



MAGAZINE

YOUR DOG & THE FUTURE OF PET HEALTH CARE

CANINE CANCER

by Dr Kevin Slater of Pet Screen

What's good for us is good for our pets!

It is a sad fact that cancer amongst dogs is growing at an alarming rate. One of the big difficulties with animal cancer is that your pet cannot tell you when a cancer is developing, but if cancers can be detected early enough they respond well to treatment. With the introduction of new treatments, many cancers now respond better than ever.

Over recent years we have all become aware of the risk factors for human cancer. Responding to these by changing our habits is having a significant impact on our health. For example, stopping smoking, protection from excessive exposure to bright sunlight and eating a healthy diet high in fruit and vegetables all help to reduce cancer rates. Another very important area is to keep a close eye on ourselves, going for regular health checks and reporting any lumps and bumps to our doctors as soon as they appear. Increased cancer awareness is without doubt improving human health.

Responding to risk factors will help reduce incidence. Being vigilant about any changes to our bodies will ensure that cancer is detected early. This will improve the chances of successful treatment. If we can do this for ourselves, we owe it to our pets to show similar care and attention.

Know your dog, keep an eye on the signs.

Approximately 25% of dogs will now die of cancer. Although this is a very alarming statistic, a positive diagnosis of cancer should not be seen as a death sentence. Cancer can be treated, and in many cases it can be cured. The success of treatment will depend on the type of cancer, the treatment used and on how early the tumour is found. The sooner treatment begins, the greater the chances of success. Therefore, one of the best things you can do for your dog is to keep a close eye on them for signs of the disease. This shouldn't be an onerous task, it can be done as a part of everyday play and pampering.

There are 10 classic signs to look out for:

1. Abnormal swellings or lumps that persist or continue to grow
2. Sores that do not heal
3. Loss of appetite
4. Weight loss

5. Bleeding or discharge from any body opening
6. Difficulty eating or swallowing
7. Offensive odour
8. Hesitation to exercise or loss of stamina
9. Persistent lameness or stiffness
10. Difficulty breathing, urinating, or defecating

If you spot any of these signs in your dog, you should report them to your vet as soon as possible. These symptoms often develop slowly, so it is best to get to know your dog's habits well. It is also important to bear in mind that these symptoms can also be brought on by other diseases, so don't immediately expect the worst.

What to expect.

Your vet will perform all the necessary diagnostic tests to discover the real cause of the problem. They may want to take an X ray, a blood test or a small sample of any growth (called a biopsy) for laboratory analysis. This information will be used to find out if the tumour is "benign" (which is a growth that can relatively easily be removed without any further complications) or "malignant" (which is a more aggressive tumour that invades tissues and can produce "secondary" growths known as metastasises).

Once your vet has made the diagnosis, they will discuss the various treatment options with you. As with human cancer treatment, these will be either surgery, radiotherapy or chemotherapy. Surgery is still the most widely used treatment for most dog cancers. In some cases a combination of treatments may be used. A combination of surgery followed by chemotherapy is used for some aggressive tumours. There are certain tumours, such as lymphoma (one of the most common malignancies in dogs), which are treated primarily by chemotherapy with very good results. Chemotherapy in dogs is not as unpleasant as it can be for humans. Many owners worry that chemotherapy will cause their dog's fur to fall out, this very rarely happens because the drugs attack the fast growing hairs on our heads but do not attack the slow growing coat on dogs. Whiskers, on the other hand, do grow fast, so don't be alarmed if you dog loses few whiskers.

As cancer therapy becomes more sophisticated, there is increasing use of specialist referral centres where cancer specialists are able to provide the most advanced treatments available. Your vet will know all the cancer referral centres and will advise you if they think one of these centres can offer better treatment for your dog.

Cancer treatment can be expensive, particularly for some of the more advanced treatments. However, the costs can be covered by pet insurance policies. If your dog is a high risk breed, taking out insurance will give you peace of mind to ensure that you give them the best treatment available, should the worst happen.

Some breeds are more prone than others.

It is unfortunate that some breeds have a higher incidence of cancer than others. It is difficult to provide a comprehensive list here, but the following is a brief guide:

Highest incidence breeds which also develop cancer at an earlier age than other dogs.

- Boxer.
- Golden Retriever
- Rottweiler
- Bernese Mountain Dog

High incidence breeds

- Boston Terrier
- English Bulldog
- Scottish Terrier
- Cocker Spaniel

Average incidence breeds:

- Irish Setter
- Schnauzer
- Labrador
- Mongrels

Relatively low incidence breeds:

- Beagle
- Poodle
- Collie
- Dachshund

The (near) future.

Research into better treatments for dog cancer is being conducted by the veterinary schools around the UK, specialist centres such as the Animal Health Trust and by pet health companies. The advances in biology are producing a steady flow of new treatments and tests which are now becoming available to improve cancer care.

At PetScreen we are developing new techniques to help spot cancer early and also to assist your vet in selecting the best possible treatment for your pet. To help us in this effort, we need small samples of tumour tissue and blood which are left over from your vet's routine diagnostic tests. If you would like to help in this research effort by agreeing to donate samples which will be used to improve cancer care in the near future, please talk to your vet. If they could contact us on study@pet-screen.com, then we will contact them to discuss the details of sending the samples to our laboratory.

By working together we can help fight this disease.

HYDROTHERAPY: A PROFILE

Trendy health fads seem to come and go on an almost weekly basis. we always seem to be hearing about the latest, greatest health, fitness or diet regimes that 'the stars all swear by,'

The trouble with health fads is that they have a tendency to cloud popular opinion of some relatively new or lesser known treatments that actually work.

Hydrotherapy works. It is not a fad and many dogs have reason to be grateful for its existence.

What is Hydrotherapy?

Weightless Exercise

Hydrotherapy offers a therapeutic, relaxed and enjoyable workout, which many dogs are deprived of in day to day life, especially through arthritic joints, after an injury or surgery.

Controlled swimming allows muscles to be stimulated and exercised without the stress element associated with land based exercise, causing potential pain.

Vets recommend a course of hydrotherapy for pre- and post-surgical conditioning, to reduce weight in obese animals, for painless exercise for pets with arthritis or dysplasia, cardiovascular workout for seniors, rehabilitation for stroke sufferers, and pain management. It is therefore of use in many orthopaedic conditions both pre-operatively to improve muscle tone to affected limbs (for instance, prior to total hip replacement) and post-operatively to improve repair - for instance in post-operative care of cruciate ligament rupture, osteochondrosis or fracture repair where light swimming can begin as soon as the sutures have been removed.

Preliminary observations suggest that hydrotherapy, if initiated early in the course of disease, can help to maintain muscle tone in cases of degenerative radiculomyelopathy (CDRM) and other neurological diseases with similar presenting signs.

In show dogs and racing dogs, it provides an effective means of maintaining fitness and toning muscle, particularly in the winter months, and is a valuable aid to weight control in the obese pet.



Immediate Benefits

Hydrotherapy techniques help to relieve pain and strengthen and re-train muscles; because the animal is effectively weightless when swimming. Hydrotherapy acts by encouraging a full range of joint motion, thus improving muscle tone without imposing undue stress on damaged tissues. This is why results can occur so quickly.

Each hydrotherapy session should be tailored to an individual dog's condition and fitness level - all dogs should therefore visit through a referral from a veterinary surgeon. An assessment of the dog's condition will be made and the treatment given at each session recorded. In this way the progress that the dog makes can be monitored. The rate at which such progress is made will be dependent on the breed of dog, condition for which it being treated, age and fitness level.

Health & Safety

There are no set dimensions for hydrotherapy pools. What is ideal for a Yorkshire Terrier will be significantly different to that needed by a Newfoundland. All pools should have water heated to a temperature in the range 24 to 30°C and should allow all year round operation.

The combination of water and electrical circuitry makes it essential that the operation adheres to strict safety standards. All CHA members will have the appropriate safety certificates as well as insurance cover for animals when undergoing treatment and third party liability to cover visitors to their premises. Cleanliness of the water is a critical factor. All regulated pools must regularly test their water quality and in busy periods this would be several times each day. The key aim is to ensure no harmful bacteria are present and there is no risk of cross infection. Canine Hydrotherapy Association members are required to keep detailed records of water quality.

Regulation

The Canine Hydrotherapy Association (CHA) is a UK-based non-profit organisation that provides self-regulation for the animal hydrotherapy sector. The Association sets benchmark standards of treatment, operation, training, supervision, first aid, record keeping and water quality for all its members. In this way veterinary surgeons, pet



insurance companies and - most importantly dog owners - can use a CHA member pool with confidence. All members of the CHA display a certificate of their membership and are proud to make use of the CHA Logo.

Malcolm Adler, Company Secretary of the CHA, and a Director at the Hydrozone Therapy Centre in Hertfordshire explained: *"There is no statutory requirement for Canine Hydrotherapists in the UK to undergo training. Unfortunately there are many untrained operators not fully competent in caring for the dog's well-being. The CHA represents approximately one third of the Canine Hydrotherapy marketplace. Therefore it is most concerning that some two thirds of the marketplace (in excess of 100 pools) do not operate within a Code of Conduct and are not audited to ensure set minimum quality Standards are operational or maintained. The CHA is pioneering the way forward and has already introduced training programmes to include canine first aid, water management and practical hydrotherapy. It further approves and supports Accredited Hydrotherapy Courses and is actively exploring formal qualification options."*

Malcolm added: *"It is always advisable to visit a hydrotherapy pool before you begin any treatment programme, to inspect the facilities, ask about qualifications and training, check water quality and insurance cover, and discuss your dog's condition and the treatment programme. The key aspect is quality treatment for your dog and this is why the CHA has set benchmark standards in canine hydrotherapy." Worth the cost Rates for a hydrotherapy session are set by individual therapist and will vary according to the facility and its location. Typically a session will allow for up to 30 minutes, to include time for drying the dog afterwards. Fees are normally in the range of ?10 - ?25 per session. In most centres, owners are encouraged to attend sessions to help reassure their dog during its initial exposure to water"*

Further Research...

There is an enormous amount of case history and glowing customer testimonials on the benefits that hydrotherapy has brought to their dog's condition and overall well-being. However, there is still a lack of formal study and scientific data and one of the aims of the CHA is to promote such work, and the Association welcomes inquiries or contributions from any interested party in this respect.

K9 MAGAZINE ANIMAL ADVISORY PANEL

Hip Dysplasia & A Question About Hip Replacement Surgery For The Family Dog

Q) "Our 6 year old Labrador has recently been diagnosed with hip dysplasia. Our veterinarian wants to refer us to a specialist for a total hip replacement because the dysplasia is so bad. It will cost about £2,000 per hip. Do you think we should do that?"

A) The first thing to cover is explaining how, what and why hip dysplasia is such a problem.

In far too many cases dysplastic dogs are overweight. Simply reducing the dog's diet will ease a large amount of stress on the hip joint and keep the dog in better overall health. Exercise and other forms of human induce physical excursion should be kept to a minimum.

It may seem harsh to restrict a dog from what they crave to do naturally but if they could, they would thank you for it in later life. As with humans, when a dog suffers pain in a particular joint or muscle they will shift the balance to another joint or muscle to compensate. Learning how to give regular stretching exercises will give the dog some relief and added freedom of movement. Seek professional advice from your vet on stretching exercises.

Water treatment or hydrotherapy is a fast growing method of treating injured or muscle damaged animals. Racehorses have used this form of treatment for many years and now there are a wide range of dog friendly hydrotherapy pools at the disposal of pet owners.

Again, ask your vet for advice. Drug treatment mainly consists of anti-inflammatory's such as aspirin and cosequin are often used to good effect. Using complimentary or 'alternative' medicines to ease the pain of hip dysplasia should be done on the advice of a suitably qualified expert in the field. Many dog owners have reported great improvements in their dogs after using various complimentary treatments.

Finally, coping with a dysplastic dog will mean accepting the limitations on the dog's own lifestyle. Long walks in the park are not good but this doesn't mean the dog should get no exercise. The dog's weight will need to be very carefully monitored. Dogs don't have the sort of aversion to hardships as we do so in many cases it is us dog owners that need to make sure our dog is getting the most from life though coping with this terrible disease.

As for the surgery. The total hip replacement is a major surgery. It requires very special knowledge, special equipment, support staff and the prosthesis (artificial joint) itself. The old hip is literally taken out and replaced with a plastic socket and a metal ball. The dog is totally free from the pain of hip arthritis after surgery, because the arthritic joint is gone.

There is some pain after the surgery due to the incisions through the muscles and movement of muscle tissue in order to get access to the joint. After an initial healing period, these dogs do quite well. By the way, both hips will not be done at the same time. There will probably need to be at least two months between procedures.

The best recommendation is for you to have a family meeting and discuss the expense and the aftercare. Then talk to the specialist and ask all your questions. You will be impressed with the professionalism of such a specialist and with the speed in which your dog recovers.

A Natural Approach to Pet Care - Introduction to Holistic Pet Care

"A holistic approach to pet care is favoured by many 'modern' dog owners"

Alternative medicine has become popular among humans in recent years, but it is only relatively recently that it has had the same effect for dogs. Conventional medicine is by no means inferior to holistic remedies, but sometimes alternative methods of treating canine ailments prove to be more effective.

It is widely agreed that alternative medicine should be sought after the failure of conventional methods, but there is nothing to say that complimentary medicine

cannot enhance the effects of traditional western medicine and vice-versa.

The term 'alternative' in the context of medicine means that the medical benefits are as yet, scientifically unproven.

This does not mean that they do not work, it means that the controlled scientific tests have not been carried out to the extent which satisfies the AVMA (American veterinary medical association) although they have all but given their seal of approval to the use of holistic medicine.

One of the most common forms of alternative medicine is acupuncture. This has been used on horses and dogs successfully in the past and will be in the future. It is always necessary to consult your vet before any type of complimentary medicine is performed on your dog. This is because certain practices, particularly those which involve spinal manipulation, can be dangerous.

Many pet owners have been using floral extracts in order to assist the treatment of all types of ailments. Crab apple is a popular method of ridding the body of toxins and impurities, whereas olive is very good for aiding recovery after a long illness. There are many ways of incorporating floral extracts into an already existing course of treatment. Studies performed at the university of Pennsylvania indicate that the effects of conventional medicine have been enhanced when used concurrently with other forms of treatment.

It is important to remember that conventional medicine is developing at a huge rate and there are many significant advances being made daily, like those for the treatment of localised cancer. The essence of alternative medicine is to try and use unconventional methods of treatment to enhance the effects of other types of medicine and to exploit natural remedies in order to treat illness.

An Alternative Way To Treat Aggression

Many natural canine reactions can be misinterpreted as 'aggression' by uneducated humans. This is generally the main problem with dogs and their owners, when a situation arises in which the dog feels threatened his natural response is to defend himself. To the untrained eye this seems like unmitigated aggression, but anybody with an 'untrained eye' own a dog anyway?

There are many conventional ways of treating this aggression, but a lot of the time they are ineffective due a lack of understanding of canine behaviour, If we took a step back and reviewed each and every situation in which our dogs showed aggression we would probably find that we would react in much the same way. However, there are some dogs who demonstrate various degrees of aggressive behaviour which we as dog owners need to understand and then deal with.

It is essential to understand what is likely to make a dog react aggressively. This is quite simple, if it would make you or me react aggressively then it would probably make a dog do much the same. So the first step in dealing with aggressive behaviour is to eliminate as many situations as possible where a dog may want to bare his teeth or growl. It is important to understand your dog and how his mind works to the point of knowing which dogs or other pets he would not wish to associate with.

For example, it would not be advisable to leave two dominant, male dogs together unattended if one or both of them was not used to company from other dogs. This boils down to common sense. Dogs should be able to interact with other dogs, but this needs to be done over time if you have an 'aggressive' dog.

Gradual introductions to other dogs should help Rover feel more at ease in the

presence of Fido and Scout. But this is not to say that there will not be problems involving aggression, because there could be. This is why it is important for dog owners to know how to read body language.

Just like humans can demonstrate aggressive body language like pointing and staring, dogs often initiate confrontation through body language. Tell tale signs include ears becoming pricked up, raised hackles and bared teeth. These are definite signs of aggression and should be dealt with as a matter of urgency.

There are many methods of treating this problem in dogs, one of the more radical yet effective ways involves the use of complimentary medicine. Holistic remedies such as the use of flower extracts offer alternative methods of correction. Used along side conventional behaviour modification techniques cherry plum extract offers an effective alternative to chemical drugs.

It helps curb aggressive behaviour and is often effective alongside a dedicated behaviour modification programme. There is however, no substitute for a good well disciplined training regime to help control the behaviour of your dog.

If your dog does not respond to conventional methods of correction it is important to look at what causes his aggressive tendencies and attempt to remove the problem at the source. A dog is very sensitive to his environment, any tension or fluctuation in atmosphere will be sensed by the dog. If he feels uneasy he could turn that feeling into aggression. Monitor his behaviour to see if there is anything causing him irritation or bother.

Trial and error is often the only way to detect the root of the problem, if this is the case and still you cannot find any cause of cure for the aggressive behaviour consult your vet who may be able to refer you to dog behaviourist.

Sometimes the simplest solution is the most effective. A lot of dogs are effected by their diet. Once again trial and error could reveal the root of your dog's unwelcome behaviour. Certain foods trigger certain reactions in dogs. Allergies can cause your dog to become aggressive. Other symptoms of allergy include hyperactivity, loss of appetite and stamina.

If your dog is feeling run down or generally ill this may cause aggression. Echinacea is an excellent supplement to boost the immune system and is readily available from many health food shops.

Your dogs exercise routine may be agitating him. Does he appear exhausted or even hyperactive after exercise? Is he receiving too much or too little exercise? Once again vary his exercise and diet in order to eliminate causes of aggression.

Holistic remedies, although effective are no substitute for a well trained dog. They are most effective when combined with other behaviour modifying measures.

CANINE ACUPUNCTURE: AN INTRODUCTION

by Nick Thompson. Holistic Vet. BSc. (Hons), BVM&S, VetMFHom, MRCVS.

Acupuncture is a non-painful procedure to stimulate healing and pain-relief without drugs. It is used extensively in veterinary practices throughout the UK, Europe, Australia and the USA. Dogs, cats and horses have all benefited from its gentle healing effects and here we bring you an insight into how and why its popularity is on the rise amongst pet owners.

Musculo-skeletal problems are most commonly treated using acupuncture. Arthritis, back and neck pain, lameness and post operative recovery can all respond. In my practice I most commonly treat GSDs and Labs with hip arthritis due to hip dysplasia, elbow arthritis due to elbow dysplasia and all three conditions due to wear and tear in older dogs. Incontinence in bitches and sinusitis with nasal discharge can often be helped, too, so it's not just joints we need to be thinking about.

I'm currently seeing a fantastic 12 month old chocolate Lab called Beetle. He was discovered to have pretty severe hip dysplasia at six months old. We are using acupuncture and osteopathy to get him through to about 15 months old when he needs to have both hips replaced. The combination of needles and osteopathy is allowing minimal use of Metacam. After starting on acupuncture he has gone from being a whiney puppy who didn't want to do anything but sit and lie around to being pretty much a normal puppy (apart from having to be kept on the lead to protect him from running around like a loony)!

Oggie is a different kettle of fish. He is an eight year-old Blood Hound whose hips and elbows become sore periodically. His owners are very good at spotting if it's his elbows or hips that are bothering him. After four weekly sessions he was much brighter and able to romp around like he hadn't before. Now, they bring him in for a top-up session every so often and he's doing well. He's been saved from a life of pain-killers by using the needles.

We place short ultra-fine needles in specific areas we know as acupuncture points. These are small points on the skin that bear an especially good nerve supply. Stimulating the area with needles causes reflex impulses to move up to the spinal cord to change the operation of pain and inflammatory modulators in the spine. Signals are then sent to the brain and back to the affected area to affect inflammation, pain perception and promote healing.

Acupuncture has been used in the East for thousands of years. The Traditional Chinese Medicine model talks of energy called Qi (pronounced 'chee' – like cheese without the 'z' sound) which flows around the body in meridians or channels. Trauma, excessive heat, cold or damp, for example, cause disruption of the flow of Qi. Stagnation of the flow then leads to disease in that joint or organ. It's a bit like traffic flowing round the UK on motorways; roadworks cause backlogs and jams and result in chaos. Needles act like the traffic police – they arrive at the cause of the problem, sort the problem and allow normal flow of traffic again. Normal flow of Qi maintains healthy joints and organs leading to improved health.

Overall I would advise the use of acupuncture wherever we see any focus of joint pain; neck, back or leg pain especially. Conventional vets have only really got drugs like Metacam or Rimadyl to use, so if they see a dog with stiffness due to arthritis, that's all they can bring into play to help. If they can refer you to a veterinary acupuncturist you have another treatment avenue open to you. Your arthritic dog may well need drugs, but it may be possible to delay their use until much later in their life. Acupuncture can be used as a half way point between drugs and surgery – where drugs are not helping a problem, but surgery is not desirable because of age or condition of the dog. Again – acupuncture gives you options.

To find a veterinary acupuncturist near you, the Association of British Veterinary Acupuncturists has a very informative website: www.abva.com.

A History of Acupuncture

As many as four thousand years before the Eastern and Western worlds made contact to trade, the Chinese practiced a form of healing art that created a

balance between Mind, Body and Spirit. The theory on which acupuncture is based is derived from the concept of Yin and Yang. The Chinese believe to this day that life takes place on the alternating rhythm of Yin and Yang.

Yang is said to represent light and activity and Yin represents light and activity. One follows the other indefinitely. The balance of Yin and Yang relies on the flow of Qi being uninterrupted. If the flow is interrupted, disease occurs. The practice of acupuncture is said to restore the pathways on which Qi travels, should they become interrupted.

Acupuncture points occur all over the body (365 in humans). Fine needles are inserted to these points to restore the flow of Qi. The principles of Qi energy and acupuncture have successfully been applied in veterinary medicine since the early seventies and is quickly shedding the notion in the West as being a radical practice.

Early veterinary practices assumed the notion of treating a human on all fours when performing acupuncture on animals such as dogs, pigs and horses. The acupoints are in essentially the same position on humans as they are on dogs, so the treatment protocols have remained almost the same since the practice was first introduced to Western countries.

DOGS: THE FUTURE A K9 MAGAZINE SPECIAL REPORT

Electronic Patient Records

Professor Shahid Mian, of the company Pet Screen explains how he sees Electronic Patient Records will be benefiting our dogs. "The NHS is moving towards the Electronic Patient Record (EPR). The EPR as the name suggests will be an electronic version of our paper records but will go further. It will represent a full history of treatments and conditions that will follow the patient throughout the course of their medical treatments within a given surgery and between different hospitals. It will obviate the need for faxes and even the need therefore for producing synopsis reports if information has to be transferred between one centre and another.

The EPR that PetScreen is developing will work along the same lines. The idea is that it will provide a comprehensive information package that will provide the life history of the patient. For example when an owner moves from one vet to another, the pets electronic records will move directly to the new vet without need for the new vet to ask for a synopsis of the animals health history by fax. For out of hours treatments, if the vets are different to those who treat the animal during normal working hours, then these practitioners will also be able to access the EPR. In this scenario it will minimise the risk of medicines being prescribed to the pet that are contra-indicated due to potential side effects and it could also mean that tests are not duplicated (hence reducing costs). It will therefore represent a mechanism to enhance patient care and maximise clinical efficiency."

What does this mean for the future of dogs?

The electronic patient record system will revolutionise veterinary surgery. With all of our records with our GPs on computer, it is quite surprising that our pets have been left behind and whenever we see a new vet, we have to rely on our own memory to give the vet our pet's medical history. With the EPR system, your pet

will carry his medical history around with him. The EPR system will also be linked to DNA bar coding, passports, ID tags and a centralised pet passport system. There will be no opportunity for any vet or pet health professional to be unaware of every element of a patient's history ever again.

Cloning

Since K9 Magazine ran its feature on cloning earlier in the year, South Korean scientists have cloned the world's first dog. In a process that took just less than three years to complete, the scientists were finally able to introduce 'Snuppy' (meaning Seoul National University Puppy) to the world. Snuppy was cloned from a DNA sample taken from the ear of an anonymous Afghan Hound. The sample was then 'fused' with an egg cell taken from a mixed breed donor, then the egg was fused together with the DNA to trigger embryo growth. Once embryo growth had begun, the egg was implanted into a Labrador bitch who became Snuppy's surrogate mother for sixty days.

What does this mean for the future of dogs?

The ramifications of this huge step are not exclusive to dogs, the whole face of medical science has been changed due to progress made in canine cloning. Previously rats, mice, sheep and frogs have been cloned, but none of these creatures have such similarity to humans in terms of the treatment of disease. Some diseases that are common amongst dogs and humans, function in almost identical ways, meaning that research into these diseases, both for humans and canines can advance. Scientists hope that canine clones can help them understand human diseases as well as canine diseases.

DNA Profiling

If someone came into your home, in broad daylight and stole your dog, you'd probably call the police. But what happens when you are asked to prove ownership of the dog? You'd reach for your documents, photographs and all the other bits and pieces that 'prove' you own your dog. But, believe it or not this proves nothing. The thief could have a cacophony of similar documents, photos and items that prove he too owns a Yellow Labrador that looks a bit like yours. Alarming as it is to think, you cannot prove categorically that the dog in question is yours, you can only prove that you own a dog that 'matches the description' of the dog you called your own.

This is where DNA profiling comes in. Already used in paternity tests, forensic evidence and medical research, this process is now available to enhance the owner/dog interface.

George Clotley of Blueprint Healthcare explains how DNA profiling will benefit dogs and their owners. "DNA fingerprinting is now well established as a reliable means of identification for dogs. Currently a test accessed via the UK Kennel Club and largely used by breeders, it is a definitive way of proving pedigree. However an individual dog's DNA as well defining its unique identity, can also reveal genetic characteristics of the dog itself. A number of tests are now available for genetic diseases affecting the dog population, identifying whether a dog suffers from, or is a carrier of these diseases is helpful both for breed management and also for the care and treatment of the individual dog."

What does this mean for the future of dogs?

The areas that can be revolutionised by DNA tagging are vast.

Identification

The DNA profiling service based on this technology is to be launched in the UK in September of this year under the brand name DNAtag™.

Over one hundred thousand dogs are lost each year and fifty thousand dogs are reported stolen, many of which are never reunited with their owners. Because the DNA profile is unique, it allows unequivocal individual identification, and because it is permanent, it can never be altered, modified or removed. Therefore if a dog's DNA profile is registered on Blueprint Healthcare's DNA database, should it be found, it can always be identified.

Genetic Disease Testing

Breeders and dog owners alike have concerns over the health of their dog or breed. The DNAtag™ DNA profile also provides, in parallel, a genetic health screen for a number of genetic diseases.

Pedigree Verification

The true pedigree of dog litters is important to respectable breeders and dog owners. However the only definitive way of proving pedigree is by comparing the genetics of the pups with their parents (similar to human paternity testing). Each litter of pups inherits half of its DNA from its father and half from its mother. This will go some way to prevent law suits, such as the ones in America, where the American Kennel Club has been accused of being liable for damages claimed by dog owners who discovered that their pet was not from the lineage they thought he was.

Suspended Animation

Suspended animation or 'the reversible cessation of all visible life processes in an organism' until very recently has been confined to the pages of fictional comics and sci-fi thrillers. But in June of this year, scientists at the Safar Centre for Resurrection Research announced that they had resurrected a dog three hours after 'clinical death'. The key word in the definition of suspended animation is 'reversible'. With potentially fatal injuries, blood loss and oxygen starvation are the two main causes of actual death.

Both of these are linked to the body's reliance on oxygen being supplied to the brain. Once the heart stops pumping blood to the brain, or there is no blood left in the body to get sufficient amounts to the brain, it is a race against time before the damage becomes irreversible or fatal. What suspended animation does, is buy surgeons and doctors enough time to 'mend' the damage. In the cases of the dogs that were involved in the clinical trials, the time that was bought by the doctors was three hours, compared to the usual few seconds that it takes for a body to be starved of blood and oxygen, it is clear to see how important a development this is.

What is 'clinical death'?

Put simply, you are clinically dead if your heart stops beating, breathing stops and there is no brain activity. On occasions people have been resurrected seconds or minutes after clinical death, meaning that it was possible to restart their heart after it stops, but the longer the brain is starved of oxygen, the less likely the chance of resurrection and the higher the chance of brain damage should resurrection be possible.

How does suspended animation work?

The body is flushed with a salt solution, which cools the body to 50°C compared to the body's normal temperature of 98.6°C. Cooling the body to this temperature will cause the heart to stop beating, effectively killing the patient. But the temperature has a preserving effect, in the same way perishable food lasts longer in the fridge, which stops tissue damage, blood flow and brain damage. The patient is brought back to life by slowly pumping warm, healthy blood into their body.

What does this mean for the future of dogs?

Hold on to your hats.... The potential held by the concept of suspended animation is mind bogglingly huge. Firstly, with the continuing extension of the period of time that doctors are able to keep dogs in a state of suspended animation, the severity of injury and illness that is treatable increases.

Taken to a logical extreme, dogs could be held in suspended animation indefinitely, and the amount of times this can be done is not limited, as there is no evidence of tissue damage occurring during suspended animation. This means that, in theory you could space your dog's life out over the same period of time as your own.

Imagine that your dog is diagnosed with an incurable cancer. The prognosis is bad and he is given a few months to live. Suspended animation means that all deterioration would be halted, and he could be kept in the same state until a cure or treatment is found.

Humans too, would benefit medically, but much of the excitement about suspended animation is held in the space travel field. The process of suspended animation is being proposed for research into sending astronauts further into space, and effectively bringing them back to life when they reach their destination.

The Future.

Seeing dogs cloned, suspended in time and detecting diseases in us and other dogs is happening behind closed doors now, but in the near future these things will be as normal as guide dogs and sniffer dogs are today. How strange it is to think that had this article been written 50 years ago, we would be revelling at the possibility of having a dog that could smell drugs, or a dog that could guide a blind person down the street. So if this had been written 50 years from now, we would be looking back on simpler times when we cloned our dogs for medical reasons and kept all veterinary records on a micro chip, but what world changing things would we be looking forward to? Nobody can say, but we should understand by now that the dog as we know him today will essentially be the same dog 50 years in the future, but our abilities to exploit his powers will be even further advanced.

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