9th International Health Symposium
Longevity and Quality of Life of our Dogs

Conference Center Hotel Best Western
Chavannes de Bogis, Switzerland
Friday, August 30, 2013

Swiss Club for Bernese Mountain Dogs (KBS)
in collaboration with the
Swiss Cynological Society (SKG)

9th International Health Symposium
Longevity and Quality of Life of our Dogs

Date **August 30, 2013**
Location **Chavannes de Bogis, Switzerland**

Program

9:00	**Welcoming**	Peter Rub (President SKG)
	Opening	Ueli Schmid (President KBS)

9:15 **From the Cradle to the Grave : Health Management in the Swiss Bernese Mountain Dog Club**
Dr. Urs Geissbühler, President Health Committee KBS
(Vetsuisse-Faculty at University of Berne, Switzerland)

9:35 **The Histiocytic Sarcoma of the Dog. New Therapies for a Cancer Disease with many Faces**
Dr. Caroline Geigy (Animal Hospital of University Zurich, Switzerland)

10:10 **Breeding Strategies for Longevity, Hip Dysplasia and Elbow Dysplasia of the Bernese Mountain Dog Population in the Swiss Mountain Dog Club for Germany (SSV)**
Dr. Norbert Bachmann (President SSV) and
Christel Fechler (Breed Warden SSV)

10:45 **Coffee Break**

11:10 **Genetical Signatures for Longevity and Development of Genomical Breed Values for Longevity of the Bernese Mountain Dogs**
Prof. Dr. Ottmar Distl, (University of Hannover, Germany, in collaboration with the Swiss Mountain Dog Club for Germany, SSV)

12 :00 **Genetic Progress in the Fight against Histiocytic Sarcoma : Development of a Genetic Pre-Test for Breeders' Selection**
Dr. Catherine André and Dr. Benoit Hedan (University of Rennes, France)

12:45 **Lunch Break** (Stand up lunch)

14:00 **A brief update from the President of the Berner-IWG**
Steve Green (UK), President Berner International Working Group

14:15 **Dogs in Motion**
Interrelations between Skeleton, Muscles, and Locomotion
Prof. Dr. Martin Fischer (University of Jena, Germany)

15:20 **Coffee Break**

15:45 **New Approaches in Pain Diagnostics and Therapy**
Dr. Patrick Blättler Monnier (orthoVET Clinic, Frenkendorf, Switzerland)

16:35 **Physical and Mental Health for Dogs of all Ages by Clicker Training**
Claudia Moser (Dog Trainer, Founder and Head of Clickerzentrum Schweiz, Sornetan, Switzerland)

17:10 **Closing remarks** Ueli Schmid (President KBS)

Program subject to change

Schweizerischer Klub für Berner Sennenhunde
Club Suisse du Bouvier Bernois
Club Svizzero del Bovaro del Bernese
Swiss Club for Bernese Mountain Dogs

A Cordial Welcome to the International Health Symposium

Ladies and Gentlemen,
Dear Bernese Mountain Dog friends from Around the World

On behalf of the Swiss Club for Bernese Mountain Dogs, I cordially welcome you to the 9th International Symposium here in Chavannes de Bogis. We are pleased that about 80 dog fanciers, cynologists and scientist have gathered to discuss topics concerning a happy and healthy dog life.

Immediately after we learned about the decision, that the Eurodog Show 2013 will be held in Geneva, the board members of KBS took the chance on using this occasion and the infrastructure of the beautiful Geneva region to organize a Health Symposium for the fourth time in Switzerland during the same weekend. The Swiss Cynological Society spontaneously offered their support.

With no hesitation, Christine Irrgang Vogt, with her well established international connections, agreed to volunteer as head of the organizing committee. Supported by Beatrice Raemy, Sandra Berger and the Health Commission of KBS, she compiled a very attractive program for the symposium.

It was 13 years ago in September 2000, when in Langenthal, Switzerland, the first International Health Symposium was held. Two years later, all the interested club officials, breeders and owners of dogs of our "Swiss national breed" met again in Lenzburg, to further foster the international collaboration to improve health in the breed. This was followed by six other meetings in Germany, Italy, Austria, Great-Britain and Switzerland, which dealt mostly with cancer and malignant histiocytosis. Christine Irrgang Vogt put forward the theme "Longevity and Quality of Life of our Dogs" for this year's meeting, which was very well accepted. With great dedication she searched for almost a year for interesting topics and speakers that are able to captivate their audience.

The program is promising quite a lot. To start with, the president of the Health Commission, *Dr. Urs Geissbühler*, will give a survey on the health management in our Swiss Club for Bernese Mountain Dogs. One of its strategies is to support a study run at the Veterinarian Clinics of the University Zurich on therapies and prognosis with histiocystic sarcoma. The head of this study, *Dr. Caroline Geigy,* will inform on the status of the study. *Dr. Norbert Bachmann* and *Christel Fechler* will report on their experiences with breed hygienic measures and tools in breeding Berners in the SSV.
Prof. Dr. Ottmar Distl will give some insights into the basics of genetics and the development of genomic breed values for longevity, HD and ED in Bernese Mountain Dogs. The presentation of *Dr. Catherine André and Dr. Benoit Hedan* will focus on genetic progress in battling the histiocytic sarcoma and the development of a pre-test to assist in breed selection.

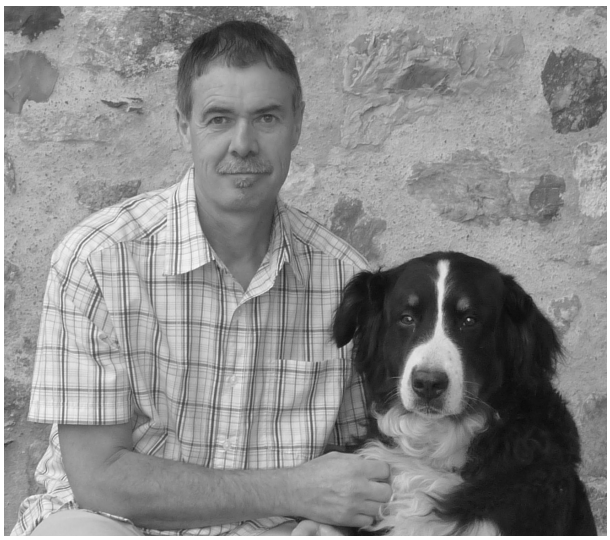
After the lunch break we will continue with presentations on quality of life. *Steve Green* will talk about activities of the international working group IWG fostering the international collaboration on health related issues with Bernese Mountain Dogs.
Quite exciting is the report by *Prof. Dr. Martin Fischer* on the analysis of motion of dogs. Modern technology allowed to record fascinating films of the locomotion of our four-legged friends. If such locomotion is affected by pain, there are new pathways in pain diagnosis and therapy, and *Dr. Patrick Blättler Monnier* will inform on that. To close the day we will enjoy the presentation and lively demonstration by *Claudia Moser* on physical and mental exercises for dogs through clicker training.

Sincere thanks to all our presenters for their engagement for our dogs and for the support to this symposium. But without a certain commitment by breeders and owners of our beloved pets, there would be no improvement in quality of life and reduction in suffering from diseases, so I express thanks, Dankeschön and merdi beaucoup to all of you for your participation here.

Finally, a huge thank you to the three organizers of this meeting, Christine Irrgang Vogt, Beatrice Raemy and Sandra Berger, as well as to Peter Rub and the Swiss Cynological Society for their support.

U. Schmid

Ueli Schmid, President KBS



Ueli Schmid was raised with many animals at his parents' farm in Geroldswil. Of course, there was a farm dog too. When his parents gave up farming, Ueli took over the farm house including the Bernese Mountain Dog named Mutz. In 1991, Ueli and his wife Alene acquired Dissa von der Schümatt, the first breeding dog of the Schmid family.
1994 the A-litter of the Kennel vom Breitland was born. Until today, twelve other litters followed. With raising the puppies the family's two daughters enjoyed helping quite a lot.
In 1997 Ueli Schmid joined the Board of Regional Group Ostschweiz of the Swiss Club of Bernese Mountain Dogs. He was President of this regional group from 2000 to 2012 and represented the group in the Central Board of KBS. In 2011, Ueli was elected to President of the KBS. Since 2002, in his role as kennel/litter inspector Ueli visited more than 110 kennels.
During the early 1980's, Ueli Schmid got his professional education as primary school teacher, later on also as teacher in secondary school. After close to 20 years of teaching, he completed in 2002 a training as school headmaster, and since then he managed a school with primary and secondary education levels. As of August 2013, Ueli took over the position as Headmaster of a career choice school.

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Chavannes de Bogis, Switzerland, 30. August 2013

From the Cradle to the Grave: Health Management in the Swiss Club for Bernese Mountain Dogs

Urs Geissbühler

Clinical Radiology Vetsuisse Faculty, University of Berne, Switzerland,
President Health Commission KBS

Historical Background

It was about 50 years ago that the basis was laid for prophylactic medical examinations in pure bred dogs with standardized evaluation of hip dysplasia burden of the dogs used for breeding. Since then, also other diseases got into focus of breeders like diseases of the **musculoskeletal system** (elbow dysplasia, articular osteochondrosis, spondylosis, aseptic femur head necrosis, patella luxation), of the **eyes** (progressive retina atrophy, and others), of the **nervous system** (idiopathic epilepsy, lumbosacral transitional vertebrae, spina bifida, intervertebral disc herniation, degenerative myelopathy, primary secretorial otitis media, Arnold Chiari malformation, syringomyelia, deafness), and of the **heart** (subaortic stenosis, pulmonic stenosis). In addition, the dogs are increasingly examined on hereditary disorders using **genetic tests**. An in-depth analysis of a breedspecific disease is usually initiated upon an increase in occurrence in vetenarian practices and clinics, or in individual breeding kennels. Anecdotal and popular scientific surveys on the health status of a particular breed often enough result quickly in a defamation or even criminalization of selected breeds, kennels or dog owners.

Many of the above mentioned diseases are considered in the breed regulations of concerned breeding clubs, some diseases disappeared from the radar screen either because their heritage could not be proven, a systematic prophylaxis was not realizable, or the disease does not result in a significant deterioration of quality of life. The increase in number of investigated diseases inevitably results in increased complexity and potentially confusion. During the recent years, the Swiss Club for Bernese Mountain Dogs intensively dealt with such topics, and has initiated a number of measures to establish a basis for the improvement of breed health. One of the main goals of such actions is to overview the health status of the breed in a continuous and objective manner.

Health Booklet

The Health Commission of the Swiss Club for Bernese Mountain Dogs (KBS-CH) in collaboration with clinicians and geneticists of the Vetsuisse Faculty of Berne has designed and edited a Health Booklet. The main purpose of this booklet, which is handed over with the puppies, is the collection of health related data throughout the entire life of the dog. The form "veterinarian consultation" is the essential part of the booklet. Ideally, the vet fills this form at each routine consultation and in the end of any disease. The additional effort and expenditure should be kept minimal avoiding excessive costs for the dog owner. As far as possible, the data are collected with multiple choice menus. First, the type of consultation (routine or new disease) is registered. For a new disease, the concerned apparatus and the disease process are noted. Then, the veterinarian should write down the diagnosis. Afterwards additional examinations and the initiated therapy are registered. Finally, the development of the disease is briefly reported. There is no need to fill in a new form at each subsequent visit during one single illness. As an example, if a dog comes in with a lameness of the hind leg and is diagnosed with a cruciate ligament rupture, and a few days later a surgical treatment is performed, and again a few days later the suture material is removed, and a few weeks later a final clinical control is done, only one form is filled in on occasion of the final control. But as a rule, it is better to fill in one more form than one event missing. However, it is important to fill in the form on occasion of a routine visit to the vet for e.g. a vaccination, since this information is valuable as proof of life, which adds to the breed value estimation of longevity.

Vetopsy: An End with Dignity...
Things get more demanding with collecting information about the cause of death. With the increasingly strong emotional bonds between human and dog, the companion animals are often considered as part of the family and thus they are less likely submitted for a conventional autopsy after their passing away. For most dog owners, the end with appropriate dignity is of importance. Exact and detailed information about the cause(s) of death is highly relevant in the quest of breeding healthy dogs. The Vetsuisse Faculty of Berne has performed a study on the potential of image-generating examinations after death. Cadavers of recently deceased dogs were examined using computer tomography (CT). Led by such CT images, tissue samples of selected organs and suspicious spots were retrieved. For validation of the image-based results, the CT-examined cadavers were subsequently examined in the traditional way.

Meaningful Data Collection and Archiving
Data collection is mandatory to improve the breed. But the effort only pays off if the data collection is done in a useful and meaningful way. The reliability of the breed value estimations of a dog specifically increases if as many as possible offsprings are tested with respect of a selected criterion. Data collection is costly. Investment and potential profit have to be critically investigated if and when a breed club decides to collect such data. About 2 years ago, the KBS-CH introduced a mandatory X-ray examination. As consequence, a specific number of randomly selected puppies of each litter must later be x-rayed on HD and ED. This provides a basis for a statistically meaningful and representative data. The owners of such selected puppies are requested to keep the Health Booklet. If the Vetopsy study will be successful, the evaluation of cause of death using image-generating examinations would be highly valuable in this random sample of dogs. We also would wish to archive all the data in a central web-based health data base. For optimal significance and reliability of the collected data, the input should be authored as often as possible by veterinarians. In addition on information on diseases and death, also data on standardized prophylactic examinations (HD, ED, DNA-tests...) should be collected in the data base. Actually, a project for a national pet health data base (PHD) for pure bred dogs is under elaboration. Along the same lines, the foundation of a sample collection of biological material is discussed. Just recently, the KBS-CH has declared mandatory, that of each puppy a blood sample will be taken on occasion of the chipping, and the samples will be archived in a professionally run blood sample base.

Summary
Nowadays, the health-relevant selection criteria for pure bred dogs are limited to some criteria (joint dysplasia, diseases of the eye, congenital heart malformations, etc.). After introduction of the breed value estimations for polygenetic and environmentally influenced criteria, more emphasis was laid on the selection along such criteria for selected breeds. In most cases, the breed value estimations are based on a small and not at random selected data base. Data collection relying on veterinarians' information on health and lifespan with a larger sample population would allow a broadening on additional selection criteria. It goes without saying that first and foremost, for many selection criteria in-depth analyses on the heritability have to be performed before those criteria are adopted in breed regulations. Collection of health related data of pure bred dogs should be extended, intensified, and also focused, and additionally the quality of the data should be increased. Thus, an added value would be generated which elevates the significance of the estimation of breeding value, epidemiologic and genetic studies, and also adds to improve the breed selection process. With the broadened data collection and central archiving, we could establish a system to significantly improve the chance to breed healthy dogs. To reach this goal, an open and constructive collaboration between dog owners, breeders, veterinarian practitioners, experts and data evaluators is indispensable.

About the Author

Urs Geissbühler studied at the Veterinary Faculty of the University Berne, Switzerland. After a two years employment in a private practice, a 4-year European veterinary radiology residency program followed at the clinical radiology of the Veterinary Faculty of the University Berne. After that, he assumed a position as senior assistant in the department of imaging diagnostics at the Veterinary Clinics of the University Zurich. From 2002 to 2009 he was senior assistant and since 2009 lecturer at the clinical radiology of the Vetsuisse Faculty Berne. Since 1997 he is radiology consultant in several private practices and clinics in Switzerland.

Dr. Geissbühler's scientific work is focused on imaging veterinary prophylactic examinations in pure bred dogs as well as postmortem imaging examinations.

Urs Geissbühler is President of the Dysplasia Commission Berne, President of the Health Commission of the Swiss Club for Bernese Mountain Dogs and member of the Advisory Board of the Swiss Cynological Society. In addition to that, Dr. Geissbühler is member of several professional organisations like the Swiss Association for Small Animal Medicine, the European College for Veterinary Diagnostic Imaging, and the International Veterinary Radiology Association.

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The Histiocytic Sarcoma of the Dog. New Therapies for a Cancer Disease with many Faces

Caroline Geigy

Clinical Radiology Vetsuisse Faculty, University of Zurich, Switzerland,

Introduction

With dogs, different so-called histiocytic diseases are described (Table 1).[1, 2] Until today, the disseminated, the localized, and the hemophagocytic histiocytic sarcoma are among the malignant and incurable forms. In this short presentation, focus is on these malignant forms, their therapies and expected prognosis. The histiocytic sarcoma (HS), also called malignant histiocytosis, is a cancerous disease in dogs, which occur predominantly with Bernese mountain dogs, retrievers (specifically flat coat retrievers) and Rottweilers. [3] HS is a highly aggressive disease with a high rate of metastasis (formation of secondary tumors) of 80-90%, and presents itself at diagnosis as widely spread and progressed disease. [4]

Clinical Appearance

With the disseminated form, the clinical symptoms can vary in dependence of the localization of the involved organs. Mostly apathy, lack of appetite, loss of weight, breathing problems, liver problems, or neurological changes are observed. Most often lung and liver are the primary localizations, and show lumps and changes in tissue upon further examinations. [4, 5] At time of death, the tumor has often spread (into lung, spleen, liver, and lymph nodes) and the animal shows low numbers in blood platelets and anemia. [6]

Clinical appearance of the localized HS is dependent on the involved organ. It is under discussion if this form might be an early stage of the disseminated HS. [5] This is not the case for the localized HS in the area of limbs, where a less aggressive progression is observed. With this specific form of the disease, the animals usually show a good general condition. With the affected limb, usually a swelling or a lumpy mass can be observed. As a rule, those animals show a more or less distinct lameness. [5] In a recently published study on bernese mountain dogs, a correlation between chronic joint diseases and the formation of a localized HS in the concerned joint was found. [7]

The hemophagocytic HS is a highly aggressive form of HS. This type of HS is mostly found in the bone marrow (the site of formation of red and white blood cells as well as blood platelets), the spleen and liver. [8, 9] Affected animals show lethargy, lack of appetite, weight loss and pale mucous membranes. In further studies, enlarged spleen or liver is frequently observed. The organs do not show nodular masses as with the disseminated HS.

Therapeutic Options

In spite of quite a number of studies searching for new chemotherapeutics, Lomustine is the main component of the chemotherapy against HS.[2] This is used as such or in combination with other therapeutic modalities (cf. localized HS in limbs). In case of disseminated and phagocytic HS, Lomustine alone or in combination with cortisone (prednisolone) is administered. Hereby, cortisone is acting to improve the general condition and appetite, without having a direct effect on the tumor. [10] With localized HS in the limbs, best results are obtained with combination therapies, leading to longest survival times. Most often the node cannot be removed surgically, thus it is advised to either remove the affected limb (amputation) or to generously treat the area with high- energy radiation. To slow down or even entirely prevent the formation of metastases, additional treatment with Lomustine is advised (every three weeks for a total of 5 to 6 times).

Prognoses
The prognosis is strongly dependent on the particular form of HS and on the response to the selected therapy. Due to the aggressive nature of the disease, animals with a disseminated HS usually pass away within a few weeks after diagnosis. Under treatment with Lomustine, response rates of 46 % with a survival time of 85 days were observed, and 30 % with a survival time of 96 days. [10, 11]

Dogs with localized HS subsequently develop the disseminated form, independent of successful removal of the primary tumor or no removal. For the case of a localized HS in a limb, prognosis is best for an aggressive combination therapy. With irradiating the cancerous area in the limb and chemotherapy, the animals can survive for about one year. The response of the tumor on radiation therapy is usually very good. After amputation of the affected limb combined with chemotherapy, we can expect a survival time of two years. [12] Without any therapy, the animals experience strong pains in the affected limbs in spite of administration of pain killing drugs, and those animals need to be euthanized within a few weeks anyway due to unbearable pains and metastases in the lung.

The hemophagocytic HS progresses extremely violently. In spite of any therapy, the animals pass away within a few days or weeks. With this form of HS, the average time between observing first clinical symptoms and time of death is only 7 weeks.

Table 1: Histiocytic diseases in dogs

Benign alterations	Immune induced alterations	Malignant alterations
Cutaneous histiocytoma	Reactive histiocytosis	Localized HS*
	- skin form	Disseminated HS
	- systemic form	Hemophagocytic HS

* HS = histiocytic sarcoma

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About the Author

Caroline Geigy studied 1997 bis 2002 veterinary medicine at the Vetsuisse Faculty, University Berne, Switzerland, finishing with the "Staatsexamen", followed by promotion to Dr. med. vet. (2004), after that residency at the Small Animal Clinics Vetsuisse Faculty Berne. 2005 to 2008 participation in a residency program Small Animal Internal Medicine of Vetsuisse Faculty Berne and Louisiana State University, USA. 2009 Senior Veterinarian at Vetsuisse Faculty Berne. As of 2010 Senior Veterinarian at the Radiation Oncology Department, Vetsuisse Faculty Zurich, University Zurich, with professional advancement to Dipl. ACVIM (2010) and Dipl. ECVIM-CA. Her greatest passion are her three dogs.

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Breeding Strategies for Longevity, Hip Dysplasia and Elbow Dysplasia with Bernese Mountain Dogs in the German Club for Swiss Mountain Dogs (SSV)

Norbert Bachmann and Christel Fechler

German Club for Swiss Mountain Dogs (SSV)

Pure bred dog associations can have a strong influence on the development of the pure bred population. Many factors need to fit that selected positive criteria can be manifested in a breed population, adding to a reduction in predisposition to a particular disease.

Among these factors, most important are the club members, breeders and executives capable of commonly establishing and pursuing breeding targets over a longer period in time. Thus, a prerequisite for progress in breeding quality is, that complex breeding issues are openly discussed among the concerned groups, the necessary information made accessible to and democratically voted on by those groups and the members of pure bred dog associations. The association's work in the SSV became increasingly complex and requires more and more specialized knowledge in selected areas.

The development of the Bernese Mountain Dogs in the Schweizer Sennenhund-Verein für Deutschland e.V. (SSV) might serve as an example. The SSV was founded in 1923. Breeding activities developed only slowly. Until the end of WW II, only 787 Bernese Mountain Dogs were registered. However, thereafter the numbers increased tremendously. Today the SSV has more than 35'000 registrations and the number of club members rose to 3'500.

In the SSV, the strategic goals in breeding Bernese Mountain Dogs went through historical changes. Whereas initially the focus was almost exclusively on the exterior and thus mostly on the color design, today the list of breeding goals is longer and with differentiated weighting. Thus, health, longevity and behavioral characteristics, specifically the behavior in everyday family situations, are the important criteria in breeding Bernese Mountain Dogs.

An important prerequisite to effectively implement a breed strategy is to own the authority and thus the right to issue breeding papers. Originally, breeding papers were predominantly certified pedigrees, but changed more into a kind of recognized label for quality controlled breeding dogs. Data banks containing a plethora of information accessible to the breeders significantly influence their decisions. Originally, breeding strategies were defined mainly as rules, which guided the breed selections. Nowadays, public relations work and ensuring transparency gain importance and thus also influence the breeders' decisions.

Under the auspices of the SSV, a number of health related projects are run with support from science. A close cooperation between breeders' associations and scientists is of utmost importance for successful breeding. Three health relevant features were selected to demonstrate, that also for the SSV, the road to healthy, long-living and well tempered Bernese Mountain Dogs is tedious and difficult. Persistence and a strong will are necessary over many years to get closer to the targets. Occasionally, for some time, all effort seemed in vain with no progress in sight. But then, with minor changes of direction, signs of improvement appeared. For the SSV, longevity is a target of highest priority. Genomic selection, established in the SSV in collaboration with Prof. Dr. Distl, is another important building block to reach our goals.

About the Authors

Norbert Bachmann is currently President of the German Club for Swiss Mountain Dogs (SSV) and project leader "Genomic Breed Values for Longevity, HD and ED" in collaboration with the University of Veterinary Medicine in Hannover (TiHo), Germany. He also acts as breeding judge for Swiss Mountain Dogs, breed warden and as instructor for education and training, speaker for the "Arbeitskreis Berner" (1998-2005). He studied social sciences, after that veterinarian medicine with promotion to Dr. med. vet. He works as independent veterinarian specialized in small animals, is expert veterinarian for character testing, and as honorary lecturer (for ergotherapy (humans), anatomy, general diseases, geriatrics, animal-assisted therapy). His hobbies are breeding and raising Bernese Mountain Dogs and Shorthaired Dachshunds, photography and gardening.

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Christel Fechler is breed warden of the Schweizer Sennenhund-Verein für Deutschland e.V. (SSV). She lives with Bernese Mountain Dogs since 1962, in the same year she became member of the Schweizer Sennenhund-Verein. 1974 breed warden, 1976 until today stud book secretary and thus member of the Board of the SSV, 1986 expert judge for Swiss Mountain Dogs, 1991 breed warden, 1999 senior breed warden, and since 2002 breeding supervisor. She was head of the regional group Nordrheinwestfalen and Rheinland 1975 – 1991, puppy placing office 1993-1998. Breeder of Bernese Mountain Dogs since 1976.

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Genetic Signatures for an Extreme Long Lifetime of Bernese Mountain Dogs

Ottmar Distl

Institute for Animal Breeding and Genetics,
University of Veterinary Medicine Hannover, Foundation

Lifetime and life expectancy of some dog breeds are significantly lower than generally expected for dogs. Lifetime is a genetically predetermined characteristic. Many studies support this to be valid for humans, model animals and livestock, as well as for dogs. Co-evolution of dogs with humans seems to have influenced the life time of dogs, which resulted in different gene variants for differently long life times. Only recently it was proven with a transgenic mouse model, that genetic variants are responsible for different life times. Extreme long lifetimes of humans are associated with rare gene variants, and it is probably genetically more controlled than reaching an average life time. DNA repair genes and genes affecting cell growth do have a decisive influence on reaching a very high age. These genes allow living through very high age with a low incidence of diseases, since such genes can moderate defect gene variants. Thus, a breeding strategy to positively select animals reaching very high ages without serious diseases, seem to be a very practical approach. This was studied in the project "Long-living Bernese Mountain Dog" to evaluate improved breeding options to increase the life expectancy of this breed in future.

The project "Long-living Bernese Mountain Dog" was possible by using the data collection on life and death reports, and the comprehensive biobank of samples from Bernese Mountain Dogs of the SSV. The most up-to-date data were used and a total of 174 Bernese Mountain Dogs were selected as reference sample. Dogs selected for genotyping were evenly grouped according to ancestry, sex, age, hip dysplasia and elbow dysplasia. In this project the genome regions and structural variants associated with very long lifetime were identified employing genome wide genotyping of 173.662 single nucleotide polymorphisms (SNPs). Subsequently, on basis of this information, the genomic breed values were evaluated. The genomic breed values for life time were standardized to a mean value of 100 with a standard deviation of 20 points for dogs with a lifetime of 96 ± 18 months. With this scaling, dogs with genomic breed values for life time around 100 carry genetic variants for an average life expectancy of 8 ± 1.5 years. Animals with genes for an extremely long lifetime (>10 – 12 years) have genomic breed values of 110 and higher. Dogs with genes for shorter life expectancy have genomic breed values below 80. The genomic breed values covered 74% of the phenotypic variance in observed lifetime. The reliability of predicting all characteristics were above 50%, if independent subsamples were selected from more than 50% of the animals. For such cases the estimations of effects for the SNPs were determined only using the selected subsample (learning sample) with 50 – 90% randomly selected animals. Subsequently, these estimates were used to calculate the genomic breeding values for the remaining 10 – 50% of the 174 genotyped animals (test sample). Likewise, the relationships with the phenotypic trait were calculated only for the test samples. Here, we wanted to verify these results on a larger sample. Thus, we expanded the reference group by more than 50 Bernese Mountain Dogs.

The genomic breeding value is already available for younger breeding animals, whereas the BLUP (best linear unbiased prediction) breeding value for lifetime can reliably be estimated only about 10 – 15 years after birth of the individual animal. It can be concluded that a much more efficient breeding strategy can be build on genomic breeding values rather than via the previously used BLUP breeding values.

These results will be supplemented with ongoing genotyping of more Bernese Mountain Dogs with confirmed histiocytic sarcoma (malignant histiocytosis) and with predominantly healthy and long-living Bernese Mountain Dogs. After that, more detailed evaluations can be performed for this disease.

About the Author

Ottmar Josef Distl studied veterinary medicine at the Ludwig Maximilian University Munich, Germany, (1973-1978), promotion in 1980 and habilitation in 1989 on breeding and domestic animals' genetics. 1980 to 1997 research scientist and professor at the institute for animal breeding, Ludwig Maximilian University Munich. Since 1997 professor for animal breeding and genetics at the Foundation Veterinarian Medicine University Hannover, Germany. Several sabbatical leaves to the USA, Israel, and Sweden.

Main research areas include health characteristics with dogs with focus on diseases of joints, vertebrae, heart and eyes. Genome mapping with dogs and molecular genetic research on HD, ED, cataract, DCM, congenital deafness, CCL, genomic selection and selection programs with dogs. In addition, some activities in the scientific advisory board of the VDH and the VDH academy for professional advancement, consulting for pure breed clubs, establishment of DNA sample banks and support in genome testing for dog breeding clubs, training and educational advancement for dogs breeders and pure breed clubs. International activities for the preservation of endangered breeds.

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9th International Health Symposium "Longevity and Quality of Life of our Dogs"
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Genetic Progress in the Fight against Histiocytic Sarcoma: Development of a Genetic Pre-Test for Breeders' Selection

Catherine André und Benoit Hedan

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Histiocytic diseases form a group of disorders with a broad range of clinical symptoms from benign cutaneous histiocytoma to severe malignant histiocytosis (also known as disseminated histiocytic sarcoma) (Affolter et al. 2000; Affolter et al. 2002). Histocytic sarcomas, both disseminated and localized, are highly breed-specific genetic disorders that have become of significant concern to Bernese Mountain Dog (BMD), Rottweilers and Retrievers owners in USA and Europe in recent years. The disease is associated with both high incidence and rapid mortality (Abadie, Hédan et al. 2009). While histiocytic sarcomas (HS) are clearly known to be genetic in the BMD, Rottweilers and retrievers, the mode of inheritance was not well understood and the number of genes likely to be involved was similarly unknown (Padgett et al. 1995). Segregation studies from the 1990s, and more recently from our lab, suggested a multigenic mode of inheritance (Abadie et al. 2009).

To study this cancer, since 2003 we have collected in CNRS Rennes over 2000 blood samples and 500 tissues samples of BMDs. The collaboration with E. Ostrander's lab and our team, previously funded by AKC-CHF, allowed to identify several loci associated with susceptibility to histiocytic cancers. Using American and European BMDs (150 dogs each), two main loci have been identified one on chromosome CFA11 and one on chromosome CFA14 (Shearin et al. 2012). We replicated these results on a different French population (120 controls and 139 cases), which allowed us to identify other loci and refine the previous ones.

To investigate the possible roles of these loci and their interactions, we analyzed 144 markers from 10 loci on over 1000 French BMDs, collected over years in our canine sample biobank Cani-DNA, CNRS Rennes. Genetic analyses confirmed the involvement of at list five loci with an interaction between the 2 major loci on CFA11 and CFA5. Dogs with the risk genotype on CFA11 have a median life span of 7.3 years but if they have also a CFA5 protective genotype, they have a median life span of 9.3 years, like dogs with the CFA11 protective genotype. Thus the CFA11 risk genotype can be "compensated" by the presence of the CFA5 protective genotype.

Analyses of the risk and protective genotypes from French BMDs allowed us to propose a statistical model "estimating" the risk of histiocytic sarcoma development. We considered that these first genetic results could be used to provide breeders a pre-test useful for selection in their kennel. In collaboration with the French Antagene "animal genetic test laboratory", we selected nine markers allowing to estimate a risk of developing and transmitting HS. Estimations of coefficients were made on 1081 French BMDs and according to genotypes, a probability to be unaffected/affected by HS was estimated. The distribution of this probability is clearly different between affected and none affected BMDs and was divided into three scores (A, B and C). On the French tested BMD population, dogs with A score were estimated to have 4 times more chance to be a healthy dogs older than 10 years, while dogs with a C score were estimated to have 4 times more risk to be affected by HS. We validated their use with the recent collaboration of the French BMD club (AFBS) and several French breeders on multi-generation families. This allowed us to develop a first genetic "pre-test" to estimate the risk of developing and transmitting histiocytic sarcoma in Bernese Mountain Dogs (BMD). Presently this pre-test is exclusively available to BMDs breeders and only validated for BMDs of the French population. This pre-test is intended to help breeders in their selection and breeding programs and should be used as a selection factor among others (Hip dysplasia, beauty, behaviour, other health characteristics…), not to be detrimental to genetic diversity.

The next step is to validate this genetic pre-test on several European populations of BMDs, in order to enlarge its use to other BMD populations. Involvement of BMD clubs from each country is

welcome to help the collection of blood samples (5ml on EDTA tubes) of 30 old healthy BMDs (> 10 years old) and 30 HS affected BMDs per country. Since progresses on knowledge on this disease are still needed, we asked breeders who use this pre-test to send samples and follow up of their dogs to pursue research. This will help to improve the pre-test, diagnosis and further on HS treatments.

We warmly thank owners, breeders and vets who place their trust in this research and who participated by sending samples.

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About the Authors

Catherine André was working in the following positions:
1992-1993: CNRS Staff Young Scientist: Department of Hematology, Hôpital St Louis, Paris. Human oncology and genomic projects.
1994–2006: CNRS Staff Scientist: School of Medicine, Rennes University, France : Canine genomics and genetics.
2006–now: Head of the "Canine Genetics" team CNRS Unit, School of Medicine, Rennes University, France.
C. André is member of the National French Veterinary Academy and of the National Evaluation Committee of CNRS.

Benoit Hedan, his scientific career:
September 2003 - June 2007 : PhD on genetics – Research of genes involved in canine genetic diseases, as models for human diseases : malignant histiocytosis of the Bernese Mountain dog and the Merle coat color.
Génétique et Développement de l'Université Rennes1/CNRS, France.
June 2007 - January 2008: Post doctorate – Research of genes involved in canine genetic diseases.
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January 2008 – December 2009: Post doctorate – Research of chromosomal aberrations involved in canine histiocytic sarcoma. Department of Molecular Biomedical Sciences, CVM, North State Carolina University, NC (USA).
January 2009 – November 2012: Post doctorate – Research of genes involved in canine histiocytic sarcoma. Génétique et Développement de l'université Rennes1/ CNRS, France.
December 2012 – Present : Staff Scientist UMR6290 Génétique et Développement de l'université Rennes1/CNRS, France.

Dr. André's and Dr. Hedan's research interests are in canine genetics and genomics, to use this naturally occurring diseases model to unravel the genetic bases of homologous human genetic diseases such as cancers, skin and neuro-sensoriel diseases. The team, first led by Prof. Francis Galibert has developed numerous genetic tools (markers, sequences, comparative maps …) to be able to perform genetic analyses. In the same time Catherine André developed a Bio-Bank of canine samples for biomedical studies, to be used for the benefit of dogs and humans. The team has long worked on human homologous cancers, in several at risk breeds, to determine the predisposing genes and tumor progression genetic alterations. Main subjects are melanomas and Histiocytic Sarcoma, for which the team recently developed a genetic risk test in the Bernese Mountain dog breed. Recently, the team worked on ichthyoses and has identified a novel ichthyosis gene involved in the Golden retriever breed and in humans; the team developed a genetic test for Golden retrievers. The ultimate goal of these research projects is to translate results obtained in dogs to patients to better understand the physiopathology of the diseases and to ultimately develop effective therapies for a mutual benefit for dogs and humans.

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9th International Health Symposium "Longevity and Quality of Life of our Dogs"
Chavannes de Bogis, Switzerland, 30. August 2013

The Berner International Working Group

Steve Green

Outgoing President of the Berner International Working Group

The Berner-IWG (BIWG) is an international body formed to help the Bernese Mountain Dog by addressing health related issues on an international basis. This is by sharing information and details of health initiatives in different countries, involving experts from around the world and trying to co-ordinate and assist their efforts. The main function though is purely for communication.

The Berner IWG grew out of the International Health meetings which were originally strongly supported and promoted by the Swiss club who, despite not being the biggest club, have now hosted FOUR of these in 2000, 2002 and 2007 and now 2013. Our thanks must go to the Swiss KBS for their determination to make these events happen. I would like to document the gratitude of the whole breed to the KBS for their continuing support for our breed. From the first event in Langenthal in September 2000 through to the massive event in Burgdorf in 2007 as part of their centenary celebrations and now their involvement today in association with the SKG, the Swiss club has been a constant strong supporter. The other events have been hosted by the SSV in Hohenroda, Germany in 2003, the VSSO in Salzburg, Austria in 2005, SIBB in Como, Italy in 2006 and CIABS in Padenghe sul Garda, Italy in 2009 and 2011 hosted by the BMDC of Great Britain.

The Berner-IWG has a stated aim of improving the average life expectancy of every Bernese to at least 10 years, we refer to this as "Objective 10". The Berner-IWG aims to physically meet once every few years in a different country and this is usually allied to a major Health symposium with international speakers. These meetings and seminars are also sometimes organised to coincide with the main BMD Club show of the hosting country so delegates get the chance to see some of that country's dogs. As you would expect nowadays much activity takes place away from the meetings in the form of emails.

Although appearing formally in 2005, due to the infrequent meetings the Berner-IWG has to be considered as a fairly new group and still finding its feet to a certain extent but is slowly developing and has a strong desire to help the BMD. To keep things as simple and uncomplicated as possible we try to be as informal as possible. We need to have some gentle rules in order to function but we aim to keep these to a minimum. We deliberately have no powers, no funds, no bank account, no desire to sell puppies, validate breeding, organise shows, approve judges or any of the other activities often seen as power and influence in the dog world in some countries. We are absolutely no threat to any club and simply a group where the Bernese Mountain Dog clubs of the world are welcome to come together to share all kinds of information about our beautiful breed. This will be mostly health and sometimes welfare related information but could be anything which helps the breed or might be of interest to Bernese owners in other countries.

People attending the BIWG meetings do so as representatives of their club, and sometimes in effect, their country. One very important point to understand is that the clubs that engage with the B-IWG have very different backgrounds in which they work. Whilst there may be some similarities from country to country there are often big differences in how the dog world is organised in different countries. The cultures, rules, regulations and even laws that affect them can be very different. For example some countries can publish all information about individual dogs and owners very easily and in other countries nothing can be made public. In some countries hip and elbow information about individual dogs is widely and freely available but in others it is classed as private and cannot be shared without specific permission. Trying to have a rigid system to accommodate all of these or impose a fixed set of recommendations on our members would be impossible as around 20 countries are now represented and this number grows. Our function can only ever be to encourage clubs to take the best steps they can in their country learning from the experience of others and share what information they can with the rest of us.

This means we cannot expect everyone to be able to contribute in exactly the same way and why we cannot expect all our members to take the same actions. What works well in one country may even be illegal in another.

So, we can only come together and share our experiences – both good and bad. This means some may dismiss us as a pointless group because basically we can only talk about things and cannot enforce any actions. Some say this is a weakness but surely it is a strength. People can speak freely without fear of judgement or ridicule. The world we live in is very much about communication and information. The world we live in is very much about communicating **more and more** and all real progress has to start with discussion and a willingness to share whatever information we can about our dogs. Pedigrees are increasingly including dogs from more and more countries and the need for information sharing and knowledge being available will become greater.

As President I have put researchers in touch with people in other countries and used the connections I have through the BIWG to help people asking questions about the Bernese Mountain Dog. Many breeds have international groups and this has to be an essential thing nowadays so I would urge you to support such a group in your breed.

The B-IWG is there for the Bernese clubs to use to help each other through communication. I ask that the message you take back to your BMD clubs and countries is to support the B-IWG because purely and simply it is there to help the Bernese Mountain Dog.

More details of the B-IWG and links to various BMD health related pages can be found on the web site at www.berner-iwg.org

About the Author

Steve Green, outgoing President of the Berner International Working Group. Owned Berner Sennenhunds for 30 years, committee of the Bernese Mountain Dog Club of Great Britain for over 25 years and currently Chairman and Health Co-Ordinator. President of the Berner IWG since 2007 but retired as President this week-end. He is an International Judge of Berner Sennehunds and occasional breeder together with his family who also work their dogs at Swiss carting, which he also judges in the UK, Obedience and Agility. By career he is a Senior Crime Scene Investigator for the Police and manages a team of Forensic Investigators.

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9th International Health Symposium "Longevity and Quality of Life of our Dogs"
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Dogs in Motion
Interdependencies of Skeleton, Muscles and Locomotion

Martin S. Fischer

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The domestication of wolves has led to an incredible diversity of dog breeds be it in size, weight, build or general appearance. Reasons for this highest diversity among all domestic animals are to be sought in the intrinsic variability of wolf populations and individuals and the ten thousands of years of selection. The locomotory apparatus was in the focus of selection, too.

We studied 327 dogs from 32 different breeds among them Appenzeller, Bernese and Entlebucher mountain dogs in the world's largest study so far in order to find the effect of selection onto the motion of different breeds. We expected strong differences especially knowing the fortyfold difference in weight between a Chihuahua or a Dachshound and a Great Dane – or do show all breeds despite all differences more or less the same locomotion?

The results was surprising because the difference between ten dogs of one breed were almost always larger than the mean values differ between breeds. In contrast to our expectations dog's motion has remained rather unchanged despite the long history of domestication. Especially the proportions of the limb elements like thigh or lower leg are pretty much the same, and especially the length of the upper arm in relation to the other forelimb elements (shoulder blade, lower arm, midcarpals) varies between the different breeds to less than one percent. The Entlebucher and Bernese mountain dog have a shoulder blade is a bit longer and instead the lower arm a bit shorter than the average of all breeds, and the same is true for the thigh and lower leg. It is obvious that kinematics are the same when proportions are the same. In reality slight or putative difference have been overstated while all breed have a great deal in common.

The relative step length – scaled to wither's height – of the Dachshund and Great Dane is e.g. 1.3 and 1.2 in the walk (both make 30% or 20% longer steps than their wither's height) or 1.9 and 1.8. in the trot. The respective values for the hindlimbs are for the Dachshound 1.6 and 2.1 but 1.4. and 2.0 for the Great Dane. The values for the Swiss mountain dogs all lie within the range of variability of all breeds. The Appenzeller shows Dachshound values in front and Great Dane ones on the back. Only the Bernese Mountain dog deviates a bit insofar as their step length is the longest in the walk (together with the Small Münsterländer) (1.5 on the front, 1.7 on the hind limb). In contrast, Mountain dogs show the shortest steps in the gallop. Especially in the walk and trot they present a ground-covering motion.

The impact of scapular rotation and translation on progression has been overlooked for long time. Thanks to high-speed X-ray movies we could show that scapula rotation accounts for about two-thirds of forelimb step length in all dog breeds. Therefore it is not surprising that the effective amplitude (touch down-lift off-difference) is 34° (walk) and 39° (trot) in the Dachshound or 37° and 44° in the Great Dane. Values for the Mountain dogs in the same gaits are: 36°/40° (Bernese), 33°/45° (Appenzeller) and 32°/38° (Entlebucher). So, the basic pattern is highly similar in all dogs. The main insight of our study might be that dogs have kept their original wolf-like motion.

The talk will present the basics of dog locomotion explaining them with movies and animations. The characteristics of Mountain dogs will be elaborated. The whole study has been published in English and German in our book ("Dogs in motion", "Hunde in Bewegung"), in which we also present extensively and at best the current knowledge on this topic. The reader will find all information on bones, muscles, joints, kinematics as well as the dynamical aspects of locomotion. As we have included a DVD with more than 300 films (high-speed movies, high-speed X-ray movies, 3D-animations) we hope to open a door to a new and better understanding of dogs in motion.

About the Author

Martin S. Fischer, scientific and professional career:
1975 - 1983 studies in biology and geology in Tübingen and Paris
1986 Dissertation at the Zoological Institute of the University Tübingen, recepient of the promotion prize of the Deutsche Gesellschaft für Säugetierkunde
1992 Nominated as Director of the Frankfurt Zoo
1993 Habilitation at the University Tübingen in zoology
since 1993 Professor of Zoology and Evolutionary Biology of the Friedrich-Schiller-University (FSU) Jena, Director of the Institute of Zoology and Evolutionary Biology and Director of the Phyletic Museum

Professor Fischer's research work is focused on biology of mammals, locomotory apparatus of mammals and vertebrates living on land, development of the skull in mammals, development of walking machines.
Cynological activities: Member of the scientific advisory board of the VDH, studies on locomotion, studies on genetics of selected breeds, studies on bite force and mastication in dogs, invited speaker at the centenary of the FCI in Brussels, organization of VDH dog schools.

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Pain Therapy: Causes and Consequences of Form-Function-Alterations

Patrick Blättler Monnier

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Definition Pain: Pain is an unpleasant sensorial and emotional experience associated with actual and / or potential tissue damage! This corresponds to the definition of the International Association for the Study on Pain (IASP). Such an actual tissue damage is called fibromyalgia, which consists in damage of the tiny ends of nerve fibers, as has been recently confirmed. As an example of such potential tissue damage you might consider your headache after an alcohol-rich party. Such headache is based on a serotonin-induced vasodilatation in the head.

Definition Disease: Since medicine works on the **stimulus-response principle**, and the body is considered as a physico-chemical machine, a disease is defined as a spatially localizable disturbance in a technical operation, which consists of a very complex structure, but thinking in terms of the technical model, this complex structure is manageable. Thus, any disease in the body is a malfunction that needs to be corrected by a clearly defined plan. Diseases are like pipe breaks, short circuits, transportation problems (poor circulation or blockage in the intestines, etc.), which can be repaired according to the functional schematics!

Definition Form-Function-Alterations: Only the total integrity of the entire musculoskeletal apparatus guarantees a normal functioning movement. Form-function alterations thus result in a malfunction in the musculoskeletal apparatus. First functional failures manifest themselves initially only as a pain! Upon orthopedic deformations, pain fibers and free nerve endings are stimulated and thus produce the sensation of pain.

Definition Neuropathic Pain: These are neuropathic pain processes which cause disturbances and changes in the perception of pain.

Hind and front limbs of Quartus on 17.11.2010

Hind and front limbs of Quartus on 24.02.2011

Note: The musculoskeletal system is the largest organ in the body. Thus, proper operation of this organ system is mandatory from the perspective of pain therapy !

Accepting this assumption, it is obvious that malfunctions in the largest organ system have consequences on the whole body. Since the pain is the first indication of a failure or breakdown, special attention must be paid to pain. Neglecting such persistent pain, it will render to chronic, and further malfunctions will inevitably appear throughout the system "body". Therefore, we will hereafter consider pain processes and their treatment under the following aspects:

1) Pain – Orthopedics / Rheumatology
2) Pain – Neurology
3) Pain – Dermatology
4) Pain – Behavioral Therapy
5) Pain – Dentistry
6) Pain – Immunology

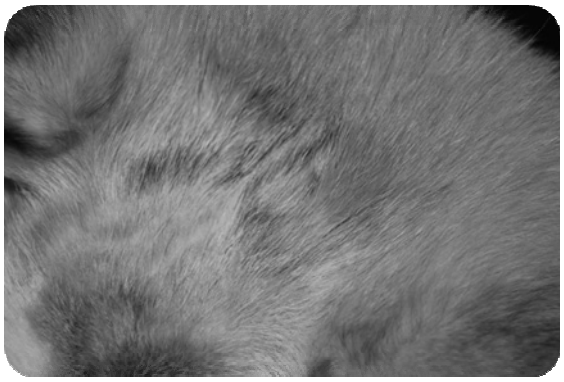
How does the body generate pain? The basis is the nociception! This refers to a whole system of receptors, ie, sensors that receive mechanical, thermal and chemical stimuli and transmit them. Such sensors are located in the skin but also in muscles and in the inner organs. Upon stimulation of such sensors, the information is transmitted via the spinal cord and brain stem into the midbrain, and then to the cerebrum, where it is consciously perceived as pain, and adequate reactions are triggered. To support such processes, the body optionally generates various pain and inflammatory mediators (special molecules) that help in such processes. Upon tissue damage such inflammation mediators are released, for example bradykinin or serotonin. These mediators also activate the nociceptors and thus induce processes of inflammation and pain.
Which symptoms do we encounter with pain patients? In general we may see swelling, redness, and increased warmth, or even fatigue and loss of power. These may also be signs of inflammation. In particular, these are increased scratching and rubbing the head or mouth, watery to whitish slimy eye discharge, reduced size of the eye (constricted pupil), one or both sides, annular hairless halo around the eye (leishmaniasis induces a confusingly similar eye ring), local hair loss on the head. Other symptoms may be increased head shaking, comparable to head shaking with horses (not light-induced), one or both sides scratching behind the ears without them being dirty or infested with parasites (ramus cutaneous of the C1 nerve), or bilateral atrophy (muscle decrease) in Mm masseter and/or temporalis (jaw muscle and head muscle). Sweet odor from the ear and/or mouth without bacterial infection in the mouth or ears. Increased or decreased saliva production without the involvement of infections (salivary glands) or defective teeth! Other symptoms of this kind include light and noise sensitivity. All those symptoms belong to the group of headaches of the dog, either of migraine type (limited period) or of cluster type (regional confined pain). True enough, it is difficult to correctly diagnose headaches with dogs, but the symptoms listed above give clear indications. A complete anamnesis regarding behavior and activities before and after treatment will fully elucidate this problem. Another group of pain processes concerns the region of the thoracic

spine. The main symptom of that is "coughing", but also radial pains (numbness) along the shoulder with gnawing and licking, and hypersensitivity of the limbs with pulling away if touched, and other circulatory disorders are possible in this region. In such cases the limbs feel cold and also develop numbness. The cause is an irritation of the nerve plexus brachialis with additional blood circulation disorders. Often, other symptoms can develop like buckling in the shoulder, shoulder lameness, and even muscle dystrophy in the shoulder girdle. Besides the shoulder, the entire ribcage might be affected. Typical symptoms are breathing problems and touch-sensitivity in this area. All of us who had suffered from crushed or even broken ribs know about the pain upon movement, lying down, with breathing and under load. This is only a brief selection of pain symptoms, which partially are not considered as pain reactions. More symptoms can be found at www.orthovet.ch/ Schmerztherapie/ „Schmerz lass nach".

20.10.10 Ring-shaped hairless region around the eye

03.11.10 Hair grown back

26.01.10 Hair loss and redness on head



03.02.10 Hair grows, redness subsided

The main representative of a neuropathic pain process the **"lick granuloma"** has to be mentioned, often **put down as a tick**. If only the secondary skin infections are treated but not the actually underlying pain generating disease, such lick granuloma may turn frustrating for the involved veterinarian.

18.02.11

03.05.11

The primary goal of a pain therapy is the **restoration of the normal „orthopedic shape**", comprising **orthostatics** and **orthodynamics** ! This refers to normal anatomical positions and mobility of the joints, ligaments and muscles. With that the anatomical functionality is also restored and thus all pain is eradicated. As consequence of the "form-function therapy", the fine nerve endings as well as the pain receptors in joints and muscles are calmed and thus stop sending pain signals! Pain therapy has to start in the periphery, ie. the musculoskeletal sytem, but then extended to the center to control and interrupt the pain signal circuit. Here, center refers to the brain stem and the cerebral cortex !

About the Author

Patrick Blättler Monnier, vet.med. "Staatsexamen in Berne in 1993, after that assistant years, 1996-97 residence in Arizona in an equine and small animal clinic, education and diploma in veterinary acupuncture in Los Angeles at IVAS (International Veterinary Association for Acupuncture), followed by training and diploma in Animal Chiropractic in Davenport at the AVCA (American Association of Veterinarians for Animal Chiropractic). In 1998, opening of a small animal and equine practice with a colleague from the 2000 Foundation Sopvet in Frenkendorf (BL). 2007-2009 lecturer at the "Berliner Professional Advancement" for veterinarians on orthopedic diseases and pain management in horses and small animals.

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9th International Health Symposium "Longevity and Quality of Life of our Dogs"
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Physical and mental exercising for dogs of any age through Clickertraining

Claudia Moser

Clickerzentrum Schweiz, Sornetan

How can Clickertraining help to exercise our dogs physically and mentally and keep them fit, so they can lead a long and healthy life?
This presentation will show different options to train the dogs in different areas (such as coordination, strength, endurance, self control, proactivity, focus, etc.) through Clickertraining and stimulating body and mind in a sensible way.

Contents

- How to establish a marker signal such as a Clicker
- Classical conditioning and what happens in the brain
- The use of operant conditioning in practice
  - The animal learns to actively offer behaviors
  - Developing ideas helps to develop creativity
- The positive effects of correctly used Clickertraining
  - A healthy brain in a healthy body
  - Confidence and self-esteem
  - Experience to be self-efficient
  - Growing body awareness
  - Coordination is improving
- Examples of everyday situations and training
  - Target training
  - Body control
  - Creativity
  - Muscle growth
- Clickertraining and selected exercises for everyday situations
  - Puppies and young dogs
  - Sport dogs
  - Family dogs
  - Old dogs
  - Dogs in convalescence

These topics will be discussed and some exercises will be demonstrated with different dogs at the workshop.

About the Author
Claudia Moser

- Studied sports and sports education at the University of Berne
- Working 1.5 years as a dog trainer in Norwich – GB
- Giving workshops in Switzerland and abroad since 2004

Topics of the workshops:

- Clickertraining
- Dogdance
- Obedience
- "Job office for dogs": Activities and training for dogs of any age

- Produced the DVD "From Puppy to Sport Dog – How to build up basic skills" (available in German only)
- Foundation of the Clickercentre Switzerland in 2012, a centre for workshops on positive training methods
- Education for Clicker Trainers, offering trainer workshops in Switzerland, Germany and Austria

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Previous Symposia held by National Clubs for Bernese Mountain Dogs

2000
First International Symposium for Breeding Questions, 9. 9. 2000 in Langenthal, Switzerland
Breeding systems, breeding programs and breeding problems in various countries in Europe and the USA

Contributions	Presenters
Breeding in Norway and Sweden	Björn Skaug
Breeding in France	Pascal Hinque
Breeding in the Netherlands	Alberty Rotteveel
Breeding in Switzerland	Margret Bärtschi
Breeding in Germany	Christel Fechler
The estimation of breeding values	Ruth Morgenstern
Breeding in GB and health report	Steve Green
Breeding in the USA and Berner Garde	Margrit Kitchin
Desired future co-operation and exchange of information	all participants
Symposium feedback	all participants

2002
Second International Symposium for Breeding Questions, 28.9.2002 in Lenzburg, Switzerland
Breeding for improved health and longevity

Contributions	Presenters
Improving health and longevity through breeding measures – can we select to avoid cancer?	G. Padgett
Presentation and discussion of successful health projects from various countries	Moderator: F. Brugger
The interpretation of pedigrees - What can clubs do to establish pedigrees which contain meaningful information?	G. Padgett
Information on active health projects world-wide - Summary of the health project questionnaire distributed to all clubs	Silvia Brugger
How do we proceed? Discussion of world-wide cooperation	Martha Cehrs
Symposium feedback	Margret Bärtschi

2003
Third International Symposium, 16. 8. 2003 in Hohenroda, Germany
Improvement of international collaboration

Contributions
Surveys with 22 questions were sent in advance to the countries, the responses were discussed in several groups and workshops.
Presentation (and discussion) by Dr. Beuing on Dogbase data bank for all 4 Swiss Mountain Dog breeds.

2005
Fourth Swiss Mountain Dog Symposium, 25. – 27. 11. 2005 in Salzburg, Austria
Health of the dogs, international collaboration, breeding as an international matter

Contributions	Presenters
On the infection with mykoplasma and ureaplasma with stud dogs	Sabine Schäfer-Somi
Dog training – what does it help in breeding?	Heinrich Bubna-Littlitz

Etiology of the anterior cruciate ligament with dogs: Trauma or weakness of the connective tissue?	Constantin Post
„Erbvitalpass" (ERVIP) – introduction of a new health management tool for pure bred dogs	Josef Schlederer
The role of nutrition in preventing stress-induced diseases in working dogs	Wolfgang Kreil
Dogbase – Experiences and status	Gabriele Schiller
Introduction of an international Swiss Mountain Dog home page – discussion	All participants
Histiocytosis in Bernese Mountain Dogs: Tracking the predisposing genes	Catherine André
Questionnaires 1 and 2 on breeding and breed approval, summary and outlook	Wolfgang Zörner
Sustainable strategies for breeding Bernese Mountain Dogs in Sweden	Berndt Klingeborn

2006
5. Symposium, 7. - 8. 10. 2006 in Como, Italy, organized by the SIBB
The health of Bernese Mountain Dogs

Contributions	**Presenters**
Clinical Experience on Tumors of the Bernese Mountain Dog	Paolo Buracco
Chromosomes, Genes and Cancer - A molecular cytogenetic approach to the study of malignant histiocytosis in the Bernese Mountain Dog	Matthew Breen & Tessa Breen
Malignant histiocytosis in the Bernese Mountain Dog: Study of the Physiopathology and genetic causes	Catherine André
How to participate in histio studies	C. André, M. Breen & E. Ostrander
Berner Garde: Past, present and future	Pat Long
In-vitro studies of cytotoxic activity of natural killer (NK) and lymphokine-activated killer (LAK) cells obtained from blood of dogs	E. Burkhardt
Therapeutic management of malignant histiocytic tumors: Innovative approaches	G. R. Rutteman

2007
6. International Symposium, 10. 08. 2007 in Burgdorf, Switzerland
Breeding for improved health and longevity

Contributions	**Presenters**
Life expectancy and genetics: Is it possible to breed for longevity?	Gaudenz Dolf
Life expectancy and environmental factors: Maintaining behavioral health	Andrew U. Lüscher
Practical breeding rules adopted by the SSV to improve life expectancy	Christel Fechler
Analysis of the genetic causes of malignant histiocytosis of Bernese Mountain Dogs	Catherine André
Molecular cytogenetics of MH in Bernese Mountain Dogs, progress report	M. Breen, presented by Catherine André
Investigation into the background of malignant histiocytic tumors in Bernese Mountain Dogs, progress report	Gerard R. Rutteman
Progress report on activities of the Berner-IWG	Norbert Bachmann
Presentation of the Alberto Vittone Award	Antonio Indrizzi

2009
7. International Symposium on Health of Bernese Mountain Dogs, 25. - 26. 9. 2009 in Padenghe sul Garda, Italy, organized by the CIABS
The Bernese Mountain Dogs health towards a new horizon

Contributions	**Presenters**
Search of the genetic causes of histiocytic sarcoma (malignant histiocytosis) of the BMD	Catherine André
Selection and longevity of the BMD: Aspects and problems	Luigi Gallo
Benign prostatic hyperplasia in the dog	Stefano Romagnoli
Berner International Working group (B-IWG)	Stephen Green
The Bernese Mountain Dog: Population and inbreeding coefficient analysis	Stefano Paolo Marelli
Renal dysplasia und familial hereditary nephropathy: Two important and serious diseases in the BMD breed	Berndt Klingeborn
What Berner Garde tells us about inbreeding and longevity in Bernese Mountain Dogs	Pat Long & Bert Klei
Genetic mistreatment and longevity	Barbara Gallicchio

2011
8. International Symposium, 23. 9. 2011 in Kenilworth, England

Contributions	**Presenters**
Latest advances in clinical treatments for cancer	Jane Dobson
Genetic progress in the fight against histiocytic sarcoma	Benoit Hedan
DLA research and its potential in the battle against malignant histiocytosis	Lorna Kennedy
The Kennel Club position on breed health and the way forward for health schemes	Jeff Sampson
Steroid responsive meningitis – an emerging problem for the BMD?	Samantha Goldberg
Study of morbidity and mortality in Bernese Mountain Dogs in Switzerland	Urs Geissbühler
Results of Swedish pet insurance company survey into BMD health	Berndt Klingeborn
Background to and why BMD owners should all support Berner Garde	Pat Long
Berner International Working Group	Steve Green

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