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**An observational study on the dietary intake, nutrition
practices, hydration status and energy expenditure in
competitive one-day cricket matches**

**A thesis presented in partial fulfillment of a Masters of
Science**

in

Human Nutrition

Massey University, Albany, New Zealand

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2018

Abstract.

Background: Cricket is one of the oldest sports in existence, the first international match dates back to 1844. Modern day cricket with increasing elite level representation has resulted in higher physical performance demands on players. Despite this there is little information available regarding the energy cost, dietary intake and hydration status of cricket players during matches.

Objective: To investigate pre-match and match dietary intake, hydration status and energy expenditure (EE) of competitive male players within 50-over cricket matches.

Methods: Competitive male cricket players (>16y) from the Auckland Cricket Association were invited to participate in an observational study that took place during competitive 'one-day format' cricket matches. Early morning pre-match hydration was tested for urine specific gravity (U_{sg}), end of match hydration was determined from percentage body mass (BM) change and sweat loss was estimated from end of match BM less calculated BM (pre-match BM + food and fluid mass - urine output). Dietary intakes were assessed using food records (pre-match) and direct observation (during match). Global positioning system units were worn to provide time motion analysis data. EE was calculated from relative metabolic load multiplied by pre-match BM. Statistical analyses using independent t-tests and bivariate correlations were performed to investigate relationships between variables.

Results: Match data were collected from 27 cases over six games from 18 participants. Early morning pre-match dehydration ($\geq U_{sg} 1.020 \text{ g}\cdot\text{ml}^{-1}$) was reported in 81.5% of cases. The minimum recommended pre-event fluid intake ($5 \text{ ml}\cdot\text{kg}^{-1}$) was met by 28% of participants ($n=5$). A pre-match carbohydrate (CHO) intake of $<1 \text{ g}\cdot\text{kg}^{-1}$ was reported for 66.6% of participants, and match CHO intake of $<30 \text{ g}\cdot\text{h}^{-1}$ was found for 37% of cases. End of match BM percent losses occurred in 59.2% and the highest loss reported was 2% ($n=2$). Match fluid intake was positively associated with match sweat loss ($P<0.001$). The average

match EE per hour was $1015 \pm 266 \text{ kJ}\cdot\text{h}^{-1}$. There was no relationship between match EE and energy intake.

Conclusion: Most players were dehydrated early morning, and almost one third had an inadequate pre-match fluid intake. Match rehydration was insufficient in over two-thirds of the cases and CHO intake was insufficient for two thirds pre-match and for one third during the match. The results from this study indicate that educating this group of cricket players on pre-match and match dietary and fluid requirements and on individual hydration monitoring practices is warranted. Further investigations on the energy cost of cricket matches are warranted to further determine the demands of the game, specifically focusing on positional demands.

Acknowledgements.

A number of people generously gave up their time to contribute to this study.

I would like to express my gratitude to my academic supervisors, Dr Kathryn Beck, Associate Professor Pamela von Hurst and Associate Professor Andrew Foskett, your individual expertise, guidance and support was invaluable. To my lead supervisor Dr Kathryn Beck, you were instrumental to the completion of this study and I thank you for your ongoing words of encouragement.

Special thanks also to Massey University research and support staff, Owen Mugridge, PC Tong, and Kate McMaster, you assisted with data collection and shared with me your vast knowledge and skills.

To Daniel Gordon for your expertise and time, specifically in the application of GPS and to my fellow student Corey Payne for being by my side supporting and contributing to this study throughout the journey.

Further thanks also to Julie Heaton your supervisory role in the practical and technical aspect of the dual energy x-ray absorptiometry analysis, and to Adriana Hepburn for research assisting with me the final game.

Finally I would like to thank Paul McKinnon (former ACA High Performance Manager), Nick White (Current Performance and Pathways Manager), Scott McLaren, (former ACH Strength and Conditioning Specialist) and Andre Adams, (Auckland A Team Head Coach) from the Auckland Cricket Association, for their co-operation and support with recruitment and data collection.

And last but not least my thanks goes to the participants themselves, without whom this study could not have taken place.

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