Care and Release of Black Tailed Jackrabbits (by: Ann Mizoguchi)

Revised March, 2015

General Information

Black tailed Jackrabbits are hares of the Lagomorpha order. In this manual, I use the terms, "jackrabbit", "rabbit" and "hare" interchangeable. Black tailed jackrabbits are different than white tailed jackrabbits, but can be treated the same way with one exception: white tailed jackrabbits need longer care and are released one to two days later than black tailed jackrabbits. Jackrabbits are different than cottontail rabbits or other wild rabbits so identifying a jackrabbit correctly is the first step for proper rehabilitation. Young jackrabbits are called leverets. Jackrabbits are nocturnal, sleeping during the day and active from dusk to dawn. Personalities will fall into introvert or extrovert with different extremes. Introverts are timid. Extroverts are more outgoing and assertive. Jackrabbits do not imprint but can become more docile and used to humans when in captivity. They do have a strong, natural, “wild” instinct that kicks in when released. They recognize their own species and will create communities among themselves. Jackrabbits also tend to appreciate the company of another. In the wild, fights can also occur between male jackrabbits over female jackrabbits for mating purposes.

Gestation and Life Span

Breeding in warm climates continues year-round with most births starting in February then tapering off in September. Their gestation period ranges from 41 to 47 days and there are usually 1 to 4 in a litter.

The birth is in a grassy hollow or shallow depression scratched into the ground. There is no nest like cottontails rabbits make for their newborn. Cottontail rabbits are true rabbits and are not hares like Jackrabbits. Cottontail rabbits are born dependent without fur and their eyes are closed. Jackrabbits are born bright eyed, fully furred, and active, but are dependent on nursing their mother since they are unable to drink or eat on their own. The only time new born jackrabbits’ eyes are closed is if they are born prematurely but they will still be born with fur. Within two weeks, jackrabbits can forage for themselves but are still nursing. Jackrabbits (hares)
take longer to wean than rabbits. Jackrabbits can wean as old as 6 to 8 weeks but should not be kept in captivity for this long just to wean them. Instead, they should be released as soon as they are eating and drinking on their own and appear healthy which is usually at 4 to 5 weeks.

By 8 months of age, jackrabbits are capable of having their own young. They are known to live up to 8 years in the wild with an average lifespan of 1 to 5 years.

**Physical Description**

Newborns are generally 80 gms. to 130 gms. but could be much lower and are usually 4 to 6 inches in length. (The smallest I cared for was 51 gms.) Since newborn jackrabbits are born with their eyes open, fully furred, and able to run around, it is critical to properly identify a newborn jackrabbit. People who find baby jackrabbits may think they are older than they really are. A newborn to 2 week old jackrabbit resembles the size of a 4 to 6 week old cottontail rabbit which is born with its eyes closed and no fur. Not knowing what to feed a baby jackrabbit coupled with the mistaken age can lead to the wrong care and diet. Since the baby jackrabbit is the size of a 3 to 4 week cottontail, people do not realize that the jackrabbit is a neonate that cannot eat or drink on his own yet. For instance, a cottontail may be ready for release at 100 gms. which could be the weight of a newborn jackrabbit. (See photos—this cottontail in the photo to the left is about 4 weeks old and ready for release. The photo in the middle is a newborn jackrabbit. The photo to the right is a premature newborn jackrabbit with his eyes still closed. You can also check to see if he still has the dark brown spot from his recently attached umbilical cord as seen in the white center of the hare’s underbelly in the photo to the right.

The adult black-tailed jackrabbit weighs between 4 and 8 pounds. The female doe is larger than the male buck. Their total length is between 18 and 26 inches. The tail has a black stripe that runs along the top onto the rump (hence the name) and is 2 inches to 4 ½ inches long. The tail’s underside is tan colored as opposed to the cottontail rabbit whose tail looks like white cotton. Jackrabbits’ ears are 4 to 7 inches long and are pink/whitish inside and out except for the black tips. There is usually a small white mark on the forehead but not always. (Some cottontails can also have a small white mark on their forehead.) The iris of the jackrabbits’ eyes is yellow with black pupils. The eyes are on the sides of the head, which enables jackrabbits to see in front, to
the side, and behind them. Their eyes are used to pick up motion rather than to focus on an object. Jackrabbits have excellent hearing and sense of smell.

As the baby jackrabbit grows, the body changes considerably. The body, once round, becomes elongated, the legs become long, and the ears grow even faster and longer. The head, also born round, becomes longer and more angled.

**Vocalizations**

Jackrabbits are normally quiet. However, they do make noises. One way is by teeth grinding. This occurs either when they are in pain, or when they are content. The difference is in the amount and volume. When they are in pain, the teeth grinding is fairly constant and sounds like a gnashing of the teeth. When they are content, the grinding is very soft and faint and lasts momentarily while they are expressing their content. This usually occurs when another jackrabbit is grooming them, when they are relaxed, and when their forehead is being stroked.

A second vocalization occurs when they are agitated or happy. When agitated, the vocalization sounds like a quick, one note harmonica chord and I think of it like the way a dog barks to warn others to stay away. The happy vocalization sounds like a two note harmonica chord that starts high and ends low. The jackrabbits use this to express joy when they are playfully leaping around doing kicks, turns, and high jumps.

The third vocalization is a cry, sometimes referred to as the “death cry”. This cry sounds like a baby’s high pitched, piercing wail. Jackrabbits cry when they panic and are extremely frightened. It is called the “death cry” because they think they are about to die at the hands of a predator. In captivity, they have let out this cry when they are caught to be fed or to be transferred to a carrier.

Jackrabbits also make a clicking sound with their noses when they are nervous or scared. The clicking noise alerts other jackrabbits to possible danger.

**Predators**

Some of the jackrabbits most harmful predators are coyotes, mountain lions, bobcats, foxes, hawks, eagles, owls, blue jays, crows, snakes and man. The jackrabbits’ sharp senses, camouflage, and fast running speeds are their only protection. The jackrabbit can hop 5 feet to 10 feet at a time, and up to 20 feet when panicked. They can achieve speeds of up to 40 mph. for a short distance. When at a moderate run, every few leaps are exceptionally high to see their surroundings or predators. The jackrabbit runs with its ears flat and tail between its haunches. Jackrabbits will leap over objects rather than run around them. The fast, erratic leaps, bounds, and sprints are effective against predators.

**Natural Environment**

Jackrabbits do not migrate or hibernate during winter; the same habitat is used year-round. They can travel 2 to 10 miles from shrub cover during the day to open foraging areas at night. Home
range area varies with habitat and habitat quality. Home ranges between 0.4 to 1.2 square miles or 15 to 10 acres. They prefer pastures to spot predators more easily. Jackrabbits dig in the dirt or grass to create a rounded, oblong depression in which they use to rest in and it is called a “form”.

**Housing in Captivity**

Two of the most important things to focus on during rehabilitation for jackrabbits’ successful release are their ability to successfully adapt to noises and weather. With that in mind, keep a window open for fresh air and to get the jackrabbits used to natural noises and the climate outdoors. It is also recommended that you not close the window during heavy rain, hail, and thunder, or when it is freezing or hot. Close the windows only when there are unnatural noises such as lawn mowers and electric saws. Newborn jackrabbits are weak and need to be kept warm and quiet so open a window, but keep them warm using a cage and heating pad on the lowest heat possible, under the padding in the cage. If this is not possible, it is best to close the window to keep the baby jackrabbit as warm as possible. To determine if the jackrabbit is cold, feel his ears. If they are cold, then he is cold.

As soon as it is feasible, however, open the window so the jackrabbits can start to get used to outside noises and the weather. Make sure the screen is sturdy since some jackrabbits can scratch at or throw their bodies at the window screen making holes in the screen or prying the screen off. When they are this anxious to escape, an early release should be planned.

Jackrabbits can get scared at the sound of plastic bags, paper bags, newspaper, cotton sheets, or anything that makes a loud, crinkling sound. These noises can cause jackrabbits to panic resulting in self-injury from running around frantically and jumping and banging their bodies into walls and ceilings. Jackrabbits also get jumpy at the sound of footsteps or the swishing of jeans and khaki’s so when in their presence, wear soft clothes like sweatpants and stockings rather than shoes. If they start to panic and are jumping and banging around, exit the room to let them calm down. Never use a vacuum cleaner in their room in their presence.

Environmental stress and improper diet cause the majority of deaths in jackrabbits. Initially, for newborn jackrabbits, it is best to keep them indoors in a quiet room such as a spare bedroom since they are in “survival” mode. Having one rehabilitator also helps control the level of stress jackrabbits experience in captivity. Jackrabbits will still be scared of other people, including the rehabber at times, and will “wild up” out of natural instinct when released. Jackrabbits are very social animals and do better when in the company of other jackrabbits. You can place a stuffed
animal next to the rabbit in the cage or room especially if you have only one rabbit.

Bathrooms are not safe if they are in use and the toilet seat is accidently left up. There have been cases of jackrabbits that jumped into and drowned in the toilet. In addition, the unnatural sounds made in a bathroom—shower running, toilet flushing, and faucet running—are stressful to jackrabbits.

Make sure there is room for the jackrabbits to run around and most importantly make sure that it is protected from predators. Cats may try to stick their paw under the door. Block the space between the floor and the bottom of the door so cats cannot stick a paw under the door and grab or injure a jackrabbit that happens to be on the other side. Use something like very heavy books rather than towels since cats can easily claw the towels away and even push books away in an effort to get to the crack under the door. Dogs and cats will be attracted to the room in which the rabbits are in because they can hear and smell them. Likewise, the jackrabbits can hear and smell the cats and dogs. For most jackrabbits, this is stressful since they sense their predator lurking and it can cause diarrhea from the stress. There have been some jackrabbits, however, that are curious and will want to know what lies on the other side of the door. These jackrabbits might scratch at the door with their front paws, or run back and forth by the door, both of which will draw the unwanted attention of a cat or dog. Sometimes the cat scratching at the door attracts the curious jackrabbit who hops over to investigate. Ideally, dogs and cats need to be blocked from entering the area the rabbits are housed in. Use child proof gates to block the area. Also have a sliding lock for the door since cats and dogs know how to open doors. When closing the door to the rabbit room, always make sure it is closed tightly by pressing against it. This way, you can be sure the door does not blow open with a gust of wind or pushed open by a dog, cat or rabbit. Also, when entering or leaving the room, watch out for jackrabbits that might try to dash out the door.
Since jackrabbits like to make “forms,” use layered blankets, flannel sheets, and towels for their housing. Line the floors with bath mats that are heavy enough that they don’t slip under the rabbit’s feet when they run. Use bath mats because they can easily be washed. Also use bath mats that aren’t too plush to discourage the rabbits from eating the strands like grass. Jackrabbits like high areas so furnish the room with chairs for them to jump on. Use blankets and sheets to cover the chairs since they can be easily washed. This chair and ottoman are covered with a fitted flannel sheet. The jackrabbits like to rest inside the folds around the edges. When removing the sheet, look carefully for jackrabbits that may be hidden inside the folds before you launder the sheet.

Also use cardboard boxes, place them on their side, and fill the bottom part with hay. Jackrabbits like to rest in the boxes during the day and at night, they jump on top of them. Fill
kitty litter trays with organic dirt and layer the top with a soft hay like Timothy. Using pieces of unfertilized sod for flooring is also a nice touch. (See photo below—jackrabbits nestled in clover.) Clean the room daily or as needed depending on the number of rabbits and the mess they make. When washing anything used in the rabbit room, use a biodegradable laundry detergent since the scent of laundry detergents bothers them and may cause problems with breathing.

Keep the cage doors open so the rabbits can come and go as they please. Keeping them caged, especially at night when they are most active, is stressful, and letting them exercise is important. Save newspapers and lay the pages that have the least amount of black ink on them facing up for use in the cage, covered by all white paper towels and topped with a bath towel or cotton or flannel pillow cases. Hang a hand towel or pillow top from the middle of the cage top down so it hangs like a curtain which jackrabbits like to hide behind. Also drape bath mats or blankets and sheets over the top of the cage since it provides extra coverage and at night, jackrabbits like to jump on top of the cage.
If using a cage, make sure you allow the jackrabbits’ time outside of the cage to run and exercise so their leg muscles develop and their GI systems keeps moving. When you have newborns that are weak or very small, keep them confined to a cage until they are healthy and moving around. Make sure the wiring on the cage is small enough so that the jackrabbit can’t squeeze through or get his head stuck through the wire panes. Also keep baby jackrabbits confined to a cage if you have a mix of large and baby rabbits. Under these circumstances, keep the very young ones caged—less than 150 gms. If they are 150 to 250 gms, let them out for nightly exercise. When you let them out to exercise, it should always be under supervision to look out for larger jackrabbits that might trample or scratch the smaller jackrabbits who are desperately trying to suckle and nurse them. The instinct to run after and try to nurse is normal, but the receiving jackrabbit may kick, scratch, or trample right over the body of the smaller baby jackrabbit, causing injuries such as eye damage, scratches, soft tissue damage or broken legs. As soon as the babies get large enough to no longer be at risk of being trampled, let them run freely around the room. If the jackrabbits are loose in the room, be careful where you walk and sit to avoid accidently kicking or sitting on a jackrabbit, especially when they are excited at your presence because they are hungry and are running around your feet and following you.

If being caged is causing undue stress for the jackrabbit, do not keep them confined. You will be able to tell if the jackrabbit is stressed because he will bite and chew on the cage, try to squeeze his head/body through the wiring, and run back and forth looking for a way out, usually at night. Sometimes, they will also start banging their heads and bodies into the cage trying to get out. Under these circumstances, consider using a second spare room to separate the young rabbits from the older rabbits until the young rabbits grew large enough to mix safely with the larger rabbits. If a jackrabbit is hopping on 3 legs and favoring a leg because of an injury that occurred during captivity, monitor his use of the leg to determine if it is healing on its own. You can tell it is healing if he starts to put weight on the favored leg. I am extra careful with handling these rabbits to prevent further injury, pain, and stress. These injuries usually occur at night when they are most active, jumping around. The injury could be torn tissue, a sprain, or a fractured bone. All of the rabbits’ legs eventually healed naturally that I’ve had so far and therefore the injury did not affect their mobility or ability to be released. However, you should consult with a veterinarian regarding any injury. If a jackrabbit’s mobility is hampered, he should not be released as his chances for survival are slim.

Outdoor Transitioning

It is ideal to have a transition period in which the jackrabbits live outdoors to acclimate to the outdoor elements. Ideally, the transition area allows the jackrabbits free access from the inside to the outside leading to a “rabbit run”. Transitioning can occur when the jackrabbits are 300-400 mgs. Even when transitioning outdoors at 300-400 grams, continue to hand feed them unless they are lapping on their own. When transitioning to an outdoor enclosure, make sure it is protective so predators like cats cannot reach through and grab a jackrabbit, or so snakes cannot crawl inside. Dogs and raccoons can break through screens.

Jackrabbits should be in an enclosure with only other jackrabbits and situated so they cannot see, hear, or smell any predators such as birds which may squawk and try and peck at their enclosure.
The stress from doing so may kill the jackrabbit. The jackrabbits will scream a “death cry” which sounds like a baby crying when they are petrified and think they are going to die. If you do not have an outdoor area that is safe and suitable for transitioning the jackrabbits to the outdoors, then it is better to simply release the jackrabbits as soon as they are eating on their own and appear healthy rather than keep them longer in captivity in the house, usually at 4-5 weeks old.

**Diet**

The jackrabbits’ diet should be as natural as possible. Jackrabbits consume over a pound of weeds, grasses, shrubs, bark, and plants a day. They eat constantly but generally forage for food early in the mornings and late in the evenings and at night. They consume large quantities of food in comparison to their size. Shrubs generally comprise the bulk of fall and winter diets, while grasses and forbs are used in spring and early summer. Meadow hay should be available at all times starting at intake for all jackrabbits. Most of a jackrabbit's body water is replaced by eating vegetation although they also drink available water. In captivity, it is important to keep jackrabbits hydrated with substitute milk, vegetation, and water.

For jackrabbits being rehabbed, the kitten milk replacer, KMR has been the most successful substitute for me. Use powdered KMR but always keep a liquid can on hand for emergency situations when time is of the essence. Cans are convenient since they just need to be popped open and warmed up for times when the rabbit has crashed and is in shock. This happened with one particular jackrabbit. After a 20 minute car ride, he went from being upright, weak and unsteady on his feet with his eyes half closed when he was picked up at the rehabilitation drop off center, to lying on his side with his eyes shut. But when offered some canned KMR immediately, he became alert, moved his head, and started lapping hungrily. From this feeding, he then gained enough strength to be able to sit upright and his eyes became alert and open.

**Suggested Essentials**

- Oxbow Pellets for Young Rabbits or timothy hay pellets.
- Unlimited Oxbow Timothy Hay, Meadow Hay and Botanical Hay
- KMR canned and powered milk (warmed, as they will not drink tepid or cold milk). Discard after 3, preferably 2, days at the most or sooner if the milk becomes sludge and smelly.
- The Freshest greens available, regardless of whether they are wild weeds and grass or from the Farmers’ market or grocery store. Examples of wild weeks are dandelion and clover, washed off and from unpolluted, pesticide free, unfertilized areas. Other greens include washed carrot tops, Italian parsley, parsley, cilantro, and basil.
- Organic dirt in kitty litter trays topped with hay for nesting.
- Fresh non-chlorinated water replaced at least once a day when jackrabbits start drinking on their own. Tap water should be left out for 24 hours to free it of chlorine. Bottled drinking water also has chlorine in it so distilled water can also be used instead.
- Lactated Ringers, warmed or room temperature—for severe dehydration.
- Distilled water for drinking and used in powdered KMR.
- Probiotics for Rabbits
Unnecessary or Potentially Dangerous Items (from my experience)

• Alfalfa pellets are to be used sparingly as a treat for older jackrabbits.
• Alfalfa hay is too rich in protein and calcium but can be used sparingly as a treat.
• Fruit or carbohydrates such as oats as it can result in bloating and diarrhea.
• Carrots which could be offered as sparingly as a treat since they contain a lot of sugar
• Kale and broccoli leaves used sparingly since they are rich in calcium.
• Iceberg lettuce, spinach, and cabbage which causes bloat.
• Toys
• Fancy Rabbit feed – the kind with banana chips, sunflower seeds, and dried carrots mixed in with alfalfa pellets. This feed in my personal experience has torn up the GI tract of rabbits causing diarrhea and death.

As a treat, I have offered willow leaves/branches, apple tree leaves/branches, and cherries sparingly, along with stems and leaves.

Feeding

Some articles on jackrabbits indicate jackrabbits are fed in the wild twice a day, once at dusk and again at dawn. However, the mother’s milk is much more different than the milk substitutes available. The jackrabbits’ digest their mother’s rich milk more slowly than substitutes and their mother’s milk provides all the necessary nutrients. Substitute milk is digested more rapidly so feed the jackrabbits frequently. Small, frequent meals also keep the lining of the GI tract healthy. For jackrabbits that are newborns (80 grams to 130 grams, 4 to 6 inches in length), feed smaller amounts but provide more frequent feedings and as they gain weight, reduce the frequency of feedings, e.g. from feeding every 1 to 2 hours, to feeding every 2 to 3 hours, to feeding every 3 to 4 hours, etc. It is also critical to do a feeding in the middle of the night at least once, ideally twice, for the first few nights until the jackrabbit is healthier and stronger. For the very young, (130 to 200 grams), if they are healthy and not dehydrated, start out by feeding them every 3 to 4 hours.

Use powdered probiotic for rabbits as directed the first few days to acclimate the rabbit to the KMR and new diet. The KMR and water offered should be warm but not cold or hot. The warm temperature simulates mother’s body temperature and is not as hard on the jackrabbit’s digestive tract. Most jackrabbits will also refuse to drink the KMR if it turns cold. An effective way to keep the KMR warm is by using a baby food jar for the formula and immersing the jar in a bowl of hot water placed on a coffee heating unit.

Weigh the rabbits before and after feeding and record them to ensure they are gaining weight. Weight gain should be between 5 to 20 grams each day. Jackrabbits may lose weight the first couple of days until they adjust to the new diet and captivity. In addition, jackrabbits may appear to be growing larger each day, but it is important to continue to weigh them daily to ensure proper weight gain as their growth spurts can be misleading. Jackrabbits that are not gaining weight but are growing are at risk of dehydration and malnutrition. In general,
jackrabbits can feel light as a feather almost like skin and bones; however, after a decent feeding, they feel more solid and heavier.

For a healthy jackrabbit, feed until the tummy is full—slightly round—but not bulging or bloated. Consider the size of the hare’s stomach as an organ as you determine the amount of KMR you are feeding. As you hand feed, check to see if the belly is plump, but not too distended. As mentioned earlier, some jackrabbits are greedy eaters and drink the KMR like they are starving. Their bellies need to be monitored very closely so they don’t overeat. Stop feeding when the belly feels slightly round and full but not taut, bloated or overly distended, protruding from the sides. Don’t be fooled by their behavior—the greedy eaters act like they are still starving even after their bellies are full. If you overfeed them, they may bloat and die a painful death within 24 hours.

I have a 138 gm. baby jackrabbit that I am feeding 3 cc’s with a 1cc syringe every 4-6 hours. He gains 2-4 gms. after each feeding and loses 1-4 gms. between feedings. If he has lost on 1 gm. by the time I feed him again, I will feed him less than 3 cc’s. Usually after he urinates, he loses a lot more weight. This is what the feeding schedule was like for this particular jackrabbit:

<table>
<thead>
<tr>
<th>Day 1 intake</th>
<th>Weight (gm)</th>
<th>Weight After Feeding (gm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 pm</td>
<td>138</td>
<td>141</td>
</tr>
<tr>
<td></td>
<td>140</td>
<td>141</td>
</tr>
<tr>
<td>Day 2</td>
<td>139</td>
<td>141</td>
</tr>
<tr>
<td></td>
<td>138</td>
<td>142</td>
</tr>
<tr>
<td></td>
<td>141</td>
<td>144</td>
</tr>
<tr>
<td></td>
<td>141</td>
<td>144</td>
</tr>
<tr>
<td>Day 3</td>
<td>142</td>
<td>144</td>
</tr>
<tr>
<td></td>
<td>142</td>
<td>146</td>
</tr>
<tr>
<td></td>
<td>145</td>
<td>147</td>
</tr>
<tr>
<td></td>
<td>146</td>
<td>149</td>
</tr>
<tr>
<td>Day 4</td>
<td>133 (note weight drop)</td>
<td>139</td>
</tr>
<tr>
<td></td>
<td>137</td>
<td>143</td>
</tr>
<tr>
<td></td>
<td>142</td>
<td>146</td>
</tr>
<tr>
<td></td>
<td>143 (extra hungry, drank kmr until belly round)</td>
<td>153</td>
</tr>
<tr>
<td>Day 4</td>
<td>153</td>
<td>159</td>
</tr>
<tr>
<td></td>
<td>140 (note weight drop)</td>
<td>148</td>
</tr>
</tbody>
</table>

And so on.

After 6 days, this jackrabbit weight went from 138 gms. to 158 gms. I am now using a 3 cc syringe and feeding him 2 to 2 ½ syringes at each feeding.
A formula you can use as a rule of thumb is 20% of the jackrabbit’s body weight at each feeding 4 times a day. I feed in the morning, afternoon, late afternoon/early evening, and late night. For newborn jackrabbits under 150 gms. I also do an extra feeding around 3:00-4:00 a.m.

When the jackrabbits weigh 300 to 400 gms. and are eating well and are healthy, reduce KMR feedings as the jackrabbit gets bigger, eliminate one feeding for a couple of days, then eliminate another feeding for another two days. Feed KMR regularly for 3 weeks then decrease the frequency by following the instructions below when you are a couple of weeks away from their anticipated release.

Here are some specific instructions to follow for this process: Feed KMR in the morning and again at night. Wait two days and feed KMR in the morning. Wait two days and feed again in the morning. Wait three days, then feed KMR in the afternoon. Wait three days, then feed KMR in the afternoon. Wait four days and feed KMR in the morning. Release can occur after this last KMR feeding.

Have fresh greens, weeds, and pellets available for young rabbits daily, but especially at night. Remember that jackrabbits are voracious eaters, so don’t be surprised if the mound of vegetation you set out at night is all gone by morning. Always have fresh hay and water available for all rabbits.

If there are several jackrabbits that need feeding and they are difficult to tell apart, either release or cage each jackrabbit after the feeding. For instance, if they are all caged when it’s feeding time, feed one, then either put it into another empty cage, or release it in the room. Then feed another and do the same until they are all fed. Once they’re all fed, open the cage door so they can be free to run around the rabbit room to keep their metabolism going.

Jackrabbits, unlike cottontail rabbits, do not need to be stimulated after feeding as they eliminate on their own. Jackrabbits will urinate at least once a day. Jackrabbit droppings are dark brown and look like specks of pepper when they are very young. They get rounder and larger is they grow from pepper to peppercorn size, to pea size.

Feeding Tips and Methods

Before preparing the KMR, wash your hands with hot water and a scent-free, antibiotic soap. When feeding, wrap the jackrabbits up with their heads exposed using a small towel for newborns and a large, heavier towel for larger jackrabbits. Feed while sitting close to the floor in case they suddenly leap out and jump. When this happens, if the feeding is nearly over, leave the jackrabbit alone until the next feeding. If the feeding isn’t over, wait a few minutes then catch the jackrabbit again to finish the feeding. If there are other jackrabbits to feed, do that first. Sometimes the nervous jackrabbit will eat after it hears other jackrabbits getting fed.

For jackrabbits that do not immediately start eating, use your finger to stroke the jackrabbit’s forehead in one motion from above his eyes to the base of his ears. This simulates what mother
would do to encourage her baby to drink. Some jackrabbits will drink right away, others may take several minutes of forehead stroking. These jackrabbits need extra coaxing before they feel safe and ready to eat. It may appear that the rabbit is not going to eat when, after ample forehead stroking, the rabbit suddenly starts eating hungrily. Sometimes it takes approximately 5 minutes for the jackrabbit to relax enough to start drinking. If he’s not drinking, wait awhile then try again. Sometimes it takes a couple of attempted feedings until the jackrabbit starts to eat. There are also some jackrabbits that do not like the forehead stroking and will let you know by shaking their head to get you to stop.

When feeding, use a combination of syringes depending on the hare’s size, e.g. a 1 cc syringe for a baby hare approximately 200 gms or less, then graduate to a 3 cc syringe when the hare gets larger. Tiny cups the size of an espresso cup which are useful for teaching the rabbits to learn how to lap on their own. Try alternating between a syringe and an espresso cup to let the jackrabbit determine how he wants to drink. Using a cup allows the jackrabbit more control over the feeding and is more natural than a syringe or bottle, and it allows an easier transition to drinking from a bowl. A syringe is a foreign object in the jackrabbit’s mouth and he cannot control the pace in which the milk is injected. It is therefore very important for you to pay attention to the flow and amount of milk that is being injected. Very young jackrabbits may also resist the use of a syringe and are unable to drink out of a cup without the milk going up his nose (which may result in pneumonia if it goes into his lungs). In these cases, continue to use a syringe and be patient. This may entail an attempted feeding with a syringe, a short five minute break, and then repeat until the jackrabbit has had enough milk. In a day or two, the jackrabbit will likely adjust to the syringe. Use a canula tip on the syringe for easing the milk into the rabbit’s mouth. Some hares have a preference for where the tip is, on the right, left, or middle of the mouth. Some hares like the tip right on the outside of the mouth with the milk shooting in to the middle of the mouth. If the milk is dribbling down the rabbit’s chin, you should slow down. Once the jackrabbit is large enough, you may want to switch to a tapered, curved syringe. Unfortunately, the smallest size these syringes come in is 12cc.

If the jackrabbit doesn’t want to drink from the cup, encourage drinking by using a syringe first, then offer the cup once he learns how to drink. Go at the jackrabbit’s pace and do not force feed. Instead, if the jackrabbit doesn’t want to eat, then stop and try again in a little while. Try holding the espresso cup to the lips and tilt it so the milk is slightly touching the jackrabbit’s mouth so he can smell and taste it. Then move the cup away and return it back to the jackrabbit’s lips. Using this method in addition to the forehead stroking has encouraged some jackrabbits to start eating.

When feeding with a cup, make sure you avoid getting the milk in the jackrabbit’s nose. Pay attention to where the jackrabbit’s mouth and nose are located. Make sure the cup (or syringe) is on the mouth and away from the nose. It is important to avoid the nose since inhaling liquids can cause pneumonia when fluids get in the lungs. If the jackrabbit starts to get formula in his nose, stop feeding and softly wipe the milk away with the corner of a paper towel or Kleenex which absorbs the milk quickly and easily. The jackrabbit will also blow the milk out of his nose. Allow him time to do so before attempting to resume feeding. Also wipe away any excess milk on the hare’s mouth, nose, and chin.
Some jackrabbits eat slowly, some quickly like a vacuum sucking up the milk. The jackrabbits that drink quickly need their bellies monitored more closely to avoid bloat. If the jackrabbit is eating slowly, just offer more frequent feedings and be patient. As mentioned above, to keep the milk warm, use an empty baby food glass jar and place it in a container of hot water, then set the container on a coffee cup heating element.

Special Feeding Instructions for GI Impacted Rabbits

*Feeding slowly and gradually and building up from small to medium to larger amounts of food helps start the rabbits’ guts moving more successfully.*

When a jackrabbit is prone and weak, the jackrabbit is not only dehydrated but the gut has likely shut down from a lack of nutrition. These particular jackrabbits need to be fed for 2 days on a slow feeding schedule with a diluted formula. For instance, as soon as you receive the jackrabbit, give him a small amount of diluted KMR with a drop of Karo syrup, wait 5 to 10 minutes, then feed again in 5 to 10 minutes and keep this schedule up for an hour minus the Karo syrup. Then feed a little bit more every 15 minutes for an hour. Then feed even more every 30 minutes for 2 hours. Then hourly for a couple of hours, then every 2 hours for a few hours, then every 2 to 3 hours for two days. This will get the gut moving again in a manner that doesn’t shock their system since feeding too much and too quickly shocks the gut with the sudden onslaught of food and results in diarrhea and bloat then death. Think of it like people. When people are not feeling well, they don’t have an appetite and eat small amounts, slowly, of bland food.

When jackrabbits start eating more and faster, that is a sign that they are feeling better. Occasionally, a prone, weak jackrabbit may act starving and will greedily drink a lot and fast causing them to drink more than their body can handle. If they do so, this can shock the GI system and may result in diarrhea. For these rabbits, make sure they only eat a small amount by giving them only the amount they should eat at a time. However, offer the jackrabbit as much drinking water as they want, by syringe, cup, or bowl.

Handling

Jackrabbits legs are thin, long, strong and powerful and if they squirm and kick, they can injure themselves by tearing soft tissue, muscles or breaking their backs. When lifting, make sure the jackrabbit’s hind legs and rump are fully supported so they don’t kick and injure their back or legs.
When the jackrabbits are ready for release or needs to be transported, catch them with a large, thick blanket or towel that covers their whole body. Make sure the rabbit’s head is covered and wrap your arms under his body and feet to keep his hind legs stabilized. Immediately place the rabbit with the towel still wrapped around him into a carrier that confines movement and which opens from the top. If the carrier opens from the side, position the carrier vertically with the open side up. As soon as the rabbit is in the carrier, shut the door quickly before he bolts out. The rabbit may bang around inside the carrier causing injury or death so put additional padding inside the carrier and a towel over the carrier to calm him down. Keeping the carrier covered with a towel while transporting jackrabbits reduces their stress.

Medication

In keeping with the natural approach, jackrabbits prefer a natural death rather than being subjected to unnatural procedures and medication. Only use antibiotics when necessary for infections. This includes neomycin, polymyxin ophthalmic solution and polysporin eye ointment for eye injuries. Use saline solution to flush the eyes. Betadine diluted with water can be used to flush a bodily wound. The mixture should appear to be a light iced tea color when used. Always consult a veterinarian before using prescription medication.

Dehydration/Hydration

When the skin between the shoulder blades is pinched upward, it should spring back down. The slower it springs back, the more dehydrated the jackrabbit is. If the skin tents and doesn’t spring back, the jackrabbit is severely dehydrated. A rule of thumb is less than one second is equal to five percent dehydration, and greater than five seconds is severe.

If a jackrabbit is severely dehydrated and ready to pass over, he will go quickly. Otherwise, rather than doing subcutaneous fluids, it is better to immerse the entire jackrabbit’s body into warm water just for a second. This method gets the nose, ears, and eyes hydrated, and jackrabbits get hydrated through their skin.

If rabbits are dehydrated and can drink, they will absorb the water better orally through their GI tract rather than Subcutaneously (SQ). SQ is for when they cannot tolerate anything orally or you need to rapidly fluid resuscitate or work on balancing deficits (e.g. like potassium) improving circulation (e.g. shock), etc. Plain water orally is also healthier on the GI tract. If you do need to use SQ fluids, use 10 percent of the jackrabbit’s body weight. Be sure to use cotton and alcohol to wipe the rubberneck area in which the needle is inserted into the fluid bag after use, then refrigerate the used fluid bag. Always warm the fluids before use. Use an 18 gauge needle to draw fluid from the bag and a 23 or 25 gauge size needle for baby jackrabbits. Their skin is delicate like Kleenix tissue and it can be difficult to successfully get the fluids in the jackrabbit. After two or three attempts, stop trying if the fluids are flooding out rather than into the body or if the rabbit is squirming too much. It is too stressful on the rabbit so let him rest before trying again. Always try offering water orally even if the rabbit refused it before.
When the jackrabbits are able to lap on their own, set out fresh water in bowls. If you have jackrabbits in different stages of development, use a variety of bowl sizes. For instance, small, shallow bowls for the small jackrabbits, and larger bowls for the larger jackrabbits.

**Diarrhea/Bloat**

For good intestinal health, the jackrabbit’s GI system needs to keep moving with fiber, motility, and hydration. Diarrhea and/or bloat can develop by overfeeding and lack of motility. If the jackrabbit hasn’t been fed regularly the gut shuts down from lack of food. The GI tract needs to be nourished or it will begin to dysfunction and increase the risk of bacterial translocation, a compromise to the immune system of the GI tract causing bacteria to leak across into the bloodstream, which can create the risk of complications, like sepsis. Diarrhea is a symptom of GI dysfunction. In addition, since KMR is deficient in the level of fat that jackrabbits need and is very high in carbohydrates, it can cause diarrhea.

When jackrabbits do get diarrhea, it is often but not always fatal. Always treat the jackrabbit for dehydration. If, however, the diarrhea becomes a black, tarry substance, there is not a lot you can do except try and keep the jackrabbit comfortable. To remove the smell and discomfort of diarrhea, clean the jackrabbit’s bottoms with a cotton pad and warm water to remove the diarrhea and keep the area free from being matted and causing skin sores and burns from the acidity. Also give bottom baths to severe diarrhea that is caked on, and use small medical scissors to clip off the matted fur if bathing and washing doesn’t work. After the black tar diarrhea and when the jackrabbit starts expelling a mucous that appears somewhat translucent and rubbery, he is at the end and will die within a day.

The best way to treat diarrhea is by allowing the jackrabbit freedom to move around and ensuring the jackrabbit gets lots of hydration often. Stop feeding pure KMR and instead dilute it to 1 part KMR, 3 parts water and then do feedings every 2 hours, 3 at the most. Sometimes, even 1 part of KMR to 3 parts of water is too much. In these cases, add a pinch of KMR to the water and do more frequent feedings to keep the jackrabbit hydrated until he is feeling better as indicated by his interest in higher levels of KMR added to the water. There are also times when the rabbit won’t tolerate any KMR and will want just plain water. Always try and get the rabbit to drink plain water AND the diluted KMR. Sometimes the rabbit will drink both and sometimes the rabbit will drink one of the two which is better than none.

**Initial Assessment**

Find out when and what they were last fed to determine if the gut has been compromised. If it’s been more than a day without proper food, the GI system has been compromised. An example is receiving a new born jackrabbit that was offered lettuce and water. At this age, the jackrabbit is not able to eat or drink independently so you can assume he has been without nutrition for 24 hours. If the jackrabbit is born prematurely (eyes are still closed) then keep him warm in either an incubator or use a heating pad with a towel or blanket on top of the heating pad so his body is not directly on the heating pad. He will also need to be carefully fed small, frequent meals and using a feeding tube may make it easier.
Smell the jackrabbit’s body. Unnatural odors and scents make the jackrabbits ill and stressed out. If the rabbit smells unnatural like gasoline, oil, tar, or perfume, bathe the jackrabbit’s body as soon as possible using an organic scent-free baby shampoo but leave his head and ears dry. Eliminating the odor will help the jackrabbit recover. Rabbits breathe in the fumes from the unnatural odors that their fur absorbs. These fumes can affect their lungs and make them dizzy, nauseated, wobbly, and have stomach cramps. Again, imagine having your body doused with the smell of gasoline and having to breathe it in. Rabbits can make matters worse by trying to groom themselves since the end up ingesting the foreign residue that is on their fur. Use just a couple drops of shampoo in a bowl of warm water. Carefully hold the rabbit’s body so he is supported while immersing him in water. Keep his head above the water’s surface. Make sure to use a separate bowl of warm water to rinse the rabbit thoroughly and remove shampoo trace. Towel dry the jackrabbit and never use a blow dryer. Do not put the wet rabbit(s) back into a cage after a bath since their heads can be more prone to getting stuck through a wire pane when their bodies are skinny from being wet. Hungry rabbits will also try to suckle and chew the wet fur of another wet rabbit, so you may need to separate them until they are dry.

Use physical observation to assess the jackrabbit. If the jackrabbit is sitting up and the eyes are open, alert, and bright, they tend to be healthy and have a good chance of surviving.

If a jackrabbit is not sitting up properly and his legs are splayed out under his body, he is probably weak from lack of nutrition and hydration. (See photo below.)

If a jackrabbit is on its side, he is extremely weak and close to death. The jackrabbit’s eyes are semi-closed or closed and the eyes appear dull and/or watering, they are in pain, weak, and in need of immediate attention. (See photo, one rabbit’s head is down and eyes are half closed.)
When jackrabbits are not feeling well, their fur on their forehead might appear erect. (See photo below—the jackrabbit appears depressed; eyes are dull and half closed and the forehead fur is puffed out.)

Jackrabbits could go into shock from injuries, lack of food, hydration, and stress. Absent external injuries, they need food and hydration quickly. Avoid excess handling and transport them in the fastest and quietest manner possible. I always turn my car radio off and never stop to do errands when I am transporting jackrabbits.

Sometimes, when it is obvious that intervention is too late, the most you can do for jackrabbits in their final moments is to make them as comfortable as possible by putting them in a warm, dark, quiet place.

**Predator Attacks**

*Cats:* If a jackrabbit was caught by a cat, the rabbit’s body starts to shut down immediately. The jackrabbit will appear to be fine, but 2 to 3 days later, dies from infection from the cat’s bite. The jackrabbit knows he will die, and if it happens to be the 1 out of 10 jackrabbits that survives,
his body will still never adjust back to normal—something will always be “off”. The best treatment for cat-bitten jackrabbits is no intervention such as antibiotics. Instead, comfort and care is the best anecdote.

_Dogs:_ Baby jackrabbits fare better if they were caught by a dog since a dog tends to carry a rabbit in its mouth without biting and breaking the rabbit’s skin. Dog’s saliva is also not as lethal as a cat’s. Again, as with people, cat bites can become highly infectious because a cat’s mouth and saliva is full of bacteria.

_Birds:_ Birds such as scrub jays or black or blue birds peck at the bodies of live baby jackrabbits. These jackrabbits will have injuries that may or may not develop into an infection or result in torn ligaments or broken bones. Sometimes, the trauma is psychological and the jackrabbit doesn’t seem able to overcome it. One baby jackrabbit was saved from the jowls of a snake. Although he was rescued and rehabilitated to an adult-size hare, he appeared to be depressed and was very sedentary. My nickname for him was “frozen bunny” because he always appeared immobile as if frozen in time. I imagine this is how he felt when he was stuck in the snake’s mouth until a good Samaritan pried him out.

_Release_

When the rabbit is healthy and ready for release, watch the weather forecast for the next 7 to 10 days ensuring the release is not when temperatures are unreasonably hot during the day or cold at night. I also wait to release if it is raining. Generally, I prefer to release around 5:00-6:00 pm since jackrabbits sleep during the day. I believe releasing around this time allows the jackrabbits to get acclimated to their new environment during a time in which they are naturally awake and alert.

Release in an area where other jackrabbits have been observed, by domestic livestock or horses, away from busy roadways or development. Established family farms with horse barns provide shelter, water, and food for jackrabbits that also eat the food livestock eats. The jackrabbits I’ve released usually need help out of the carrier when being released. If that’s the case, I tilt the carrier and let them slide out of the open door. Occasionally, I’ll handle a jackrabbit to help him on his way. If the jackrabbit doesn’t run off once they are free, do not chase him away. Instead, you should leave as quickly and as quietly as possible.
Suggested Supplies

Small kitchen scale
Mug warmer
Heating pad
Towels, blankets, sheets, bath mats
Organic baby shampoo (scent free)
Cotton pads
Straight medical scissors
1, 3, 5, 10 cc syringes
Canula tips
12 cc tapered, curved syringes
18, 23, 25 gauge needles
Lactated ringers
Karo syrup
Biodegradeable laundry detergent
Small bowls
Espresso cups
Empty baby food glass jars
Miniature whisks for mixing powder KMR