

Nutritional intake in Dutch hockey players: *cross sectional survey in preparation of the Olympic Games of Athens*

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Introduction

**AMERICAN COLLEGE
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JOINT POSITION STATEMENT

Nutrition and Athletic Performance

- Do athletes meet nutrition recommendations?
 - *no recent Dutch data available (1989)*
- Are guidelines feasible in practice?
 - *In all types of exercise*

AIM

Are Dutch Hockey Players able to meet the recommendations for nutritional intake during a training period?

Dutch Team

Gold medal match [\[edit\]](#)

27 August 2004
20:30

Netherlands 
Brouwer  29'

1 – 2 (a.e.t.)
[Report](#) 

 Australia
Brooks  37'
Dwyer  78'

Umpires:
Ray O'Connor (IRL)
John Wright (RSA)



Methods and Population

- In preparation of the Olympic Games of Athens (2003)
- 4 day food record (Becel 2002, NEVO 2001)
 - On average 3.9 days per person
 - n=19 4-days and n=2 3 days
 - Training day (heavy and light)/Match/Recovery day
- 21 male hockey players of National Team
 - 81.9 ± 6.42 kg
 - 183.1 ± 6.81 cm



Nutritional Intake and Probability of inadequacy

Table 1. Energy and macro-nutrient intake of male hockey players on average mean intake per person.

Nutrients	Male (n=21)		EAR/RDI/AI	POI (%)	Prevalence of inadequate intakes
	Mean±SD	Median (25th-75th)			
Energy (MJ)	10.2 ±3.05	10.0 (0.82-11.8)	-	-	-
Energy (Kcal)	2494±2508	2508 (1945-2928)	-	-	-
CHO (g)	325±115	302 (248-398)	-	-	-
CHO (g/kg)	3.97±1.38	3.55 (2.90-5.24)	2.9*	18.4	18.4%
			5*	80.5	ns
			7*	99.4	ns
			10*	100	ns
PRO (g)	95.2±22.1	94.8 (78.0-112)	-	-	-
PRO (g/kg)	1.16±0.24	1.12 (0.95-1.40)	0.6*	0	0%
			0.8 ^o	0.4	low risk
			1.2*	61.2	ns
			1.8*	100	ns
FAT (g)	86.6±27.4	95.2 (57.0-109)	-	-	-
Vit. C (mg)	111±73.3	97.8 (49.5-168)	70*	18.3	low risk
Vit. D (mcg)	2.47±1.55	1.82 (1.41-3.30)*	2.5*	51.1	ns
			5*	93.6	ns
			10*	99.9	ns
Iron (mg)	12.5±3.10	12.3 (10.2-14.8)	8*	1.0	1%
Magnesium (mg)	341±86.2	319 (281-408)	300*	24.6	low risk

All median data marked with * indicates not normal distributed data.

Guidelines are given based on: ^oEAR, ^oRDI, *AI and *Sports nutrition recommendation

Prevalence of inadequate intakes: in case of AI or sports nutrition recommendation median-based qualitative assessment.

Median >AI or sports nutrition recommendation: low risk. median < AI or sports nutrition recommendation: no statement (ns).

Nutritional Intake and CV_w and CV_b

Table 2. Within and between person variation and precision of estimate of mean intake (%).

Nutrient	CV_b^2	CV_w^2	D_t
Energy(kJ)	0.26	0.20	12.1
Energy(kcal)	0.25	0.20	11.6
CHO (g)	0.34	0.21	15.3
CHO (g/kg)	0.34	0.21	15.1
PRO (g)	0.20	0.25	10.1
PRO (g/kg)	0.17	0.26	9.1
FAT (g)	0.26	0.36	13.7
Vit C (mg)	0.56	0.71	28.5
Vit D (mg)	0.63	0.56	29.5
Iron (mg)	0.21	0.26	10.6
Magnesium(mg)	0.23	0.24	11.0

CV_b^2 : covariance between. CV_w^2 : covariance within.

D_t : precision of the estimate mean intake

Conclusions

- A large number of this population field hockey players does not meet basic nutrition recommendations for CHO and PRO
- There is a low risk for deficiencies for iron and magnesium
- Vitamin D and vit C intakes reflect a large variation, therefore it is difficult to draw hard conclusions

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