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Title: Nutritional status and admission risk in Duchenne muscular dystrophy (DMD)

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Body: Weight loss and malnutrition are common in DMD. However, there are no studies that have assessed the effect of nutritional status on clinical outcome in DMD. This study was designed to assess the impact of poor nutritional status on outcomes over a 12-month period. A retrospective case series study was conducted. All DMD patients over 16 years referred to a tertiary centre were recruited (n = 79; 16–41 years). Nutritional parameters [baseline and current weight, body mass index (BMI)] and feeding routes were assessed in relation to outcome indicators [length of stay (LOS), re-admission and infection episodes)]. BMI was only measured in 34/79 (43%) of patients. The mean (SD) BMI was 20.8 (5.5) kg/m2. Re-admission risk was greater in underweight (BMI<20kg/m2) or overweight (BMI>25kg/m2) compared to normal BMI patients (RR 1.2, 1.43, respectively). Patients admitted to hospital weighed significantly less than non-admitted patients with a median (IQR) of 51kg (39,66) vs. 64kg (50,76; p=0.03). Enteral tube fed patients had a greater LOS and re-admission risk compared to orally fed patients (Table 1).

Table 1: LOS, re-admission and infective episodes over 12-months

	Age (years)	LOS (days)	Chest Sepsis Episodes
Oral	21.7 (19,23)	0.5 (0,8)	0 (0,1)
Enteral	23.5 (20,25)	11 (0,36)	1 (0,1)
P value	0.06*	0.004*	0.04*

*Mann-Whitney U test comparing median values with IQR in brackets

Nutritional status is associated with outcomes in DMD. Specifically, overweight and underweight patients were more likely to be re-admitted than those with a normal BMI. Furthermore, patients who are enterally fed have a greater admission risk, infective episodes and LOS than orally fed patients, which is indicative of disease severity.