



The OFA

40 years of dedication to the advancement of canine health

Founded and originally incorporated as a private not for profit foundation in 1966, this year the Orthopedic Foundation for Animals (OFA) celebrates its 40th anniversary.

Credit for the formation of the OFA is generally attributed to John M. Olin, well known inventor, industrialist (Winchester Firearms and Ammunition), philanthropist, conservationist, and sportsman. His legacy has been well established through schools, programs, libraries, and fellowships bearing his name at some of the nation's most prestigious universities including Harvard, Yale, Georgetown, Stanford, Columbia, and Washington University in St. Louis. Outside of his business ventures, his primary passion was the outdoors. John Olin was an avid sportsman, hunter, and field trial participant. His famed Labrador Retriever, King Buck, besides being the National Championship Stakes winner in 1952 and 1953, was also immortalized on a stamp issued by the US Postal Service.

When hip dysplasia began to impact the performance of Olin's dogs, he approached the problem with the same tenacity that governed his business affairs. Understanding the need to improve the genetic health of his stock for the sake of their functional working ability, he organized an initial meeting with representatives of the veterinary community, the Golden Retriever Club of America, and the German Shepherd Dog Club of America to discuss means of limiting the disease. This ultimately led to the formation and incorporation of the OFA in 1966. Its initial mission: To provide radiographic evaluation, data management, and genetic counseling for canine hip dysplasia.

While the OFA continues to focus on hip dysplasia, today's OFA Mission, "To improve the health and well being of companion animals through a reduction in the incidence of genetic disease," reflects the organization's expansion into other inherited diseases and other companion animals such as cats.

The OFA is guided by the following four specific objectives:

- To collate and disseminate information concerning orthopedic and genetic diseases of animals.
- To advise, encourage and establish control programs to lower the incidence of orthopedic and genetic diseases.
- To encourage and finance research in orthopedic and genetic disease in animals.
- To receive funds and make grants to carry out these objectives.

The OFA Board of Directors and Staff

The OFA is governed by a volunteer board of directors. Besides John Olin, other well known dog people that have helped shape the organization over the years include Hayworth Hoch, Dr. Frank Boothe, Rachel Page-Elliott, and Muriel Freeman.

Today's board includes Dr. Fran Smith (President), William Feeney (Vice-President), Richard Fox (Treasurer), Dr. Edward Kozicky (Secretary), Marshall Simonds, Dr. Ulreh Mostosky, W. Terry Stacy, Susan Hamil, Dr. Eric Jimenez, and Rhonda Hovan. It is a diverse board with backgrounds in veterinary medicine, human medicine, law, finance, and other disciplines. The common denominator is a steep background in dogs, and a genuine concern for improving overall companion animal health.

Day to day operations at the OFA are run by Eddie Dziuk, the Chief Operating Officer. Eddie has been a participant in the sport of purebred dogs as a breeder and exhibitor of beagles since his teens, and brings a business background to the organization focusing on management, finance, human resources, and information technology. Dr. Greg Keller is the OFA's in-house board certified veterinary radiologist and serves as the organization's Chief of Veterinary

by Eddie Dziuk, originally printed in "D" Magazine, 2006 Annual



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Services. Dr. Keller has been with the OFA for nearly twenty years, and initially screens every inbound radiograph for proper positioning and diagnostic quality.

The OFA maintains a pool of board-certified radiologists that consult and provide readings on a per case basis. These readings form the basis of the OFA generated consensus reports for the hip and elbow dysplasia databases. Board certification by the American College of Veterinary Radiology is a minimum requirement, with the majority of them working either on faculty at various veterinary teaching hospitals, or in private specialty practices.

The OFA Databases

The OFA databases are core to the organization's objective of establishing control programs to lower the incidence of inherited disease. Responsible breeders have an inherent responsibility to breed healthy dogs. The OFA databases serve all breeds of dogs and cats, and provide breeders a means to respond to the challenge of improving the genetic health of their breed through better breeding practices. The testing methodology and the criteria for evaluating the test results for each database were independently established by veterinary scientists from their respective specialty areas, and the standards used are generally accepted throughout the world. The following databases have been developed and are maintained by the OFA today:

Hip Dysplasia is an orthopedic disorder arising from malformations of the hip socket and the femur. Hip Dysplasia can be found in virtually all breeds, although the clinical manifestations vary considerably. Screening for the presence of hip dysplasia and maintenance of the resulting data has become somewhat synonymous with the OFA. A standard pelvic radiograph (ventrodorsal view) may be taken by any licensed veterinarian. The radiograph is subsequently evaluated by the OFA and its pool of consulting board certified veterinary radiologists. For certification, animals must be a minimum of 24 months of age. After an initial screening to confirm the diagnostic quality and positioning, each radio-

graph is evaluated independently using a set of standard criteria by three randomly chosen radiologists from the consulting pool. The three independent readings generate a final consensus which is reported back to the owner. The OFA assigns normal grades of Excellent, Good and Fair. Dysplastic dogs are graded Mild, Moderate, or Severe. All normal animals receive an OFA number, and their results are placed in the public domain and are available on the OFA's website. Abnormal results are available to the public if the owner approves the release of such information.

Elbow Dysplasia is used to describe degenerative joint disease (DJD) of the elbow joint. It is evaluated through a lateral radiographic view taken of each elbow in extreme flexion. The evaluation process follows the hip process, with each set of elbow radiographs evaluated independently by three randomly chosen board certified veterinary radiologists from the consulting pool, leading to a final consensus which is reported to the owner. For certification, animals must be at least 24 months of age. Elbows are graded as normal, or in the case of dysplastic animals, Grades I, II, or III. Elbow dysplasia can be extremely debilitating, however, as with hip dysplasia, clinical presentation may not always correlate directly with the radiographic diagnosis. The elbow dysplasia database is the OFA's fastest growing database, with over 20,000 evaluations done in 2005.

Patellar Luxation, commonly known as a slipped stifle, is a hind leg deformity that permits the kneecap to dislocate. Luxation can be medial or lateral, unilateral or bilateral, and temporary or permanent. Evaluation is done via physical exam by any licensed veterinarian. Findings are recorded over the veterinarian's signature and the results are sent to the OFA for registration and inclusion in the database. For certification, dogs must be at least 12 months of age. OFA grades are normal, or Grades I, II, III, and IV for dogs exhibiting some degree of luxation.

Autoimmune Thyroiditis is the most common cause of primary hypothyroidism in dogs. Evaluation is done by laboratory analysis of blood samples to detect the presence or absence of autoimmune



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thyroid factors. The protocol was developed for the OFA by leading endocrine experts, and includes the following tests: cTSH, TgAA, and FT4D. There are currently eight laboratories whose results are accepted by the OFA: Michigan State, Texas A&M, Cornell, UCDAVIS, Minnesota, Guelph, Vita-Tech, and Antech (Lake Success, NY). Each of these labs undergoes regular standardization and proficiency testing. For certification, dogs must be at least 12 months of age. Based on the laboratory results, the diagnosis is reported as normal, positive autoimmune thyroiditis, positive compensative autoimmune thyroiditis, idiopathically reduced thyroid function, or equivocal.

Congenital Heart Disease is a generalized description of a number of different malformations of the heart or great vessels. The lesions characterizing the congenital defects are present at birth and may continue to develop during neonatal and growth periods. Cardiac exams may be performed by any veterinarian, although it is recommended that exams be performed by those with advanced training and diagnostic experience. Most common congenital heart defects are associated with the presence of a heart murmur, and a careful clinical examination emphasizing auscultation is the most expedient and cost effective examination method. The auscultation results may in some cases call for further examination, usually via echocardiography. The OFA examination protocol was developed in association with the American College of Veterinary Internal Medicine – Cardiology specialty group. For certification, dogs must be at least 12 months of age. Based on the examination, the diagnosis is reported as normal or Grades 1 through 6, depending on severity, for dogs where a murmur was detected. For normal dogs receiving an OFA number, the number will indicate whether the examination was performed by a practitioner, specialist, or boarded cardiologist. The number will also differentiate those dogs whose exam included echocardiography.

The databases above represent the largest numbers of OFA registrations; however, the OFA also maintains databases for Legg-Calve-Perthes, Shoulder

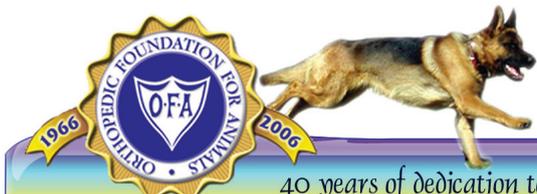
OCD, Sebaceous Adenitis, Congenital Deafness, von Willebrands Disease, PRA, Cystinuria, and a handful of other diseases.

The OFA Website, www.offa.org

Where the OFA databases themselves are the core of meeting the organization's objective to provide control programs to lower the incidence of inherited disease, the OFA's website, www.offa.org, provides breeders the primary toolset to make more informed breeding decisions. Over one million individual health screening results are available on the OFA's website. Using the site's sophisticated search engine, users can create broad queries such as a search for all records for a specific breed, or very narrow queries such as a search for a specific dog. Search criteria include breed, registration number, OFA number, registered name, sex, birthdate ranges, database, test result, and reporting timeframe. These criteria can be used singly, or in any combination to create robust searches which are as broad or narrow as those described above.

Once an individual dog record is accessed, it displays detailed information of all recorded health tests, including results, age at the time of testing, and any resulting certification numbers issued (if appropriate). All dog records also provide summary health information and one click links for the dog's sire and dam, as well as any full siblings, half siblings, and offspring contained in the databases. For families of dogs where health testing has been routine, this can mean access to hundreds of results on a single screen from a single search.

Each dog's individual record also provides access to a unique feature called the vertical pedigree. While all dog breeders are familiar with the traditional horizontal pedigree which expands with each generation from left to right, the vertical pedigree takes the traditional pedigree and expands it vertically. The vertical view provides a summary of health results for any full siblings in the database. As an example, when comparing two dogs in a vertical view, we may see that while both dogs had



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OFA Good hips, the full siblings of one dog all had either Good or Excellent hips, while the full siblings of the other Good dog had a mixture of normal hips including Goods and Fairs, but also a few dysplastic ones as well. This familial type data is a very powerful tool when using pedigree research to make genotypic assumptions using phenotypic data. These same concepts can be used whether applied to health, conformation traits, or working ability. The key is to have a tool to collect the data and make it available in a user friendly, searchable database.

The OFA website is highly functional and is not limited to database searches. The site contains disease information, details regarding the OFA's processes, database statistics, fee tables, information on club sponsored health clinics around the country, downloadable reports, downloadable OFA application forms, references, recommended reading, and useful links. The site averages over 2 million page requests per month. Many of the programmed enhancements are the direct result of user suggestions, so feedback to the webmaster is always welcomed.

It also bears mentioning that the OFA maintains a very positive working relationship with CERF – the Canine Eye Registry Foundation. CERF electronically sends all normal CERF clearances to the OFA once a month. For any dog with an existing OFA record, the CERF data is attached and will appear on the OFA site along side any OFA test results.

OFA – The Non Profit

As a private not-for-profit foundation, the OFA operates differently than most 501c(3) organizations. The OFA is service based and charges a nominal fee for its services. Revenues over expenses are either added to the operating reserve, or are donated back into animal health related research. Over the years, the OFA has funded nearly 3 million dollars in research aimed at reducing the incidence and prevalence of inherited companion animal disease. The OFA funds projects through the AKC Canine Health Foundation (AKC CHF), the Morris Animal Foundation (MAF) and occasionally through direct grants. The OFA has achieved Ruby Donor status

with MAF, and Millennium Founder status with the AKC CHF. OFA supported research is not limited to orthopedic disease, and has included cancers, heart disease, and thyroid disease as examples. Some research has been breed specific, some for all breeds, some for multiple species, and has been done at many of our leading universities and research institutions. And, with the recent completion of the mapping of the canine genome, the OFA is focusing more of its research dollars towards research at the molecular level.

The OFA takes its responsibility as a non-profit seriously, and contributions are not limited strictly to companion animal health related research. The OFA contributes in other areas as well. The OFA established an endowment for deserving veterinary students at the University of Missouri College of Veterinary Medicine which benefits several students each year through scholarships. The OFA often sponsors seminars, conferences, and speakers for veterinarians, veterinary schools, and various all breed and parent breed clubs. The OFA also contributes its time and services by waiving fees for service dog organizations such as Guide Dogs For The Blind.

CHIC – The Canine Health Information Center

The Canine Health Information Center (CHIC) is a program jointly sponsored by the OFA and the AKC CHF. It was originally conceptualized by the AKC Delegates Parent Club and Canine Health Committees. CHIC is a centralized canine health database collecting health test results from multiple sources. Participation is initiated at the parent club level, with the clubs determining the most appropriate health screening protocol for their particular breed. Dogs tested in accordance with the parent club recommended protocol are assigned “CHIC Numbers” and their results are available on the CHIC website (www.caninehealthinfo.org). CHIC is not about normalcy. It is about encouraging health screening in accordance with a parent club determined testing protocol, sharing test results, and increasing health awareness, all in an effort to improve the overall health of the breed; and allow



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breeders to make more informed breeding decisions. As a result, dogs do not need to necessarily test normal. Abnormal test results, as long as they are available in the public domain so others can benefit from the information, still qualify dogs for CHIC. Since its implementation with 8 pilot breeds in 2001, over 50 parent clubs are now participating in the program, with several more key breeds in the pipeline. To date, over 20,000 dogs have been tested in accordance with their breed specific requirements and been issued CHIC numbers.

The program's success to date is a combination of organizational roles and responsibilities and program benefits. The OFA brings its core competency of data management, its website features, and its parent club and breeder relationships to the table. The AKC CHF adds value with their parent club and research community relationships. The parent clubs complete the picture through input, understanding of breed specific health issues, and encouragement for breeder participation in the program.

CHIC benefits parent clubs by providing a mechanism to establish a breed specific recommended protocol for health testing, as well as the backend technical infrastructure (database and website management), all at no cost to the club. For breeders, it provides a powerful toolset to capture and archive health test results. For puppy buyers, it provides a central source to research and verify a breeder's commitment to health screening. For the research community, it is a potential source of data to assist their efforts. And finally, for the breeds themselves, it provides the means for more informed breeding decisions aimed at reducing the incidence of inherited disease.

The CHIC DNA Repository

One of the initial goals of the CHIC program was the establishment of a canine DNA bank. With the recent completion of the mapping of the canine genome, canine health research at the molecular level will continue to increase exponentially. To date, research has been both delayed and hampered by a lack of appropriate DNA samples. Too often

research projects have spent up to a year in the sample gathering phase, before the real research efforts could even begin. The mission of the CHIC DNA bank is to facilitate the research process by collecting samples, along with the corresponding critical elements – pedigree and phenotypic health history – and making the samples available to approved research efforts up front.

Samples may be submitted via blood or cheek swabs. The Molecular Genetics Lab at the University of Missouri is the bank's laboratory partner for blood, performing the receipt, extraction, and storage of purified DNA. The Veterinary Genetics Lab at the University of California – Davis is the lab partner for receipt and storage of cheek swabs. Both laboratories have a long history of successfully collecting and utilizing DNA samples for canine health related research.

The DNA Bank was implemented in the fall of 2005 with Golden Retrievers as the pilot breed. In the few short months following the implementation, DNA, pedigrees, and health surveys have been collected on nearly 750 dogs. A full roll out to the other participating CHIC breeds is expected early in 2006.

Looking Forward To Its 50th...

For the OFA, the last forty years have been enlightening. The OFA has grown from a concept into a stable organization with a long history. It has grown from an organization with a single focus, to one resolute in working to reduce the incidence of all inherited disease. It has built strong relationships and partnerships with individual breeders, parent clubs, other health oriented foundations, the research community, and the AKC. With an ever increasing awareness on the part of breeders regarding health screening, an environment beginning to embrace the concept of open sharing of health data, and continuous advances in science, the OFA is well positioned for another decade of meeting our mission statement - "To improve the health and well being of companion animals through a reduction in the incidence of genetic disease."