Score	5
Peak Power Score	5
10y Sprint Score	5
Subjective Questionnaire	21

Intent Readiness System

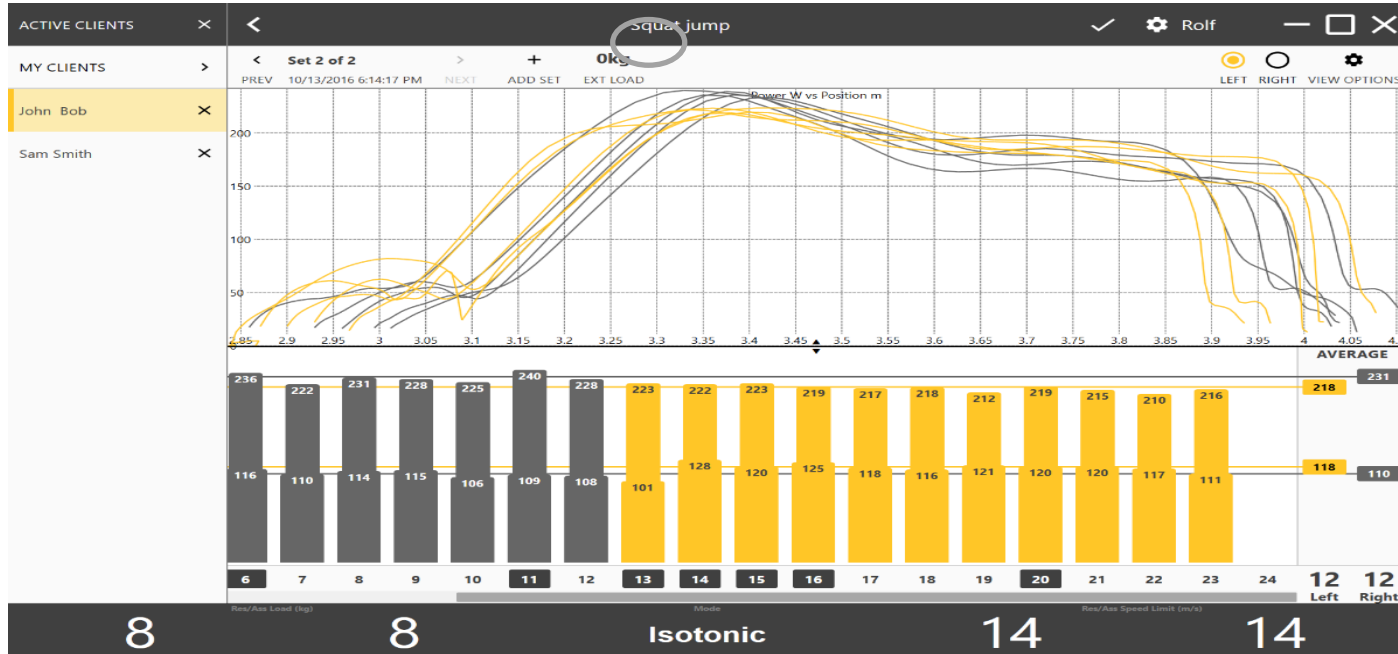|	
Intent Readiness Score	5
Speed of Movement	5 - Bar Speed = 0.4-+1.0 m/s
RPE of Load	5 - RPE = 8-10
HR Rate	5 - HR = 85-100 %
CNS and Performance State	5 - High Neural Readiness. High Load, Slow Speed---Low Load, High speed. No restrictions

Intent Athlete Readiness

Body Weight Score	2
Resting HR Score	1
Peak Power Score	5
10y Sprint Score	1
Subjective Questionnaire	37

Intent Readiness System

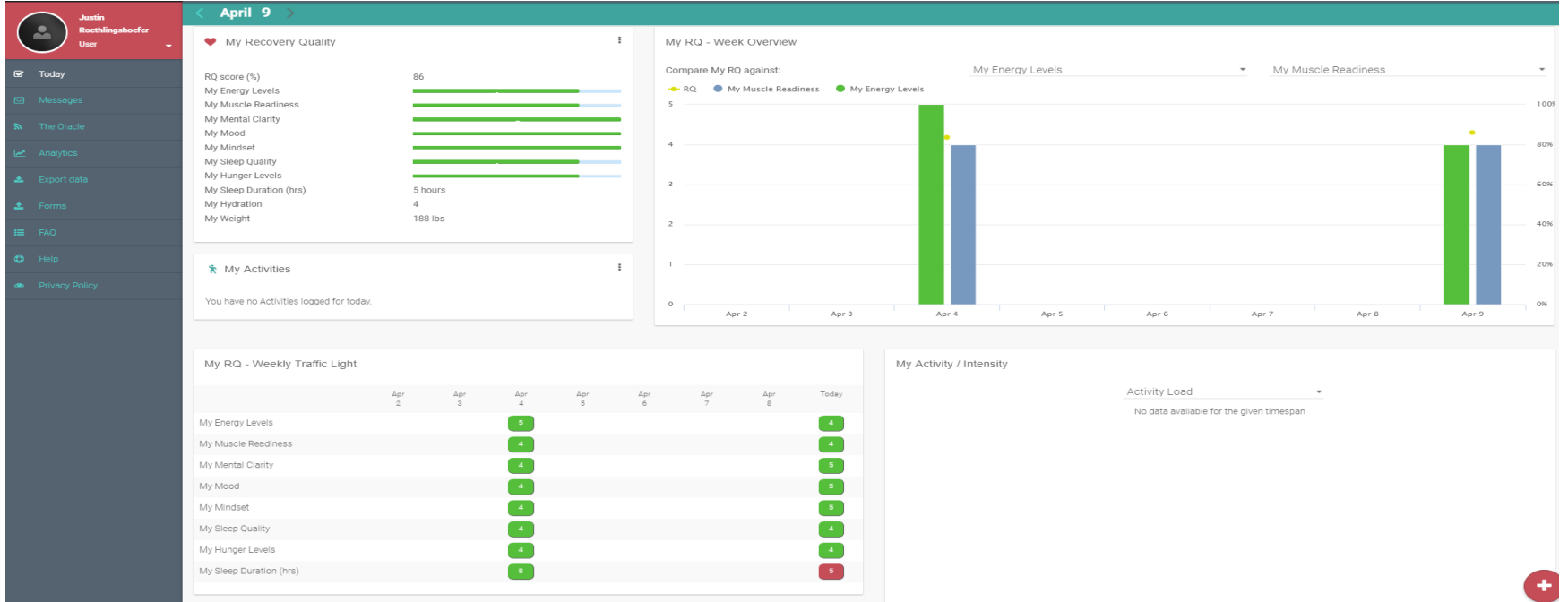|	
Intent Readiness Score	2.25
Speed of Movement	2 - Bar Speed = 0.6-0.8 m/s
RPE of Load	2 - RPE = 5.5-7
HR Rate	2 - HR = 70-80 %
CNS and Performance State	2 - Accumulating Neural Fatigue. Higher Repetition Speed, Moderate Load, Steady State HR work, or low effort intervals or tempos are ideal

POLAR.

Heart Rate

PLAYERS	HR AVG [%]	HR MIN [%]	HR MAX [%]	DISTANCE	SPRINTS	TRAINING LOAD	CALORIES	SPEED MAX	HR ZONES	SPEED ZONES
	66	34	100	1.65	0	204	1654	9.8		

HR

Peak Power/Speed

Subjective Questionnaire

Workload and Stress

Training Load

- Real Time HR Response
- Retrospective/ Post Analysis Evaluation
- Training Load based on TRIMP
- Intensity Density

POLAR.

Training Load

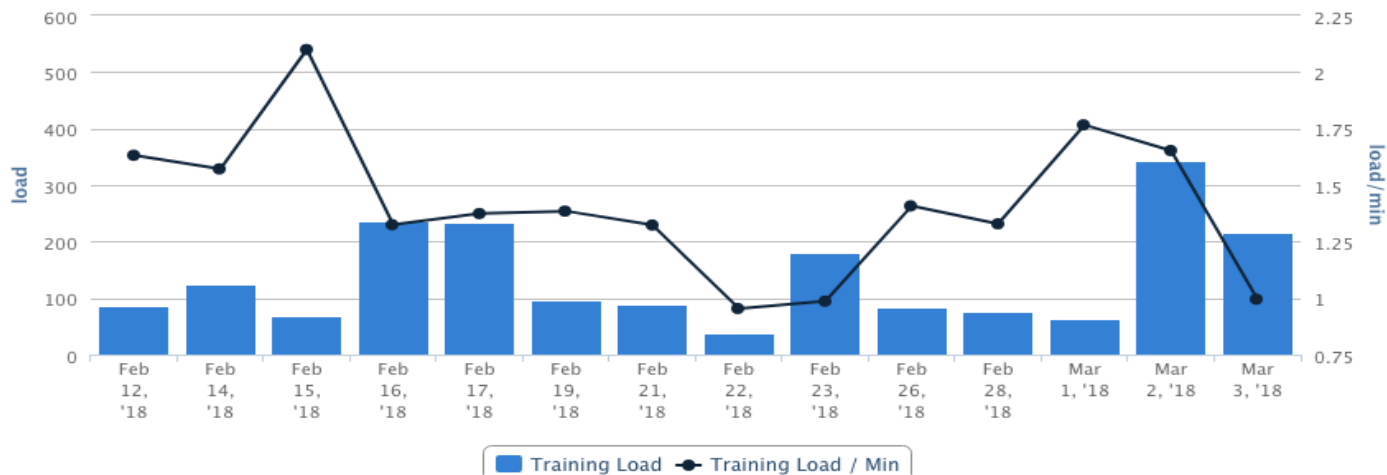Training Load vs Load/Min
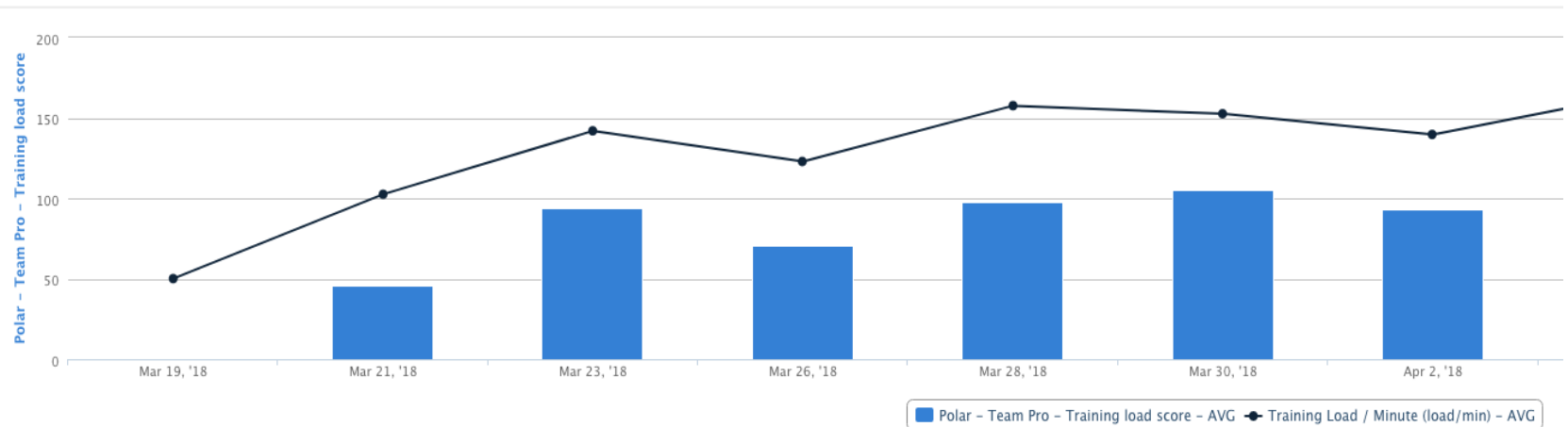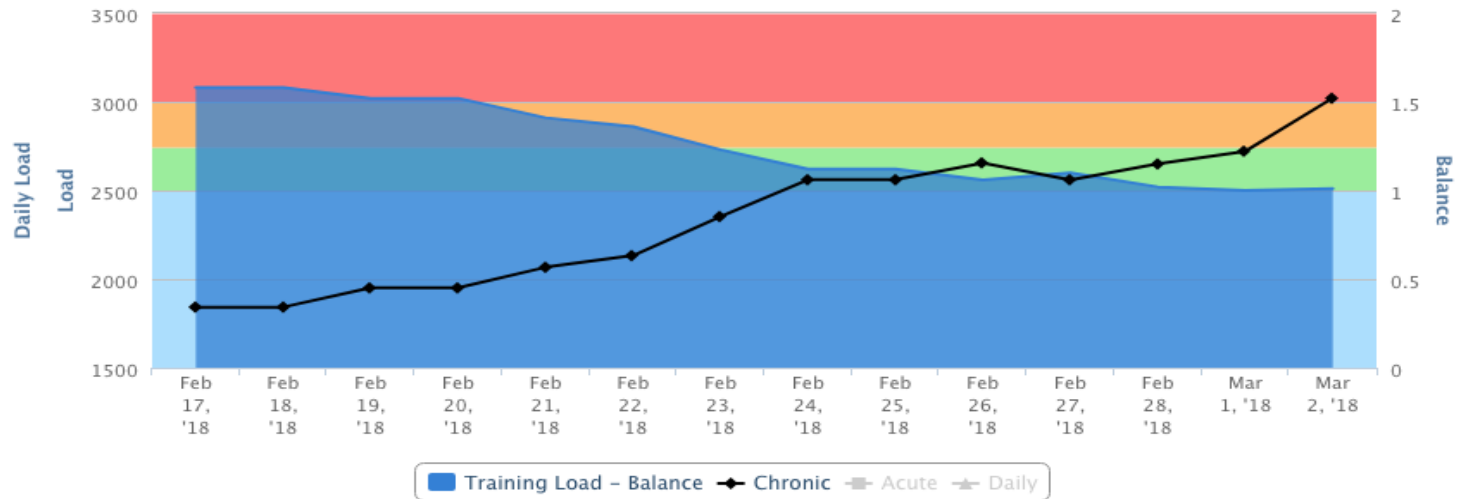
Post Analysis HR Response

Workload By 5 Minute Segments
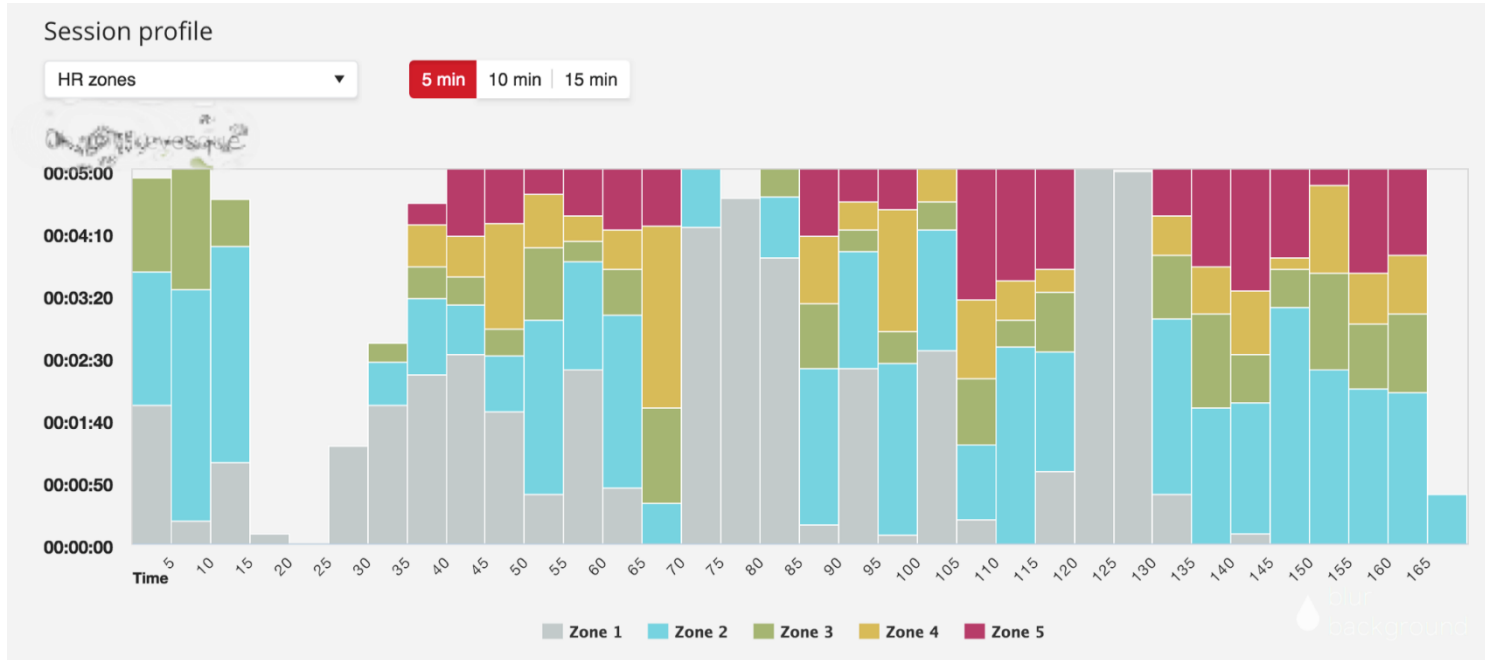
HR Graph
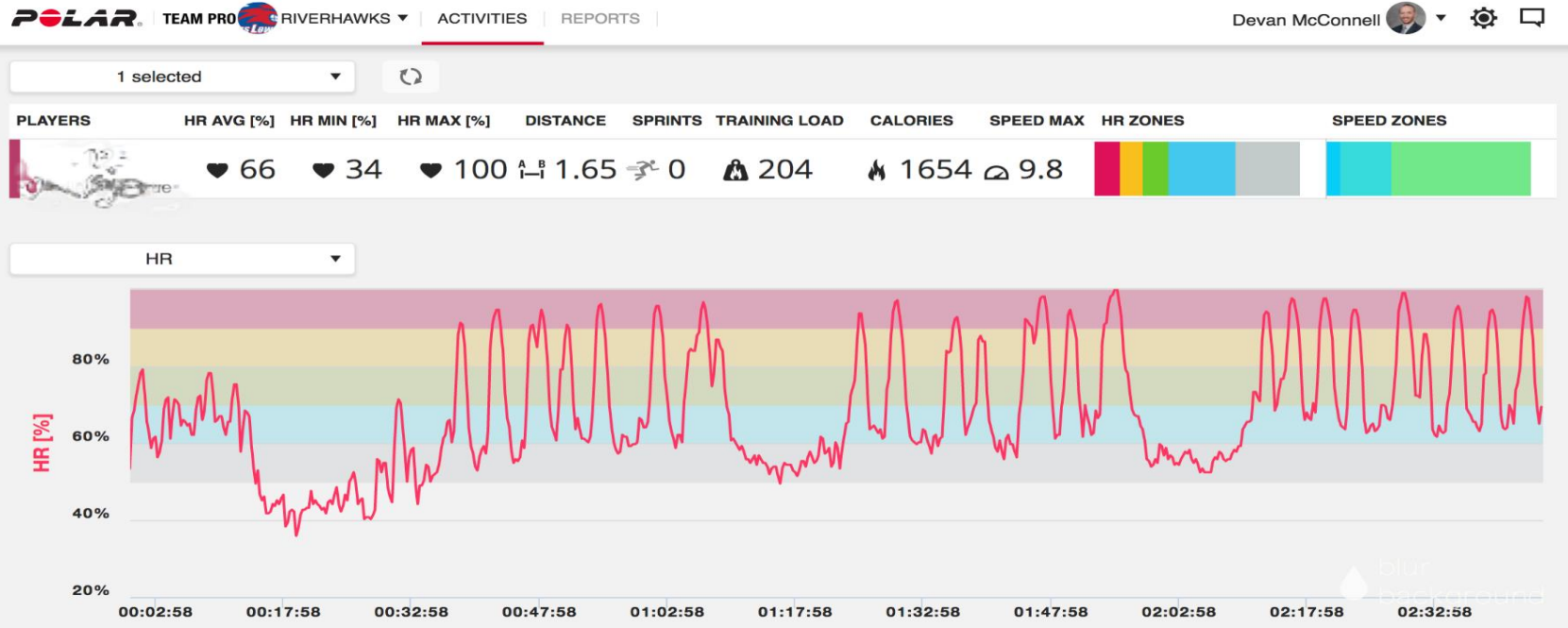
Back End Analytics - TL vs. Density

Polar - Load vs Load/Min
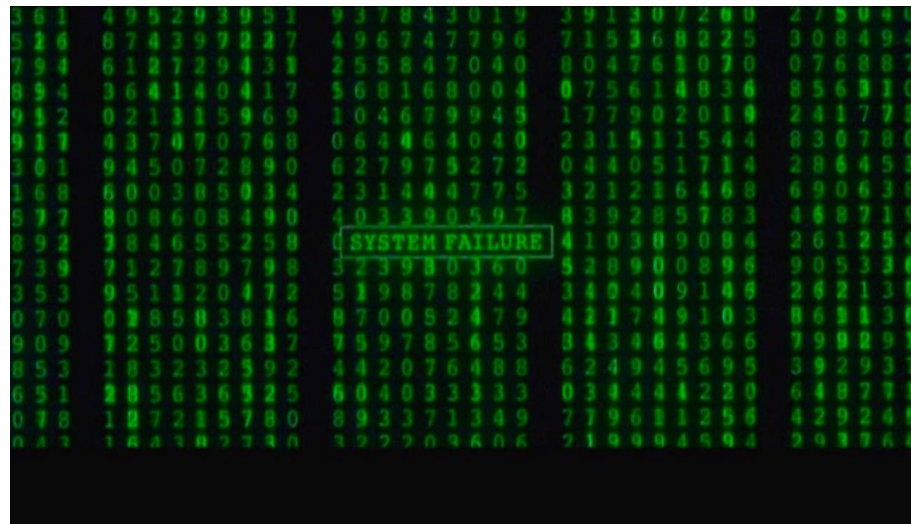
Acute: Chronic Workload

How Does All This Data Fit Together?

- What does each metric tell us?
  - By themselves, nothing. Together, starts to shed light on questions

- Painting a broad picture, broad strokes
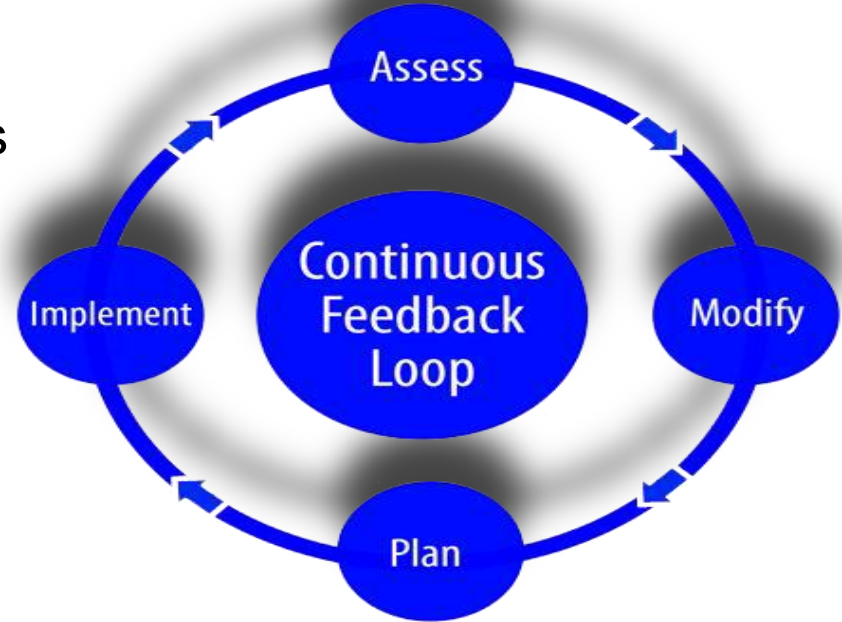 - all of this information gives us an overview of the athlete

POLAR.

Practical- The Use of Heart Rate Monitoring

- **What are we doing with the data???**
  - **In Season**
  - **Off Season**

In Season

- Monitor Training Load and Readiness

- Assess Results

- Provide Feedback

POLAR

Reporting to Staff

- Weekly Reports
  - Formal
    - Breakdown of the past, plan for the future
  - Informal
    - Conversation…influence thought process
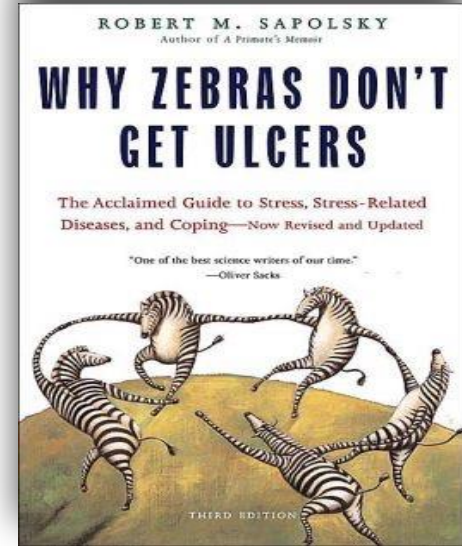

POLAR®

Weekly Reports

- Last week's numbers (and what does it mean)
    - » How intense were the games
    - » How were recovery numbers leading in
- Advice on set up of the next week

POLAR®

How Does the Info Change The Program?

- Scheduling the week to win
  - Thresholds that led to better win%
    - Won more than **70%** of points available when correct thresholds met

  - Change how we "develop" players
   - What are we trying to develop??

POLAR.

Physiologically Based Practices

- Stress is Stress

- Is Hard or Easy "Good"?

- High/Low Approach?

ROBERT M. SAPOLSKY
Author of *A Primate's Memoir*

WHY ZEBRAS DON'T GET ULCERS

The Acclaimed Guide to Stress, Stress-Related Diseases, and Coping—Now Revised and Updated

"One of the best science writers of our time."
—Oliver Sacks

THIRD EDITION

POLAR.

Practical Example: Goalies

- <u>Should</u> be Alactic-Aerobic
- <u>Should</u> be most explosive
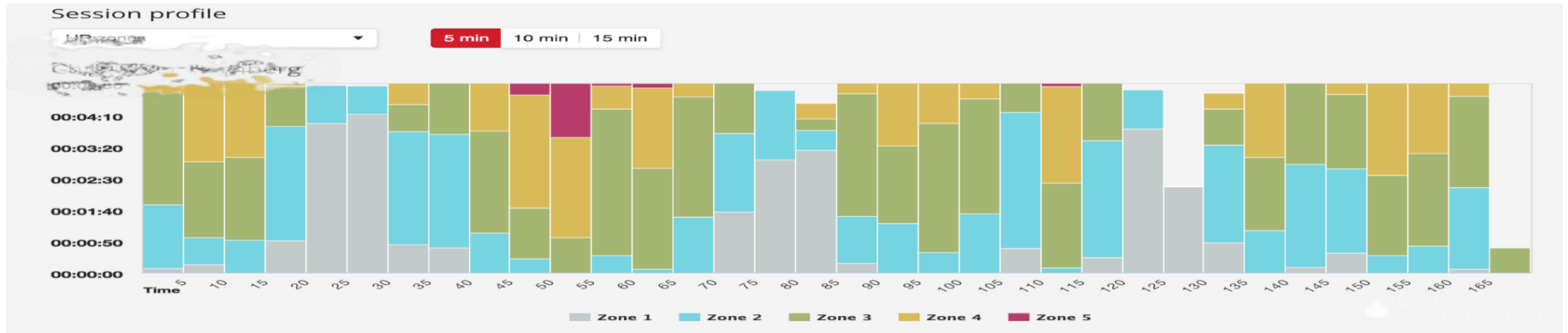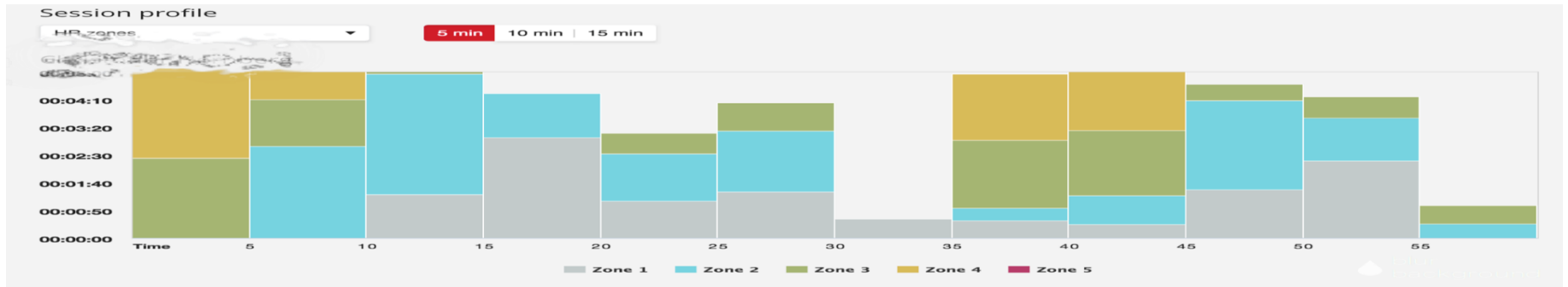- How many of our goaltenders look like that?

POLAR
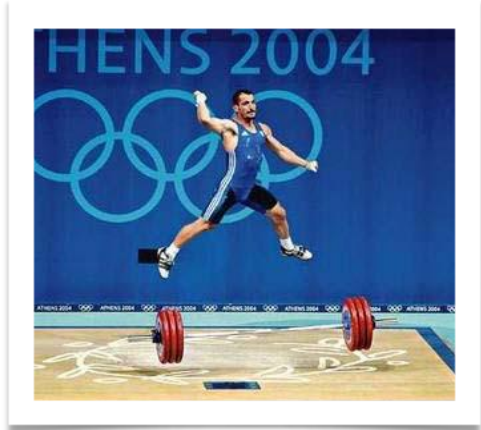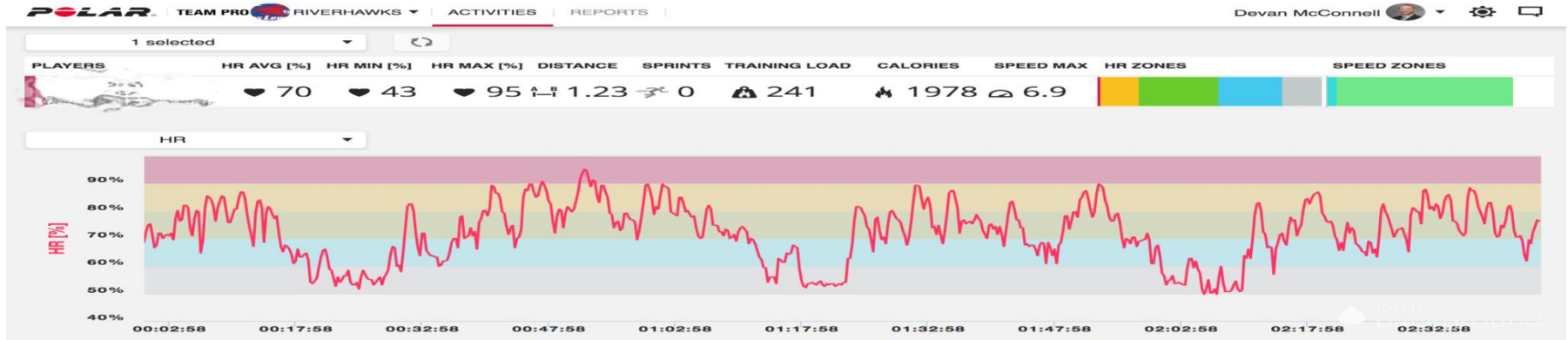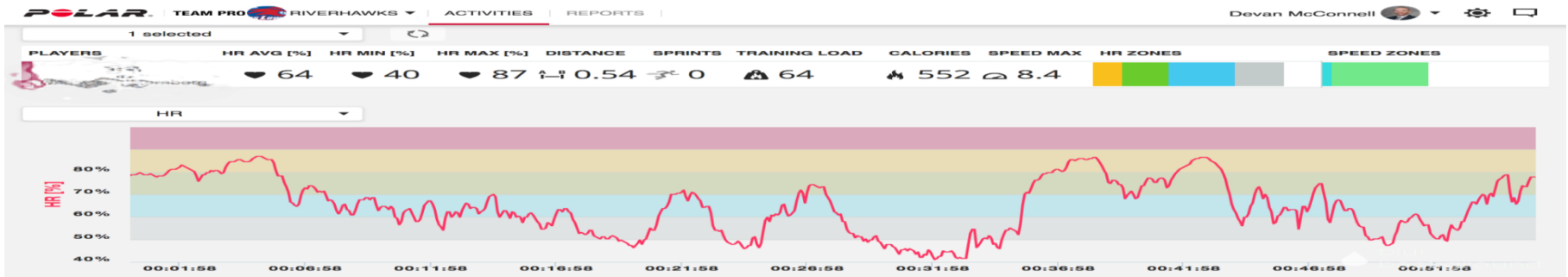
Game

Practice

Summer

- Players go home…how can you link what they do on their own with what they'd be doing at the facility in season?
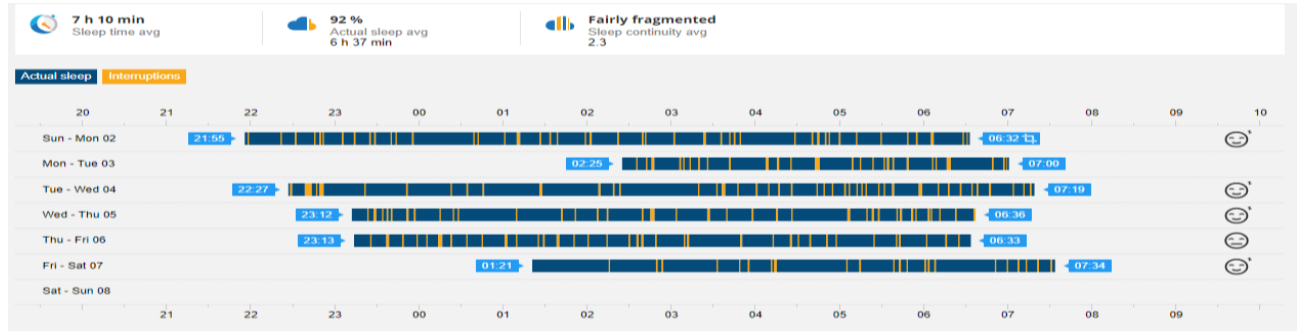
Goal

- Application of training protocols when someone is:
    - Away from the team facility
    - Home for the summer
    - On the road vs at home facility with you
    - How does it track everything in one spot?
    - Solution for identifying motivation and accountability
    - World of knowledge and understanding (players want to know and be educated)
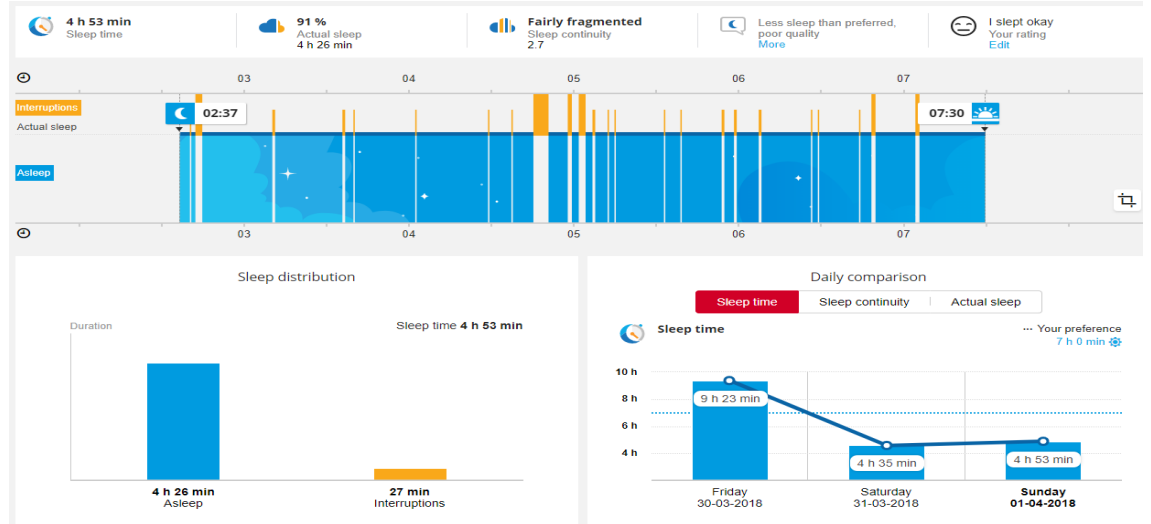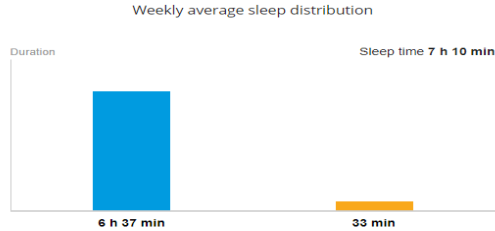
POLAR.

Example

Example

IMPROVEMENTS

Example

Example

Takeaways

- Are you just collecting numbers?

- Are you using the info you collect?

- Are you building a culture where sport science is desired by the athlete/coach, or feared by the athlete/coach
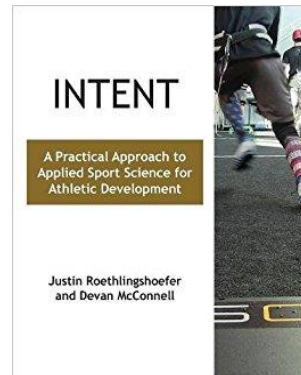

POLAR

Thank you!!
Intent-us.com

- Justin Roethlingshoefer

- Justinr@thehockeysummit.Com

- @Innerstrength19
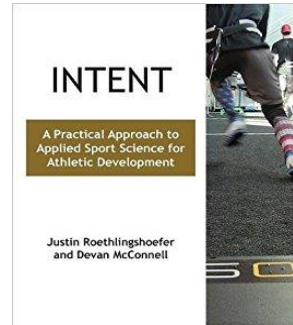
- @Thehockeysummit

- Devan Mcconnell

- Dmcconnell29@yahoo.Com

- @Dmcconnell29

Humboldt Project

Sales from intent at the conference will go to the broncos family fundraiser

POLAR ®

PIONEER OF WEARABLE SPORTS TECHNOLOGY