



**UNIVERSITY OF LEEDS**

This is a repository copy of *Are professional young rugby league players eating enough? Energy intake, expenditure and balance during a pre-season.*

White Rose Research Online URL for this paper:  
<http://eprints.whiterose.ac.uk/136031/>

Version: Accepted Version

---

**Article:**

Costello, N, Deighton, K, Preston, T et al. (3 more authors) (2019) Are professional young rugby league players eating enough? Energy intake, expenditure and balance during a pre-season. *European Journal of Sport Science*, 19 (1). pp. 123-132. ISSN 1746-1391

<https://doi.org/10.1080/17461391.2018.1527950>

---

© 2018 European College of Sport Science. This is an Accepted Manuscript of an article published by Taylor & Francis in *European Journal of Sport Science* on 07 Oct 2018, available online: <http://www.tandfonline.com/10.1080/17461391.2018.1527950>. Uploaded in accordance with the publisher's self-archiving policy.

**Reuse**

Items deposited in White Rose Research Online are protected by copyright, with all rights reserved unless indicated otherwise. They may be downloaded and/or printed for private study, or other acts as permitted by national copyright laws. The publisher or other rights holders may allow further reproduction and re-use of the full text version. This is indicated by the licence information on the White Rose Research Online record for the item.

**Takedown**

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing [eprints@whiterose.ac.uk](mailto:eprints@whiterose.ac.uk) including the URL of the record and the reason for the withdrawal request.



[eprints@whiterose.ac.uk](mailto:eprints@whiterose.ac.uk)  
<https://eprints.whiterose.ac.uk/>

**Table 1.** Training schedule and data collection protocol, identical across the entire fourteen-day period. Times in parentheses represents length of the training session or data collection period. The training schedule represents a typical pre-season training period.

	<b>Sunday</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>
<b>AM</b>	RMR (06:30 – 11:00)	Snap-N-Send (00:00 – 00:00)	Snap-N-Send (00:00 – 00:00)	Snap-N-Send (00:00 – 00:00)	Snap-N-Send (00:00 – 00:00)	Snap-N-Send (00:00 – 00:00)	
	BASELINE URINE (06:30 – 11:00)						
	ANTHROPOMETRIC HEIGHT & BODY MASS (06:30 – 11:00)	RESISTANCE TRAINING & FIELD TRAINING (06:30 – 07:30)	REST	REST	REST	RESISTANCE TRAINING & FIELD TRAINING (06:30 – 07:30)	RESISTANCE TRAINING & FIELD TRAINING (09:00 – 11:30)
	DLW DOSE (06:30 – 11:00)						
	URINE SAMPLE (07:30 – 11:00)						
<b>PM</b>	REST	REST	RESISTANCE TRAINING & FIELD TRAINING (16:00 – 18:30)	REST	RESISTANCE TRAINING & FIELD TRAINING (16:00 – 18:30)	REST	REST
	URINE SAMPLE (22:00)	URINE SAMPLE (22:00)	URINE SAMPLE (22:00)	URINE SAMPLE (22:00)	URINE SAMPLE (22:00)	URINE SAMPLE (22:00)	URINE SAMPLE (22:00)

**Table 2.** Individual participant values for average resting metabolic rate (RMR), total energy expenditure (TEE), physical activity level (PAL) and starting body mass (BM) across the fourteen-day assessment period.

<b>Player</b>	<b>RMR (MJ·day<sup>-1</sup>)</b>	<b>TEE (MJ·day<sup>-1</sup>)</b>	<b>TEE (MJ·BM·day<sup>-1</sup>)</b>	<b>PAL</b>	<b>BM (kg)</b>
1 (LF)	8.70	17.04	0.20	2.0	83.1
2 (PF)	13.15	19.34	0.18	1.5	103.4
3 (HB)	9.50	16.30	0.22	1.7	71.8
4 (H)	12.08	17.15	0.20	1.4	83.8
5 (PF)	14.00	24.13	0.22	1.7	107.3
6 (W)	9.27	16.17	0.21	1.7	74.9

Player positions are shown in brackets for players. LF=Loose Forward, PF=Prop Forward, HB=Half Back, H=Hooker and W=Winger.

**Table 3.** Individual participant values for energy intake, total energy expenditure (TEE), inferred energy balance and observed body mass (BM) change across the non-consecutive ten-day assessment period. Player positions are shown in brackets for players. LF=Loose Forward, PF=Prop Forward, HB=Half Back, H=Hooker and W=Winger.

<b>Player</b>	<b>Energy Intake (MJ·day<sup>-1</sup>)</b>	<b>TEE (MJ·day<sup>-1</sup>)</b>	<b>Inferred Energy Balance (MJ·day<sup>-1</sup>)</b>	<b>Observed BM Change (kg)</b>
1 (LF)	17.24	18.18	-0.94	-1.5
2 (PF)	16.42	19.81	-3.39	-1.5
3 (HB)	18.24	16.13	2.11	0.5
4 (H)	16.49	16.38	0.11	-0.2
5 (PF)	17.54	23.90	-6.36	-0.8
6 (W)	14.42	16.08	-1.66	-0.4