MICROCHIPPING 101

SPAY AND NEUTER KANSAS CITY

JUNE 2015: NATIONAL MICROCHIPPING MONTH

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JUNE IS NATIONAL MICROCHIPPING MONTH!

Let’s celebrate with learning more about microchipping!

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HOW DO MICROCHIPS WORK?

An illustrated guide from Found Animals Registry

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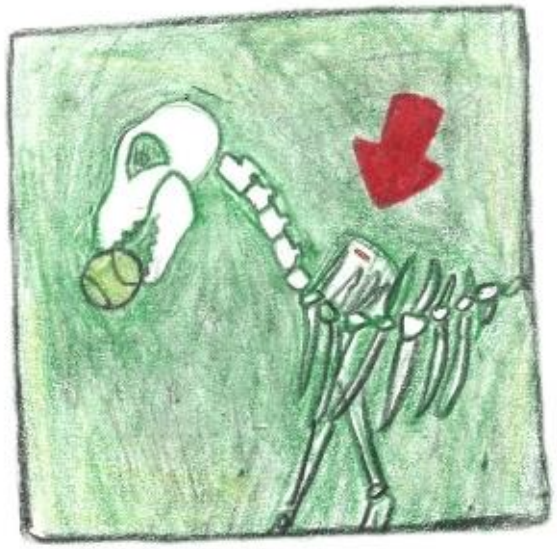
A microchip is a tiny piece of electronic equipment about the size of a grain of rice. Much of that small space holds a coiled copper antenna; the actual “chip” itself is only a millimeter or two across. The whole thing is encased in a biocompatible glass or polymer casing, allowing the microchip to integrate safely into the pet’s body (this great visual by HowStuffWorks shows the different components in a pet microchip). A vet or RVT implants this chip under the loose skin between a pet’s shoulder blades using a sterile syringe. The implantation process is very quick, and pretty similar to administering a vaccine. Pets usually don’t even notice they’re being chipped.

The microchip is a passive transponder, which means that it has no power source of its own, it doesn't move, and it only activates when powered by a signal from an external device… in other words, microchips by themselves are sort of dull. They basically just sit there waiting for something to happen. (Picture yourself on a rainy weekend, curled up on the couch with a bag of cookies, watching bad TV. Now replace yourself with a microchip, imagine your couch being a pet's subcutaneous shoulder region, take away the cookies and the TV, and you get the idea.)



Obviously, no one can see that the chip's in there without using X-ray goggles. (That's why pets should always be wearing external ID as well as a microchip.) The chip itself can't even provide your contact info; all it holds is a number. It just hangs out inside your dog or cat hoping someone will scan it with a universal scanner and give it the external power it needs to announce its number. Pets are typically only scanned during vet visits or if they wind up at an animal shelter, so the chips usually have to wait quite a while.

When a scanner sends its signal to activate or “energize” a microchip, it will do so on one of three radio frequencies: 125kHz, 128kHz, or 134.2kHz. U.S. microchips have been made on each of these three frequencies, and a chip will only activate when scanned with its matching frequency. If this seems like a silly way to do things… well, it is! The microchip system constitutes a network economy, meaning that it only works when everyone’s technology communicates effectively. To make the most of microchipping, we should all be using the same frequency of chip and the same frequency of scanner. Someday this will probably be the case, as many countries have already adopted and mandated the ISO Standard microchip frequency of 134.2kHz. In the U.S., we’re a little behind the times. We have to use universal scanners that can scan all three different frequencies at once so we don’t miss chips. They’re more expensive to make than single-frequency scanners, which is a bummer, but it’s the only way to guarantee you’re picking up everything.

Of course, there's one more key piece of the microchip pie: the registration. Since the chip and scanner only provide an ID number, each pet owner has to keep his/her contact information registered in a national database in order for the chip to work. If the chip number isn't associated with owner information, the shelter or vet will have no idea who a microchipped pet belongs to, or how to get it home. That's the bad news of what can go wrong with microchipping. The good news is that when a microchip is registered and up-to-date, it will make reunification much easier! Shelter statistics confirm that pets are way more likely to make it home if they carry a microchip: microchipped dogs are 2.4 times more likely to get back to their families; microchipped cats are 21.4 times more likely to be reunited! It's basically a no-brainer.

Depending on which database holds the pet owner's contact information, the process for actually contacting that owner will vary. Many registries require the finding shelter, vet, or Good Samaritan to call a customer service phone line (who doesn't love a good ol' fashioned call to customer service?). At that point, some will place the finder on hold while they try to conference in the pet's owner; others will provide a phone number or address for the owner and leave the task of making contact up to the finder.

How big is a Microchip?

A microchip is about the size of a grain of rice.

5 THINGS YOU SHOULD KNOW ABOUT MICROCHIPS

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5 Things You Should Know About Microchips

1. A microchip does NOT store any of your information.

The only piece of information that that a microchip contains is a unique 9, 10, or 15-digit number (think of it as your pet's social security number). In order for the microchip to work, it must be registered in an online registry like the Found Animals Microchip Registry. Without a registration, the microchip is just a useless piece of internal jewelry for your cat or dog. An unregistered microchip in a pet is extremely hard to trace back to the owner, and a busy shelter may not have the time or resources to track down that information. Remember: the registration needs to be updated if you ever move or change your phone number.

5 Things You Should Know About Microchips

2. A microchip is NOT a GPS.

You cannot locate or “track” your pet with its microchip. Microchips are “passive transponders,” meaning they don’t contain any power source, so they have no way to let out a signal when your pet is lost. In fact, the chip doesn’t do anything at all until a scanner is passed over it. That’s when the microchip uses the energy produced by the scanner to emit a unique code, which then appears on the scanner.

Another main reason a microchip cannot be a GPS is size. To add a power source to the microchip, you would need to add a battery compartment inside the chip (making it a lot larger than the current injectable size), and your pet would need to be “plugged in” to charge, sort of like an electric car. Pet GPS collar tags are available, but thankfully, they’re worn on the outside.

5 Things You Should Know About Microchips

3. Not all microchips and scanners are "universal."

Microchips in the United States operate on one of three frequencies: 125 kHz, 128 kHz, and 134.2 kHz. Some manufacturers provide microchips in more than one of these types. The 125 kHz is the oldest U.S. frequency, and is still distributed by AVID, HomeAgain, and 24PetWatch. The 128 kHz is the rarest frequency, and has only been distributed by the AKC. The 134.2 kHz is the ISO International Standard chip, which is the frequency that Europe, Canada, Japan, and most parts of the world are already using, and that the U.S. is slowly moving towards. Most U.S. suppliers now provide ISO standard 134.2 kHz microchips, including Found Animals, Datamars, ResQ, HomeAgain, AKC, 24PetWatch, Bayer, and 911 Pet Chip.

A universal scanner must pick up all three frequencies. This is where people tend to get confused. Some shelters and vets assume that if their scanner picks up three different brands of microchips, it is universal. However, as you can tell from the above, some brands are on the same chip frequency, and some make several different types of microchip. So unless the scanner picks up all three frequencies (the 125, 128, and 134.2), it is NOT universal. And unfortunately, many organizations are unknowingly still using non-universal scanners, which means they are missing chips and therefore unable to reunite lost pets with their families.

5 Things You Should Know About Microchips

4. You can register any brand of microchip with any registry. AND you can register a microchip in multiple registries.

For example, if your pet has an AVID microchip, you can register it with HomeAgain, AKC, and Found Animals. But here's where this may cause a problem. Say your pet's microchip is an AVID chip, and you register it with HomeAgain. If the shelter sees that your pet's microchip is an AVID chip, they may call AVID to see if it is registered, and if they stop their search there, the other registrations may never be found. So unless they use AAHA's pet microchip lookup tool to expand their search, your pet might never make it home, even though you kept your registration up to date.

On top of that, registries in the United States are not required to speak to each other or share owner information, so shelters that don't search microchips online would theoretically have to call every single microchip supplier one by one to determine where it may be registered. (See how this could get complicated and potentially deadly for your pet?) Most organizations do not have the time or resources available to wait on hold with all of the common microchip companies. Because there is no singular national database in the United States, some owners choose to register their pets in multiple registries as an added safety net. Some for-profit registries will charge a fee to register or update your pet's info, but as long as all registrations are kept up-to-date, there is no harm in registering in multiple registries. The Found Animals Microchip Registry is a free non-profit service, and will never charge a fee to register pets or update your information.

5 Things You Should Know About Microchips

5. A microchip is NOT the way most pets get home.

Yes, a microchip is your pet's only form of permanent ID. Yes, it is a great way to protect your pet. Yes, every pet should have a microchip with current registration information. However, the quickest way for your lost pet to get home is with a collar and tag with your phone number on it. This tag should also have the pet's name and microchip number on it. Never underestimate the power of an external ID tag – it's visible and easy for people to understand, which means even a first-time pet finder should know how to contact you. Of course, external ID can still fall off or be damaged, but if you pair an external tag with permanent microchip ID, your pet will have two solid layers of protection to get him home. You can get customized tags at most pet supply stores.

THE MISSED MICROCHIP

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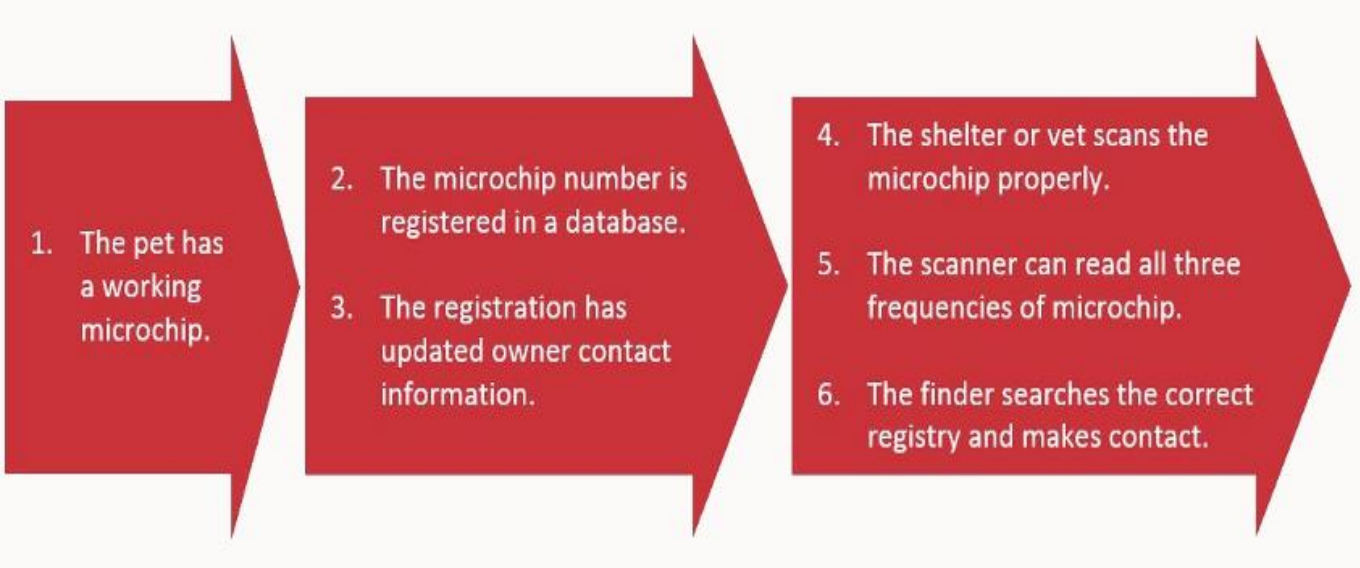
The Missed Microchip

It's common to blame chips "malfunctioning," or migrating, but microchip failure and microchip migration are rarely, if ever, the true culprits. For a microchipped pet to make it home, the whole system has to work in harmony, and the chip hardware is the element that quite literally doesn't have any moving pieces. Here are the ingredients to get your microchipped pet home



The Missed Microchip

Because the microchip doesn't move, doesn't have an internal power source, and is usually guaranteed functional for at least 30 years – longer than most of our dogs and cats will be around – the chip malfunctioning is basically the least likely way for the system to fail. Failure rates for microchip transponders in a British Small Animal Veterinary Association (BSAVA) study ran about 36/3,700,000. (Yes, that's one in a million chips, or what statisticians would call an "itsy bitsy teensy weensy" little number.) Even if the microchip migrates, careful and thorough scanning should still be able to read it. For the love of Dog… it's not the chip!

The Missed Microchip

Rather, the human scanning the chip may be at fault. Animal professionals face plenty of opportunities for small snafus that can mean big trouble for lost pets. Here are just a few examples of easy mistakes that can interfere with a successful scan.

The Missed Microchip

1. Metal Near the Scanner

Did you know that scanning pets that are wearing collars can cause microchips to be missed? This is because metal interferes with the scanner transmission that activates a microchip. Scanning pets near the metal components in their collars, inside cages, on metal exam tables, or even near lighting and electrical features can lead to chips not receiving enough power from the scanner to feed back their unique ID number. Now, think about your last vet visit. What are all of those super-sterile counters made out of? Meddling metal.

The Missed Microchip

2. Scanner Pointed the Wrong Way

This seems very silly – why should it matter which way the scanner points? With the big round loop or plate covering the antenna on the end of a scanner, many of us imagine it as a magnifying glass. We try to position the chip in the middle. In reality, the strongest signal area will vary depending on the scanner model, but it's often outside the loop, near ten and two o'clock. How the microchip is positioned also matters: one end of the chip will actually read better than the other. Sticky business when we can't even see the chip! To mitigate these issues, manufacturers recommend scanning in slow figure 8s up and down a pet's back, neck, and legs, and passing each area multiple times. This increases the likelihood that the stars will align and the scanner and chip will communicate successfully.

The Missed Microchip

3. “Just Plain Finicky” Scanner

We’ve barked your ears off about non-universal scanners and how they prevent pets from making it home. That’s still true. Did you know, though, that even universal scanners can miss chips? Grrr! If the scanner is low on batteries, or has a component loose, or is better at scanning some frequencies than others, it just may not work the way you expect it to. Universal scanners have a lot of heavy lifting to do when scanning for all three US microchip frequencies at once. Many pick up the ISO standard chip faster or more consistently than older, lower-frequency chips – just one more reason to get on the universal standard and use only 134.2 kHz, 15-digit, ISO standard microchips. Also why we recommend scanning multiple times, and with multiple different universal scanners, before assuming a pet is not microchipped.

The Missed Microchip

4. Scanning Too Quickly

A microchip scan should be savored slowly, like a fine rawhide or catnip toy. Animal care and control professionals are often pressed for time, and most lost pets do not feel the need to sit patiently while they are prodded by strangers. Still, slow, thorough scanning is essential to pick up every chip. We recommend humming a favorite song while scanning – this can help calm the animal, but also emphasizes how fast we tend to move in the shelter or clinic environment. If the microchip is written off before we make it through more than one verse, we may need to pause and consider all the time we will save if we actually find a registered microchip! It's worth a second pass.

The Missed Microchip

5. Not Searching the Correct Registry

We have so many microchip and registry companies in the US that it is almost impossible to get a comprehensive list – they're always changing. However, the American Animal Hospital Association (AAHA) has a wonderful pet microchip lookup tool that searches almost all of them. This free website is the fastest, most effective way to find a registration once you know a pet's microchip number. It's open to the public, too… try searching your pet's microchip to see if your registry shows up. Of course, it's still up to us as the pet owners and rescues to make sure that all registrations are up-to-date with the correct owner and lots of contact information, but many pets do not make it home simply because the correct registry was not contacted.

Types of Scanners

Common Microchip Scanners					
Chip Type					
134.2kHz (ISO)	✓	✓	✓	✓	✓
125kHz	✓	✓	✓	✓	✓
128kHz	✓	✓	✓	✓	✓

Chip Type					
134.2kHz (ISO)	✓	✓	✓	✓	✓
125kHz	✓	✓	✓	varies	varies
128kHz	✓	✓	✓		

NON-UNIVERSAL
WILL MISS CHIPS

ARE YOU A MICROCHIP MASTERMIND?

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Microchip 101 Quiz

Let's get started!

Microchip 101 Quiz

1. What do pet microchips do?

A – Contact pet owners when their pet escapes

B – Store pet owner contact information

C – Identify pets with a unique number

D – Alert shelters that a pet is lost or stolen

Microchip 101 Quiz

1. What do pet microchips do?

The answer is:

C – Microchips provide a unique identification number for pets.

Microchip 101 Quiz

2. Which of these items is closest in size to a microchip?

A – Grain of rice

B – Jelly bean

C – Quarter

D – Cell phone

Microchip 101 Quiz

2. Which of these items is closest in size to a microchip?

The answer is:

A – A microchip is about the size of a grain of cooked rice: approximately 13mm long by 2mm wide.

Microchip 101 Quiz

3. Which types of animals are identified with microchips?

A – Cattle, pigs, and sheep

B – Fish, snakes, and lizards

C – Dogs, cats, and rabbits

D – All of the above

Microchip 101 Quiz

3. Which types of animals are identified with microchips?

The answer is:

D – Microchips are used to protect and identify many types of animals beyond cats and dogs. Livestock animals often wear microchips either as ear-tags or as extra-large implanted microchips, although some large animals such as horses actually carry the same type of microchip as your cat and dog. Exotic pets such as reptiles, birds, and fish are also frequently microchipped to help identify their original owners in the case of theft.

Microchip 101 Quiz

4. How is a pet microchip powered?

A – It contains an internal power source

B – It absorbs kinetic energy from a pet's movement

C – It activates when passed over by a scanner

D – It receives signals from a satellite

Microchip 101 Quiz

4. How is a pet microchip powered?

The answer is:

C – Microchips are passive transponders, and are only activated when they receive power from a nearby scanner.

Microchip 101 Quiz

5. Which U.S. company registers only 9 digit microchip numbers?

A – HomeAgain

B – Avid

C – FoundAnimals

D – None of the Above

Microchip 101 Quiz

5. Which U.S. company registers only 9 digit microchip numbers?

The answer is:

D – This is a trick question. Most microchip registries in the United States will register any type of microchip, regardless of which company manufactured the chip. So, even though the number format may tell us where a chip came from, that does not necessarily mean it is registered with that company. Because microchips may be “cross registered” (registered with a company other the supplier) or even registered in multiple databases, it is crucial that pet finders use the AAHA’s universal pet microchip lookup tool, to find registrations.

Microchip 101 Quiz

6. Why are pet microchips important?

A – They are the best possible way to locate a lost pet

B – They help vets and shelters assess a pet's medical condition

C – They prevent pets from being stolen and resold

D – They provide the most reliable permanent identification

Microchip 101 Quiz

6. Why are pet microchips important?

The answer is:

D – Microchips are the most common and reliable form of permanent identification for pets. Unlike a collar, which can become damaged and fall off, microchips are usually good for the life of the pet. They can potentially help find the correct owner if a pet is lost or stolen, but microchips alone are not usually considered conclusive proof of ownership.

Microchip 101 Quiz

7. Microchips are a good example of which technology?

A – RFID

B – IDK9

C – PIND

D – MEOW

Microchip 101 Quiz

7. Microchips are a good example of which technology?

The answer is:

A – Microchips are a form of RFID, or Radio Frequency Identification. Other examples of RFID include security key-cards and anti-theft devices on store merchandise.

Microchip 101 Quiz

8. How do most lost pets make it home?

A – Because of a registered microchip

B – They are found in the neighborhood, or return on their own

C – Because of external ID tags

D – N/A – Lost pets usually don’t make it back

Microchip 101 Quiz

8. How do most lost pets make it home?

The answer is:

B – A comprehensive study on pet loss found that most lost pets either come home on their own or are found by searching the neighborhood. In fact, these account for over 70% of successful pet reunifications. Only about 15% of dogs and 2% of cats are reunited due to microchips and other ID, probably because most pets aren't wearing any ID when they become lost.

Microchip 101 Quiz

9. Which of these correctly describes the microchip reunification process?

A – Once a lost pet is found, the shelter or vet implants a microchip to help find the pet's owner. The microchip then contacts the pet's owner via phone calls, texts, and emails explaining where to pick up the pet.

B – After the microchip is inserted, the pet owner must update the registration. Then, if the pet is found, a shelter or vet can scan the chip number and use that number to pull up owner contact information in the registry.

C – If a pet has a microchip, the chip will always be active. Once a pet leaves a specified radius around its home, the microchip alerts the registry that the pet may be lost. Then, the registry contacts the pet owner and provides information on the pet's whereabouts.

D – After the microchip is inserted, the pet owner downloads an app to link the chip to a cell phone. Then, if the pet is ever lost, the microchip can be activated remotely from the owner's phone. The active chip will let passersby know that the pet is lost.

Microchip 101 Quiz

9. Which of these correctly describes the microchip reunification process?

The answer is:

B – A microchip is passive identification. It cannot be used to locate a lost pet, but once the pet is found and scanned, the microchip number can be used to find corresponding pet owner information in a registry.

Microchip 101 Quiz

10. In the United States, pet microchips are made on each of these frequencies except:

A – 125 kHz

B – 128 kHz

C – 132 kHz

D – 134.2 kHz

Microchip 101 Quiz

10. In the United States, pet microchips are made on each of these frequencies *except*

The answer is:

C – U.S. pet microchips operate on one of three frequencies: 125 kHz, 128 kHz, and 134.2 kHz. 134.2 kHz microchips are the International Standards Organization (I.S.O.) standard, and are recommended by the AVMA, AAHA, HSUS, and most other major humane organizations. Hopefully soon the U.S. will adopt the worldwide standard and use only I.S.O. compliant microchips; in the meantime, organizations that implant microchips or take in lost pets must use universal scanners that read all three frequencies.

Microchip 101 Quiz

EXTRA CREDIT

11. For U.S. cats and dogs, where (on the body) are microchips implanted?

A – In the tail

B – Above the right shoulder

C – Above the left shoulder

D – Between the shoulder blades

Microchip 101 Quiz

EXTRA CREDIT

11. For U.S. cats and dogs, where (on the body) are microchips implanted?

The answer is:

D - In the United States, microchips for dogs and cats are implanted subcutaneously (under the loose skin) between the shoulder blades. Proper implantation helps prevent chip migration, as the shoulder blades create a groove that helps cradle and contain the chip. Microchip implantation sites vary by species and by country.

Are you a Microchip Mastermind?

Thanks for taking our “Microchip Mastermind” quiz!

What’s your score? If you got all of these questions right, you are truly a microchip mastermind!

SCORE CHART:

0-3 = RFID Rookie

5-6 = Mini Chipper

6-9 = ID Intellectual

10+ = Microchip Mastermind!

Want to learn more?

You can find all of this information plus much more by checking out Found Animal's blog "Adopt & Shop"

Found Animals adopt & shop™

http://blog.adoptandshop.org/

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Thank You for your time!

These Continuing Education classes allow our staff, volunteers, and other community members to better understand some of the services and programs that we offer.

If you have ideas for other Continuing Education classes , or topics you would like to learn more about, please contact the Volunteer Coordinator at volunteer@snkc.net

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