

# Use of Renastart™ in a child with Chronic Kidney Disease (CKD) stage 3

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## Patient Details & Medical History

**Age:**  
8 years 10 months

**Gender:**



**Diagnosis:**  
CKD stage 3 due to bilateral dysplasia of the kidneys.

### Relevant Medical History:

Psychomotor retardation, failure to thrive, obesity, wheelchair bound, premature and dysmature, constipation, gastrostomy fed, no fluid restriction.

Medication	Reason for Use
Calcium carbonate (CaCO <sub>3</sub> )	Phosphate binder
Sodium bicarbonate (NaHCO <sub>3</sub> )	Bicarbonate to correct acidosis
Sodium Kayexalate	Potassium binder
Laxative	Anti-constipation medication



## Dietetic Assessment

	Initial Assessment	3 months post assessment	9 months post assessment
<b>Weight (kg)</b>	30	30	29.5
<b>Height (cm)</b>	120	120	-
<b>Centile on the growth chart</b>	weight: 80 <sup>th</sup> height: 8 <sup>th</sup>	weight: 74 <sup>th</sup> height: 5 <sup>th</sup>	weight: 57 <sup>th</sup> height: difficult to measure

### Calculation of estimated nutrition requirements:

**Protein:** 0.9-1g/kg actual body weight (ABW) = 26.6 - 29.5g

**Energy:** 50kcal/kg ideal body weight (IBW) = 50kcal x 20kg = 1,000kcal (requirement based on previous excessive weight gain)

**Potassium:** 1mmol/kg ABW (1180mg/29.5mmol)

**Phosphate:** <400mg/day (KDOQI, 2009)

Biochemistry	Unit	Hospital Reference Range	Blood Results
Potassium (K <sup>+</sup> )	(mmol/l)	3.6-4.8	5 ↑
Phosphate (PO <sub>4</sub> <sup>-</sup> )	(mmol/l)	1-2	1.38
Urea	(mg/l)	12-42	57 ↑
Creatinine	(mg/dl)	0.4-0.6	1.57 ↑
GFR	(ml/min)	-	44
PTH	(ng/l)	15-65	65



## Dietetic Management

To control potassium and phosphate levels using dietary measures rather than medications as these were causing constipation.

### Regime before using Renastart:

Standard fibre containing tube feed	1,000mls
Powdered high energy protein feed	30g

1 litre water (given separately)

### Feeding plan:

Continuous tube feeding at 83mls/hr x 12 hours

1,000ml water at 83mls/hr x 12 hours

### Provides:

<b>Energy</b>	1,116kcal
<b>Protein</b>	26g
<b>K<sup>+</sup></b>	<b>1,216mg</b>
<b>PO<sub>4</sub><sup>-</sup></b>	<b>528mg</b>
<b>Na</b>	<b>640mg</b>
<b>Fibre</b>	10g

### Regime incorporating Renastart:

Renastart	105g
Powdered protein supplement	12.5g
Infant formula	98.9g
Fibre supplement	12.6g

made up to 1 litre

### Feeding plan:

Continuous tube feeding at 83mls/hr x 12 hours

1,000mls water at 83mls/hr x 12 hours

### Provides:

<b>Energy</b>	1,200kcal
<b>Protein</b>	28g
<b>K<sup>+</sup></b>	<b>712mg ↓</b>
<b>PO<sub>4</sub><sup>-</sup></b>	<b>375mg ↓</b>
<b>Na</b>	<b>430mg ↓</b>
<b>Fibre</b>	10g



## Follow up 8 weeks later

	11 months post assessment
<b>Weight (kg)</b>	29
<b>Height (cm)</b>	121
<b>Percentile on growth chart</b>	weight: 55 <sup>th</sup> height: 13 <sup>th</sup>

**Changes to medications:** Potassium and phosphate binders were stopped.

Laxative was stopped due to introducing another type of fibre mixture.

### Biochemistry:

	K <sup>+</sup> (mmol/l)	PO <sub>4</sub> <sup>-</sup> (mmol/l)	Urea (mg/dl)	Creat (mg/dl)	GFR (ml/min)	PTH (ng/l)
Hospital Reference Range	3.6 - 4.8	1 - 2	12 - 42	0.4 - 0.6	-	15 - 65
Before	5 ↑	1.38	57 ↑	1.57 ↑	44	65
After	3.8	1.25	45	1.59	42	60

**Potassium levels within normal hospital reference range after introducing Renastart.**

**Regular reviews were carried out by the dietitian and feeding regimen adjusted according to biochemistry.**



## Take Home Messages

- Renastart is specifically formulated for the dietary management of paediatric renal failure.
- Renastart was successfully used with this patient to provide protein and calories and reduce dietary intake of potassium and phosphate.

Reference: National Kidney Foundation 2009. KDOQI Clinical Practice Guideline for Nutrition in Children with CKD: 2008 Update. *American Journal of Kidney Diseases*, 53, S1-S124.



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