



# Persistent Multiple Food Allergy and the Impact on Growth

Ruth Chalmers, Paediatric Allergy Dietitian

Tom\* is seven-year-old boy who has multi-system allergic disease: eczema, food allergy and allergic rhinitis (AR). He also has faltering growth and was referred for nutritional assessment, allergen avoidance advice and nutrition support at six years of age. Tom's case clearly demonstrates the impact food allergy can have on growth and dietary adequacy, highlighting the need for dietetic input and monitoring.

\*The name of the patient has been changed to protect patient confidentiality.

## Atopic history

Tom's severe eczema started at four months and remains problematic. Skin involvement is extensive; he uses topical steroid daily and emollient multiple times a day. He has also had nine months of oral Prednisolone and is currently taking part in a double-blinded placebo controlled trial examining the role of anti-IgE therapy in severe childhood eczema. He has multiple IgE-mediated food allergies including dairy,

to which he had an anaphylactic reaction, egg, lentil, chickpea, sesame and selective tree nuts including almond, hazelnut, cashew, pistachio and macadamia. Peanut, walnut, pine nut and pea have been re-introduced after successful hospital-based food challenges. He has seasonal AR with known pollen (grass and tree), house dust mite, pet hair (cat, dog, horse and rabbit) and mould sensitisation.

## The Neocate Case Study Series

A series of case studies sharing experiences and best practice surrounding the management of cows' milk allergy in infants and children. For further information visit: [www.neocate.co.uk](http://www.neocate.co.uk)

NUTRICIA  
neocate®

“Tom’s case illustrates the impact that multiple food allergies can have on growth, demonstrating the need for dietetic intervention.”

## Anthropometry

On assessment, age six years five months, Tom weighed 18.4 kg (9th centile) and was 105.9 cm tall (0.4th centile). I reviewed his red book detailing his anthropometric measurements for his first five years. Tom was born vaginally at term weighing 3.268 kg (25th centile). He tracked the 25th centile until eight weeks before dropping to the 9th centile around four months. He continued to track the 9th until 14 months before his weight decreased to the 2nd centile, tracking here until around five years when it dropped to the 0.4th. There were fewer height measurements but length in infancy plotted on the 2nd centile and was below 0.4th currently. Tom’s growth appears to have become compromised over time as new food allergies were identified and foods eliminated, restricting his intake. A finding well documented in literature exploring the impact of multiple food allergies on growth.<sup>1,7</sup> In Tom’s case, this was further compounded by the increased energy demand of his eczema.

## Intake and dietary advice

Tom was exclusively breastfed as an infant before moving on to soya milk. At referral he had a good appetite, eating three meals and two snacks a day and the family were already fortifying his foods. They had tried Duocal (Nutrica SHS) in the past but no improvement in anthropometry was observed. Due to the multiple nature of Tom’s food allergies the range of nutritional products suitable for use was limited. The family were discharged with an amino acid formula (AAF) for children >1 year in unflavoured and blackcurrant flavour.

The aim was to establish one sachet daily providing an additional 300 kcal using 1.25 kcal/ml concentration to keep the volume low. The AAF in blackcurrant flavour was successfully established and compliance was good.

## Follow up

Tom came back to clinic one month later. His weight had increased to 19.02 kg, a gain of 620 grams and height had increased to 106.4 cm, a gain of ½ a centimetre. His mother stated that it had affected his intake of solids at lunch, as his lunchbox was often coming home unfinished, whereas previously everything was consumed. So, we discussed the timing of the AAF and the distribution throughout the day to minimise any impact on dietary intake.

## Summary

Tom’s case illustrates the impact that multiple food allergies can have on growth, demonstrating the need for dietetic intervention. Supplementation in multiple allergic children can be challenging. Often healthcare professionals don’t explore the use of amino acid-based products in older children due to palatability concerns. However, Tom’s case demonstrates the importance of trying these products and exploring flavouring techniques if palatability is an issue. It also demonstrates that volume and timing of oral nutritional supplements is important. Using 1.25 kcal concentration and splitting the boluses into three doses of 100 ml given after breakfast, after school and before bed meant that meal times were unaffected.

References: **1.** Hobbs CB, et al (2015). Food allergies affect growth in children. *J Allergy Clin Immunol Pract*; 3(1): 133-134.e1. **2.** Mehta H, Groetch M, Wang J (2013). Growth and nutritional concerns in children with food allergy. *Curr Opin Allergy Clin Immunol*; 13(3): 275-279. **3.** Robbins KA, Wood RA, Keet CA (2014). Milk allergy is associated with decreased growth in U.S. children. *J Allergy Clin Immunol*; 134(6): 1466-1468. **4.** Meyer R, et al. (2014). Malnutrition in children with food allergies in the UK. *J Hum Nutr Diet*; 27(3): 227-235. **5.** Flammorin S, et al. (2011). Diet and nutritional status of children with food allergies. *Pediatr Allergy Immunol*; 22: 161-165. **6.** Christie L, et al. (2002). Food allergies in children affect nutrient intake and growth. *J Am Diet Assoc*; 102(11): 1648-1651. **7.** Cho HN, et al. (2011). Nutritional status according to sensitized food allergens in children with atopic dermatitis. *Asthma Allergy Immunol Res*; 3: 53-57.

### Disclaimers:

Duocal and Neocate are Foods for Special Medical Purposes for use under medical supervision. This case study has been commissioned by Nutricia and is intended for HCPs only.