DIETARY ANALYSIS COUNSELLING AND PERFORMANCE RELATIONSHIPS IN ELITE SWIMMERS

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Athletic performance is influenced by many factors such as aptitude, training and mental preparation. Diet is an often neglected area of preparation in athletes which can affect training and competition performance. Following a request by a club swimming coach to improve dietary status in a coaching squad, ten elite swimmers, six male and four female, aged between 13 and 21 were selected for a case study. The aims of the study were to ascertain current dietary habits of individuals, provide dietary counselling as required and to ascertain relationships between performance and any dietary changes.

To determine dietary habits, food intake and training diaries were recorded for three seven day periods over eight months that covered three periodisation training and competitive phases; maintenance, building endurance and taper. Energy needs were determined by evaluating activity patterns against standard tables and expressed as Basal Metabolic Rate multiples. (Warwick, 1989)

Following computerised dietary analysis, diets were evaluated for meeting predicted energy requirements, % carbohydrate energy, % fat energy, starch : sugar ratios, compliance with Recommended Daily Intakes and water intakes. Diet and performance changes for those athletes completing two or more records are portrayed below.

Age/Sex	16/F		16/F		13/M		14/M		16/M		16/M		21/M	
BMI	19		23		20		18		24		24		22	
% swim imp	3.1		20.6		8.5		5.3		20.1		7.1		12.6	
Test Period	Jul	Oct	Jul	Oct	Mar	Oct	Jul	Oct	Jul	Oct	Mar	Jul	Jul	Oct
% ± expected energy range	-	-9	-38	-37	-23	-7	-4	-	-10	-16	-	-	-	-
%CHO Energy	39	43	40	49	59	54	42	54	45	47	61	52	48	43
%Fat Energy	39	33	46	29	24	18	41	27	40	39	25	31	36	35
Starch: Sugar	0.9	0.9	1.2	1.7	0.4	1.0	2.6	2.2	0.7	1.0	1.4	1.3	1.6	1.3
RDI's not met	-	1	12	-	3	-	-	-	2	4	1	-	-	-
Water intake l	1.5	1.6	0.7	1.9	2.0	1.8	1.3	2.2	1.7	2.1.	1.8	1.7	3.0	3.0

Individualised and group nutritional counselling was given after each trial period. Early counselling sessions were confined to discussing general principles of sports nutrition and better food record keeping techniques. In later sessions participants were encouraged to modify their diets in accordance with their particular needs. Food sampling of low-fat, high-carbohydrate alternative foods was enthusiastically received. Detailed individualised reports were presented to participants at the end of the study summarising positive and negative changes to their diet over the test period.

All swimmers involved in the study improved their performance in at least three different strokes during the study period and most showed, where desirable, increased % energy from carbohydrate, starch: sugar ratios and water intakes with reduced % energy from fat. Whilst the factors that effect performance are many and varied it is pleasing to note that such improvements paralleled improvements in diet.

WARWICK, P.M. (1989) Aust. J. Nut.& Diet. 46: S9.

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