



COACH**ME**PLUS

*UNLEASH YOUR DATA.
MAXIMIZE GAME DAY PERFORMANCE.*

Introduction to Sports Science on a Budget



NSCA[®]
NATIONAL STRENGTH AND
CONDITIONING ASSOCIATION

COACH**ME**PLUS

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WHAT IS SPORTS SCIENCE ON A BUDGET?

- The ability to *effectively monitor your athletes* using *cost efficient* methods to create a culture of *tracking data* and *intervention*.
- *Best practice* learned from top teams
 - “what works in the lab does not always work in the field”
- Simplistic approach – Weights, Questionnaire, sRPE



● = INTEGRATED DEVICE

○ = INTEGRATED METHODOLOGY

HOWEVER...

It's not about the

DATA

It's about the

INTERVENTION



CULTURE – WHAT WE’VE FOUND

- Most important – *“People” factors*
- *Education* is an important factor in buy-in
- Best *breeders* of culture are *teachers* at every level of organization

THE BASICS FOR SPORTS SCIENCE ON A BUDGET



QUESTIONNAIRE

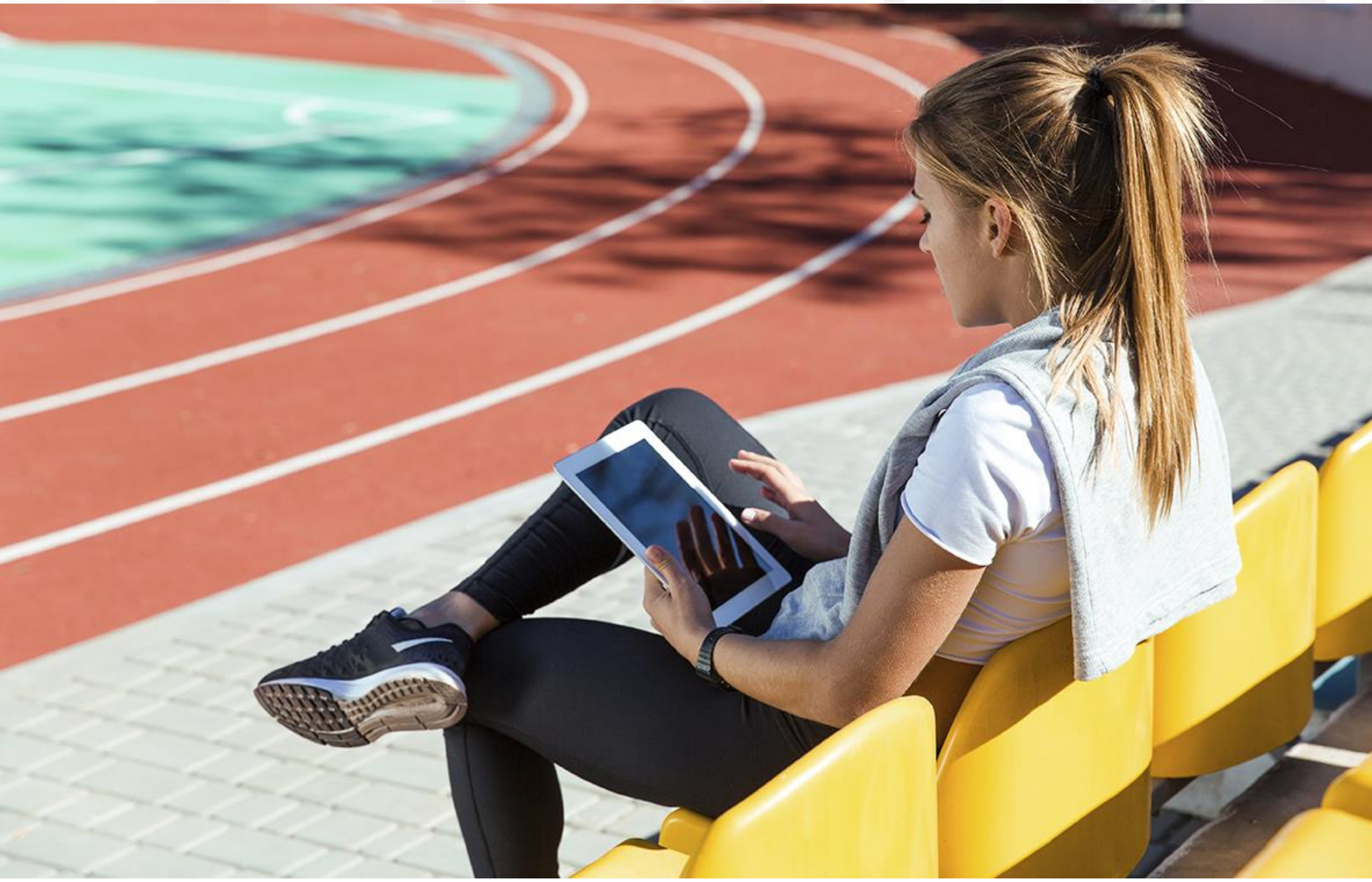


DAILY WEIGHTS / HYDRATION



SESSION RPE

QUESTIONNAIRES



QUESTIONNAIRES – QUESTION TYPES

	5	4	3	2	1
Fatigue & Energy Levels	Very Fresh	Fresh	Normal	Quite Tired	Very Tired
Sleep Quality	Very Good	Good	Difficulty Falling Asleep	Restless Sleep	Very Bad Sleep
Sleep Duration	>8 Hours	7-8 Hours	6-7 Hours	5-6 Hours	<5 Hours
General Muscle Soreness	Feeling Great	Feeling Good	Normal	Some Soreness or Tightness	Very Sore
Stress & Mood Level	Very Relaxed & Positive	Relaxed & In a Good Mood	Normal	Slightly Annoyed, Snappiness at Team-Mates	Very Annoyed, Irritable, Feeling Down

Gastin P.B., Meyer, D., Robinson, D. (2013) Perceptions of wellness to monitor adaptive responses to training and competition in elite Australian football. Journal of Strength & Conditioning Research, E-Pub Ahead of Print.

QUESTIONNAIRE – INTERVENTION POINTS

SIMPLE INDICATORS

The key in tracking subjective data from athletes is to normalize the data so you look for *changes* in the information, not the raw information itself. Track each athletes Moving Average, and look for a Standard Deviation change in the score over time.

- Ex: Today vs. last 10 days
- **1 STD** - First level of intervention warning
- **2 STD** – Second level of intervention warning

QUESTIONNAIRE – INTERVENTION POINTS

Example: High-scorer vs. Low-scorer over time.

* Note STD is the same

Athlete 1	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	
Raw Score	5	4	4	4	5	3	3	3	4	3	4	3	4	4	
6-day Moving Average							4.2	3.8	3.7	3.7	3.5	3.3	3.3	3.5	3.7
STDEV moving							0.7	0.7	0.8	0.8	0.8	0.5	0.5	0.5	0.5
Athlete 2	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	
Raw Score	3	2	2	2	3	1	1	1	2	1	2	1	2	2	
6-day Moving Average							2.2	1.8	1.7	1.7	1.5	1.3	1.3	1.5	1.7
STDEV moving							0.7	0.7	0.8	0.8	0.8	0.5	0.5	0.5	0.5

QUESTIONNAIRES – PLOTTING THE DATA

Wellness Questionnaire

History	5d Avg	Latest	Trend
Sleep 	3	5	+2
Recovery 	2	5	+3
Mood 	4	4	0
Energy 	4	1	-3
Pain 	3	2	-1

WHAT WE'VE LEARNED

- Educate your athletes on importance of sleep and other recovery methods
- Evaluate individual and team trends to better understand the responses to the programming.
- Look for changes in schedule and adapt recovery methods to fit those needs.

HYDRATION – WEIGH-IN / WEIGH-OUT



HYDRATION – WEIGH-IN / WEIGH-OUT

SIMPLE INDICATORS

- **1%** - “When fluid intake matches fluid loss, daily body mass will fluctuate by less than 1% and hydration status can be reliably estimated using as few as three consecutive days of first-morning body weights measured after voiding”
- **2%** - “A body water deficit of greater than 2% of body weight marks the level of dehydration that can adversely affect performance.”

Casa, D, Clarkson, P, and Roberts, W. American college of sports medicine roundtable on hydration and physical activity: consensus statements. Current Sports Medicine Reports. 2005, 4:115-127.

HYDRATION – FLUID REPLACEMENT

Fluid Replacement = Body Mass Lost x 1.5

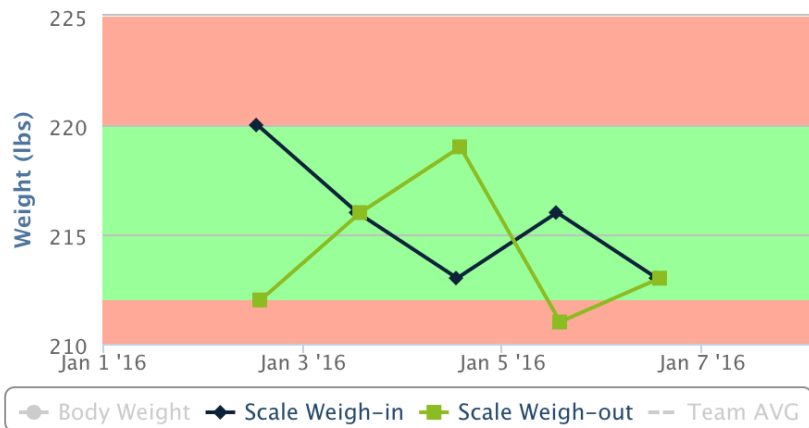
- <http://ksi.uconn.edu/prevention/hydration/>

Body Mass Lost (lbs)	Fluid Replacement (lbs)	Fluid Needed (oz)
0.5 lb	0.75 lb	12 oz
1 lb	1.5 lbs	24 oz
1.5 lbs	2.25 lbs	36 oz
2 lbs	3 lbs	48 oz
2.5 lbs	3.75 lbs	60 oz
3 lbs	4.5 lbs	72 oz
3.5 lbs	5.25 lbs	84 oz
4 lbs	6 lbs	96 oz

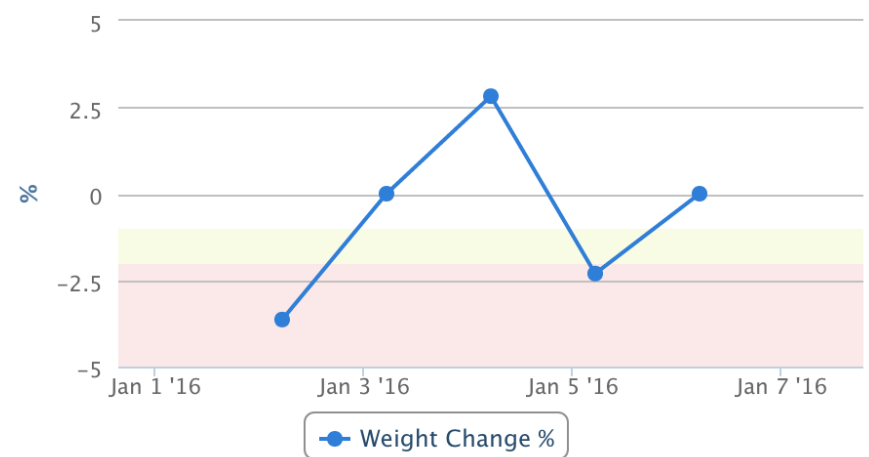
HYDRATION – WEIGH-IN / WEIGH-OUT

CHART OVER TIME

Body Weight



Scale Weight Change %



WHAT WE'VE LEARNED

- Educate athletes on differences between hydration options (ex. water vs. sports drink)
- Acute changes over 2% should be reviewed with athlete
- Chronic changes should require monitored intake of fluids to bring athletes back to baseline

SESSION RPE



BASIC LOAD MONITORING

Tracking load over time will help you understand the amount of work the athlete perceives they have done.

- **RPE** - subjective Rating of Perceived Exertion
- **DURATION** – amount of time in session
 - ***RPE x Duration in Minutes = TRAINING LOAD***

Foster, C., (1998) Monitoring training in athletes with reference to overtraining syndrome. *Med Sci Sports Exerc. Jul; 30(7): 1164-8*

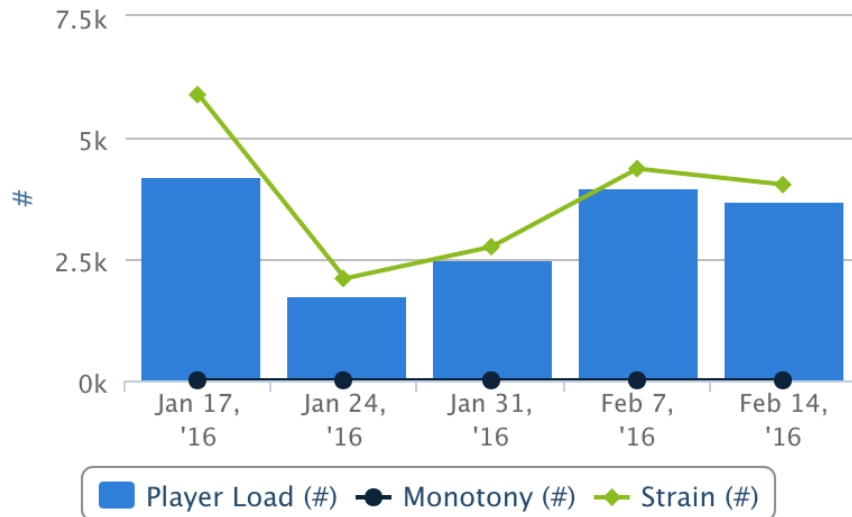
BORG SCALE FOR SRPE

Rating	Description
0	Rest
1	Very, Very Easy
2	Easy
3	Moderate
4	Somewhat Hard
5	Hard
6	-
7	Very Hard
8	-
9	-
10	Maximal

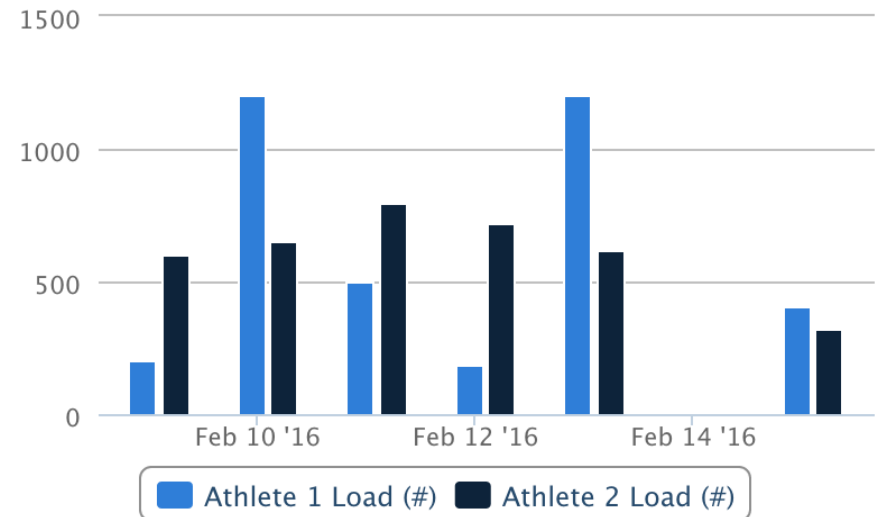
Borg, G. Perceived exertion as an indicator of somatic stress. *Scandinavian Journal of Rehabilitation Medicine* 1970; 2, 2-3, 92-98.

SRPE

sRPE Weekly Monotony and Strain



sRPE Daily Player Load



WHAT WE'VE LEARNED

- Track sessions over time to build a history
- Use this history to build library of sessions and average sRPE values
- Group sessions for sport coaches and help them plan future training sessions.

SPORTS SCIENCE WITH COACHMEPLUS

- *Dashboard visualizations*
- *Complex data communication*
- *Third-party device integrations*

INDIVIDUAL DASHBOARDS

SPEED OF INFORMATION

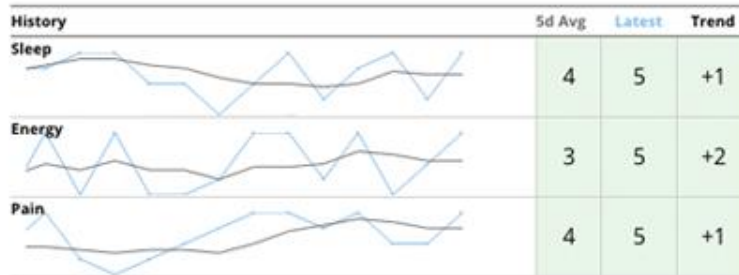


Cole Weppner

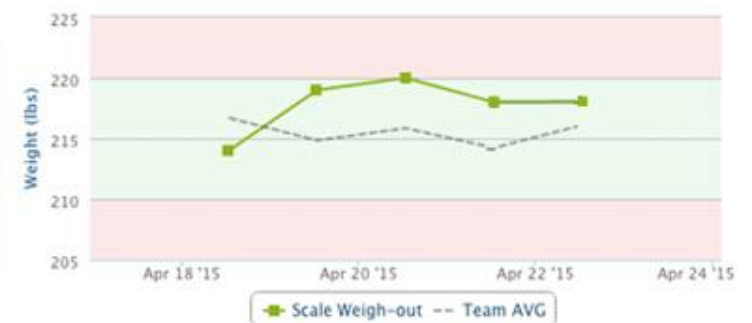
Forwards
Stallions

Position Forward
Handed Right
Height 5' 1" (154.94 cm)
Weight 216 lb (97.98 kg)
Body Fat% 99 %
DOB Feb 12, 1992 (Age 23)

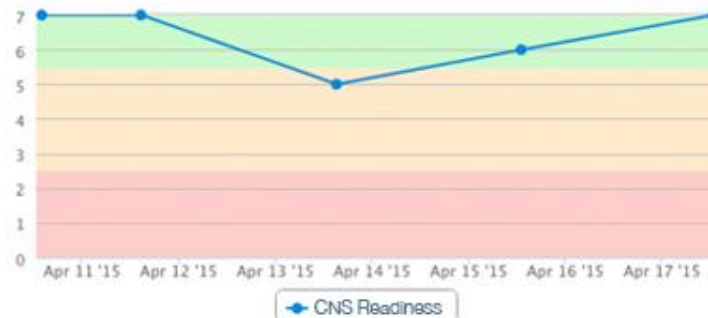
Wellness Questionnaire



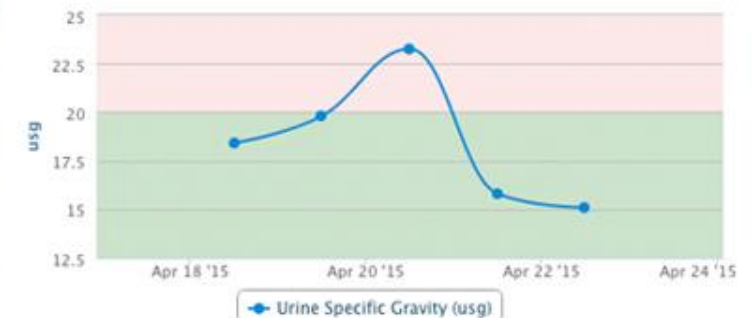
Body Weight



Omegawave CNS Readiness



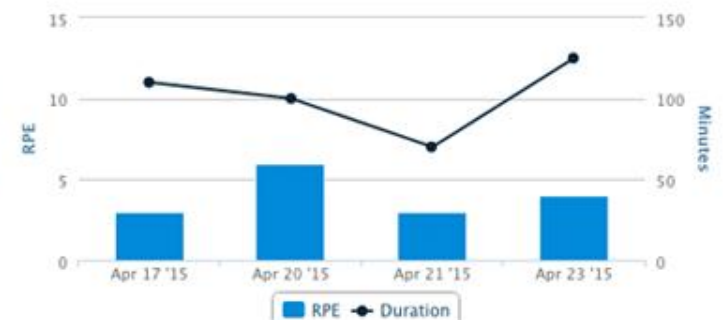
Urine Specific Gravity



Pinch Test Result - Body vs Lean Mass



Session Breakout AM RPE



TEAM REPORTS

SPEED OF INFORMATION



Filters

Training Group:
 Position:
 Date:

records per page

Search:

Name	Position	Weight	Quest	HRV	Hydration	Sleep	Mechanical Load	Metabolic Load	RPE	Soreness	Coach Comments
Burrows, Lincoln	DB	181.1	9	5	.23	6	220	330	5	5	<input type="button" value="Add Note"/>
Chambers, Evan	DB	205.8	18	2	.15	6	233	310	8	5	<input type="button" value="Add Note"/>
Evans, Clay	DB	213.9	15	3	.24	5	180	356	7	8	<input type="button" value="Add Note"/>
Gilbert, Jeremy	DB	213.5	8	5	.12	3	224		5	5	<input type="button" value="Add Note"/>
Locke, John	DB	204.7	10	5	.15	6		200	7	5	<input type="button" value="Add Note"/>
Mahone, Alex	DB	202.3	15	4	.15	6		254	7	3	<input type="button" value="Add Note"/>
Owens, Calvin	DB	211.3	13	5	.12	7			6	5	<input type="button" value="Add Note"/>
Pace, Charlie	DB	210.4	15	5	.10	6	179		5	6	<input type="button" value="Add Note"/>
Scotfield, Michael	DB	192.3	19	7	.14	7		204	5	3	<input type="button" value="Add Note"/>
Scott, Lucas	DB	199.3	20	5	.10	7		201	5	5	<input type="button" value="Add Note"/>
Weppner, Cole	DB	206.4	19	7	.08	9	181		4	2	<input type="button" value="Add Note"/>

INTEGRATED DEVICES

TOOLS FOR EFFICIENCY



CONCLUSION

- The key to a successful monitoring program is to distill large amounts of information into simple indicators that allow coaches and trainers to step in and create intervention.
- Monitoring indicators of load and fatigue, daily weight measurements and wellness lay a great foundation to be built upon.

THANK YOU!

Doug McKenney

Founding Coach

Sports Performance Specialist

716.725.5828

doug.mckenney@coachmeplus.com