HEALTH – NEWFOUNDLANDS

By Sue Benyon

Recently the Kennel Club has made many demands of Breed Clubs, to do with the standard and health issues. We were required at short notice to appoint a breed health liaison moving towards one representative for the breed by discussion with our fellow Newfoundland clubs.

For my sins I agreed to take this role in the short term and feel it is time to update members with progress so far. I am not a scientist (just a number cruncher) so please bear with me in this layman's guide to the available health information.

I received a pile of paperwork from the Kennel Club to go through. Firstly specifying the sources they were using to identify health issues. They were: insurance records from the past five years from Agria Pet Insurance, the KC purebred health survey from 2004 and a list of conditions collated from published material, by University of Cambridge under inherited diseases in dogs.

My first reaction to this was the distortion caused by the small sample population for each source. Assuming an average lifespan of 9 years and annual registration of 900 dogs we can approximate a national population of 8,100 dogs. I personally don't know anyone who insures with Agria, as a breed we gave a good response to the KC survey but this only ran to a few hundred dogs and tended to be reports of disease with small response for healthy dogs. Genetic research is currently the Holy Grail of statistical veterinary research. This makes the Newfoundland breed very attractive to those researching genetic diseases. The pedigree information is readily traceable but the population is sufficiently large to make conclusions viable. Club members are very keen to be part of such research but this does not necessarily reflect the prevalence of specific illness in the breed.

Therefore I compared the results we were given with the NNC survey of 2006 which elicited a 29% response from club members and the independent survey of 2007 by the H & L group. These highlighted as expected hip dysplasia, incontinence after spaying and Ectropion/entropion however the sample size was 314 dogs/bitches (is this representative of a population of 8000?) The 2007 survey was returned by 374 of which 115 dogs were healthy – it can be said that those most likely to return a health survey are those who have had problems with their dogs.

As a breed club we acknowledge the prevalence of heart disease (SAS & DCM), hip dysplasia (the effect on the individual dog of this condition varies wildly) and cystinuria (the genetic test is widely used by club members to avoid breeding carrier to carrier so the incidence of affected is reported as being non existent in club bred dogs) . The H&L survey reported 99 deaths, at an average age of 8.7years, 38% due to some form of cancer (38% osteosarcoma) 23% heart disease and 10% due to bloat, most of the rest were unknown cause at around the average age of death.

As a breed we are also currently monitoring elbow anomaly and cruciate ligament problems (these divide into a possible inherited condition of bad angles on the knee and trauma induced injury where no misalignment is present)

Insurance data identified the three most common claims, the appended comments are mine.

Skin problems (auto immune problems occur but to a lesser extent) can be either due to management (coat management or food may be a factor) or could be an inherited problem.

Gastroenteritis (a little surprised by this)

Unspecified lameness – giant breeds with their rapid growth curves are prone to this problem. The investment of time and money in a Newfoundland means most puppies are insured so in the event of lameness insured dogs are thoroughly investigated. Most do not progress to a joint problem after investigation.

Our health surveys broadly agreed with the above – except gastroenteritis but added:

Ear problems – some are constructional but the combination of heavy coat and lack of air circulation, and frequent swimming can result in ear problems for owners who do not prioritise ear health.

The 14 specific hereditary diseases highlighted by Cambridge University to some extent reflected the attractiveness of the breed to genetic research. I have listed the conditions reported, noted if our breed research revealed a preponderance of the problem and if there is a genetic test for the condition. I have noted where the supporting published papers used a very small sample.

Rupture of the cranial cruciate ligament – hereditability measured is 0.27, possible autosomal recessive with partial penetrance – no genetic test

Chondrodysplasia – (dwarfism) advertised among breed club members – response NIL so no incidence reported- no genetic test

Ciliary dyskinesia – identified I believe by one kennel in the SW perhaps overlooked elsewhere- no genetic test

Cystinuria – since the breed club code of ethics requirement of testing – no cases reported from members

DCM – ongoing research breed club supported - Dr Jo Dukes-McEwan Liverpool, small animal hospital – all club members MUST echo Doppler before breeding and hopefully for research by those who can afford to do so. – No genetic test yet

Elbow deformity – under review by breed clubs – no genetic test

Elbow dysplasia – testing being encouraged – no genetic test – results published BRS

Hip Dysplasia – Prevalence has been shown to be correlated to canine body mass index -progress being made on reducing the average amongst club members – results published BRS – no genetic test.

Mitral stenosis –One research paper- no genetic test – polygenic – no reported prevalence

Myasthenia gravis –One research paper 6 Newfies from 2 lines Wisconsin USA– familial, mode unknown – no reported prevalence in UK

Neoplasia – Osteosarcoma – No DNA test – agreed giant breeds seem to be at increased risk – independent survey showed 2.8% (of deaths from sample of 374 due to osteosarcoma)

Phemphighius foliaceus – NO reported cases UK – 37 dogs over 9 years USA showed increased incidence in 4 breeds Beardie, Akita, Newfie, and Schipperke).

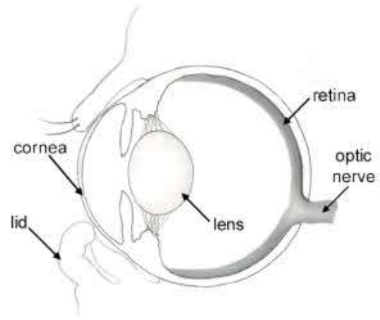
SAS – ongoing research breed club supported – No genetic test yet – Dr Jo Dukes McEwan Liverpool Small Animal Hospital - comes under our breed Echo Doppler requirement (see above)

Taurine deficiency - investigation into prepared complete foods related to DCM heart problems in Newfoundlands – possible link – resulted in major manufacturers increasing taurine levels in large breed complete foods – further research awaited.

In conclusion I feel we are hampered by a lack of information. We seem unable even within the breed club to obtain accurate information on health issues. Surveys bring in a limited response and personally I would like a slip to be sent out with membership renewals to be returned detailing your dogs health in the last 12 months, a report for each dog, healthy – no vet visits outside boosters, minor issues – e.g. one off, hot spot or ear infection, major issue – ongoing serious health issue. Sadly death, age and cause. Anonymity would be fine but a 100% response would be absolutely fantastic. We could then start to address the real issues from a position of strength. What do you think?

Brief Glossary

Entropion - the eyelids roll inward and rub against the cornea of the eye. This can cause a great deal of discomfort for the dog.



Adapted from D Slatter, Fundamentals of Veterinary Ophthalmology. 1990. Philadelphia. WB Saunders

Ectropion - the eyelids droop exposing the cornea.

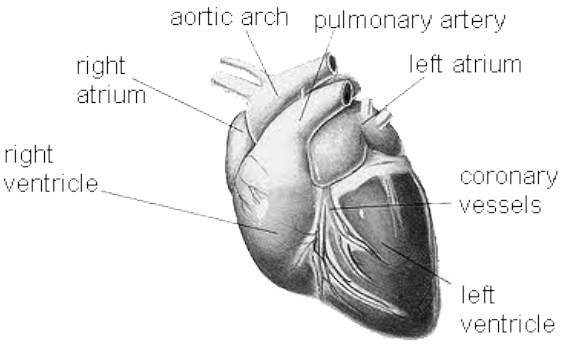
SAS - Subvalvular aortic stenosis, also referred to as subaortic stenosis. Anatomically, the heart is divided into four chambers separated by four valves. The heart valves ensure that blood only flows in one direction through the heart. The aortic valve separates the main pumping chamber (left ventricle) from the aorta, a large blood vessel that carries blood from the heart to the body. With SAS, there is added tissue below the aortic valve (hence *subaortic*). This abnormal tissue creates an obstruction (*stenosis*) that the heart has to overcome to pump blood to the body. This stenosis makes the heart work harder than normal. A heart murmur is created by blood being pumped across the stenosis into the aorta.

DCM - Dilated Cardiomyopathy is a disease of the heart muscle that results in weakened contractions and poor pumping ability. As the disease progresses the heart chambers become enlarged, one or more valves may leak, and signs of congestive heart failure develop.

Hip dysplasia - is a congenital disease that causes the hip joints in affected dogs to grow abnormally. This causes the joint to become loose and wobbly and eventually leads to a form of arthritis which is commonly referred to as degenerative joint disease (DJD).

Elbow dysplasia - is characterised by varying degrees of elbow incongruity, bony fragments (bone chips), and ultimately, severe arthritic change. The term was introduced to describe generalised osteoarthritis (arthritis) of the elbow joint.

Cystinuria - is an inherited disorder caused by a defect in the transport of cystine, an amino acid, in the kidney tubules. Normally, cystine that is filtered in the kidney is reabsorbed within the tubules, resulting in little cystine in the urine. Dogs with cystinuria do not properly reabsorb cystine (and a few other amino acids) in the kidney tubules, causing the



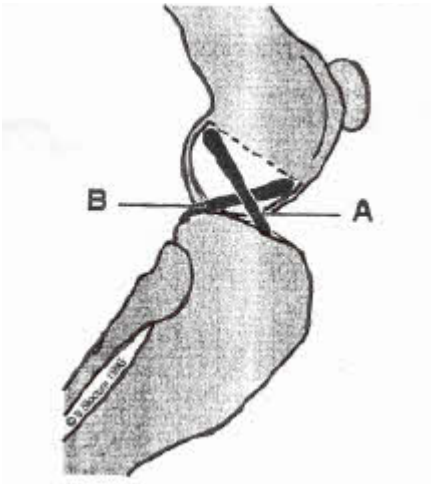
urine to contain abnormally high levels of cystine. Cystine is insoluble in neutral pH or acidic urine, so excess urinary cystine results in formation of cystine crystals, which in turn can lead to formation of cystine calculi (stones) in the kidney and/or bladder.

Osteosarcoma - is by far the most common bone tumour of the dog, usually striking the leg bones of larger breeds. Osteosarcoma usually arises in middle aged or elderly dogs but can arise in a dog of any age with larger breeds tending to develop tumours at younger ages.

Elbow anomaly – see elbow dysplasia.

Gastroenteritis - is a general term referring to an infection or inflammation of the gastrointestinal tract, ie stomach and intestines.

Cranial cruciate ligament – is an important ligament inside the knee (stifle) joints of dogs. It plays an important role in stabilising the stifle during weight-bearing. It prevents the shin bone (tibia) moving forwards relative to the thigh bone (femur).



Autosomal recessive - is one pattern of inheritance for a trait, disease, or disorder to be passed on through families. For a recessive trait to be passed on, both parents must carry the gene.

Penetrance – is a measure of the manifestation of a trait within a pedigree.

Chondrodysplasia – also known as dwarfism (incorrectly), achondroplasia or chondrodystrophy. Characterised by crippling deformities and abnormally shaped limbs, the disease causes the cartilage cushioning the joints to become deformed and the bones attached to that cartilage to grow abnormally. It is transmitted through a recessive gene.

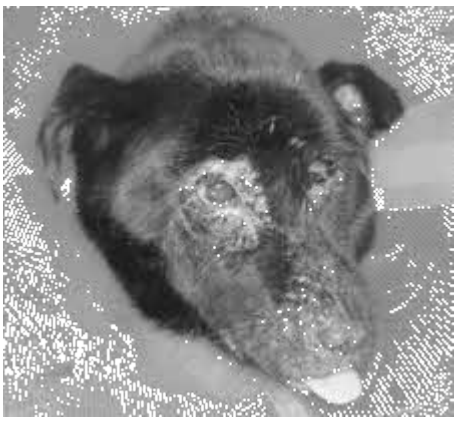
Ciliary dyskinesia (Primary ciliary dyskinesia) - is a genetic factor (usually autosomal recessive) and is due to the cilia (the hair-like structures on the mucus membranes lining areas such as the nose and lungs) being deformed structurally and in the way they are anchored. The cilia move together in a wave-like fashion to move fluids through the system and protect the respiratory system from inhaled pathogens. In PCD they are incorrectly formed, cannot move in unison, and so fluids collect, as do pathogens.

Mitral stenosis - is caused by narrowing of the mitral valve that separates the left atrium and the left ventricle. When the mitral valve is narrowed, it is difficult for the blood to leave the left atrium.

Myasthenia gravis - is a disease which interrupts the way nerves communicate with muscles. There is a congenital form that is a recessive genetic disease, and an acquired form that is an autoimmune disorder. Causes muscle weakness.

Neoplasia – unchecked cell replication (tumour) which results from DNA faults.

Pemphigus foliaceus - is a severe skin disease that is characterised by pustules and blisters that rupture, causing damage to the skin of the face, ears, feet and eventually the entire skin. It is an autoimmune disorder.



Taurine - is a beta-amino acid that is synthesized in the liver from dietary sulphur-containing amino acids, methionine and cysteine. Dietary taurine, absorbed in the small intestine, complements the pool of synthesized taurine.

Its functions include: maintaining physical and functional integrity of photoreceptor cells in the retina; sustaining correct cardiac function and regulation of lymphocyte development and lymphocyte/neutrophil function. It also helps prevent platelet aggregation. One of taurine's best-known functions is the conjugation of bile acids in cats and dogs.

Compiled from various web sites. Beware conflicting information from web sites: I found one natural health *site that said that dogs don't need taurine, which goes against current thinking, at least for large breeds. Ed.*