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## Micronutrients intake in overweight adults with chronic spinal cord injury – result from Spinal Clinic for Obese Outpatient Project (SCOOP)

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A substantial literature has reported on the prevalence of under- and over-nutrition in selected patient groups; as yet, there is little published evidence of nutrition status of patients with spinal cord injuries (SCI)<sup>(1,2)</sup>. This study makes attempts to compile the micro-nutrients profile of over-nourished adults living in the UK with SCI and to compare their intake with the Reference Nutrient Intake (RNI) and Lower Reference Nutrient Intake (LRNI) set by the Department of Health<sup>(3)</sup> and the National Dietary Nutrition Survey (NDNS)<sup>(4)</sup>. Of 22 patients recruited from the weight management clinic, (47.1 ± 13.4 years; BMI: 35.5 kg/m<sup>2</sup>), this study found patients who are overweight with SCI failed to meet the recommended values set by the UK Department of Health for K (81.8% of sample), Cu (62% of sample), Se (100% of sample), iodine (59% of sample) and Ca, Na, Fe and Zn for female patients. The intake of Ca, phosphorus, Mg, Na, K, Fe, Cu, thiamine, riboflavin, nicotinic acid, vitamin B<sub>6</sub>, vitamin B<sub>12</sub>, folate, vitamin A, vitamin D and vitamin E was lower than the findings of the UK national diet and nutrition survey data. This study shows the numbers of micronutrient inadequacies, relative to the RNI, LRNI and NDNS data. In light of excess energy intake leading to weight gain, the presence of nutritional deficiencies in these groups of patients may seem paradoxical. Causes are multifactorial, and probably include decreased consumption of fruits and vegetables, increased intake in sugar and alcohol. Their diets are nutritionally poor-quality food, such as take away, alcohol and fizzy drinks and change in body composition post SCI, which may influence the storage and availability of certain nutrients. As obesity in SCI has reached an epidemic, apart from introducing appropriate interventions to treat obesity, clinicians must also be aware of possible pre-existing nutritional deficiencies in obese patients. Current guidance on nutritional requirement may be insufficient in the SCI population. In order to identify specific health outcomes where the population failed to meet the recommendation and offer area of improvements, further research on nutrient intake in this group of patients, with a larger sample size is warranted.

Nutrient group	SCI group (mean)		NDNS		RNI		LRNI	
	Men	Women	Men	Women	Men	Women	Men	Women
Calcium (mg /d)	846	595.5	1007	777	700	700	400	400
Phosphorus (mg /d)	1252	930.8	–	–	550	550	–	–
Magnesium (mg/d)	288.7	210.7	1493	1112	200	270	190	150
Sodium (mg/d)	2267	1525	3313	2302	1600	1600	575	575
Potassium (mg/d)	2740	2234	3367	2653	3500	3500	2000	2000
Iron (mg/d)	11.3	8.5	11.3	8.5	8.7	14.8(19–50); 8.7(50+)	4.7	8(19–50); 4.7(50+)
Zinc (mg/d)	10.8	6.4	10.2	7.4	9.5	7.0	5.5	4.0
Copper (mg/d)	0.98	0.74	1.43	1.03	1.2	1.2	–	–
Selenium (mg/d)	33.2	21.02	–	–	75	60	40	40
Iodine (ug/d)	113.5	113.7	215	159	140	140	70	70
Thiamin (mg/d)	1.41	1.26	2.0	1.54	1.0	0.8	0.23	0.23
Riboflavin (mg/d)	1.89	1.25	2.11	1.66	1.3	1.1	0.8	0.8
Nicotinic acid (mg/d)	29.9	26.0	44.7	30.9	6.6	6.6	4.4	4.4
Vitamin B <sub>6</sub> (mg/d)	1.79	1.49	2.9	2	1.5	1.5	1.0	1.0
Vitamin B <sub>12</sub> (ug/d)	6.3	3.8	6.5	4.8	1.5	1.5	1.0	1.0
Folate (ug/d)	247.8	209.4	344	251	200	200	100	100
Vitamin C	72.5	119.4	83.4	81	40	40	10	10
Vitamin A	714	782	911	671	700	600	300	250
Vitamin D	2.86	2.31	3.7	2.8	10(50+)	10(50+)	–	–
Vitamin E	5.95	4.62	6.5	3.9	–	–	–	–

SCI: Spinal cord injury group; NDNS: National Dietary and Nutrition Survey<sup>4</sup>; RNI: Reference Nutrient Intake<sup>3</sup>; LRNI: Lower Reference Intake<sup>3</sup>.

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