



House Rabbit Network

P.O. Box 2602
Woburn, MA 01888-1102



Dedicated to educating the public and to fostering and adoption of companion rabbits. 781-431-1211 or www.rabbitnetwork.org

Rabbit Tracks

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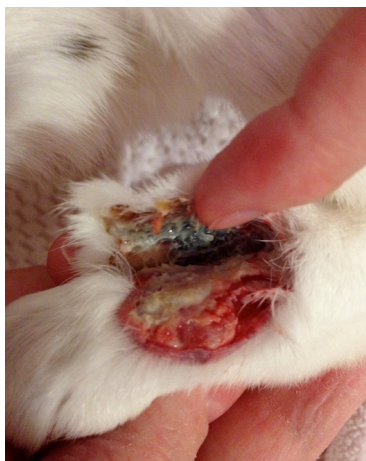
The Use of Honey in Wound Management: A Case Study

by Betsy Hartman

We discovered soon after adopting our English Spot named Tabitha, that Houdini would have been a better name for this excessively smart and agile rabbit. One of her escapes from her exercise pen culminated in her scaling the enclosure of another rabbit, and causing some nasty-looking but easily treated damage to one of his ears. Tabi emerged seemingly unscathed herself, save for a tiny bite on one of her back toes. We busied ourselves seeking medical attention for the mangled ear of her victim and expanding the fortifications around Tabitha's living area. At the time we didn't think much about her seemingly insignificant injury – until a few days later, when poor Tabi's leg swelled to double its normal size and she ceased her usual acrobatics.

The veterinarian we saw prescribed oral antibiotics (enrofloxacin, aka Baytril) – a sensible course of action – but Tabi's leg didn't improve. In fact, the skin over the top of the foot quickly turned black, as if necrotic (dead). I decided that Tabitha needed to come to vet school with me to the Zoological Companion Animal Medicine service at Tufts.

Dr. Emi Knafo and a fourth-year veterinary student removed the necrotic tissue on Tabi's foot and carefully and thoroughly debrided the resulting wound under sedation. Debridement is the removal of dead and damaged tissue, which facilitates the healing of surrounding healthy tissue. Having read about the use of honey in wound management and having seen its results



Tabitha's wound prior to treatment.

firsthand at two wildlife hospitals where I've worked, I was very interested in using it to heal Tabi's leg. Dr. Knafo supported this course of treatment, and we commenced with honey bandaging Tabitha's wound, with debridement and recheck appointments interspersed with at-home honey bandage changes. We



Post-debridement: Red tissue is healthy tissue, ready to begin the healing process.

also changed her systemic antibiotic to injectable penicillin and added pain management and anti-inflammatory medications (buprenorphine and meloxicam).

Humans have a long history of applying honey to wounds, from ancient Egypt to Hippocrates to World War I soldiers. In the more recent 20th and 21st centuries, scientific

research has given credence to previous eras' extolment of honey's medical virtues. Honey has been shown to resolve infections by preventing bacteria from reproducing and preventing the formation of biofilms (layers of microbes that band together in self-defense, secreting microscopic "walls" to protect themselves). It also decreases the pH of the wound to which it is applied, creating an environment damaging to the cell walls of bacteria (but not to those of their host), and produces hydrogen peroxide, which is an antimicrobial substance. Honey draws excess fluid from the tissues surrounding the wound, thereby reducing swelling. There is a complex (and not entirely understood) mechanism by which honey boosts the body's natural immune system to fight infection.

Honey promotes the formation of new tissue in the wound bed and the growth of new skin over the wound. The relatively low pH of honey oxygenates the wound bed, as more oxygen is released into tissue from hemoglobin (the molecule that carries oxygen in blood) at lower pH values. Honey is, of course, rich in carbohydrates, which provide cellular energy for the healing process. Honey has antioxidant properties and also contains high levels of certain amino acids used in the formation of collagen (the primary structural component of tissue).

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The Use of Honey in Wound Management con't

Not all honeys are created equal. The exact chemical composition of any given honey depends upon a synergy of bee and plant, which varies with geography, season, etc. Honey used in wound management must be unpasteurized and should not have been heated above 37°C (98.6° F) prior to use. Pasteurization or other heating will destroy the enzyme that produces hydrogen peroxide, making the honey a less effective antimicrobial agent. Any unpasteurized honey will provide healing benefits to a wound, but Manuka

honey, created by European honey bees that feed on a specific genus of trees native to Australia and New Zealand, has been shown to be the most effective and is one of the few types of honey with industry controls and a grading system. Beware of

imposters! The market is full of products that make unsupported claims. Look for a UMF (Unique Manuka Factor) grade on the label (not a K-factor, "Active" rating, or MGO rating). Medical grade honeys (MGH) are available and are honeys of known provenance, irradiated to eliminate possible contamination with the organism that causes botulism. Such contamination, however, is

extremely rare, and many veterinarians and owners are comfortable using non-medical grade, real Manuka honey. This is what we used in Tabitha's treatment.

I changed Tabitha's honey bandages daily for one week, then every other day for a second week, and every three days for a third week. At each bandage change, I irrigated the wound with sterile saline, then used a swab to apply Manuka honey to the wound. I placed pieces of TELFA non-adherent dressing pads over

wound.

Drs. Knafo and Jennifer Graham performed rechecks, debridement, and prescribed systemic antibiotics to make sure that Tabitha recovered. If you have some experience with handling rabbits, are willing to learn the proper way to bandage, and work closely with your veterinarian, there may be financial and stress-reducing benefits to applying honey bandages at home. Even for those not comfortable with changing bandages, don't hesitate to ask your



Bandaged leg.



A little over three weeks after initial debridement.

the wounds, then wrapped the affected leg with cast padding, followed by vet wrap. I required a second person (in this case, my husband) to help restrain Tabi while I changed her bandage. She did not enjoy the procedure, but was at least spared the stress (and we were spared the cost) of over a dozen vet visits. Honey bandaging is not a substitute for veterinary care if your rabbit sustains a

veterinarian about using honey in lieu of other topical medications for wounds.

Tabi healed remarkably well, and now only our vigilant containment efforts prevent repeat adventures.

All photos courtesy of Betsy Hartman.



DIY Toys

by A. A.

Bunnies without toys will turn furniture, cords, and anything they can wrap their teeth around into part of their activity center. Store-bought toys are convenient but expensive and often not mentally stimulating. Many DIY toys are easy to make with things around the house or simple items available at craft stores.

Hurdles: Why should horses be the only animals that get to jump hurdles? To make one for your bunny, you'll need: two square dowels, two wooden squares for the base, nails, at least one round dowel, and at least two ¼ cubes.

- 1) Start by nailing each square dowel to one of the base cubes.
- 2) Then add a square to each dowel at the same height. Carve a little groove into the square to keep the round dowel in place.
- 3) Add round dowel and tempt bunny over the hurdle with treats. If you have a large enough space, you can make several hurdles and place them near one or more bunny tunnels to create an obstacle course.

Dig boxes: Cut an entrance or two into a cardboard box and fill the box with newspapers, magazines, junk mail, carpet swatches, old pillow cases or towels, tissue boxes (plastic removed and make sure holes are big enough so their heads don't get stuck), shoeboxes, etc. Bunnies love to rip these things, as well as the walls of the cardboard box and it keeps the mess contained. You can also connect several boxes together

to create a box tunnel. Don't use boxes with staples and if there's tape that can't be removed, supervise your bunny to make sure she's not eating it. For another idea



Fluff and Fella digging their new toy. Photo courtesy of Janie Matocha.

with boxes, you'll need an old pair of cotton socks. Cut two entrances into opposite sides of the box and poke holes in the top. Stuff hay into the socks, cut a few small holes into them and push them through the top of the box. Bunnies can go in and get the hay out of the socks. If your bunny starts eating the socks, remove this toy.



Fletcher plays with box tunnel. Photo courtesy of Stacey Paiva.

Games: Hang a plastic Slinky from a chair or table so that it swings and is within a bunny's reach. Put hay or leafy greens inside the Slinky and let your bunny bat at the Slinky and fish out the greens. The more you loop the greens, the greater the challenge.

One easy game to create is to put up a clothesline between two items in a room. Then using clothespins, attach veggies to it. Make sure the veggies can be reached by the bunny, and just watch the game begin.

Another challenging game is to have bunnies find a hidden treat. Buy some untreated wooden boxes with lids or drawers and secure them to a flat board using non-toxic glue such as Elmer's (glue a piece of felt or carpet to the board if the surface is too slippery). Fill the boxes with veggies



Fella and Fluff enjoy a feast. Photo courtesy of Janie Matocha.

or hay and let your bunny figure out how to get the food. This toy requires supervision if the boxes have metal clasps or hinges. For a simpler version of "find the treat" you can fill toilet paper tubes with food and hide those around your bunny's play area.

Papier mache piñata: For this toy you'll need balloons, flour, a bowl of water, and thin paper such as brown paper bags or packing paper.

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DIY Toys con't

1) Blow up balloons to the size you'd like your piñata to be. Any size will work but larger ones will take longer to make. Also, since the balloons will be removed, the color doesn't matter.

2) Shred the paper. Try to match the scraps to the size of balloon for the best fit but they don't need to be perfect.

3) Make the papier mache. Add a pinch of flour to the bowl of water and stir. Then place some of the paper scraps in the bowl and soak for a couple of minutes. You may need to re-stir as you work but you don't need to add more flour.

4) Apply paper to balloons. This will be your first layer so don't try to use up all the scraps. The scraps should be slightly overlapping, not edge to edge. Leave room around the balloon knots because that's where the piñata will be filled after the balloons are removed.

5) Leave to dry. You can use a hairdryer to speed up the process. At most, they'll take overnight to dry but they typically dry much sooner. Once the balloons dry, repeat steps 4 and 5 to add the second layer. Two layers should suffice but if you can add a third, your piñata will be sturdier.

6) Remove balloon. When the balloons have all their layers and are totally dry, cut the knots with scissors or puncture the balloons with something sharp. After being deflated, the balloons should come out easily.

8) Fill with treats. You can use hay or dried herbs but don't use fresh veggies because the moisture won't work well with the papier mache. You can hang the piñatas with sisal rope if desired or your bunny can play with them on the floor.

Some DIY projects take more time and effort than others but are worth it to have fun with your bun!



How to Read Your Bunny's Emotions

by Allison Lynch

Bunnies are funny little creatures – although relatively quiet animals, they have a wide range of emotions they express with their bodies. Your bunny will communicate to you or to other rabbits in a very distinct manner. As an owner, you can learn to read your bunny's mood, which in turn can help you figure out what your bunny likes or doesn't like (especially when it comes to treats!).

The following list of emotions and their expressions are common in most rabbits.

Joyful/Happy

A happy bunny is the best kind of bunny. The most obvious expression of happiness is when your bunny performs a series of "binkies." The rabbit will typically

be running around during exercise and hop in the air, accompanied by a twist or ear-flicking. Some rabbits will binky when it's treat time; others will start binky-ing as soon as they are taken out of their cage for exercise time. When a bunny is really excited, you'll see his bunny butt twitch where the back half twitches up and down. This level of excitement is very common when buns eat special treats like bananas.

Relaxed

When a bunny relaxes, he will flop down on the ground and stretch out his legs. This bunny flop indicates that your bunny feels safe, relaxed, and ready to rest. Some-

times bunnies will flop and curl on their sides, which is the ultimate form of bunny relaxation. A side flop may look like your bunny is playing dead – don't be alarmed!



Audrey Bird enjoys some relaxation. Photo courtesy of Megan-Marie Henrici.

A closer look to make sure the bunny is breathing means everything is okay.

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How to Read Your Bunny's Emotions con't

Angry

When rabbits feel threatened, don't want to be touched/held, or simply don't like their surroundings, they will make it known to you. An angry rabbit will point his ears back (this doesn't occur in lop-eared bunnies). And if the ears are back and the hind end/tail is raised, watch out because that bun wants to attack and bite. Behaviors such as grunting, nipping, boxing at you with their paws, and stomping are signs of aggression, which mean you should leave your bunny alone. A bunny stomp is very loud and obvious. If your bunny continues to stomp, check the surrounding area to make sure there is nothing making your bunny feel threatened.



Bunny in "periscope" mode.

Fearful

A scared bunny will signal danger by stomping. A fearful bunny is very alert, and will typically be breathing very fast. If you pick up a bunny that does not like to be held, you may also notice his eyes bulging, which is a sign of fear. The ultimate expression of fear is when a bunny screams, which sounds like a terrifying, high-pitched squeal, not unlike a child's scream. This is rare, but if you hear this sound, immediately go check to make sure your rabbit is safe and stay with him until he has calmed down.

Irritable

Yes, sometimes rabbits can be little divas! Rabbits aren't always super cuddly, and when they're annoyed, they'll make sure you know. An irritated rabbit may grunt, nip, scratch, or physically turn away from you so as not to be bothered. Sometimes a rabbit will hop away from you while flicking his feet, as if to say, "I'm done with you!"

Sad

A depressed rabbit is a sad sight to see. The rabbit will be withdrawn and exhibit unusual behaviors. For

example, your rabbit may hide, appear listless, lose his appetite, or feel insecure around you. This often happens when a rabbit is alone for extended periods of time and is not given proper care and attention. Because rabbits are social creatures, it's crucial that they receive affection from their owners, or bond with a mate. A rabbit will also show these signs of grief if he ever loses his bondmate.

Curious

Have you ever seen a "periscope" bunny? This is when your rabbit stands on his hind legs to check out his surroundings. Rabbits are naturally curious creatures, and will sniff just about anything that strikes their fancy. They love chewing on things, and they will

find your computer charger or important papers if they're left out in the open. Opt for a wooden toy or a fresh pile of hay to keep your curious rabbit satisfied.

Loving/Affectionate

You can tell your bunny is feeling the warm fuzzies with his bondmate when they lick and groom each other, and nuzzle up against each other's fur. A bunny that is feeling affectionate towards his owner will want to be pet, and may nudge your hand to indicate that he wants some attention. Quite often bunnies will gently grind their teeth when being pet or talked to, indicating that they are very content. If your bunny rubs his chin on you, consider yourself claimed! A bunny's scent glands are on the chin, and by rubbing his chin on a surface, that bunny is claiming possession in a good way. The ultimate sign of love? When your bunny licks you!

Bunnies are an important part of our families. Take the time to get to know your rabbit, build trust, and identify his behaviors and emotions to form a lasting, loving bond.



Fluff nuzzling up to Fella. Photo courtesy of Janie Matocha.



Adoption Success Stories

by Sadie MacMillan

Hunny

When Tracy Lavoie brought one of her rabbits, Peanuts, in to the HRN shelter to find a bondmate, she did not have a specific bunny in mind. Peanuts had had a difficult life before Tracy rescued him

from a pet store; he'd been cruelly neglected and suffered from congenital abnormalities. His behavior was a little on the antisocial side, and unsurprisingly he failed to impress the first few lady buns he met that day. Samara,



Photo courtesy of Tracy Lavoie.

however, seemed to understand him better than the others. She seemed to know when he wanted attention and when he needed his space. She was patient with him, even when he jumped up and thumped on her head! Samara went home with Peanuts and Tracy that day, where she became Hunny.

There are never any guarantees when a bunny goes home to be a bondmate; sometimes the bonding isn't successful, and the bunny has to return to the shelter or foster care. Tracy was prepared for the unfortunate possibility that Hunny might have to go back.

But Hunny never saw the shelter again, even though she and Peanuts did not end up bonding. "My husband was like, 'No way is she going back,'" Tracy says. She has been a part of the family for two years as of May. "(My husband) absolutely adores her. She's his little princess."

And Hunny seems to realize that. When she was a shelter bun, she was well-mannered and neat with her litterbox. As soon as she knew she was in her forever home, she turned sassy and messy. "She is the messiest (of our bunnies)," Tracy says. "I'll clean her litterbox, and literally two minutes later I walk by and

everything from the litterbox is on the floor."

But Tracy and her husband don't mind. They spoil all of their bunnies. Hunny enjoys Craisins and bananas, playing with her pink toy bucket, and eating her cardboard houses. She gets "couch time" with Tracy's husband, and she even goes for walks in the new pet stroller, this year's Mother's Day present to Tracy from the bunnies. She has a new boyfriend, Reeses. She's even friendly with the family's Scottish and West Highland Terriers.

She didn't become a part of the family in the way Tracy had originally planned, but Hunny is undeniably part of their family. Please join us in wishing her a very happy two-year adoption anniversary!

Silas

Silas is a former shelter bunny that many volunteers will remember fondly. When Silas first came to the shelter he was profoundly fearful. The volunteers worked hard to make him feel comfortable and to bring him out of his shell, but they knew he'd feel most comfortable in a forever home.

Leah D'Errico brought her rabbit Buns into the HRN shelter to meet some potential bondmates, and she seemed to get along best with Silas. Leah took Silas home and the two rabbits quickly bonded. That was two years ago, and in that time Silas has undergone quite a transformation.



Photo courtesy of Leah D'Errico.

"He's so much more relaxed than he was before," she says. "The first time I saw him stretch his legs out when he was lying down, it was a really good feeling."

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HRN News

Support the Buns with a Rescue Charm



We are excited to announce that we have created an adorable charm to raise money for our buns. The charm is made in the USA and costs only \$5 plus shipping. Show your love for rabbits by wearing this adorable piece on a necklace, bracelet, or keychain.

And they make great

presents for the bunny lovers in your life. You can order by visiting www.rabbitnetwork.org/newshop.shtml#charms and paying via Paypal, or printing out the order form there, filling it out, and sending a check or money order (made out to the House Rabbit Network) to:"

HRN

P.O. Box 2602

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info@rabbitnetwork.org

Check Out Our Online Facebook Auction

That's right! Our next fundraiser is going to be an online auction right on Facebook. We've received some wonderful donated items to auction off, including gift certificates to fabulous, local retailers; jewelry; artwork; and even a week's stay at an oceanfront condo. All of these great items will go to the highest bidders. All items, descriptions, starting bids, and bidding increments will be posted in a Facebook album. The auction will run from July 6, 2015, through July 16, 2015. More details are available on www.rabbitnetwork.org and our Facebook page at www.facebook.com/houserabbitnetwork.

Petco Foundation Grant

HRN received a \$1,000 grant from the Petco Foundation for our spay and neuter program. We thank the Foundation for supporting our efforts.



Raising Funds for Our Buns

The House Rabbit Network is always looking for ways to raise money to help with medical costs (spays/neuters, critical vet care), educational expenses, and all that we do to provide care to the buns on a daily basis. Here are our recent efforts:

This winter HRN teamed up with **Gertrude Hawk Chocolates** to raise money for our little rabbit friends. 50 people purchased chocolate, which resulted in \$1,039. Thank you to everyone who ordered the delicious chocolate. What a yummy way to fundraise.

HRN volunteer Janelle Carmichael saw a great opportunity for HRN to raise some money for the buns at the local **North Reading Townwide Yard Sale** on Saturday, April 25. Janelle generously donated a space at the event, which enabled HRN to raise

\$168.93. Thank you to all the HRN team members for all the help on the day of the event and for their donated goodies.

On April 26 the House Rabbit Network and MassPAWS held a fundraiser at the **Giggles Comedy Club** for a fun evening of comedy, pizza, and auction prizes. 130 tickets for the event were sold! Thanks to the generosity of local businesses and individual donors, we had 47 great prizes up for grabs, including gift baskets and gift certificates to local dining, entertainment, and retailers. With event tickets and auction tickets \$3,600 was raised for the animals with \$1,800 going to HRN! We are extremely grateful to the volunteers, guests, and donors who made the night possible.

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Giggles Fundraiser Donors

Abe & Louie's	Felicia's	Photography By Corina
Boston Duck Tours	Friends of HRN	Putnam Pantry
Carol Youngclaus	iHome	Salon Bamboo
Chopps American Bar & Grill	Jan S., Kim W. & Dee D.	Skin and Soul
Cora Lewis	Jenny Mullen	Snip Its
Cruelty Free Consumer	Laser Quest	Stoneham Theatre
Dan Aronovitz & Stefanie Lubkowski	Linda Pease	Summer Shack
Dee Dennis & Jan Simmons	Franny McKeever	Tina & Chuck Forbes
Elephant Walk	Kings- A Classy Bowling Joint	Trader Joe's
Especially For Pets	Organic India	The Ship & Ball Square Wines
	PetSmart, Salem MA	York's Animal Kingdom

2015 Adoption Total

So far 2015 has been a good year for buns. 96 rabbits from HRN have gone on to happy homes with their forever families. We wish them well.

Adoption Success Stories con't

The first time he gave me a kiss, I almost died." Not surprisingly, Buns has played a key role in Silas' progress. "I think he really feels secure around her," Leah says. "She's very outgoing...and he's timid. He has something of a safety net with her. I think she can tell when she's nervous."

These days, Silas spends his time cuddling with Buns and occasionally letting her goad him into mischief. He loves twig-ball toys and cardboard boxes. Leah says that she goes to Costco every week and gets a different box for him. Being timid by nature, Silas likes to hide in his boxes, but he also likes to chew

them, and sometimes he even brings his food bowl into the box with him. He and Buns now have another bunny friend, HRN alumnus Hodges, who lives separately from them but is very close and friendly with them.

Leah still marvels at how different Silas is now. "I feel like I've seen him go through a really nice change, where he became a happier animal," she says. "It's really rewarding, knowing you helped an animal get to that point."



Join HRN ... or ... Please Renew Your Membership

Through our network of dedicated volunteers and members, HRN is making amazing strides to improve the welfare of house rabbits everywhere. Your support can only further our goals, so become a member and get involved.

Visit our website to find out how to help: www.rabbitnetwork.org

If you are not already a member, please join HRN!

Your membership dollars will go toward rescue and rehabilitation, community outreach and education, and veterinary expenses.

Help make a difference in a rabbit's life. They're counting on you!



Contact House Rabbit Network:

info@rabbitnetwork.org

781-431-1211

P.O. Box 2602

Woburn, MA 01888-1102



House Rabbit Network Membership and Ordering Form

Your membership donation is tax deductible and will be used for medical costs (spays/neuters, veterinary bills) and education expenses. All members will receive a copy of our newsletter, *Rabbit Tracks*, when it is published. Currently, we are publishing three issues per year. You can join online at <http://www.rabbitnetwork.org/join.shtml> or just fill out this page and mail it with your check payable to:

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- Flemish Giant.....\$ 100.00
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