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Energy and nutrient intake of triathletes. Do they meet current recommendations?

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Triathlon involves three endurance events of swimming, cycling and running. The Olympic or classic triathlon race consists of a 1·5 km swim, a 40 km bike ride and a 10 km run[(1)]. Many recreational athletes participate in triathlon not for the competition but for fitness and health benefits, weight loss and social reasons. Adequate nutrient intake is important not only to optimise performance during competition but also to support training regimes[(2)]. The basis of adequate nutrient intake is a healthy and balanced diet, therefore, recommendations for recreational athletes is to consume a diet, which follows current dietary recommendations for general population[(3,4)].

Participants (n 32) were recruited from a triathlon club based in the North West. A short self-report questionnaire was used to collect participants' characteristics including gender, age, weight, and height. Dietary habits were assessed using 3-day food diaries and analysed by Microdiet. Exercise levels were assessed using 3-day exercise records. The energy and nutrient intakes were compared to national recommendations[(3,4)] using one-sample t-test.

The study consisted of 19 female and 13 male triathletes, aged 33 years (SD 11·6) with BMI of 21 (SD 3·2). Male participants were engaged in 3–6 hours of cardiovascular exercise during a study period of 3-days, whilst female athletes completed 1–4 hours of cardiovascular exercise.

Food diaries revealed that both gender triathletes achieved recommended levels of energy intake. Female athletes consumed significantly lower amount of carbohydrate and dietary fibre when compared to the recommendations, whilst the levels of non-milk extrinsic sugars (NMES) was significantly higher. Male participants achieved their carbohydrate intakes, however, protein, total fat and NMES intakes were too high. In terms of micronutrients, only dietary iron intake in female triathletes' diet was significantly lower when compared to the current recommendation. In fact only 10% of female participants met reference nutrient intake (RNI) for dietary iron.

	Females (*n* 19)				Males (*n* 13)			
	Present study		DRVs	*P* value	Present study		DRVs	*P* value
Nutrient	Mean	SD			Mean	SD		
Energy (kcal/day)	2439	1286	2415	NS	2771	544	2862	NS
Carbohydrate (% TEI)	39·2	13·3	47	0·020	46·5	9·6	47	NS
Dietary fibre (g/day)	12·9	5·4	18	0·001	12·0	4·2	18	0·001
NMES (% TEI)	17·2	11·8	10	0·001	22·1	9·1	10	0·001
Protein (% TEI)	17·4	5·6	15	NS	17·6	3·3	15	0·015
Fat (% TEI)	37·6	12·9	33	NS	37·5	6·9	33	0·037
Saturated fats (% TEI)	13·6	14·1	10	NS	11·6	3·4	10	NS
Vitamin C (mg/day)	64·9	36·9	40	0·001	247·0	129·9	40	0·001
Sodium (mg/day)	3988	1064	1600	0·001	3924	1439	1600	0·001
Calcium (mg/day)	792·2	322·0	700	NS	914·2	389	700	NS
Iron (mg/day)	11·9	5·1	14·8	0·023	14·9	5·0	8·7	0·001
Magnesium (mg/day)	253·2	75·1	270	NS	290·0	72·2	300	NS
Zinc (mg/day)	10·3	3·5	7·0	0·001	12·2	3·8	9·5	0·001

Key: DRVs- Dietary Reference Values, TEI – Total Energy Intake, NS – non-significant

In conclusion, the cross-sectional study showed that the diets of triathletes are not well balanced. Whilst the energy and protein intakes are achieved, carbohydrate levels are low, especially for dietary fibre. Female athletes may be also at risk of compromised iron status due to significantly low intakes of dietary iron. Recreational athletes should be better educated on the importance of carbohydrate intake for endurance sport.

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