

## GUIDE TO HANDREARING BABY RABBITS



### **Do they need hand rearing?**

Rabbits are born hairless, blind and deaf and remain in their nest for about three weeks before emerging fully furred and able to eat solid food.

Mother rabbits (does) are very good at hiding their offspring for the first three weeks to protect them- often hiding them under the ground in a shallow scrape. The baby rabbits are only fed once a day by their mother. This is very unlike dogs and cats which nurse their young for long periods of the day. Rabbits – who need to avoid predators and need to constantly eat due to their fast metabolism do not have this luxury. Instead, they ignore their young for almost 23.5 hours a day and feed them once only. Due to this unusual nursing pattern, it is not unusual for people to mistakenly believe the young have been neglected and need to be saved.

Rabbits are very unlike other species in regard to hand rearing. Most puppies and kittens who are hand reared survive – many baby rabbits do not. It is critical not to interfere and hand rear baby rabbits unless it is absolutely necessary as your interference is more likely to doom the rabbits than save them if they do not need hand rearing. Many baby rabbits succumb to pneumonia after breathing in milk accidentally during feeding, many die of bacterial infections or at the time of weaning.

When they are born their stomach pH means they are susceptible to infections of the gut. These infections are suppressed by an interaction between the baby rabbit and their mother's milk which produces an antibiotic type substance called 'milk oil'. If baby rabbits are hand reared, this substance is not created and they are prone to getting infections.

**If the mother rabbit has passed away**, then trying to find a surrogate mother is always preferable but this does not always work. You will need to rub the surrogate mother's scent on the orphans to try and get her to take them but monitor closely as sometimes they will injure or kill the babies. In such cases you have no choice but to try and hand rear but try and seek assistance from someone who is experienced as it will greatly increase the likelihood of the young surviving.

**If the mother is still alive but with no milk** take her and the litter to a vet for a check-up.

**If the mother is alive and has milk** check for mastitis (or seek veterinary advice) if no mastitis is evident you may be able to try and hold the babies under her to encourage them to drink. If this is not successful, then hand rearing should be the last option.

If you find kits out of the nest they probably got pulled out of the nest accidentally when mum left. Make sure you do not smell like a predator, wash your hands well then pat the mother before picking these babies up – warm them up and then place them back in the nest.

## Environment

Try and emulate as natural an environment as you can. It should be warm (28 degrees), quiet and dark with very little disturbance apart from feeding time. Inside a warm beanie or a snug pouch is ideal. If the mother created a nest (often lined with their own fur) then you can continue to use the same nest. A heat mat, heat disc or hot water bottle can be used to maintain a constant temperature but it is important that they are not too close to this or they will burn. It is better to have them in a warm room than on a heat source they cannot move away from. If discs or hot water bottles are used, they will need to be re-heated during the night. Some heat pads are only warm if they have a heavy weight on them and may not be appropriate for tiny, light baby rabbits.



## Milk

The best hand rearing formula is Wombaroo Rabbit Milk Replacer but this can be hard to obtain. Full cream goat's milk can be used in an emergency. Standard kitten milk replacers can be used - made up according to packet instructions but rabbit milk is much higher in metabolisable energy and fats and much lower in protein. To overcome this deficiency 1-part full cream can be added for every 10 parts kitten milk replacer to increase the fat content (e.g. 1ml of cream for every 10 ml of milk made up).

The milk should be made up fresh for each feed and fed at 35°C. Small feeding bottles and teats, pipettes and 1ml syringes can all be used depending on preference. The most important thing is to stick with either a bottle or a syringe. Sucking reflexes are lost within 2 days so trying to use a bottle after using a syringe may not be successful (although you can try). Probiotics meant for rabbits can be added to the syringe feeding formula although this can be problematic (see later). One of the biggest risks with feeding is 'aspiration pneumonia' or breathing milk into the lungs. This is fatal and can be avoided by being very gentle and never having the baby rabbit on their back to feed. Rabbits of 2 weeks or older can be encouraged to lap milk from a small shallow container such as a lid. This will take a few attempts before they catch on so frequent small meals of warm milk should be offered throughout the first day until they get the hang of it then feeding 4 times daily should be fine

## Cleaning and Toileting

It is also essential to maintain strict hygiene. Make sure containers and feeding equipment are sterilised between each feed (products suitable for human bottles are fine but rinse everything well). Rabbit offspring unlike puppies and kittens do not need to be encouraged to urinate or defecate – they can do this by themselves. It is wise to monitor for urine and faeces to make sure they are passing wastes normally.

## Feeding technique

- Make up your milk replacer and keep it warm in a hot water bath. Keep a thermometer with the milk to test the temperature
- Weight each baby before their first feed of the day
- Keep the baby warm while feeding – cold babies do not eat.
- Be very gentle and don't put the rabbit on its back to feed – this is unnatural and increases the risk of aspiration pneumonia
- For the first feed, gently place a small amount of milk on the lips to encourage a licking response. Never force milk into the mouth.
- If you are using a bottle and teat – remember to puncture a small air hole in the tip (they have no hole when first purchased) Don't make the hole too big or you will drown the baby - too small and they will not get enough milk.
- A second hole can be punctured at the side of the teat (a little higher up) to allow air to enter the bottle during suckling. The holes are best made using a large sewing needle heated over a flame but rinse the teat well afterwards so it doesn't taste of burnt rubber.
- It may take a few attempts before the baby gets the hang of it so be patient!
- After feeding record the amount fed
- Gently encourage toileting using moist, warm cotton wool and remove any milk from around the face using a soft clean cloth and place back into the warm nest.

Example teat



## Frequency of feeding

Although rabbits naturally only feed once a day you will struggle to get them to take in enough at one meal. Some litters need feeding every hour just to survive initially. You should not have to feed overnight and once a feeding pattern is established most feeds can be reduced to 4 – 5 times daily depending on weight gain. The weights of the rabbits need to be used as a guide and meticulous records of weights and amounts of feed consumed at each feed are essential. Try and maintain a steady pattern of feeding times at regular intervals.

For the Wombaroo product the following recommendations are given and can be used as a guide:

Weight (g)	Feed (mL/day)	Weight (g)	Feed (mL/day)	Weight (g)	Feed (mL/day)	Weight (g)	Feed (mL/day)
80	11	160	19	240	26	340	34
90	12	170	20	250	26	360	35
100	14	180	21	260	27	400	38
110	15	190	22	270	28	450	42
120	15	200	23	280	29	500	45
130	16	210	24	290	30	550	47
140	17	220	24	300	31	600	50
150	18	230	25	320	32	650	53

## Caecotrophs and weaning

Weaning of baby rabbits usually takes place between 4 – 6 weeks under natural circumstances. Solid food including pellets suitable for young rabbits (NOT MUESLI) as well as good quality hay can be offered from 3 weeks. Water should be provided in a dripper bottle at the correct height or a shallow bowl. Rabbits should be fully weaned by 4 – 5 weeks. This can be done gradually by reducing the feeds offered while keeping a close eye on their weights and the amount of solids they are eating.



As mentioned before, under normal circumstances the pH of a baby rabbit's stomach is about 6 but an adult rabbit's stomach is really acidic (pH 1 – 2). Sometime around weaning a complex series of events occurs where the stomach pH becomes acidic making it more hostile to bacteria.

These changes must occur but not before the baby rabbits consume some of their mothers caecotrophs (a special type of poo). Caecotrophs are then thought to provide the essential bacteria used to colonise a baby rabbit's caecum which is the part of the gut behind the stomach. This bacterial colony allows rabbits to digest grasses and solid foods. The timing for all this is tricky and there is no way to know exactly when this should happen when we are hand rearing.

If we provide caecotrophs too soon and we could cause a bacterial infection by introducing bacteria into the gut too early. Too late and the pH of the baby's stomach may have become too acidic for the bacteria to survive its passage to the caecum.

This is part of the reason why so many baby rabbits struggle at the time of weaning. Some people mix in a caecotroph from a healthy rabbit to the milk at the time of weaning (caecotrophs can be obtained if you place a soft buster collar on a healthy adult rabbit). It is important to know the difference between normal rabbit faeces and caecotrophs. Normal rabbit faeces is not suitable.

If this is not possible to do – or as an additional precaution a rabbit probiotic can be added to the milk at each feed although these products usually only contain a sample of 4 – 6 types of bacteria from the hundreds that would normally be in a healthy rabbit's gut. There is no consensus on which technique is better and both have their advantages and disadvantages.

It is not unusual for baby rabbits to lose weight around the time of weaning. This should be monitored carefully.

### **Greens – when and how**

No matter how good a job you do with hand rearing the digestive function of a hand reared rabbit is going to be abnormal - although it will improve with time. It is impossible for them to immediately establish a normal bacterial population in their gut as a parent reared baby rabbit would do – this will take them a lot longer (months). This means some restrictions need to be placed on what grass and green vegetables should be offered to hand reared babies to avoid gastrointestinal upsets – and in extreme cases diarrhoea and death.

I have had hand reared rabbits take a full 10 months before their digestive function was normal (producing abnormal pasty caecotrophs for several months before normal caecotrophs were produced) which I believe was due to the need to develop a population of normal bacteria in the gut over this period of time – although this is hard to prove.



Under no circumstances should you feed muesli, fruits or carrots – these foods are high in sugars and will promote the growth of bacteria which are detrimental to your rabbit. The glucose in these foods can be converted to toxins by some bacteria which can kill your rabbit – especially a hand reared rabbit which is likely to have a poor population of bacteria already.

First offer pellets (these are not essential in adult rabbits but *are* in babies to help with growth) and good quality hay – alfalfa, meadow or timothy hay (alfalfa hay is not advised in adult rabbits due to a high calcium content but is fine for babies up until 5 months of age). After being fully weaned a tiny amount of greens can be offered. Choose one type e.g. fresh grass – 1 to 2 grass blades per baby per day and feed the chosen green once daily in tiny quantities for a week without change while monitoring for diarrhoea. If commercial greens are fed then avoid lettuce and choose something like chard, spinach, broccoli or kale (thumb nail sized piece per day only)

If they tolerate that for a week then add in another new green in tiny quantities for the second week and gradually add in new items feeding the same thing several days in a row to avoid sudden diet changes etc. A little bit of pasty poo is not unusual – just make sure they remain lively and eating but if liquid diarrhoea appears this can lead to rapid dehydration which can be fatal so seek veterinary advice if this occurs.

<b>Developmental stage</b>	<b>Age</b>
Ears open	5 days
Eyes open	10 – 12 days
Fully furred	7 – 10 days
Eating solids	From 3 weeks
Fully weaned	6 weeks
Sexual maturity	4 months(Female) 5 months (Male)

## **Trouble shooting**

### Rattling when breathing or milk from the nostrils

If you see milk from the nostrils during feeding or if breathing becomes laboured or noises occur when breathing these are all possible signs of aspiration pneumonia – a rapidly fatal condition. This occurs when a small amount of milk goes down the wrong way and enters the airway instead of the stomach. The rabbit should be taken to the vet for supportive care including antibiotics.



### Won't feed

If you have a rabbit who will not accept the milk, then patience is key. Initially some members of the litter may need a little bit of encouragement by increasing the frequency of feeding and just aiming to get smaller amounts in. You may want to try the following:

- Check to make sure the milk is not too hot/cold
- Try a different shaped teat
- Make sure the baby is not too cold
- Make sure they are checked and deemed healthy by a vet
- Feed that orphan first and if they do not eat much offer them a second feed after feeding the others – sometimes they will eat better if given a second chance.

### Not passing poo

As mentioned rabbit babies do not need to be stimulated to pass urine or faeces but you can gently wipe the rectal area with a warm moist cotton ball to stimulate this if you are worried. A change in diet may cause problems so 24 hours of not passing faeces is worth keeping a close eye on. Most kits will urinate and defecate at the edges of the nest as an instinct to keep the area clean and dry so check on the outskirts for wastes. If they are not passing poo for longer than 24 hours, then have them checked.



### Ongoing weight loss

An orphan who has ongoing weight loss with or without a good appetite is of concern. If they have a good appetite, then increase the frequency of feeds until they gain weight. If they have a poor appetite or continue to lose weight, then get them checked by a vet.

### Diarrhoea

This is a common problem and can rapidly lead to fatal dehydration. Offer warm water instead of milk every second feed to maintain hydration if they are not accepting milk or water they need to be seen by a vet.

### Bloat

This is a rapidly developing, painful condition characterised by sudden, extreme abdominal distention. It causes difficulty breathing and rapidly progresses to death. Immediate veterinary care is advised although sadly many rabbits die before they can be helped. This occurs if the gut bacteria produce excessive quantities of gas and foods high in sugars such as fruit and carrots or carbohydrates such as muesli mix are often implicated and should be avoided.

As difficult as it is to accept; don't expect all the litter to survive. Rabbits are a complex species to hand rear and it is unlikely all of them will make it despite your best efforts. Try and stay objective and identify which rabbits are struggling/weak/not eating/showing signs of ill health. Seek veterinary care early and don't let the rabbit suffer if putting it to sleep is the kindest thing to do. Remember they would have had no chance at all if it wasn't for your hard work.