

Nordic Dog Symposium 2018

PART 2



Speakers' Dinner

From back to front (left): Elaine Stavert, Aurélien Budzinski, Cristina Budzinski, Agnes Vaelidalo (Right): Anne Lill Kvam, Turid Rugaas, Winkie Spiers, Julia Robertson (Amber Batson left early)



*Winkie Spiers,
Amber Batson*



*Aurélien
Budzinski*



Anne Lill Kvam, Manja Leißner



*That feeling when you are about to lose
your ice cream while taking a selfie...*



*Full of enthusiasm despite the long trip
from Australia!*

Daily walks

What are they really worth?

Anne Lill Kvam
Norway

*Anne Lill's passion for working with dogs began in 1986 when she trained her dog for search and rescue. From 1997 to 2000 she was involved in mine detection and removal in Angola, instructing dogs and handlers. She was a student of Turid Rugaas and has worked professionally as a dog trainer since 1996. Since retiring to Norway she has managed her own training school, Troll Hunderschule, and is a highly requested speaker around the world. Her well-known book, *The Canine Kingdom of Scent*, was published in 2001. The DVD has extensive footage of selected thoroughbred dogs, X-ray films and many animations. The book was awarded the Global Illustrator Award in 2016 at the Frankfurter Buchmesse.*



Anne Lill started by saying that in many countries, including the Nordics, Switzerland, Australia and Canada, there is a struggle to get people to walk their dogs less. In Taiwan and South Korea, it's the opposite: people don't take their dogs out at all.

When or why does a lion, feral dog, wolf or pet dog go for a walk?

A wolf will walk or trot within his area. Wild animals move on their own initiative. Recapping the dog's ethogram that Amber talked about on Saturday, dogs living in a natural environment spend a lot of time walking, but they *walk*! They are exploring. By contrast, humans take a walk to get exercise. We are probably the only animals on the planet who walk for physical fitness. Lions, for example, never go out for a jog, but they are fit enough to catch up with a zebra. They either walk, run when needed, sleep or eat.

Why do we take our dogs for a walk?

People think their dogs need fresh air, so they take them for a walk. Even worse, they put them out in a tiny little fenced area. They take them out to get somewhere because the human is the one wanting exercise. In Norway, it is now forbidden to tie a dog outside the supermarket. Earlier, one would see dogs tied up outside all kinds of places: shops, restaurants, bars, etc. That is unfair, because we should take our dogs out for their sake, not ours.

Dogs like to go for a walk because they want to sniff around and listen to the world. They want to use all their senses, and of course they need to relieve themselves. Anne Lill said that her dog, like many others that she knows, has access to the garden whenever he likes, but he does not like to relieve himself there. He needs to be taken for a walk.

Dogs that are young like to go out just to run around and move. But adults do not have the same need.

How to carry out a walk

A 3m or 5m leash, as demonstrated on Saturday by Aurélien and Cristina Budzinski, is a very good length for a walk. Off leash is even better when possible and safe. However, in places like Beijing, a tiny little dog can be trampled in busy areas. People put them in trolleys and prams, which many enjoy, and of course many dogs like to go for a ride in the car. Anne Lill's dog is over 11 years old and grew up on a farm. When he was 5 years old, they moved to a small town for a further 5 years. For the past year they have again lived in the countryside. But interestingly, if he could choose, he would go on an urban walk. Anne Lill prefers the forest, but she takes him on urban walks.

Routine or exploration?

As Amber had mentioned on Saturday, Anne Lill said that a routine round with the dog can be a good idea; in her experience, an adolescent dog or one that is fearful or needs some environmental training benefits from going out and back exactly the same way. On the way out, the dog is alert, with the ears and head up. Going back the same way, he sniffs. The entire body posture is more relaxed, and the dog can take in much more.

Anne Lill reminded us of the pathway through a field that Amber had described on Saturday to illustrate long-term potentiation. Routines, however, can eventually get boring. A new path in the brain can be as easy as a small exercise that Anne Lill gave us to do: first fold your fingers together as in prayer, then do it again with the hands facing outwards. It's not difficult, but it takes concentration. It's a new pathway. The brain is a muscle that needs exercise. Anne Lill jokingly reminded us that we probably get out of bed exactly the same way every morning, and that if we want to stimulate our brains we should try "getting out on the wrong side of the bed."

“Be aware of both routines *and* the white (unexplored) spots on the map. We need them both,” she said.

How long on a walk?

How long we are out on a walk depends on a lot of things: age, health, mental state, etc. However, people tend to measure a walk in terms of time, not content. It is the sensory input that is important. People are often shocked when they see the slide below of walking times that Anne Lill shows in her puppy classes, because they have walked their puppies far too much. Over-walking a puppy is both physically and mentally harmful.

How long should a walk be?	
■ Less than 3 months: NIL	■ Depends on age
■ 3 months: 10 minutes	■ Old
■ 4 months: 15 minutes	■ Adolescent
■ 5 months: 20 minutes	■ Adult
■ 6 months: 25 minutes	■ Puppy
■ And so on, until happy	■ Weather
■ Most dogs/owners are happy with 45 – 75 minutes	■ Health
	■ Type of walk/outing

Between about 45 minutes and 1hr 15 minutes seems to satisfy most adult dogs and humans. For an older dog, the time can be shorter; it depends on the dog, and again observation is important.

Letting the dog choose

When they lived on a farm, Anne Lill’s Shiba Inu, Fant, had a history of taking off and being gone for around five hours looking for moose. So when she moved to a small town and decided to let him take her on a walk, she packed her backpack. The only “rule” she set was that if she was fed up after four hours, she was allowed to put an end to the walk. To her surprise, Fant led her part of the normal walk through the neighbourhood, then over a pedestrian bridge across a main road, then into some areas that she knew he had never visited before. Then he turned around the led her home, and they were back at the gate after 1 hour and 15 minutes. After doing this for several years, it became routine for Fant to decide on the direction and length of their walks. However, one day when Anne Lill had to go somewhere and cut the walk short, the look on Fant’s face was priceless. She laughed at having to remind him that yes, there is another end of the leash that gets to vote on occasion, too!

There can be a “theme” for a walk: physical stimulation, mental stimulation, or a nosework walk or an emotional one, like visiting a friend or a favourite place. One can include several of these on a walk, but all of them at once is too much. Tests have shown that if you walk just fast enough to get warm for about 40–45 minutes, it can combat depression. But most importantly, the walk should be something that the dog enjoys.

The relationship

Rule number one: leave your phone at home or put it on silent! Anne Lill said that there is a growing concern that too many parents are wearing earphones when out on walks with their infants. It could be affecting the ability of the child to bond with humans. When out with our dogs, we should stop when they do, even if they are off leash. And when we see something that he missed, like a mouse hole, we should show it to him. If we walk our dogs for about half an hour twice a day for 12 years, we have between 250,000 and 300,000 minutes during which we can be nice to him! Not one of them should be bad. It should be a pleasure all the time.

Exploring together

Anne Lill talked about a few dogs that they join regularly for a walk. One walk she described was about 500m, and it took them 20 minutes. Containers are always interesting! It is important to let dogs explore on their own terms. That includes continuing to explore or turning around to go home. As Winkie had described in her talk on social walks (see part 1), many different things can be done on a walk, like climbing on logs or rocks or jumping up on benches, provided the dog is comfortable with it. Anne Lill said that she doesn’t use treats to get dogs onto obstacles; she invites them, provided they can. Because treats are a treasure, she refrains from using them too much for other things. Anne Lill showed many examples of dogs doing treat searches. Trees grow everywhere; it’s easy hide treats in the bark or lower branches. Beaches are great in winter, when no one else is there and the dog can be off leash. There are unlimited ways to set up things for our dog – remembering that sometimes, after we have put in a great deal of effort, he may not be interested at all. That’s life.

When a dog encounters something he is wary of, like a statue or a strange-looking log or bag, he should be allowed to explore it (or not) on his own terms. Anne Lill played some sounds recorded on her phone while out on a dog walk, like a stream (which sounded very loud compared to what we hear) or a bulldozer loading stones onto a lorry. Knowing that dogs hear so much better than we do, it is quite scary. Someone else may have a radio on, or there may be children



Some things need closer attention

- Wait for your dog to finish up!



playing. It is important to be sensitive to our dogs and take note when they want to go home.

Anne Lill showed some slides of her dog “taking me for a walk downtown.” The walk was only about 150–200 metres each way and took nearly half an hour. Fant was tired and content when he came home. An hour in the forest doesn’t tire him out nearly as much. There is so much more going on in an urban environment!

Curiosity and sensory stimulation are crucial for health and life

Learned helplessness can be caused by being unable to take action to help oneself in a very high-stress situation. Many dogs who look like “perfect” dogs, because they are very obedient and quiet, are in fact shut down. They have been told “no” too many times and have not been able to explore on their own. They have learned too many commands or queues with no time left for their own initiatives. They may even have received too many smacking sounds and treats and thus been hindered in their curiosity. The dog sniffs, and the owner immediately makes the smacking sound to draw him away, followed by a treat. Doing this repeatedly can lead to the dog stopping the behaviour altogether. Learned helplessness can lead to depression.

A test was done recently with a group of teenagers who volunteered to sit in a room for 15 minutes without their phones and no other stimulation. They were given a switch with which they could give themselves a small and harmless

electric shock as the only stimulation available. One teenager pressed the button more than a hundred times in 15 minutes, out of desperation for sensory stimulation. Another experiment was done with the group of rats that could choose between a nice quiet room and a room that had a lot of stimulation, but which also delivered mild electric shocks from the floor. The rats chose the sensory room. The time varied between the rats depending on their personalities, but they all chose the stimulation. A gilded cage is still a cage.

Why walk the dog?

We walk the dog for the dog’s sake, not ours! If we need physical exercise, we go for a run without the dog, or to the gym. The reason we should take our dog out is so that he can explore and use all his senses. Remember that the dog is a scavenger more than a hunter. He may love to roll in rotten birds or fish! However, it is important to move enough to get the circulation moving, for both physical and mental well-being. That means about 40 minutes or so.

And of course, as was mentioned throughout the weekend, it is important to have a good harness with a long leash or none. And walking slowly must not be forgotten! How slowly do you need to walk for a little Chihuahua to walk and not trot? Very slowly indeed! These poor little things run all their lives just to keep up with us. No wonder they are so noisy. Slow walking builds core muscles; running does not. Sharing the experience with our dog does not mean we have to roll in fox poo, but we can still share by showing interest.

The daily walk – is it worth the effort?

The answer is definitely yes! Provided we do it the right way. Anne Lill spent a few minutes at the end covering the type of harness that is best for a dog. Some dogs, of course, are exceptions. There was a discussion afterwards concerning what to do for dogs who have difficulty wearing harnesses. Anne Lill’s dog had another type of harness for a long time because he had grown up with it, and he found it difficult to adapt to a new “better” one. Turid said that there are always exceptions. It was agreed that in general a good fitting harness is one that will not pinch the dog behind the armpit and does not put pressure on the neck or throat.

We were put in a great frame of mind for the rest of the day. Thank you Anne Lill!

Enriched environments may be created, or visited



Beaches are perfect at winter time as they are abandoned



Stress: The effects of lifestyle on the brain, the gut, and the brain-gut connection

Elaine Stavert
United Kingdom

Elaine Stavert helps at various rescue centres when needed for special cases, and her own clients. Elaine is a student of Turid Rugaas in canine behaviour and training, and is also a canine therapist in phototherapy, Reiki Master, zoopharmacognosist (herbal choices), canine massage & acupoint therapist, and author of five globally published books on how to make natural products (for humans).

Her own issues with stress, gut problems and a stroke led Elaine to research how stress, lifestyle and the environment affect our dogs' health and cognition. With a particular empathy in these areas, Elaine is passionate about helping dogs (and humans) to regain, or improve, their cognition and mobility.



Elaine began by sharing how she came to be interested in the effects of lifestyle on the brain. After experiencing stress, a stroke resulting in brain damage, and gut problems, she wanted to know how they are connected and how they might affect not just her, but her dogs. What stress symptoms do dogs present, and what activities are people doing with their dogs?

To answer some of these questions, she did several things, including an online Canine Life survey of 1835 dogs. It was completed anonymously by owners, and Elaine shared some of the results with us later in her talk.

In terms of study and research, Elaine has been studying neurophysiology, neuropsychology, the gut microbiome and post-traumatic stress disorder (PTSD). She has been looking into scientific studies on the effects of lifestyle on the brain and the gut.

THE BRAIN

Most of us in the room believed that we only use 10% of our brain, but Elaine said that this is a myth. We actually use all of it! The main function of the brain is to keep the body alive. MRI scans have shown that much of the brain is engaged in doing simple tasks – like watching and listening to Elaine!

The brain has 100 billion neurons which fire 200 times a second. In fact, as Amber indicated in her Saturday presentation, there are more potential connections between neurons in the brain than there are atoms in the universe. Not only is it the most complex system known to mankind, it is also one of the fastest supercomputers on the planet. (On Saturday morning, Amber referred to slow-wave sleep as similar to shutting the lid of a laptop, which puts the computer to sleep and prevents it from overheating).

Another interesting facet of the brain is that it is as unique as a snowflake. Each one of us is an individual; no one like us has ever existed or will ever exist again. In addition, the brain we had yesterday is different to the one we have today. The brain literally shapes itself to fit the tasks at hand. It is a

constant work in progress, perpetually reshaping itself from our experiences. It evolved to enable us to respond to environmental changes, so it is literally shaped by memories and experiences.

Elaine recapped and confirmed for us some of the things we had heard from Amber on Saturday:

Thanks to the “reptilian brain”, the body is hardwired for survival. Mammals evolved additional areas: the limbic system, which controls emotions and memories, and the cerebral cortex, which controls awareness, thought and consciousness. Dogs have a similar brain with the same limbic system containing the amygdala (memory and emotion areas) and therefore some of the same emotions. That means that just like us, dogs can be anxious, scared, lonely, irritable, angry or happy. However, dogs have a more evolved olfactory area of the brain dedicated to scent and nosework. Their olfactory bulb is three times larger than ours, even though their brains are many times smaller.

Puppies are born with nearly all of the neurons they need, but the neural connections are not yet made, and their neocortex will only fully develop at around two years of age. The neocortex controls cognition, perception, motor skills, and spatial reasoning. Puppies build lots of neural connections from life experiences as they grow, but their brains do not fully function until adulthood. Then, in adulthood, these connections are pruned back and the frequently used connections that remain are made stronger as a result. The brain only enhances what it thinks is important for survival. As long as the brain is healthy and active, new neural pathways can be opened up throughout life.

Creating neural pathways

Elaine recapped for us the structure of neural networks and synaptic connections. When we lose the connections, we lose the memories. If an action is repeated, just like Amber illustrated with her pathway through a field, over time it becomes easier for the first neuron in the chain to fire, which

triggers the next and so on, like a domino effect. This is how repeating a skill becomes easier with time. In other words, “Neurons that fire together wire together.” If we don’t practise a skill or behaviour, the connections between neurons weaken (synaptic pruning) and the skill becomes harder to perform. The brain is like a muscle, and just like a muscle can atrophy, so can the brain without mental workouts (stimulation). Use it or lose it!

Under-stimulation is harmful

Research done at the Royal Veterinary College in the UK by Charlotte Burn has shown that animals kept in barren environments without stimulation suffer damage to the brain. Under-stimulation can harm neural, cognitive and behavioural flexibility. Neurons die off if not stimulated, so the brains of these animals tend to be smaller with fewer synapses. In contrast, new brain cells can be created in certain areas of the brain, and this is called neuroplasticity. New neurons can be produced in the adult brain throughout life. One of the areas where this neurogenesis can occur is the hippocampus, which decides whether memories are stored there, in the outer cortex of the brain, or not at all.

There are many interesting examples: Black Cab taxi drivers in London, who have to pass a massively challenging memory test of all the roads in the city (called “the Knowledge”) have a greater volume of grey matter (neurons) in the hippocampus. People who use touchscreen phones on a daily basis have a larger and more powerful somatosensory cortex – the area at the centre of the brain which controls the thumbs. Artists have increased neural matter in areas relating to fine motor movements and visual imagery. Albert Einstein’s brain revealed a large area, called an Omega, in his cortex in the area devoted to his left fingers, thanks to his passion for playing the violin. Piano players develop Omegas in both brain hemispheres, as they use both hands.

Elaine explained how her own brain is an example of neuroplasticity. It is still trying to make neural diversions around the damage in her cerebellum. After her stroke, she had to build new neural connections through practice and repetition in order to walk, talk and read again.

THE GUT MICROBIOME

Elaine stressed that this was not about diet. Nutrition is very complex, and professional advice should always be sought on an individual basis.

The gut microbiome is the whole collective genome of microorganisms present in or on the body of an animal. The microbiota is the population of bacteria within the microbiome. It is the system of bacteria, fungi, archaea viruses, and their DNA that live in the gut.

Research into the microbiome is still in the early stages; most of the studies have only been conducted in the last five years. It has recently become evident that the gut microbiome can greatly influence many physiological parameters, including cognitive functions such as learning, memory and decision-making processes.

Of all the medical breakthroughs in our lifetime, one of the most exciting has been the discovery of the microbiome.

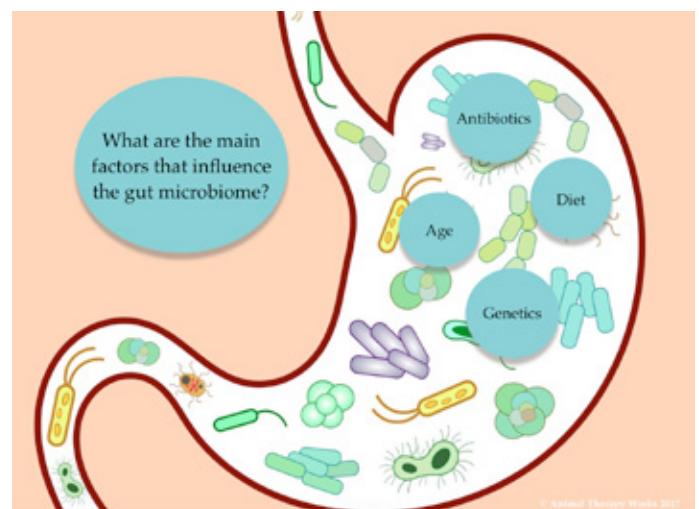
This discovery is key to a whole new type of medicine and to healing of the whole brain. This army of organisms makes up at least 70% of the immune system. Without the microbiome, the immune system cannot function in a healthy fashion. One of its key roles is to stop the overgrowth of harmful bacteria.

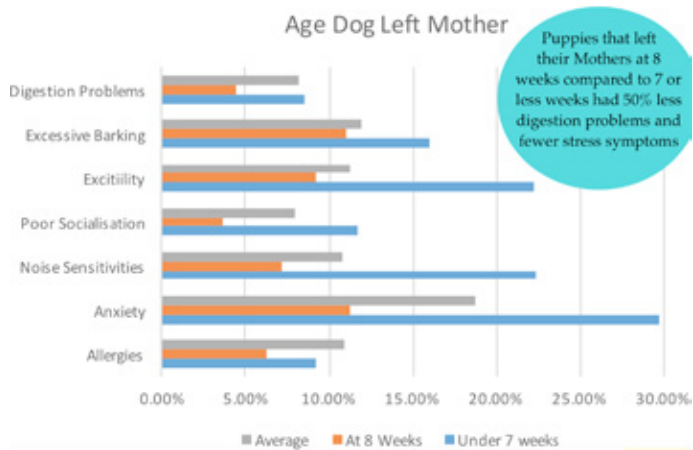
Interestingly, only about 10% of the body is made up of animal cells. The rest comprises trillions and trillions of other creatures (microbes and their genes) living and dying in the body. It is a symbiotic relationship. We play host and provide the microbes with room and board, and they help keep us alive. We are not simply animal bodies, but a super-complex ecosystem. Microbes are not just “germs” that people are afraid of catching and try hard to destroy. Without microbes, we couldn’t eat or breathe. Many are our friends – indeed our greatest allies.

Just like the rainforest, the diversity of our gut flora is decreasing. In any ecosystem, loss of diversity is destructive to the system, so it is vital for our health to feed, nurture and care for these microbes. The latest research in animal health is indicating that the microbiome plays essential roles in digestion, immunity, brain health, behaviour, healthy skin and obesity. Gut bacteria process our food and synthesise many vitamins. Some bacteria make vitamin K, which is necessary for clotting the blood. Others synthesise vitamin B12, which is needed for brain support, red blood cells and energy levels. When beneficial bacteria are destroyed, opportunistic pathogenic bacteria multiply, contributing to ill health.

Healthy animals usually have many more different types of microbes in their gut than those with chronic diseases. Beneficial gut bacteria are known as probiotics. Prebiotics feed the bacteria and are found in various foods.

The microbiome varies from animal to animal based on diet, genetics, health history, lifestyle, geographic location, and ancestry. Research shows that maternal separation, early life stressors, or exposure to social stressors have long-term effects on the microbiome, which correlate with stress-related behaviours. Puppies that left their mothers at eight weeks compared to seven or less have shown 50% fewer digestive problems and fewer stress symptoms.





Neurotransmitters produced by the gut

Bacteria in the gut not only interact with neurotransmitters, they can also produce their own neurotransmitters and hormones. GABA is produced by several strains of lactobacilli. Noradrenaline, dopamine and serotonin are produced by other strains of bacteria. Serotonin (5-HT) has been recognised for decades as an important signalling molecule, but it is still revealing its secrets. Most of us do not know that 90% of our serotonin is made in the gut and 10% in the brain. Gut-secreted serotonin cannot cross the blood-brain barrier and is used by intestinal and blood platelet cells. New gastrointestinal functions of serotonin continue to be discovered, and we are learning how serotonin signalling is altered in gastrointestinal disorders.

Gut-secreted serotonin plays an important role in controlling peristalsis, the wavelike contractions of the gut walls that squeeze food along the digestive tract. According to Elaine Hsiao of the University of California, microbes in the gut have been demonstrated to stimulate intestinal cells to produce serotonin.

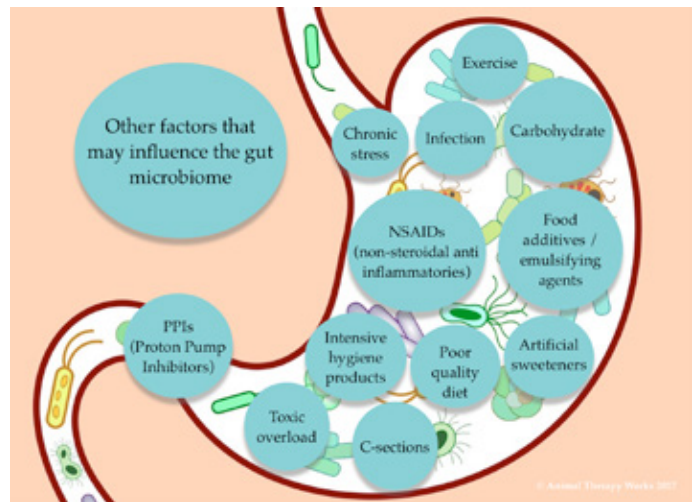
Research has shown that animals that suffer stressful situations have substantial changes in their gut microbiome. Stressed animals show a decreased abundance of healthy bacteria and increased abundance of pathogenic *Clostridium*. The bacteria *Mycobacterium vaccae*, found in soil, can decrease anxiety in mice.

Bacteriotherapy

In one study, when healthy animals received bacteriotherapy, in the form of faecal transplants, from animals with clinical anxiety or depression, the animals began to exhibit the behaviour of the original hosts. The FDA in the United States has approved faecal microbiota transplants (FMT) for *C. difficile* infections in humans, as antibiotics do not work and there is no other way to help.

Antibiotics

Most antibiotics not only target pathogenic (harmful) bacteria; they generally kill *all* bacteria in their path. In particular, metronidazole significantly alters the composition and diversity of gut bacteria in dogs. When beneficial bacteria are destroyed, pathogenic bacteria grow and increase, contributing to inflammation and ill-health. Some bacteria are now



becoming resistant to some antibiotics. Of course, antibiotics save lives, but most bacteria die when they are exposed to antibiotics, so we should be mindful of overuse.

What may alter the microbiota?

Proton pump inhibitors (PPIs) are widely used to treat gastric reflux or ulcers. They are associated with significant changes in the composition of bacteria in the gut that may contribute to a rise in *C. difficile* infections in people and pets. Nonsteroidal anti-inflammatory drugs (NSAIDs) can affect the composition of bacteria in the gut. Some groups of bacteria, such as *Prevotella*, are good in moderation but can multiply to excess in dogs fed too many carbohydrates. Artificial sweeteners and emulsifying agents affect the composition of bacteria in the mammalian digestive tract.

Exercise

Regular moderate exercise has been shown to drastically affect the gut microbiome. Beneficial bacteria increase with the activity level. Low levels of these have been associated with Crohn's disease, lymphoma, obesity, depression and asthma. However, vigorous exercise may overwhelm the body's antioxidant response, which could lead to a chronic pro-inflammatory state. Vigorous exercise also increases stress chemicals and associated health problems, as well as potentially severe long-lasting musculoskeletal problems.

Emerging links of human brain-gut disorders include depression, anxiety, obesity, IBS, autism, Parkinson's and schizophrenia. Scientists are now able to look at faecal matter and understand whether the host is likely to be suffering from depression. Case reports in humans suggest that FMTs may have therapeutic potential for disorders including autism, chronic fatigue syndrome and Multiple Sclerosis, but much more research is needed. It is still not clear, however, whether the gut imbalance causes the condition or vice versa.

Have our dogs' gut microbiomes changed with evolution?

Around 10,000 BC, during the agricultural revolution, our bodies adapted to be able to digest starch and milk more easily. After eating seaweed for so long, some Japanese people now have a seaweed gene in their gut to better process the normally indigestible fibre. Other bacteria living in New Guinea highlanders allow their hosts to live on a diet

that is 90% sweet potato, which is low in protein. Fruit flies raised on starch have been shown to prefer mating only with starch eaters, and the same with sweet food eaters. Some of our own vital ancient bacteria is becoming extinct, and microbiologists are working with hunter-gatherer tribes in Tanzania to preserve our ancient microbiome before it disappears with globalisation.

Are we gradually changing our dogs' gut microbiomes with modern diets? Will they adapt? Will it take generations?

According to Dr. Holly Ganz, signs of this dysbiosis (imbalance of gut bacteria) may include diarrhoea or constipation, vomiting, acid reflux, lack of appetite, and eating faeces, soil or grass. Some of these symptoms of course may be due to other reasons, so a vet checkup should be the first step.

Every animal has a different biochemistry, so what might be right for one dog may be detrimental to another. Therefore, professional advice should be sought for diagnosis and solutions. There are various solutions for helping to balance the gut microbiome, depending on the specific issue. This may include nutritional changes, probiotics, prebiotics (fructo-oligosaccharides, FOS) and bacterial therapy such as FMT.

Bacteria enable us to digest our food, maintain our immune system, and cope with stress. They have a dramatic impact on the thyroid, heart, liver, bones and skin, and they play a vital role in optimising brain function. A healthy gut microbiota is crucial for proper metabolic function and homeostasis. It is a win-win for us and our microbiobes; in exchange for living and proliferating in the gut, they keep us healthy.

THE BRAIN-GUT CONNECTION

The brain and the enteric nervous system talk to each other, and the shared communication line between the two is often called the gut-brain axis.

How are the brain and gut connected?

There is a profound dynamic interaction between the gut, the brain and the immune system. Microbes have access to our brains, and through the enteric nervous system (see below) they have direct access to the central nervous system as well. The gut is filled with more than 30 unique neurotransmitters. Interestingly, the brain and the gut are both made out of the same type of tissue. During foetal development, one part develops into the central nervous system and the other into the enteric nervous system. It is easy to see, therefore, how physical and mental health is influenced by the gut, which sends chemical messages to the brain.

Butterflies in the stomach: the enteric nervous system (ENS)

The ENS is embedded in the lining of the gastrointestinal (GI) system, beginning in the oesophagus and extending down to the anus. It is a mesh-like system of neurons that governs the function of the GI tract. The brain talks to the gut and the gut to the brain. We feel emotions in our gut, like "gut instinct", "butterflies in the stomach" or "gut-wrenching".

These things happen because the nervous system and digestive system are intertwined. This connection goes both ways, however. A troubled gut can send signals to the brain, and a troubled brain can send signals to the gut. In fact, they should be viewed as one system.

THE ROLE OF STRESS

Most of us who were present at the Dog Symposium are familiar with stress in dogs. Elaine gave an interesting and appreciated recap of its physiological and emotional components (including the roles of e.g. adrenaline and cortisol), which fit in very nicely with what Amber Batson had shared with us on Saturday morning. Next, she talked about stress triggers, which is something we all need to be very aware of in dogs.

Stress triggers

The body was not designed to keep balancing stress hormones for long periods. Constant high levels of stress hormones can lead to illness, inflammation and memory problems.



Signs of stress

Research shows that social isolation can be a huge stressor and health risk factor. There is more likelihood of stress if there is no control (choices) in life, no outlet for frustration, no support or social contact. Stressful early life events are strongly associated with the development of depression later in life. Chronically stressed or traumatised dogs will only be able to remember for a short time (seconds or minutes) and will have a hard time remembering long-term. Research shows that combat veterans have an 8% reduction in hippocampal volume, which is associated with short-term memory loss.

As well as psychological damage, extreme stress or trauma can actually change the structure of the brain. Brain areas implicated in the stress response include the amygdala, hippocampus and prefrontal cortex. Traumatic stress can be associated with lasting changes in these brain areas. Every interaction and experience a dog has affects the chemicals and structures in its brain. If a dog has stress symptoms, giving it adrenaline/cortisol-stimulating activities will increase the stress hormones.



As Amber mentioned on Saturday and Elaine stressed here, we need to be aware of the triggers stacking up. We could think of it as a bucket of adrenaline; each time a stressful situation occurs, the bucket fills up. If the dog has stacked triggers during the day, by the time our visitors arrive, its adrenals have nothing left to give. Had the visitors been the *only* stressor, the dog could have coped, but he is now pumped so full of adrenaline that he is unable to manage.

Exercise

Fast movement creates adrenaline. Too much adrenaline for long periods of time can lead to adrenal fatigue. Excessive exercise causes oxidative stress and depresses the immune system. We love to play and have fun with our dogs, but too much can be damaging. Excess exercise and repetitive games can be detrimental to health. The dog's body is not designed for prolonged sessions of extreme exercise. Jogging, cycling or excess exercise with the dog can be damaging to the musculoskeletal system, as well as brain function/cognition or behaviour. The talk by Julia Robertson (see next) looked at this in greater detail.

Punishment

Most (not all) aggressive behaviour is due to pain or fear. Punishing a dog is likely to produce adrenaline, noradrenaline and cortisol. Raising cortisol lowers serotonin. Punishment can lead to increased aggression (you change the response, but not the underlying instinctive emotion). There can be redirected aggression towards other dogs, animals, people or the owner. Here, Elaine stressed the importance of seeking help, and most of all, learning to recognise our dogs' calming signals, referring us particularly to Turid's book.

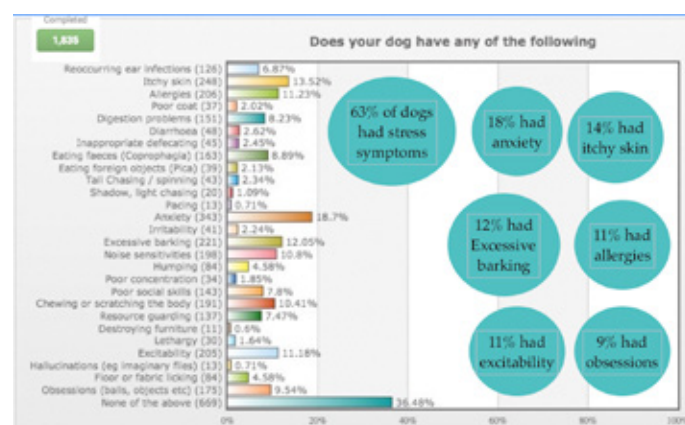
Prolonged stress

Prolonged physical, emotional, environmental or psychological stress can lead to mental and physical ill health, in addition to difficulty learning and other mental ill health. This was covered extensively by Amber in the Saturday talk.

LIFESTYLE SURVEY

The survey, sent by Elaine to her clients, was a fascinating look at how owners live with their dogs. The results were very telling: 30% of dogs that had left their mother early (seven weeks or less) had anxiety issues. They also showed

higher noise sensitivity, excitability, excessive barking and allergies. Thirteen percent of the dogs in the survey had received some form of punishment, and only around half of all dogs had a bed in a quiet, warm place. Less than half could sleep undisturbed.



Dogs involved in various activities included:

- 12% agility
- 34% obedience
- 16% nosework
- 35% treat searches
- 45% ball/frisbee throwing



Dogs that were reported to have itchy skin tended to exhibit higher anxiety levels, resource guarding and excessive barking. A PDF of the survey results is available on Elaine's website under "Dog Symposium".

WALKING

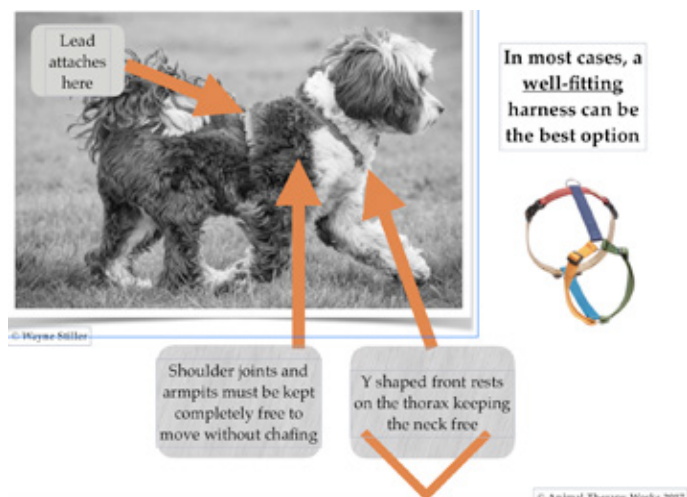
"I walk him and *walk* him, but he's still not tired!" is something Elaine (and other behaviourists) hear repeatedly. Those of us who were fortunate enough to listen to Martin Fischer last year (see part 2 of the 2017 report on the Dog Symposium website) will have been amazed to see what an optimised running machine the dog is. It has evolved to expend as little as energy as possible through movement, reserving those calories for olfactory work. As Elaine said, moderate movement is essential for all animals. However, excessive, repetitive movement is damaging. Again, Martin Fischer talked about the importance of free, *voluntary* (not induced as in ball throwing) movement like twisting, turning, play, natural agility etc. in feeding the cartilage of the joints. This also fit in perfectly with the talks by Amber on the dog's activity budget, and on walking by Winkie and the Budzinkis

on Saturday (Part 1, 2018 report) and Anne Lill on Sunday (see this PDF).

Excitement is not happiness! The dictionary defines “happy” as “a feeling, or the showing of pleasure, satisfaction or contentment.” A “happy” dog is not a physically exhausted dog! By comparison, a nosework-exhausted dog is both tired and happy.

EQUIPMENT

“Do you wear a seatbelt around your neck?” asked Elaine. “Why not?” With humans we know that it can take just *one* whiplash accident to cause a lifetime of pain. A dog’s anatomy is basically the same as ours. It suffers the same damage as we would if we were to wear a collar and lead. It can also damage the brain’s signalling processes. Muscles are not designed to be compressed; they are designed to make the body move. Arteries are not designed to be compressed, they are designed to carry blood around the body. Atlas misalignment causes problems with three structures of the jaw: bones, muscles, and nerves. The base of the skull is a critical place for the brain to receive or send all the signals it needs to work.



PAIN

Again, fitting in with what Amber had said on Saturday, Elaine stressed the importance of pain. Many behaviour problems in dogs are due to undiagnosed pain. They hide pain easily and will often suffer in silence, as dogs are evolutionarily predisposed to hide pain because it shows vulnerability and puts them in danger. We may not notice their growing levels of pain; it is often put down to ‘old age’.

Signs of pain:

- Changes in respiration: panting or slow breathing
- Irritability (aggression)
- Change(s) in behaviour
- Dry nose – sign of a possible neck problem
- Loss of appetite
- Increased temperature
- Increased pulse rate (know your dog’s resting pulse)
- Sweating from paws
- After exercise, chewing things, barking, nipping.

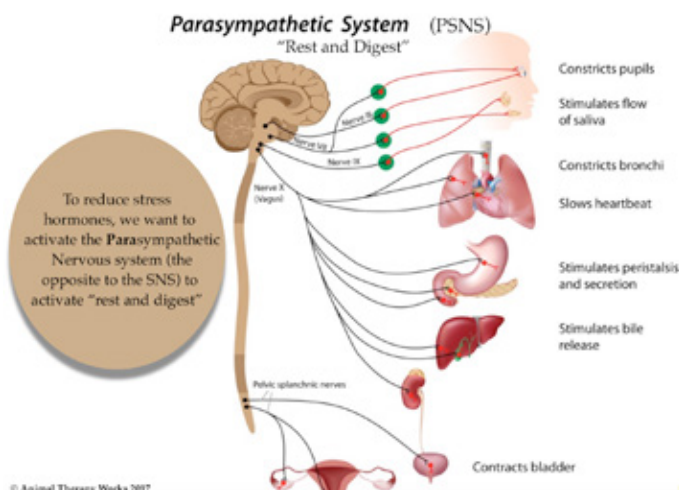
The way nature heals is by signalling that there is something wrong with pain, discomfort and inflammation. The purpose of inflammation is to increase blood circulation to flush the

tissues, eliminate toxins and bring white blood cells to the area to remove diseased tissue, parasites, bacteria & viruses.

Observations

We should be aware of our dog – how does it normally move, is there an imbalance? Elaine said that if we run our hands over our dog, a hot spot could indicate a problem. Julia Robertson gave an excellent talk on all these issues on Sunday afternoon (this report). Are the hips level and the feet pointing straight? Does the dog walk evenly? Does the skin move loosely over the muscle or is it tight? Are there discolorations in the fur, or does it grow in a different direction? Are the ears level? Is the head too far up or hanging down? Is the neck thick – is all the weight on the front legs? Is the tail straight or off to one side, or hanging down? Is there a dip in the lower back? Does the dog run all the time (not able to walk slowly)? Does he no longer jump on the sofa, climb the stairs, or is he reluctant to go for a walk? Elaine stressed the importance of taking our dogs to the vet for a pain assessment.

REDUCING STRESS and STRESS REPAIR



Stress repair

The first things to offer a stressed or traumatised dog are safety and security, comfort and company, peace and quiet, rest and sleep. Elaine again confirmed everything we had heard this weekend, talking about the importance of introducing calming activities such as nosework, tracking, foraging, choices, enriched environments, social walks, new places, freedom of movement, and therapies like massage.

Sleep

Adequate sleep is vital to a dog’s health and wellbeing. Dogs need 14–18 hours’ sleep a day to stay healthy (puppies 20 hrs). As Amber pointed out, sleep is an inelastic behaviour and a crucial part of the dog’s ethogram. Eighty percent of a dog’s sleep is brain sleep, during which the brain cools down (like closing the lid of a laptop), giving the brain cells the opportunity to grow and develop. The other 20% is REM sleep, during which dogs process things that have happened during the day. Dogs cannot sleep properly if their bodies are full of stress hormones. During sleep, brain cells grow and develop and memories are consolidated. Research

shows that during 3-hour naps dogs' brains experience brief, repeated moments of slow-wave brain activity lasting several minutes. These patterns are known to support memory consolidation, learning, general intelligence, and healthy ageing. Elaine stressed, as did Amber on Saturday, the importance of giving dogs a choice of sleeping places at different heights in quiet locations. NEVER disturb a sleeping dog!

To recap: given the choice, what activities do dogs choose to do? Street dogs do not race around chasing after things; they know the value of rest. They spend a lot of time resting to conserve energy; when given a choice, dogs do not physically exhaust themselves. No dog *needs* a lot of exercise or training. Saving energy is one of their inborn skills. After stress, a dog should be given at least two calm days to recover: no training, short explorative walks, routines, lots of sleep, and calm activities such as nosework.

These strategies will help to change the stress hormones in the body and start the body's healing process – tissue repair, healthy muscles, brain function, memory and digestion.

Elaine finished by sharing more of her catchy enthusiasm: "The gut microbiome and the brain are like unexplored galaxies which we have only just discovered. My fascination, training and research in these areas will continue... I now have more questions than when I started." We look forward to hearing more. Thank you, Elaine!



CAPTURED MOMENTS



Julia photobombing her slide show. Put in the report as promised!



Dogs in the human environment

An anatomical perspective

Julia Robertson
United Kingdom

Julia Robertson established the Galen Therapy Centre in 2002, specialising in Canine Myotherapy, treating dogs with postural and loading issues. Running a busy consultancy, treating working, performing and companion dogs, she has developed a range of courses from workshops to accredited diplomas in Canine Myotherapy. As a passion advocate of canine myotherapy, working closely with vets and other professionals, Julia has put together a dedicated team of Galen myotherapists practising throughout the UK. She sat up Galen Natural Progression in 2006 with Elisabeth Pope to train therapists and to treat dogs using exercise physiology; a gentle prescriptive method of dogs performing natural exercises that assists their mobility, flexibility and balance. They wrote and produced the DVD 'Tongue to Tail, the integrated movement of the dog' (2012), which won the the Maxwell Award by the Dog Writers Association of America. Julia discusses areas of the dog's anatomy from 'nose to tail', highlighting areas of vulnerability within their functional construction. She looks at how and why our environment, activities and equipment can impact negatively on these areas, creating long-term chronic muscular pain and injury. Chronic muscular pain resulting from this environment is an insidious pain that can affect the dog's perception and whole being.



Julia started by thanking Turid for her generosity in sharing her knowledge all over the world. She pointed at the large audience in the room as an example: "This weekend has been another phenomenon of meeting up with people and meeting new people all with the same intention... The other thing that I find extraordinary is that different nationalities are here. I've met people from all over the globe. It's incredible!" She praised the speakers from the weekend, saying that she had not looked at her watch a single time.

Julia explained that although her work is grounded on science, a lot of what she knows has been taught by the dogs themselves. She said that everything Amber had taught on Saturday validated what she does. Every one of the speakers had said so much that was consistent with her approach, along with new things, that she had been furiously writing notes all weekend and had to shift her slides around somewhat to link it all together. In her talk, she said she wanted to show how the physicality links with absolutely everything that had been said during the weekend.

The first couple of slides Julia showed introduced us to the non-human members of her family. She said that each and every one of the species of animals that she has (horses, hens, sheep and a Friesian cow) teaches her something. She has worked with cows for many years, which is in fact her foundation. They have taught her a lot, but the one thing they taught her above everything else is observation. "A cow's ear flick can mean so much. A cow in a whole herd can suddenly lift their head up a little bit higher than the others and tell you something is different...The best farming anyone ever does is on the fence."

Julia credits her yellow Labrador Huffo for starting Galen Therapy. After what they think might have been an accident, he could hardly lift his nose off the ground. This was back in the mid-90s before MRI became available. All the X-rays

seemed normal, so it was concluded that he had some kind of "degenerative Labrador thing". It had been recommended that he would be put down, but he was only six months old. Julia said that it is extremely difficult to assess your own dog. She asked a farm vet to have a quick look at Huffo. He took one glance and said, "Ah, so he's hurt his neck then." Julia used a lot of humour as she explained how she started with very small treatments using treats ("good old Labradors will do anything for a treat!"). Within about 10 days he started getting mobility back in his neck. She explained that she didn't understand about compensatory issues then; all she knew was that it helped. Huffo lived for 17 years, and Julia shared her frustration at the number of dogs that are put down every year just because of a bad neck. There was nothing skeletally wrong with Huffo; it was all muscular.

Glorious movement

Julia showed us a beautiful video of a running dog, explaining how the shoulder floats over the whole rib cage. The shoulder has no bony attachments to the rib cage at all. (Last



year, Martin Fischer also described this in great detail.) There is no clavicle, so the scapula (shoulder blade) is mobile. This was beautifully illustrated by a series of videos. Although the shoulder is intended to move, it is also intended to be stable. Coming around a corner, the whole dog has to move accordingly – from the nose to the neck, the neck being the most important part of any type of movement, through to the shoulder. The shoulder rotates over the body, but the paws still make full impact with the ground, and the dew claws are an important part of this. The head turns, and the tongue reassembles itself in the mouth, because the tongue is critical for balance.



Mobility of shoulder, use of feet, action of tongue and neck

All photographs in this report are screenshot captures from Julia's presentation.

HOW MUSCLES IMPACT ON THE DOG'S ANATOMY – FROM NOSE TO TAIL!

Muscles have a major impact on the whole anatomy. It is important to look at the whole dog, not just certain parts.

The nose

Julia made a stunning statement: every dog she sees with a dry nose has a muscular problem. She did not show the details behind this statement, as they are currently doing a study that has yet to be published. A dry nose has a great impact on a dog's sensing ability. Some dogs that use their nose for their work, such as narcotics and explosives dogs, do a lot of jumping on and off things, and Julia has seen several with dry noses. It will have a major impact on their working life. They need the wetness on their nose to attract the smell molecules. Julia illustrated this with a slide of a dog with a dry nose before treatment, and a beautifully wet nose afterwards. A lot of her clients know that when their dog's nose goes dry, the problem is coming back.

Rotational injuries

Rotational injuries are some of the worst that Julia sees. Sometimes we cannot see what happens; we have to put our hand on our dog and gently feel for heat (as Elaine also mentioned). When we do it regularly, we can pick up the fact that something has happened. Dogs carry these sorts of injuries for the rest of their lives, and the longer they are left without treatment, the worse they become. Also, whiplash

injuries can happen through a dog e.g. tripping over a hole in the ground. It can happen in a split second and is easy to miss. Or we think that the dog is fine because he just "shakes it off". Muscular injuries do not go away on their own; the cells need to be realigned. It's a bit like a broken bone: If you leave it long enough it will marry up, but it will be dysfunctional. Muscles have a wonderful way of adapting. The trouble is, their mis-adaptation affects the whole of the body.

The tongue – just for eating?

The neck is probably the most important structure for mobility. If it is in any way compromised, the whole movement is compromised. That includes the tongue. Julia showed us a slow-motion video of a dog running towards an agility fence, and we could clearly see the saliva coming out of its mouth. That was caused by the dog realigning his tongue in the roof of his mouth to give him the balance and the projection for jumping up. The tongue is a very delicate structure that is supported by the neck. Not being able to realign it can cause a lack of balance.

We do not look enough at the dog's jaw. The jaw is connected to the neck, the neck is connected to the shoulders, and the shoulders are connected to the pelvis. If there is a problem in the back end, it travels all the way up into the shoulders, into the neck, and into the jaw. The masseter muscle is a pleasure-giving muscle because it is for mastication (chewing). It has a direct relationship to the limbic system, but the temporomandibular joint (TMJ) can come out of alignment quite easily, especially if there is tension. Anyone who has had TMJ problems knows how uncomfortable it is. Simply gently rubbing our dog's cheeks can help ease that. Some people think their dog has "grown out of" chewing bones, or the dog really chomps down on them, which is also a worry.

Appropriate fitting of a harness

Julia did not want to recommend any particular harness, because every dog is different. Therefore, she talked about the principles of what makes a harness a good or bad one. She started by talking primarily about the sternum and the muscles that attach to it. Something like a whiplash injury can injure these muscles, and the tongue, and the thyroid can also be affected. There is an awful lot going on in the neck, which was well illustrated by the slides that Julia showed.

Julia got all of us to press hard on our sternum, which was quite uncomfortable. But it was a lot worse when we moved the pressure up above it!





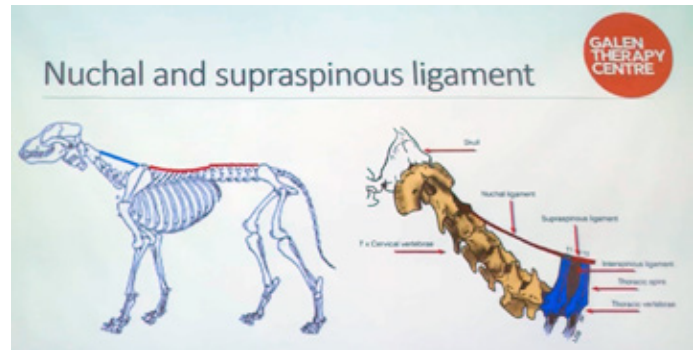
The rhomboidius is a brute of a muscle that goes all the way from the head to the mid-back of the dog. It also sits just beneath the shoulder blades and draws them together. Plus, it is a stabiliser. When we have a problem with ours, it really hurts; we feel the need to dig our fingers into it. If it gets compromised, the shoulder blades get set in position. The serratus ventralis is another fantastic muscle. It attaches to every rib and to all the transverse processes of the neck. It is the opposite to the rhomboid. Both of them help stabilise the shoulder but are also massively involved in its movement. They are hugely important for the fluidity of the front end of the dog.

The pectorals (chest muscles) are underneath the dog, so people tend to forget about them. The same is true of people who work a lot on computers. If they go for treatment for their neck, the problem isn't there; it's in the pectorals. They have got shortened because of the computer posture, and the load is on the upper spine. Treatment of the neck won't help; it is important to lengthen the pectorals through e.g. stretching. In the dog, the pectorals are stabilisers, because the front leg is free. They hold the leg in contact with the body, but also enable it to move away from the body. The triceps go from the elbow up to the scapula (shoulder blade) and also to the humerus. All of these muscles will be affected by a badly fitting harness.

Another thing to be aware of is the brachial plexus. It is the junction of the nerves from the neck going down into the arms. If they get compromised, that will have an effect down the dog's legs. Dogs can get all sorts of bad sensations from pressure on the plexus.

It is also important not to have to use a harness that requires the dog, especially an arthritic dog, to be a contortionist to fit into it.

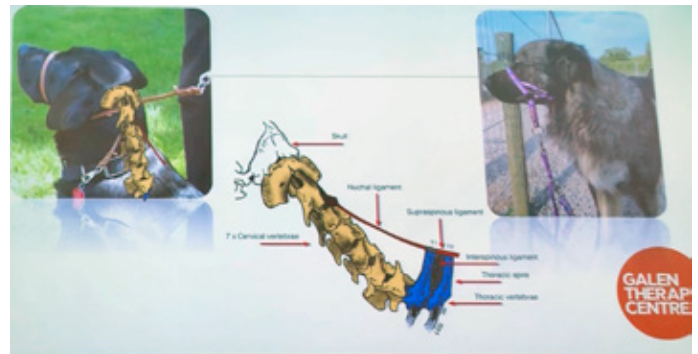
Where are the buckles? Are they in those places that were just talked about? Are they going to rub? Is the leash just sitting on the dog's back when it is walking around? Many people who have had disk problems in their neck will be aware that even clothes can be very uncomfortable. We may be putting a harness on top of something that is really uncomfortable. So it is important not only to look at the anatomy, but also at how our dog responds. Identity discs knocking up and down on the back can also be really unpleasant for the dog. From a muscular reactivity perspective, that can be very irritating, not to mention from a behavioural perspective.



The nuchal and supraspinous ligament

The nuchal ligament on the dog is different from ours. In people and horses, it goes all the way to head. In the dog, it goes up to the second vertebra "so the dog can lick his balls," as Julia put it. But because of this mobility, it can become a real problem if there is an injury.

Julia has seen a lot of dogs with halties, or gentle leaders, who come in for treatment with inflammation around the neck that she just cannot get rid of. She can really help with so many neck injuries, but something that has come from a sharp pulling to the side, or lateral thrust, does serious damage. The pain from something like that will be like a constant toothache in the head.



Repetitive injuries

Julia showed a video of a little dog jumping out the back of a car. The effects on the body of that little dog landing were very evident in slow motion, and quite shocking. Julia said that doing this once or twice may not be a problem, but doing it repetitively can cause serious injuries.

The power of the hamstrings

Julia planned to show a video (which unfortunately didn't work) of a dog jumping up and down repetitively on its hind legs, then taking off across the floor with the legs skidding outwards. The hamstrings can be detrimental to a dog's well-being if they are overused. One way of doing that is by bouncing up and down on the back legs. The muscles get shortened, because this is the way damaged muscles repair themselves. Part of the pelvis gets levered downwards, and the other part upwards. This completely changes the dog's posture, with huge consequences. Everyday activities that

involve jumping up and down, particularly with little dogs who do not have the best anatomy in their back legs, like sliding patellae, create more stress through the quads. That will cause major problems.

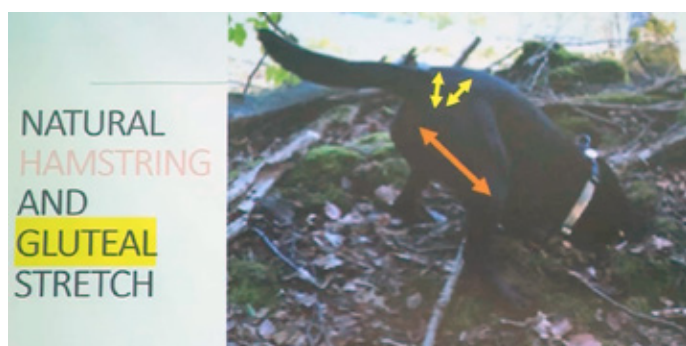


Horses have something called the stay apparatus, which enables them to lock their legs so that they can stand and rest quite happily. It seems that dogs do not have one, but they have two mechanisms: one on the outside and another on the inside of the leg, which are essentially a very short bit of muscle and the rest like a tendinous tissue that attaches just below the knee. The outside and inside mechanisms match. The whole point is that the dog, when it is balanced, can stand and rely on them without using too much muscle energy. When a dog is stable in the hips, it will be stable through the legs. Those two structures can then kick in and hold the legs nice and firmly. Most of us will have seen a dog standing with its back legs firing away (ripples in its thighs). When the balancing structure is working, this doesn't happen, because the dog doesn't have to use its global muscles.

The hamstrings also have an effect on the glutes. if they are stretched unnaturally, there can be some real problems with things underneath, like the sciatic nerve. When something is crushed against it, it will react, and the dog will feel pain down the legs. Therefore, hamstrings that shorten and change the angulation of the pelvis can cause all sorts of problems. A lot of "back problems" in dogs, like a roach back, have nothing to do with the back but with the pelvis. And it will affect the whole dog into the neck and the jaw.

It is important to be able to understand this when treating a dog, in order to be able to unwind them from where the problem starts. This is one reason Galen Therapy is so successful in what they do.

A very good way to help a dog's hamstrings is to get the head lower than the feet, like Julia's dog does when it is looking down a hole. Treat searches etc. are all helping the hamstrings. Even just putting the nose down helps every-



thing stretch out. In addition, the dog can choose in what position they want to be.

THE MAIN CAUSES OF INSTABILITY

There is a lot of talk about core stability, which is important, but Julia said that there is nothing more important in her view than the stability of the limbs. The limbs, which float in a dog, have to be held securely in place while allowing mobility. Likewise, the hip is a very mobile joint, but it has to be held in a stable position.

One of the main issues behind instability is exercise management. The way to build a puppy is like building a house. If you don't put the foundations in, the house will crumble. Similarly, if you don't put the foundations in during puppyhood, the adult dog will crumble.

Therefore, like Anne Lill said in her talk, what we need to be encouraging is *slow walking*, which strengthens the stability muscles. If we walk really slowly, every part of our hip area has to stabilise to maintain the integrity standing up. Our hip joint has to be held in place to take the load before going on to the next stride. If our hip isn't stable, the knees will be wobbly. We get instability from our feet because we wear appalling shoes. With dogs, however, most of the instability starts from the top and works down. Therefore, we have to build their shoulders and hips properly through slow exercise. Fast exercise only really builds the heart. Slow exercise builds the muscles.

An accident also causes great instability. Often, a dog may have an accident and the owner is relieved that nothing is broken. But if there is trauma, soft tissue will be damaged, and it doesn't miraculously get better. The healing happens in a disorganised way. Scar tissue is inflexible and will shorten the area. Every muscle crosses at least one joint, therefore at least one joint will be shortened.

Another issue is conformation. If a dog is badly put together there will be problems. Being aware of conformation and its limitations can help with management. A dog is only as strong as its weakest part. Unfortunately, with exercise, we tend to strengthen the strong parts, because they are the parts that work best.



Julia showed us a video of a dog on ice and asked us to count how many times his back and front legs were abducting (sliding outwards). There were more videos of dogs on slippery floors. We lost count of the number of times those legs when

shooting out from under these dogs. We may not realise that most of our dogs live on “ice rinks” like slippery floors, which are life reducers. Julia said that the most common age at which she sees dogs with chronic problems is eight years. This is consistent with Elaine Stavert’s talk earlier in the day, where she said that it is also the age at which she sees most dogs with digestive issues.

Most dogs Julia has seen with elbow problems have unstable hips. The elbows are overloading on the front. She gave us an exercise to do, where we had to place our hands on the table and lift ourselves up without help from the legs. It wasn’t easy. This is what dogs with these problems have to do all the time.

Other changes also occur in a dog that has suffered destabilising injuries, including behavioural changes, referral pain, resistance to actions, resistance to touch and grooming, stiffness, groaning, and lameness (often months or years after the event).

Julia showed before-and-after pictures of a Labrador who had received treatment and was an amazing five inches longer afterwards. The owners only discovered that because when putting on her coat on they found it was too short. Her whole life is so much better now.

Julia told us another story about a collie that had come to her recently, who had fractured his femur at six months of age while jumping for a ball. Six years later he developed a front left lameness. No one made a connection between the two issues. The dog had never been able to poo standing still, licked his groin all the time, licked his right-hand leg, and sometimes after eating became incredibly stressed. He had front left-leg lateral rotation, and the leg also vibrated. He didn’t like being groomed and ran in an uneven manner. After just one treatment, the owner was amazed that the dog could poo in one place. Now the lameness has gone, the licking has stopped, he can poo standing still, and the vibration in his leg has stopped. Julia showed us a video of an interview with a very happy owner.

Due to a hilarious technical glitch, the dog then changed into a horse. As Julia said deadpan, “That was one of my better treatments.”

Julia then showed us a series of pictures from an owner who is a keen photographer and had taken many photographs of his dog through the years. The gradual variation in the dog’s loading was stunningly clear. It was also evident that she was getting stiffer and increasingly uncomfortable. After three treatments with Galen Therapy, she showed less lameness and was happy to have her nails clipped. She is almost back to the same posture she had as an adolescent. She’s not perfect, but by treating the musculature she is feeling a lot better. The clock can be wound back to some degree.

Thermal imaging studies

Julia talked about a thermal imaging study that they had just finished in January. After meeting a thermal imaging group in Durham at the annual PDTE event, the two teams decided to see if they could track physiological changes during treatment given by Galen. Eight short-coated dogs were involved in the study and were offered free assessment and treat-

ment. The criteria included not participating in any sport, not receiving any other therapy, and maintaining whatever drugs they were on. The results were so recent that Julia had not yet had time to look at them in detail. One of the dogs was a re-homed whippet that came in with a shoulder issue. Julia had a feeling that it was a direct impact injury. However, this dog also had very bad mobility through her back end, which Julia felt was a entirely different issue. A vet assessed every picture, and what was so interesting was that this dog had an asymmetry in the left elbow region. By the end (after three treatments), the elbows were symmetrical. However, the most remarkable aspect was the overall physical and behavioural changes.

Another successful case

Julia talked about a behavioural case in which the dog was in so much pain that he tried to nip her on the first treatment. Julia was in somewhat of a quandary, as the owner was so dedicated that she had taken the trouble to drive the dog to therapy four hours each way. Julia just gave the dog some very gentle exercises to do, to unwind him, with the owner cooperating at home. By the third treatment he was cuddling into Julia, presenting his backside. He was flat out asleep, allowing her to work anywhere she liked. It was quite emotional. After four treatments the owner said she has a better relationship with him now than she has ever had for the past 12 years.

Walking

The best thing a dog can do is walk, *full time*. Not trotting, not running, *walking*. The whole point of walking slowly is that each limb has to take weight through itself separately. Actual walking is very different to trotting, and it is hard work. If a dog has never walked, like a Chihuahua because we never walk slowly enough for them, it is tiring. The walk

Activity! Let’s go for a walk.....



is the most powerful gait ever. It will get your dog fit, it will help your dog rehab, it will calm them down, it will help build proper muscles. It is essential that every dog learns to walk.

Expressing muscle pain

How do we express muscle pain? Our posture changes. It also does that in dogs. We alter what and how we do everything. We groan when we sit down and get up; we alter the way we walk; we find it hard to get comfortable; we avoid situations that may exacerbate the pain; we change how we

do everyday tasks, actions and jobs; and we say ouch!

Julia showed another case history of a little dog that could hardly stand up, despite all sorts of medications. Managing the muscular issue and adaptive pain has made a big difference in the way she stands. She still has a roach back, but much less. She can now do things like wag her tail, which she had stopped doing. Some owners have only noticed that their dog had stopped wagging its tail because it started again.

So many indicators of chronic muscle pain

The pictures on the right show a list of indicators for muscle pain. But individually they don't necessarily mean anything. For example, licking feet on its own could be due to something else entirely. To be meaningful it has to be within a group of other indicators. For example, as we saw in the talk by Aurélien and Cristina Budzinski on Saturday, the ability to "shake it off" reduces stress levels. If a dog cannot shake properly, among other things that will have an impact on its psychological state. Julia and her team are doing a study to measure dogs' necks and thighs. She is convinced that there is a correlation between the two. If the thigh gets smaller, the neck gets bigger. And if the neck gets bigger, there is chronic pain. Julia has noticed that treatment often leads to a smaller neck size.

Many owners report that their dog does not like grooming, for example over the back end, but ironically this is the area that has the thickest growth and needs grooming the most. It is because that area is compromised superficially, the circulation is not free-flowing, and the coat is not going through its natural stages.

Changes in behaviour during sleep

Julia always wants to know how a dog sleeps. Many like to prop their head on a cushion or pillow. Many owners have never thought of giving their dog one, or they think that the edge of the bed will serve. But you cannot move the edge of the bed. When they give their dog a little cushion, it rearranges it. If we tried to sleep without a pillow, our sleep



Dogs showing postural changes. The situation before treatment is shown on the right.

So many indicators of chronic muscle pain — and these are just a few!

1. Licking feet
2. Chewing feet and parts of their body
3. Kicking their leg in a spasm/suddenly stopping and looking around.
4. Defecating/urinating positional issue.
5. Not able to chew or resistant to chewing.....or chewing incessantly
6. Dry nose
7. Postural changes — changes in body shape.
8. Rolling on a toy
9. Stretching excessively
10. How they shake
11. Collar size
12. Tail chasing and chewing
13. Unsettled/difficulty in settling
15. Obsessive behaviours — digging etc.

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Other behavioural traits that are connected with chronic muscle pain/discomfort.

- Not playing so much/wanting to exercise
- Not like being groomed (especially over areas of dead hair that also it synonymous with peripheral circulation caused through muscle dysfunction)
- Not happy about being approached by other dogs (especially at speed)
- Not shaking properly
- Groaning when lying down
- Not settling when lying down — DISTURBING SLEEP
- Headaches
- Itching their chin
- Having an itchy bottom
- They stop wagging their tail
- Anal gland issues
- Digestive issue
- Allergy problems

GALEN THERAPY CENTRE

would be very irregular. However, dogs should be able to lie horizontally. Sleep problems include groaning when they lie down, not settling, suddenly waking up looking distressed, or keeping the back leg out while in bed.

If we see two or more of these things within a dog, the likelihood is that it is a muscular problem. If it is just one, then the likelihood is that it could be something else. It doesn't matter what it is, everything needs to be investigated by a vet first. There are situations that may look like a standard lameness but may not be. It could be a kidney problem, or cancer, or something else that has nothing to do with what a therapist can do. But if there are postural changes and behavioural changes, there is a good chance that there could be an underlying skeletal problem. A change in appearance could be something as simple as how the coat lies. The thing with postural changes is that they are insidious. They take place over time. Therefore, Julia asks clients to try to find old pictures of their dogs and look at what their posture was like a few years earlier.

What advice can we give?

Avoiding slippery floors, high furniture, stairs and other things can help a dog substantially. Or how they get in and out of a car.

Repetitive exercise such as ball throwing, walking on the same side of the owner in the same direction, are also things to be avoided. An assistance dog walking alongside a pushchair will not walk normally. Many people nowadays know not to throw balls, but there are many other repetitive movements that can cause damage. Walking to warm up and cool down is also important. Julia suggests walking for five

minutes before and after whatever exercise the dog does, not only for the body, but also for the brain.

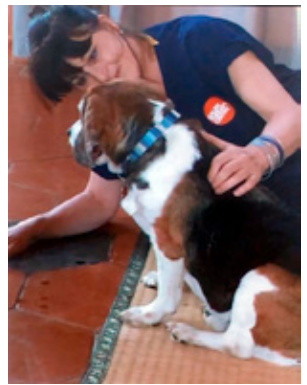
We need to consider the dog's shape, meaning posture. Do the muscles look balanced? Establishing good stability, or muscle phasing, is like what everyone had been talking about this weekend concerning the brain: it requires establishing good pathways. Muscle phasing and patterning is all to do with the body stabilising itself before it starts moving forward. To do that, we need slow exercises.

A special case in India

Julia showed a video of a lovely dog who had been used for animal testing for a cosmetics company. He had lived in a crate on top of other crates with dogs for seven years. The dogs were showered with a hose to wash them off. This poor dog could barely lift his head. Julia was told that he would let absolutely nobody touch him, ever. So she had the owner sit at the other end of the room and invited the dog to come and sit with her. Gently, she placed the back of her hand on his back. At first, there was no eye contact from him at all. Imagine how sore his shoulders were. Gradually she started stroking him. There was not a dry eye in the room as Julia showed how this dog, who had almost never been touched, then looked at her. Then, he learned what a wonderful thing it was to be touched and started seeking it out from people everywhere. This was probably the most emotional moment of the weekend.

Along with the team in India was a vet/myotherapist, who has set up an organisation called Canine Arthritis Management, CAM. She uses myotherapy as a keystone to help arthritic dogs.

Julia finished by talking about some of the courses she is running in the UK, Spain, Norway and Poland. It was a hugely valuable talk which, in addition to leaving us all dehydrated through the tears we shed, was filled with hope.



Treatment success! The wonderful moment a technical glitch turned Julia's client from a dog into a horse.



We look forward to meeting you all again next year!