

Keys to Conditioning – Utilizing Data Driven Prescription to Prepare Athletes for Competition



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www.coloradocollege.edu

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**Varsity Athletics**

The Colorado College Athletics Department sponsors 17 varsity programs. Fifteen programs compete at the NCAA Division III level and two compete at the NCAA Division I level. Our Division III programs are members of the Southern Collegiate Athletic Conference (SCAC). Our Division I Men's Ice Hockey program is a member of the Western Collegiate Hockey Association (WCHA) and our Division I Women's Soccer program is a member of Conference USA (C-USA).

	<b>Men</b> Basketball Cross Country Hockey* Lacrosse Soccer Swimming & Diving Tennis Track & Field (Outdoor)	<b>Women</b> Basketball Cross Country Lacrosse Soccer* Swimming & Diving Tennis Track & Field (Indoor & Outdoor) Volleyball
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\*compete at NCAA Division I level






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**Overview**

- Our view on our sports and data science
  - How we use and evaluate our data
    - Averages VS Individual Data
      - Prescription from data
- Review our 'technology'
  - How we use it to help us make better decisions
- Review of our Conditioning System (30-15IFT)
  - Prescription
    - Manipulation of training variables to achieve different results

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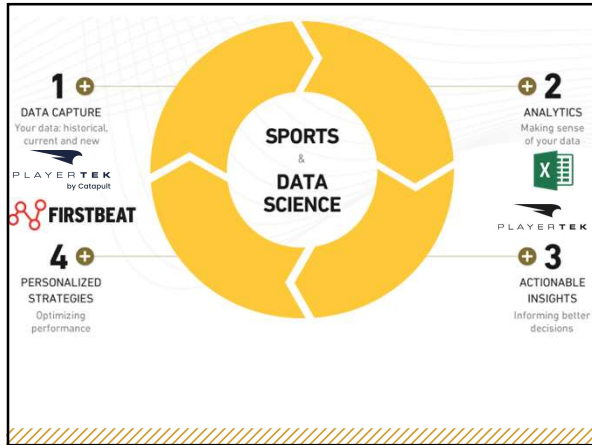
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**Data Capture**

- Historic – we have been capturing GPS data since 2013
  - Started with 11 units through Catapult (Wsoccer, Mlax, Wlax)
    - MiniMax
- Current – PlayerTek since March 2018 (1691 sessions)
  - Provides similar metrics to Catapult (no IMA data)
  - Focus on volume and intensity metrics
- Current – FirstBeat HR since March 2018
  - A Heart Rate system
  - Focus on TRIMP and TRIMP permin
- New – Polar Heart Rate (MBall) – October 2018
  - Focus on TL Load Score and Calories Permin
- New – PlayerTek+ (Men's Lacrosse) – January 2019
  - 10 units Focus on PL Permin and HR Load Permin

PLAYERTEK by Catapult FIRSTBEAT

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**Analytics**

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- Use excel to analyze longitudinal data via Pivot Table
- Compare days of the week to previous days of the week
- Individual Data Vs Team averages
- Attempting to get the best weekly periodization model
  - M Tue Wed Thur – look similar when compared to previous weeks
  - Along with evaluating potential need for change based on longitudinal data

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- Use cloud based system to give 'quick reports' to coaches
- Displays Longitudinal data (since march)
- Use % of game values to present how 'much we did in relation to game thresholds'

 **FIRSTBEAT** →

- Export to CSV: Duration, Calories, Training Effect Score, Time Spent in Zone 4 and Zone 5 and TRIMP – use excel to 'connect' w/ PlayerTek Data

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**Personalized Strategies**

- Optimize performance:
  - Use *internal and external load data* in conjunction with sRPE to make the best recommendations for weekly planning
  - Have *conversations with coaching staff* about how to minimize 'load' for athletes who play a lot of minutes and have higher sRPE
  - For those that don't play a lot – utilize our 30-15IFT cards to prescribe conditioning sessions that match the 'intensity' of game stimulus
    - 66min and above – No Conditioning
    - 65min and below – Extra Conditioning
      - If you play less then 45min, no modifications to 30-15IFT Card
  - 30-15IFT cards to target our keys to conditioning in preparation for the season

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**Actionable insight – informing better decisions**

- Data that allows us to act or data that gives us enough insight into the future that the actions that should be taken become clear for decision making
  - GPS (sprint distance, distance permin, work ratio )
  - Heart Rate (TRIMP permin)
  - Conditioning protocols that can be manipulated to target 'metrics'
- Insight into how we can design and manipulate conditioning variables to prepare athletes better for the demands of the season (especially competition)

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**Why GPS and Heart Rate?**

**We wanted to know what was 'happening' Internally/Externally during training and games**

**Gives us objective information to potentially effect change (actionable insight)**

**Objective data to aid in Practice planning and preparation for competition/practice**

**Use the 30-15IFT prescription to manipulate training variables to target specific adaptations associated with game/training data**

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**PLAYERTEK**  
by Catapult

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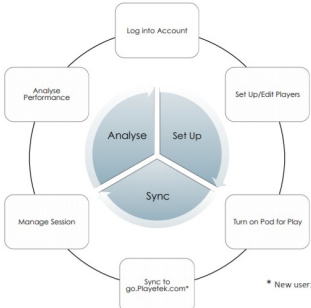
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**Log into Account**

**Set Up/Elll Players**

**Turn on Pod for Play**

**Sync to go.PlayerTek.com\***

**Manage Session**

**Analyse Performance**

**Analyse**

**Set Up**

**Sync**

\* New user: sync tool must be downloaded

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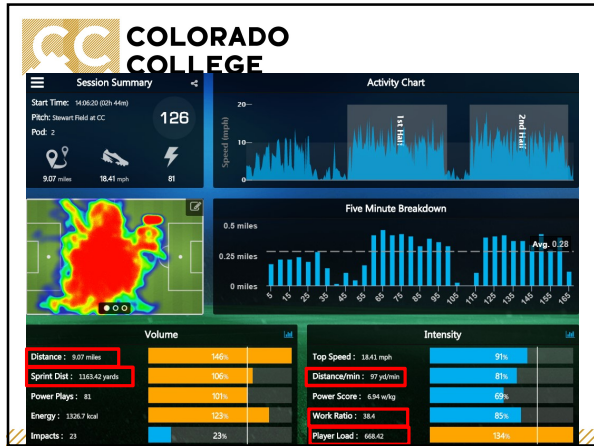
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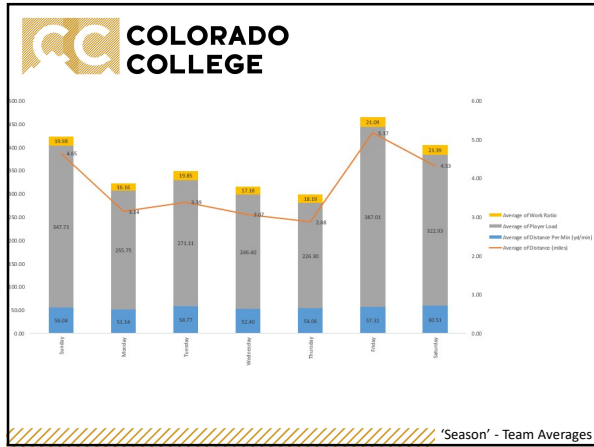
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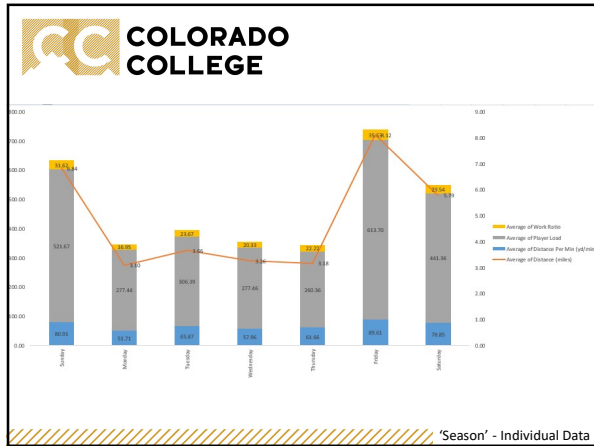
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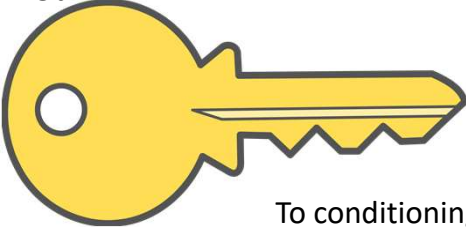






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Our



To conditioning

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Typical values for TRIMP/min.

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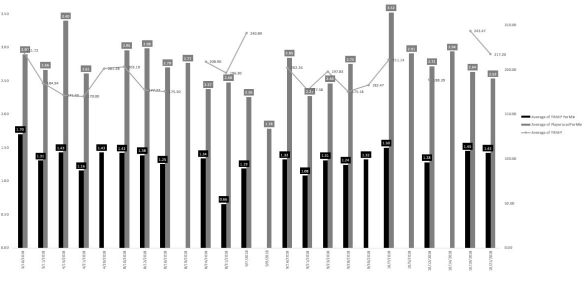
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Game Data - Team Average



Hard training: TRIMP > 140  
 Moderate training: TRIMP 70-140  
 Easy training: TRIMP < 70



Typical values for TRIMP/min.

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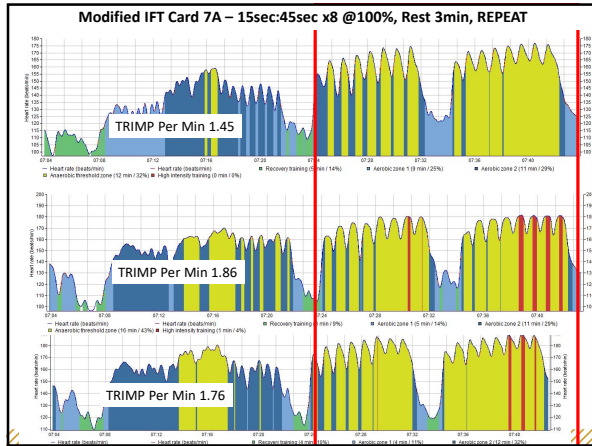
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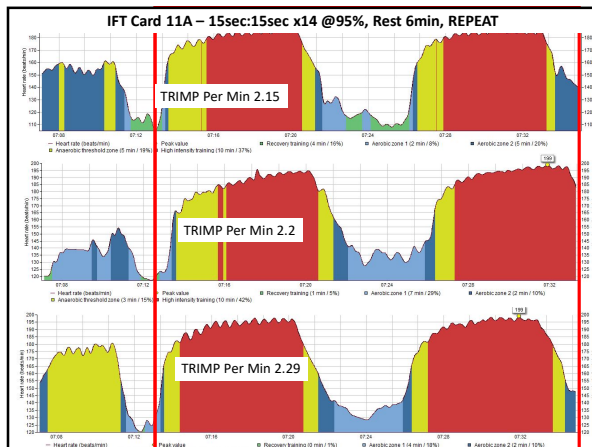
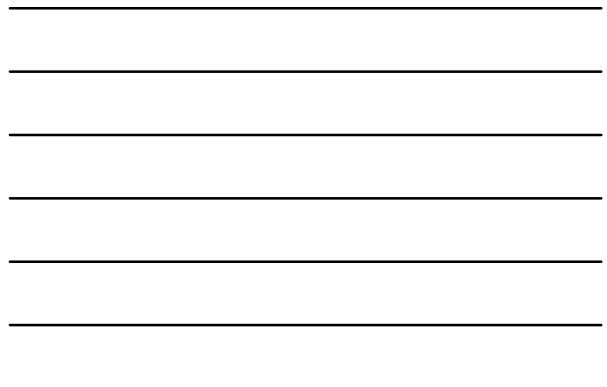




Early Off-Season IFT Card					
Card #	11A	% of Max	95%	Shuttle Length (yds)	40
Total Time	20:00	Number of Sets	7:00	Total Distance	
Work	15	Time	7:00	Set 1	1173.4
Rest	15	Rest Between Sets	6	Set 2	866.0
Reps w/ in Set	14	Number of Sets	2	Total For Sets 1/2	2039.4
					1732.1

Name	Max IFT	Straight Dist. (yds)	Shuttle Dist (yds)	# of Shuttles	Additional Yards	1% Incline
	21	95	84	2	0	12.4
	20.5	88	82	2	2	12.1
	20	86	80	1	40	11.8
	19.5	84	78	1	38	11.5
	19	82	76	1	36	11.2
	18.5	80	74	1	34	10.9
	18	78	72	1	32	10.6
	17.5	76	70	1	30	10.3
	17	73	68	1	28	10
	16.5	71	66	1	26	9.7
	16	69	64	1	24	9.4
	15.5	67	62	1	22	9.1





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Review article

## The 30-15 Intermittent Fitness Test : 10 year review



**Martin Buchheit**  
Physiology Unit, Sport Science Department, ASPIRE, Academy for Sports Excellence, P.O. Box 22287, Doha, Qatar.  
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**Martin Buchheit**

**30-15IFT is now 18years old!!!!!!!!!!!!!!**

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Martin Buchheit – Head of Performance 30-15IFT




Jason Dudley – Director of Strength and Conditioning (Olympic Sports)  
at Washington State University



Sgt Mick Steirli – Health and Fitness Officer NSW Police Force



Chris West – Associate Head Strength and Conditioning Coach at the  
University of Connecticut

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### 30-15IFT by Martin Buchiett

**Purpose:** field test to evaluate cardiorespiratory function, maximal aerobic velocity and ones ability to recover/repeat intermittent bouts activity

**What is it????**

- An intermittent field test that consists of 30-sec shuttle runs with 15-sec passive recovery periods
- Test can be done at 40m, 28m, and on Ice

**Why do we use it?**

- It's a **conditioning system** based on individual failing speed
- *Prescription gives us a mixed approach to ESDevelopment – tax both anaerobic and aerobic (running at vVO2Max) systems at high levels*
- Allows us to quantify 'stress' because prescription is done at a percentage of VIFT - Can quantify sprint distance, distance per/min, work ratio, and TRIMP permin
- Allows for us to prescribe individualized distance for HIIT – and in-turn a relative HR response regardless of prescribed distance

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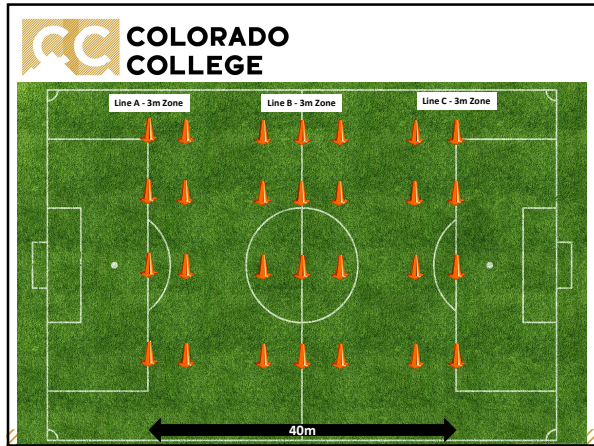
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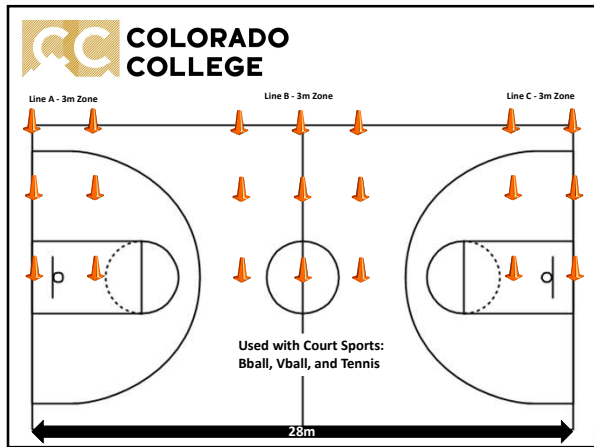
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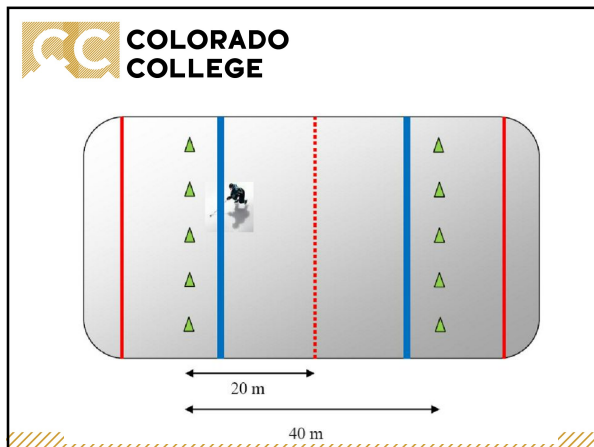
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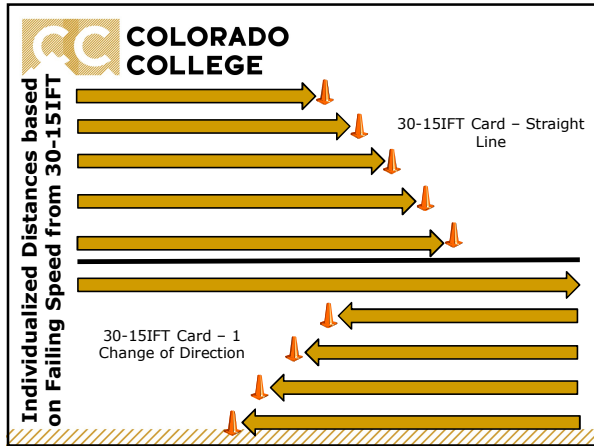
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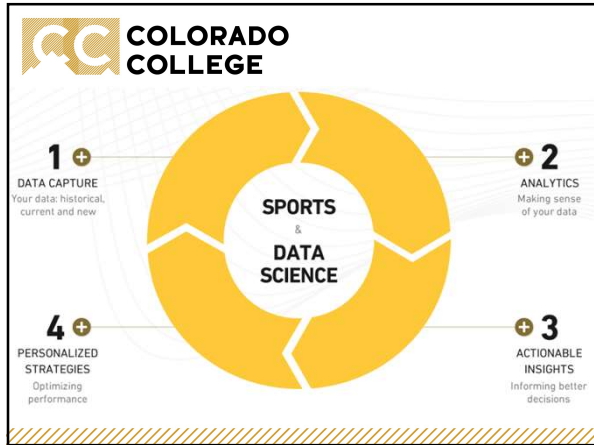
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Questions?

**Contact Information**

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