



# Using the Milk Ladder to re-introduce milk and dairy

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This leaflet explains what the 'Milk Ladder' is and how to use it.

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## What is the Milk Ladder?

The Milk Ladder can be used at home. It is a step-by-step guide introducing cow's milk and dairy products into the diets of infants and children with non-IgE mediated (delayed) cow's milk protein allergy (CMA).

The ladder can be used to help plan how to gradually re-introduce milk products into the diet, starting with foods that contain a small amount of well-cooked milk and moving towards uncooked dairy products and fresh milk. It is called the 'Milk Ladder' because completing each of the 6 steps is like climbing a rung on a ladder towards being able to tolerate milk and dairy products completely.

## Who should use the Milk Ladder?

The Milk Ladder should **only** be followed by infants and children with a **delayed cow's milk allergy** (known as a '**non-IgE mediated**' milk allergy).

**Never** use the Milk Ladder at home for children with **immediate type allergic reactions** (known as **IgE mediated** milk allergy). Children with immediate IgE reactions should be under the care of a specialist allergy team, who will advise when and how to reintroduce milk back into their diet safely.

## What to consider before starting?

Before starting, you need to ensure your child is well (no cough, cold or fever), there are no tummy symptoms, and their eczema is under control. Ensure that you offer the food containing cow's milk earlier in the day, so you can observe your child for any allergic symptoms related to cow's milk throughout the day.

## When should the Milk Ladder be started?

The Milk Ladder is usually only started once your child has been on a strict milk-free diet for at least 6 months and they are completely well with no active eczema or gastro-intestinal symptoms.

**For non-IgE mediated CMA, it is typical to start the milk ladder around 9-12 months of age.** Do not start the Milk Ladder if your child is unwell and/or having any medication that may upset their tummy.

## How do I start using the Milk Ladder?

Most children will start by trying the foods in Step 1. If your child is already having some milk products in their diet, you may be advised to start from a later step on the Ladder. Each of the 6 steps on the Milk Ladder lists foods that contain milk and recommends how much to give your child to eat on any given day. **The suggested amounts are a guideline only.** In some cases, it may be best to start with smaller amounts, such as quarter or half portions, depending on the symptoms your child had with milk products before.

While you are introducing the Milk Ladder, continue to give your child plant-based alternatives until they can tolerate dairy foods containing cow's milk. From the age of 12 months, your child's prescription of specialist milk should be replaced with a fortified plant-based milk. These include Alpro Growing Up Soya, Alpro Growing Up Oat, Oatly Barista and Oatly Whole. These are available in most supermarkets and can be taken as the main milk drink while you are working through the Milk Ladder.

## Do I have to use the foods listed in the steps of the Milk Ladder?

Yes, the foods on the Milk Ladder have been chosen because of the type and quantity of cow's milk protein they contain. The aim is for your child to increase their exposure to milk by completing each step of the Milk Ladder, building up their tolerance gradually.

Each of the early steps of the Ladder comes with a set recipe that it is important to follow strictly (see recipes). Each of the recipes has an egg and wheat-free option (they are all soya free) to make the Ladder suitable for children with other food allergies.

## How long does it take to complete each step of the Milk Ladder?

This will vary from child to child. Avoid moving onto the next step of the Milk Ladder until your child is fully tolerating the foods containing milk in the step they are on. You will know that they are tolerating the foods well when they have been able to eat the food more than once, in the quantities suggested on the Milk Ladder, without suffering any allergic reactions as a result. Sometimes, it can take up to 2 or 3 days for allergy symptoms to appear after eating a food. Therefore, it is advisable to allow at least 3 days on a step before considering whether to move on to the next step of the Milk Ladder.

If your child has started with smaller amounts, each step of the Milk Ladder will take longer to build up to the full recommended portion sizes.

## How will I know if my child has reacted to foods on the Milk Ladder?

The symptoms of an allergic reaction can include reflux or vomiting, tummy pain or bloating, diarrhoea or constipation, eczema or other skin rashes, wheezing, swelling of the lips or face, or irritation to the eyes or nose. Please note that your child may not react to milk in the same way that they did when they were first diagnosed with a cow's milk allergy. If you are unsure whether your child has reacted to a food containing milk or not, wait a day or two and then try the same food again. If they are still allergic to milk, then the same reaction will happen again.

**If your child experiences a severe or immediate type allergic reaction that takes place within a few minutes or hours after eating the food, STOP the Milk Ladder and discuss with your doctor/dietitian. Any allergic reactions that affect breathing, or result in collapse, should be treated as a medical emergency by dialing 999.**

### **What should I do if my child reacts to foods on any step of the Milk Ladder?**

Stop giving your child the foods on that step. We recommend you continue to offer your child the foods on any previous steps of the Milk Ladder that had been successfully introduced into their diet, as this will help to maintain their tolerance. If your child had a minor reaction, wait a further 3 months before introducing this step again. With more severe reactions, it is recommended that you wait for 6 months before trying again.

### **What should I do if my child is tolerating the foods on any step on the Milk Ladder?**

Continue to give your child these foods regularly, as well as the foods from previous steps on the Milk Ladder that were successfully introduced into their diet. When you are ready, try the food suggested on the next step of the Milk Ladder.

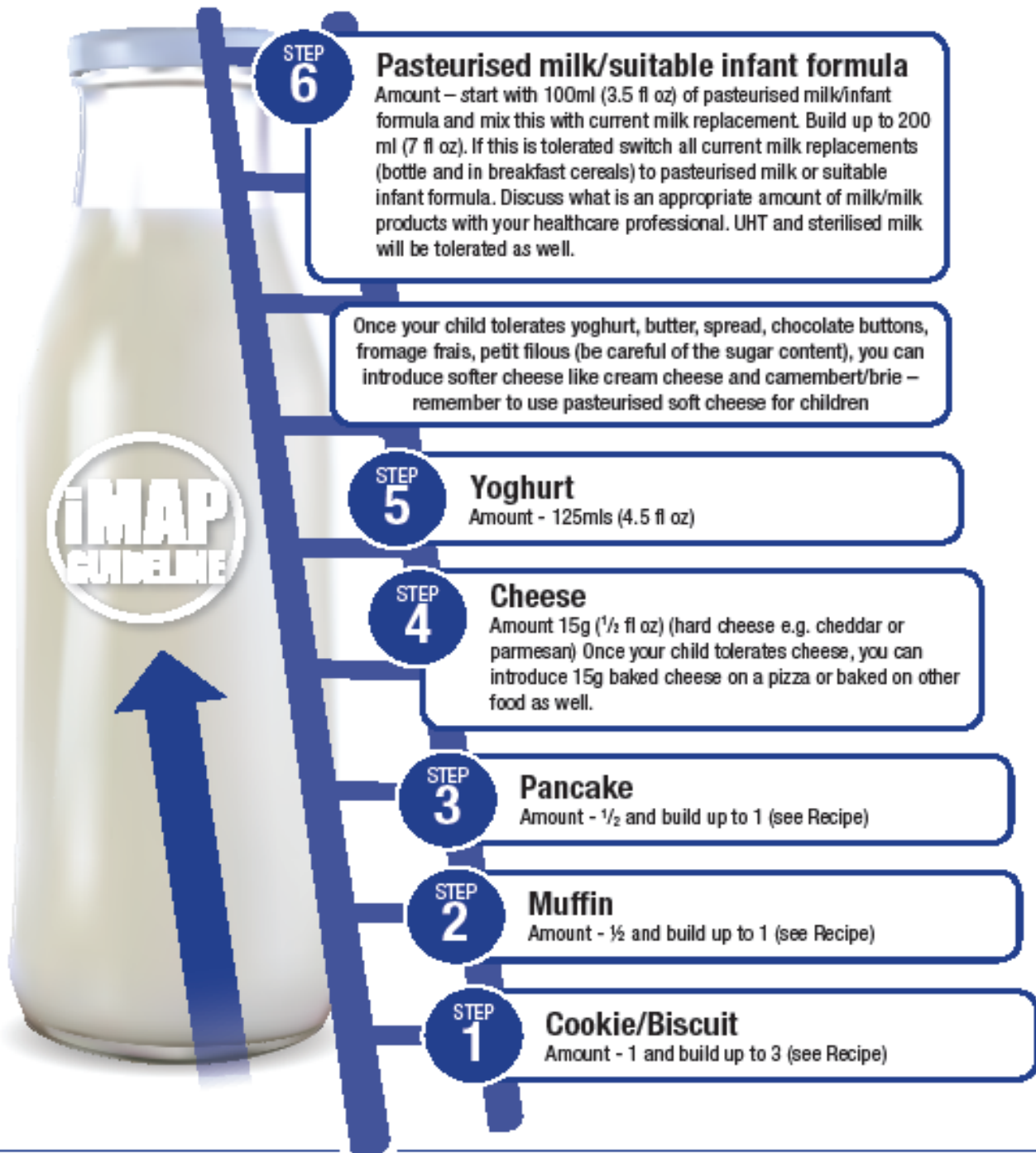
### **What if my child is ill while following the Milk Ladder?**

Coughs, colds and bugs are common in children. This can make it harder to follow the Milk Ladder.

If your child becomes ill while following the Milk Ladder, pause on the step they are on and continue once they are feeling better. During this time, you can continue to offer foods from the Milk Ladder that were previously tolerated.

# THE iMAP MILK LADDER

To be used only in children with Mild to Moderate Non-IgE Cow's Milk Allergy  
Under the supervision of a healthcare professional  
PLEASE SEE THE ACCOMPANYING RECIPE INFORMATION



## AT EACH OF THE FOLLOWING STEPS

### Cookie, muffin, pancake, cheese and yoghurt

It may be advisable in some cases to start with a ¼ or a ½ of that particular food and then over a few days to gradually build up to a whole portion - Please ask your healthcare professional for guidance on this

**THE LOWER STEPS ARE DESIGNED TO BE USED WITH HOME MADE RECIPES. THIS IS TO ENSURE THAT EACH STEP HAS THE APPROPRIATE MILK INTAKE. THE RECIPES WILL BE PROVIDED BY YOUR HEALTHCARE PROFESSIONAL**  
Should you wish to consider locally available store-bought alternatives - seek the advice of your healthcare professional Re: availability

<b>Additional File 4</b>		<b>iMAP Milk Ladder Recipes</b>					
<b>STEP 1: COOKIE OR BISCUIT – SWEET/PLAIN</b>							
<b>Recipe</b>	<b>tsp/tbsp/cup</b>	<b>g/ml</b>	<b>oz/lb</b>	<b>Ingredient</b>	<b>Milk per portion (ml)</b>	<b>Milk protein per portion</b>	<b>Temperature</b>
<i>1 cookie/biscuit</i>					<i>1ml</i>	<i>0.3g</i>	
<b>Bakes 20 small finger size biscuits/cookies</b>	1 cup	125g	4.5oz	Flour (wheat or wheat-free)			180°C or 350°F  Bake for 10 – 15 min depending on size of cookie/biscuit  Practical tip – let dough cool in fridge for 30 min – which makes it easier handle
	¼ teaspoon	1g		Xanthan gum – if wheat-free flour is used			
	¼ cup	50g	1¾oz	Cold dairy free spread			
	¼-⅓ cup (may vary depending on fruit)			Grated apple/pear/pureed banana			
	1 teaspoon	2g		Skimmed/non-fat milk powder*			
	Tip of a knife			Vanilla powder			
1. Mix the flour, xanthan gum and milk powder 2. Rub in the cold dairy free spread 3. Mix in the fruit (you may need to add a little bit more if it is too dry) and vanilla powder 4. Roll out and cut in finger sized strips 5. Bake in the oven							
Start with 1 cookie/biscuit (equivalent to 1 ml of milk); increase to 2 and then 3 cookies/biscuits (equivalent to 3ml of milk – if child can manage a portion of 3 biscuits/cookies)					<i>3ml</i>	<i>0.105g</i>	180°C or 350°F

<b>STEP 1: COOKIE OR BISCUIT – SAVOURY</b>							
<b>Recipe</b>	<b>tsp/tbsp/cup</b>	<b>g/ml</b>	<b>oz/lb</b>	<b>Ingredient</b>	<b>Milk per portion (ml)</b>	<b>Milk protein per portion</b>	<b>Temperature</b>
<i>1 cookie/biscuit</i>					<i>1ml</i>	<i>0.035g</i>	
<b>Bakes 20 small finger size biscuits/cookies</b>	1 cup	125g	4 ½oz	Flour (wheat or wheat-free)			180°C or 350°F  Bake for 10-15 min depending on size of cookie/biscuit  Practical tip – let dough cool in fridge for 30 min – which makes it easier handle
	¼ teaspoon	1g		Xanthan gum – if wheat-free flour is used			
	¼ cup	50g	1¾oz	Cold dairy free spread			
	⅓ cup	40g	1¼oz	Grated DAIRY FREE CHEESE			
	1 teaspoon	2g		Skimmed/non-fat milk powder*			
	2 tablespoon	10 ml		Water			
1. Mix the flour, xanthan gum and milk powder 2. Rub in the cold dairy free spread 3. Mix in the grated DAIRY FREE CHEESE. Add water (you can add a bit more if it is too dry) 4. Roll out and cut in finger sized strips 5. Bake in the oven							
Start with 1 cookie/biscuit (equivalent to 1 ml of milk); increase to 2 and then 3 cookies/biscuits (equivalent to 3mls of milk – if child can manage a portion of 3 biscuits/cookies)					<i>3ml</i>	<i>0.105g</i>	180°C or 350°F

<b>STEP 2: MUFFIN – SWEET/PLAIN</b>							
<b>Recipe</b>	<b>tsp/tbsp/cup</b>	<b>g/ml</b>	<b>oz/lb</b>	<b>Ingredient</b>	<b>Milk per portion (ml)</b>	<b>Milk protein per portion</b>	<b>Temperature</b>
Start with half a muffin and then one muffin: <i>half a muffin</i> : <i>one muffin</i>					12.5 ml 25 ml	0.0875 g 0.875 g	
<b>Bakes 10 muffins</b>	2 cups	250g	8oz	Flour (wheat or wheat-free)			180°C - 200°C or 350°F- 400°F  Bake for 15 – 20 mins Tip – use a whisk and milk and oil together. This makes the muffins light
	½ tsp	3g		Xanthan Gum – if wheat-free flour is used			
	2 ½ tsp	10g	1/3oz	Baking powder			
	2 level tbsp	25g	2/3oz	Sugar – if your child is older you can add 2-3 tablespoons			
	Pinch			Salt			
	¼ cup	50ml	1 2/3fl oz	Sunflower oil or Canola oil			
	1 cup	250 ml	8 fl oz	Milk**			
	½ cup and 1 tbsp	110g	3.9 oz	Finely chopped/ mashed fruit: apple/pear/banana			
	Vanilla essence to taste						
<ol style="list-style-type: none"> <li>Mix flour, xanthan gum, baking powder, sugar and salt</li> <li>Mix oil and milk together and to the dry ingredients</li> <li>Finally add in chopped fruit and vanilla (additional) and mix through</li> <li>Bake in oven</li> </ol>							
<b>1.5 muffin = equivalent to baked milk muffin from Mount Sinai Recipe(1) (which contains 1.3 g milk)</b>							

<b>STEP 2: MUFFIN – SAVOURY</b>							
<b>Recipe</b>	<b>tsp/tbsp/cup</b>	<b>g/ml</b>	<b>oz/lb</b>	<b>Ingredient</b>	<b>Milk per portion (ml)</b>	<b>Milk protein per portion</b>	<b>Temperature</b>
<i>Start with half a muffin and then one muffin: half a muffin : one muffin</i>					12.5 ml 25 ml	0.0.875 g 0.875 g	
<b>Bakes 10 muffins</b>	2 cups	250g	8oz	Flour (wheat or wheat-free)			180°C - 200°C or 350°F- 400°F  Bake for 15 – 20 mins Tip – use a whisk and milk and oil together. This makes the muffins light
	½ teaspoon	3g		Xanthan Gum – if wheat-free flour is used			
	2 ½ tsp	10g	1/3oz	Baking powder			
	Pinch			Salt			
	¼ cup	50ml	1 2/3 fl oz	Sunflower oil or Canola oil			
	1 cup	250ml	8 fl oz	Milk **			
	½ cup	60g	2oz	Grated DAIRY FREE CHEESE			
<ol style="list-style-type: none"> <li>1. Mix flour, xanthan gum, baking powder and salt</li> <li>2. Mix oil and milk together and to the dry ingredients</li> <li>3. Add DAIRY FREE CHEESE; Add a bit of water if required - Feel free to chop in a handful of spinach to add colour and fibre</li> <li>4. Bake in oven</li> </ol>							
<b>1.5 muffin = equivalent to baked milk muffin from Mount Sinai Hospital(1) (which contains 1.3 g milk)</b>							



<b>Step 3: PANCAKE</b>							
<b>Recipe</b>	<b>tsp/tbsp/cup</b>	<b>g/ml</b>	<b>oz/lb</b>	<b>Ingredient</b>	<b>Milk per portion (ml)</b>	<b>Milk protein per portion</b>	<b>Temperature</b>
<i>Start with half pancake and then 1 pancake as indicated below: half a pancake</i>					<i>21 ml</i>	<i>0.735 g</i>	
					<i>42 ml</i>	<i>1.47 g</i>	
					<i>: one pancake</i>		
<b>Bakes 6 pancakes</b>	1 cup	125 g	4.5 oz	Flour (wheat or wheat-free)			Fry in a hot pan using oil of choice until golden brown and crispy
	2 ½ tsp	10 g	1/3 oz	Baking powder			
	¼ tsp	1-2 g	pinch	Salt			
	2 tbsp	30 ml	1 fl oz	Sunflower or Canola oil			
	1 cup	250 ml	8 fl oz	Milk**			
	2/3 cup	50 ml	1.5 fl oz	Water			
<ol style="list-style-type: none"> <li>1. Add all ingredients into a mixing bowl and mix together</li> <li>2. Fry in a hot pan</li> </ol>							
<p>Some children do not like cake or pancake textures: For these children there is the option of boiling a small potato, adding 42 ml of milk (1.3 g protein) and some milk free spread, cover with foil and bake in the oven for 40 minutes at 180°C - 200°C or 350°F- 400°F. This product does not contain any wheat in the food matrix and it may therefore affect the allergenicity.</p>							

<b>Step 4: CHEESE</b>							
tsp/tbsp/cup	g/ml	oz/lb	Ingredient	Milk per portion (ml)	Milk protein per portion	Temperature	
2½ tbsp	15 g	½ oz	Cheese***	15 g	3.43 g	85°C or 185°F (no need to further heat this – just an indication of how cheese is made)	
<b>Step 5: YOGHURT</b>							
Food	tsp/tbsp/cup	g/ml	oz/lb	Ingredient	Milk per portion (ml)	Milk protein per portion	Temperature
Yoghurt	½ cup	125 ml	4.5 fl oz	Yoghurt	125 ml	6.0 g depending on brand	98°C (no need to further heat this – just an indication of how yoghurt is made)
Once your child tolerates yoghurt, butter, spread, chocolate buttons, fromage frais, petit filous (be careful of the sugar content), you can introduce softer cheese like cream cheese and camembert/brie – remember to use pasteurised soft cheese for children							
<b>Step 6: MILK</b>							
Food	tsp/tbsp/cup	g/ml	oz/lb	Ingredient	Milk per portion (ml)	Milk protein per portion	Temperature
Pasteurised Milk	⅔ cup	100 ml	3.5 fl oz	Pasteurised Milk**	100 ml	3.47 g	57-68°C 15-20 seconds Both pasteurised milk and infant formula is produced this way – there is no need to further heat this.
	¾ cup	200 ml	7 fl oz		200 ml	6.95 g	

## Contact us

If you have any queries, please contact the branch of the Dietetic Department your child is seen by on:

- Royal Berkshire Hospital Dietitians: 0118 322 7116
- East Berkshire Community Dietitians: 0118 904 3250
- West Berkshire Community Dietitians 0118 904 3251
- CYPF Berkshire Dietitians: 01189046777

## Further information

Better recognition, diagnosis and management of non-IgE mediated cow's milk allergy in infancy: iMAP – an international interpretation of the MAP (Milk Allergy in Primary Care) guideline by Venter et al; Clin Transl Allergy. 2017 7:26 Available at:  
<https://ctajournal.biomedcentral.com/articles/10.1186/s13601-017-0162-y>

NICE [Cow's milk allergy in children | Health topics A to Z | CKS | NICE](#) Last revised July 24

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[www.nice.org.uk/CG116](http://www.nice.org.uk/CG116) [Accessed Sept 2013]

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<https://www.nice.org.uk/guidance/qs118>

**Please ask if you need this information in another language or format.**

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