HUMANE SOCIETY
VETERINARY MEDICAL
ASSOCIATION

GUIDE TO CONGENITAL AND HERITABLE DISORDERS IN DOGS

Includes Genetic Predisposition to Diseases

Special thanks to W. Jean Dodds, D.V.M. for researching and compiling the information contained in this guide. Dr. Dodds is a world-renowned vaccine research scientist with expertise in hematology, immunology, endocrinology and nutrition.

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Introduction:

Purebred dogs of many breeds and even mixed breed dogs are prone to specific abnormalities which may be familial or genetic in nature. Often, these health problems are unapparent to the average person and can only be detected with veterinary medical screening.

This booklet is intended to provide information about the potential health problems associated with various purebred dogs.

Directory

Section I

A list of 182 more commonly known purebred dog breeds, each of which is accompanied by a number or series of numbers that correspond to the congenital and heritable diseases identified and described in Section II.

Section II

An alphabetical listing of congenital and genetically transmitted diseases that occur in purebred dogs. Each disease is assigned an identification number, and some diseases are followed by the names of the breeds known to be subject to those diseases.

How to use this book:

Refer to Section I to find the congenital and genetically transmitted diseases associated with a breed or breeds in which you are interested. Refer to Section II to find the names and definitions of those diseases.

Disclaimer:

This report was designed to catalogue the identified congenital and hereditary disorders found in purebred dogs and to describe other common conditions that are thought or known to be genetic in origin because they appear with higher-than-expected frequency in certain breeds or because the genetics have been determined in the refereed scientific literature.

The knowledge of and experience with nonhuman animal diseases is always changing, and new diseases are discovered each year. As a result, this catalogue cannot be complete. Every attempt has been made, nevertheless, to provide the latest information from published articles in scientific and popular journals, from review chapters written by veterinary and other professionals, and from breed-club literature provided by designated representatives of individual breed clubs.

The conditions listed in the Guide to Congenital and Heritable Disorders in Dogs occur with different degrees of frequency and severity from one breed to the next. Hip dysplasia, umbilical hernias, and allergies, for example, are common conditions found in many breeds, whereas serious malformations (such as the lysosomal ‘storage’ diseases) and life-threatening diseases (such as hemophilia and certain cancers) are found with less frequency. The impact of a particular disorder on the health and longevity of the breed or breeds that it affects will depend on the nature and severity of that disorder. Therefore, no attempt has been made to assign priority among the diseases identified in this catalogue. This sort of information should be sought from veterinarians and other medical professionals with relevant experience and from national breed-club representatives, whose names can be obtained from the American Kennel Club, 51 Madison Avenue, New York, NY 10010.

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Section II:

1. Aberrant cilia: eyelashes growing abnormally, such as rubbing against the eyeball. (See #88)

2. Abnormal copper metabolism: (usually Bedlington terriers, American cocker spaniels, West Highland white terriers, or Doberman pinschers) an inability to utilize and store copper properly, resulting in liver disease and other problems. (See #64)

3. Abnormal dentition: abnormal placement, number and development of teeth.

4. Acanthosis nigricans: (usually dachshunds) a skin disease where the skin becomes thickened and dark, primarily affecting the axillae (armpits).

5. Achondroplasia: abnormal development of cartilage leading to dwarfism (seen aberrantly in most breeds, but that's what makes a Basset hound and other achondroplastic breeds long and low).

6. Acne: same thing as in humans, affects the muzzle and lip areas.

7. Acral lick dermatitis: a skin disease caused by an animal's licking a localized area excessively, especially on the legs and paws.

8. Acral mutilation: a progressive self-mutilation of the feet and legs. Also known as peripheral sensory neuropathy in pointing breeds because they are born without pain sensation. (See #242a)

9. Acute moist dermatitis: known as "hot spots," a localized area of a severely itchy, inflamed and oozing dermatitis exacerbated by the animal's intense licking and chewing at the spot.

9a. Addison's disease (hypoadrenocorticism): a disease characterized by inadequate secretion of cortisone from the adrenal glands. More common in Old English sheepdogs, bearded collies, standard poodles, Nova Scotia duck tolling retrievers, leonbergers, Eurasiers, and Weimaraners. (See #159a)

9b. Adrenal sex hormone dermatosis: also called “alopecia-x,” this disorder is caused by overproduction of adrenal sex hormones and results in patchy or generalized hair loss over the trunk. Seen in young male Pomeranians, keeshonden, Siberian huskies, and samoyeds, as well as other breeds.

10. Allergies: same as in humans. Dogs can be allergic to things they come in contact with, eat or inhale.

11. Amyloidosis: a condition where abnormal deposits of proteinaceous material called amyloid are laid down in tissues and impair their function. Common in Akitas and Chinese shar peis.

12. Anasarca: a condition where neonatal puppies have an abnormal accumulation of fluids in their tissues. Often seen in English bulldogs.

13. Anemia with chondrodysplasia: a condition of Alaskan malamutes where there is malformation and maldevelopment of cartilage and red blood cells. Also called stomatocytosis because of the mouth-like shape of red blood cells.

14. Anesthetic idiosyncracy: a condition where an individual has an abnormal response to commonly used anesthetics sometimes leading to death. Idiosyncratic means there is no good explanation or way to predict this.

15. Anomaly of third cervical vertebra: a malformation of one of the neck bones in the spinal column.

16. Anophthalmia: a condition where an animal is born without any eyes.

16a. Anterior cruciate ligament rupture: a condition where this ligament is loose and tears or ruptures, usually during exercise. Affected stifle joints demonstrate a classical “drawer“ sign (forward or backward sliding of the joint) upon palpation. Can be unilateral or bilateral. Commonly associated with hypothyroidism.

17. Aortic body tumors: a cancer that arises from a small organ at the base of the aorta, near the heart.

18. Apocrine gland tumor: a cancer arising from glands which secrete fluids (such as mammary glands).

19. Arteriovenous fistula: an abnormal connection that forms between arteries and veins.

20. Ataxia: incoordination associated with a variety of central and peripheral nervous system abnormalities, spinal cord instability or inner ear disorders. An autosomal recessive trait seen in many breeds and with episodes of spasmodic muscle activity in Parsons (Jack) Russell terriers. (See #44a).

21. Atopic dermatitis: a skin disease caused by a dog's reaction to an inhalant allergy. (See #81)

22. Atopy: an allergy caused from things dogs inhale.

23. Atresia of nasolacrimal puncta: a condition where the holes on the inside of the lower eyelids (puncta) are too small or closed so tears spill over the lid instead of draining to the nose.

24. Atrial septal defects: a malformation of the dividing wall between two chambers of the heart, usually resulting in a hole which then causes blood flow abnormalities.

24a. Avian tuberculosis: an often fatal infection in immune deficient animals due to avian tuberculosis. Seen in basset hounds and miniature schnauzers.

25. Avulsion fractures: fractures of the bones caused by a piece being ripped away, usually because of its strong attachment to a ligament or tendon.

26. Basal cell tumor: a cancer arising from a type of skin cell.

27. Behavioral abnormalities: a whole range of abnormal behavior patterns, such as aggression, panic disorders, etc., obsessive compulsive disorders like “spinners” or tail chasing, and pica seen in bull terriers. Can be associated with hypothyroidism and thyroiditis.

28. Bithoracic ectromelia: a condition where the front leg bones are very small or absent.

29. Blepharospasm: an abnormal tightening of the muscles around the eyes, which causes repetitive blinking.

30. Blindness: an inability to see due to a large variety of causes.

31. Bloat: a condition where a dog's stomach produces excessive gas and enlarges severely enough to cause death without immediate treatment. Usually associated with gastric torsion (gastric dilatation volvulus; GDV). (See #131)

32. Blue eyes: an adverse reaction to certain older vaccines containing infectious canine hepatitis virus (adenovirus-1) which produces a bluish discoloration to the cornea. Current vaccines that protect against this disease use only adenovirus- 2 , to avoid the blue eye complication.

32a. Bronzing skin syndrome: a condition in Dalmatians and Bedlington terriers causing bronze discoloration of the skin, albeit for different reasons.

33. Bullous pemphigoid: an autoimmune (i.e., the body attacking itself) disease associated with the formation of painful blisters.

34. Bundle branch block: an abnormality of the electrical conduction mechanism of the heart.

35. Bundle of His degeneration: a condition where a part of the electrical system of the heart deteriorates.

36. Calcinosis circumscripta: the development of lumps of hard calcium deposits in the skin.

37. Cancer, bladder: transitional cell carcinoma (TCC) of the bladder is prevalent in Scottish terriers and West Highland white terriers. Herbicide exposure increases the risk of TCC, whereas increased consumption of green leafy and yellow orange vegetables the decreases the disease risk.

37a. **Canine leukocyte adhesion deficiency (CLAD)**: a condition where the leukocytes fail to adhere normally, leading to recurrent infections. Seen in Irish setters and Irish red and white setters.

37b. Cardiac valvular disease: weakness of heart valves producing heart murmurs and leading to cardiac failure. Prevalent in Cavalier King Charles spaniels.

38. Cardiomyopathy: a disease of weakened heart muscles. Also called dilated cardiomyopthy (DCM). Associated with taurine deficiency in golden retrievers. Also, seen in giant breeds such as great Danes, salukis, boxers, American cocker spaniels, and Doberman pinschers.

38a. Carnitine deficiency: low concentrations of this quaternary amine are associated with reduced contraction and relaxation of cells, especially heart muscle, because it is involved in long-chain fatty acid transport within cells to generate metabolic energy. Deficiency of carnitine is thereby linked to dilated cardiomyopathy. Seen in boxers and American cocker spaniels. (See #38)

39. Carotid body tumors: cancer arising from a small organ located on the carotid in the neck.

40. Carpal subluxation: a condition where the "wrist" bones are loose and out of alignment.

41. Castration responsive dermatosis: a skin condition characterized by loss of hair, thickened skin and inflammation which responds to castration (i.e., hormonally dependent).

42. Cataract: as in humans, a change in structure of the lens of the eye leading to cloudiness and usually to blindness.

43. Cataract with microphthalmia: a condition where a dog has cataracts along with abnormally small eyes.

43a. Cavalier episodic falling syndrome: a neurological condition induced by exercise, excitement or frustration. Muscle tone increases, as affected dogs cannot relax muscles; so become rigid and fall over. Clinical signs occur typically at 4-7 months of age. A DNA marker test is available from the Animal Health Trust in UK.

43b. Cell-mediated immunodeficiency: a deficiency of T-lymphocyte function causing impaired immunity, chronic recurrent infections and stunted growth. Seen in Weimaraners and dachshunds. (See #311b)

44. Cellulitis (folliculitis and furunculosis): inflammation and infection of the cells of the skin including the hair follicles and deeper structures.

44a. Cerebellar ataxia: an x-chromosome-linked disorder of pointers, and an autosomal recessive disease of several other breeds. Affected puppies have episodes of dysmetria (“goose stepping”), nystagmus, and disorientation, which progresses to marked ataxia in puppies or progressively up to 16 months of age. Seen in Kerry blue terriers, Coton de tulear, Parsons (Jack) Russell terrier, and Chinese crested among others.

45. Cerebellar cortical abiotrophy: malformation of the neurons in the cerebellum, a part of the brain. (See #47)

46. Cerebellar degeneration: a condition where a part of the brain deteriorates.

47. Cerebellar and extrapyramidal abiotrophy: a condition where the neurons in the cerebellum part of the brain and parts of the spinal cord are malformed and eventually malfunction. Seen in many breeds such as Kerry blue terrier, American Staffordshire terrier, old English sheepdog, Brittany spaniel, and Gordon setter.

48. Cerebellar hypoplasia: a condition where the cerebellum, a part of the brain, is poorly formed (too small or absent) and doesn't function properly or at all.

49. Cerebrospinal demyelination: a condition where the neurons of the brain and spinal cord are malformed, lacking a specialized sheath, which causes malfunction.

50. Cervical disc disease: a degeneration or malformation of the cushioning discs between the spinal column bones (vertebrae) in the neck.

51. Cervical vertebral malformation or instability: a malformation of the vertebrae in the neck usually leading to nerve damage. Commonly seen in Doberman pinschers and causes a hackneyed gait (high stepping). (See #292, 332)

52. Choroidal hypoplasia: the technical name for collie eye anomaly (see #58), this autosomal recessive disorder causes improper development of the choroid vascular layer under the retina of the eye in young puppies. Thee is no treatment or cure. Seen in collies, border collies, Shetland sheepdogs, Australian shepherds and Lancashire heelers.

52a. Chronic progressive hepatitis: an increasingly comomon disease sometimes called chronic active hepatitis and seen primarily in Doberman pinschers, Dalmatians, Labrador retrievers, golden retrievers, and Shetland sheepdogs. (See #2, 62)

53. Ciliary dyskinesia: congenital trait in several breeds where all ciliated cells (those with hairs or moving appendages) are deformed and rigid. Also called immotile cilia syndrome and Kartagener's syndrome. Causes chronic pneumonia and sterility. Common in bichon frise and Doberman pinschers.

54. Cleft lip: a condition where the two halves of the upper lip do not join together. Cleft palate and cleft lip are often seen together.

55. Cleft palate: a condition where the roof of the mouth is not closed and the inside of the nose opens into the mouth.

56. Coliform enteritis: an inflammation of the bowel caused by a certain group of bacteria, commonly due to fecal contamination.

57. Collapsed trachea: a condition where the cartilage rings that make up the trachea are malformed and tend to collapse easily.

58. Collie eye anomaly: detected by ophthalmologic examination between 5-8 weeks of age. Seen worldwide in several breeds as well as rough and smooth collies. In mild disease, vision may not be impaired, but mildly affected dogs can produce severely affected offspring. In severe form, colobomas and retinal detachment can occur by about 2 years of age, although total blindness is rarely seen. Genetic testing from a blood sample can distinguish normal, carrier, and affected dogs.

59. Coloboma: an abnormal development of the eye, usually seen in collies, which can lead to blindness. (See #58, 60, 203)

60. Colobomas with aphakia: same as above but with congenital absence of the lens.

60a. Color dilution alopecia: a form of follicular dysplasia causing various degrees of hair loss in middle-aged blue and fawn Doberman pinschers.

61. Color mutant alopecia: a condition where certain colored areas of a dog's skin grows less or no fur. Commonly seen in Yorkshire terriers, blue and fawn Doberman pinschers, and fawn Irish setters.

61a. Combined immunodeficiency: a severe combined deficiency of cell-mediated immunity (T-cell function) and low concentrations of serum immunoglobulins (IgA, IgG, and variably IgM). Affected puppies usually die from viral infections by 12-16 weeks of age. Seen in Basset hounds. (See #43a, 168, 169, 170)

61b. Complement deficiency: a deficiency in serum concentrations of the third component of complement which impairs neutrophil function and causes recurrent infections. Seen in Brittanys.

61c. Compressive myelopathy: a condition of Shiloh shepherds with malformed spinal vertebral processes which compress the spinal cord and cause spastic paraparesis, acute progressive pelvic limb weakness and incoordination (ataxia). (See #290a)

61d. Congenital heart defects: a condition where the heart is abnormal at birth. Present in many breeds.

61e. Congenital stationary night blindness: a condition at birth where affected pups cannot see at night. Seen in briards.

62. Conjunctivitis: an inflammation of the conjunctival membrane of the eye.

63. Conus septal defect: a developmental abnormality of the right heart.

64. Copper storage abnormality in liver: (See #2)

65. Corneal dystrophy: an abnormality of the cornea usually characterized by shallow pits in the surface.

66. Corneal leukomas: an abnormal accumulation of a white material in or on the cornea.

67. Corneal ulcer, superficial: an erosion of the outer membrane and outer surface of the cornea.

68. Craniomandibular osteopathy: an abnormal development of the bones of the face and the jaw. Seen in West Highland white and Cairn terriers, among other breeds.

69. Cranioschisis: abnormal development of the skull characterized by openings between or in the bones.

69a. Cricopharyngeal dysfunction: delayed swallowing times causing dysphagia (see #89a) observed on videofluoscopy. Seen in golden retrievers.

70. Cryptorchidism: a condition where one testicle does not descend into the scrotal sac.

71. Cushing's disease (hyperadrenocorticism): a common disease characterized by an excess secretion of corticosteroids from the adrenal glands. Most often seen in middle aged females. (See #156)

72. Cutaneous asthenia: a condition where the skin lacks its normal strength, elasticity and sensation. Also called Ehlers-Danlos syndrome. Seen in several breeds, including English springer spaniels and boxers. (See #94a)

72a. Cutaneous mucinosis: (See #202a)

72b. Cutaneous vasculopathy: a disease of autosomal recessive inheritance in which young puppies exhibit footpad swelling and depigmentation, with crusting and ulceration of the tips of ears and tail. Seen in German shepherd dogs.

73. Cyclic neutropenia: a condition characterized by periodic lowering of neutrophils, a type of white blood cell. Commonly seen in grey collies.

74. Cystic ovaries: a condition where the ovarian follicles become cystic (fluid filled) leading to hormonal imbalances and other problems.

75. Cystinuria: an abnormal excretion of a substance (cystine) in the urine.

76. Cystitis and cystic calculi: infection of the bladder which often leads to formation of abnormal mineral deposits (bladder stones). Prevalent in certain breeds.

77. Dacryocystitis: inflammation of a tear sac.

78. Deafness: an inability to hear, due to many different causes. In Dalmatians, congenital deafness is associated with blue eye color.

79. Deformed tail: a congenital condition where the tail is malformed.

79a. Degenerative myelopathy: progressive disorder primarily in German shepherd dogs where the spinal cord degenerates and causes rear limb weakness and incoordination. Can end up with cauda equine syndrome, where the nerve roots at the end of the spinal column become atrophied.

80. Demodicosis: a kind of skin disease (mange) caused by microscopic *Demodex canis* mites living within the skin layers and producing an immunodeficiency syndrome.

81. Dermatitis, atopic: inflammation and subsequent infection of the skin due to atopy. (See #21, 22)

82. Dermatomyositis: a disease affecting the skin and muscles, usually in collies or Shetland sheepdogs.

83. Dermoid cyst: a small growth composed of skin-like structures.

84. Dermoid sinus: similar to a dermoid cyst but usually larger. Seen in Rhodesian and Thai ridgebacks.

85. Diabetes mellitus: a metabolic disease caused by insulin deficiency and characterized by the inability to utilize sugars normally.

85a. Digital hyperkeratosis: a condition of Irish terrier puppies that causes marked thickening of the foot pads. Affected feet crack, become infected and painful.

85b. Dilated cardiomyopathy(DCM): See #38.

86. Discoid lupus erythematosus: a form of autoimmune disease affecting the skin.

87. Dislocation of shoulder: a condition where the bones of the shoulder joint are out of proper position.

88. Distichiasis: abnormally growing eyelashes.

88a. Dry eye curly coat syndrome in Cavaliers: a congenital keratoconjunctivitis sicca plus ichtyosiform dermatosis syndrome. Affected dogs cannot produce tears and have very dry and flaky skin especially on feet; standing and walking is painful and so most are euthanized. A DNA marker test is available from the Animal Health Trust in UK.

89. Dwarfism: an abnormality of the normal growth pattern resulting in an undersized individual.

89a. Dysphagia: inability to swallow properly. (See #69a)

90. Dystocia: complications of the birth process (difficult birth).

91. Eclampsia: convulsions usually seen around the time of parturition (whelping).

92. Ectodermal defects: any of a multitude of abnormalities arising from maldevelopment of the fetal ectoderm (e.g., skin, nervous system, eyes).

93. Ectopic ureters: the ureters (tubes leading from the kidneys to the bladder) do not empty into the bladder in the normal location.

94. Ectropion: an abnormal rolling out of the eyelids.

94a. Ehlers-Danlos syndrome: a connective tissue disease characterized by loose, hyperextensible and very fragile skin that tears easily. (See #72)

95. Elbow dysplasia: an abnormal development of the elbow joint.

96. Elbow joint malformation: (See #95)

97. Elbow subluxation: a condition where the elbow joint is loose and out of alignment.

98. Elongated soft palate: the soft palate is abnormally long and causes breathing disorders.

98a. Encephalitis: an inflammatory condition of the brain causing signs of central nervous system dysfunction and epilepsy (seizures). A unique form of heritable encephalitis is prevalent

in the pug breed and is called “Pug Dog Encephalitis.” More common in fawn colored females under age 7 years. A genetic screening test is available. (See #109, 210a)

99. Endocardial fibroelastosis: an abnormal condition of scarring of the muscles of the heart.

100. Endometritis: inflammation of the internal layer of the uterus.

101. Enlarged foramen magnum: a condition in which the opening in the skull where the vertebral column begins is too large.

102. Enostosis: a bony growth within the hollow part of a bone.

102a. Episodic falling syndrome of Cavaliers: a neurological condition of young puppies induced by exercise, excitement or frustration. (See # 43a)

103. Entropion: an abnormal rolling in of the eyelid.

104. Eosinophilic granuloma: an allergic reactive syndrome characterized by the plaque-like accumulation of eosinophils, a type of white blood cell.

105. Eosinophilic panosteitis: a painful inflammatory bone disease of young, rapidly growing dogs, often characterized by increased eosinophils in the blood. (See #231)

106. Epidermal dysplasia: abnormal development of the outer layer of the skin. Common in West Highland white terriers and begins in puppyhood. (See #331.)

107. Epidermoid cyst: a small growth consisting of tissues of the outer layer of the skin. (See #274)

108. Epidermolysis bullosa: an abnormal looseness to the skin characterized by large, deep, blister-like lesions.

109. Epilepsy: a disease characterized by convulsions (seizures) and/or disturbances of consciousness. Hypothyroidism can predispose to seizures.

110. Epiphora: abnormal draining of tears often due to overproduction.

111. Epiphyseal dysplasia: abnormal development of the epiphysis, a part of the long bones.

112. Esophageal achalasia: a functional stricture or spasm of the muscles of the esophagus where it joins the stomach.

113. Esophageal dilatation: an abnormally large and usually flaccid esophagus.

114. Eversion of nictitating membrane: a condition where the third eyelid is protruding. Also called “cherry eye”.

114a. Exercise-induced collapse: seen in Cavalier King Charles spaniel puppies associated with exercise- or excitement-induced muscle hypertonicity (similar to startle disease in people).

Also seen in young adult field trial Labrador retrievers.

115. Eye abnormality: any of a number of problems with the eye.

116. Facial fold dermatitis: an infection of the facial skin caused by unusual or excessive skin folds (seen in dogs such as the Pekingese or Chinese shar pei).

117. Facial nerve paralysis: a decrease or cessation of function of the facial nerve leading to a drooping of the affected side of the face.

118. Factor I deficiency or hypofibrinogenemia: a rare deficiency of a clotting factor (fibrinogen), which causes excessive bleeding.

119. Factor II deficiency or hypoprothrombinemia: a rare deficiency of prothrombin, a clotting factor needed to control bleeding.

120. Factor VII deficiency: a mild bleeding disease primarily of beagle dogs.

121. Factor VIII deficiency or hemophilia A: the most common severe inherited clotting disorder of humans and nonhuman animals. Inherited as a sex-linked recessive trait (carried by females and manifested in males). Affects most dog breeds.

122. Factor IX deficiency or hemophilia B: same as hemophilia A, but more rare and involves a different clotting factor. Affects about 20 dog breeds.

123. Factor X deficiency: a rare clotting disorder primarily of American cocker spaniels. An autosomal trait (affects both sexes).

124. Factor XI deficiency: a rare clotting disorder of several dog breeds. Protracted bleeding from surgical procedures is a feature. Affects both sexes.

124a. Factor XII deficiency: a clotting factor deficiency that rarely produces clinical signs. Seen in toy and standard poodles and occasionally in other breeds. Usually diagnosed incidentally during blood testing for potential bleeding disorder.

124b. Familial amaurotic idiocy: deposits of fatty pigments in the brain produce loss of vision, stupor, and seizures. Seen in English setters, German short-haired pointers, and Australian cattle dogs. (See #177, 193a, 214)

124c. Fanconi syndrome: a kidney tubular dysfunction of basenjis which leads to glycosuria. (See #268)

124d. Femoral artery occlusion: a rather common disorder of genetic predisposition and probable weakness in the femoral artery wall of Cavalier King Charles spaniels.

125. Fibrosarcoma: a cancer arising from certain types of fibrous cells.

126. Fibrous histiocytoma: a type of fibrous tumor arising from cells called histiocytes.

127. Flank sucking: a behavioral problem common in Doberman pinschers and exhibited as a continually wet patch on the flank (from sucking the skin).

128. Fold dermatitis: an inflammation of skin folds especially in dogs with loose skin (e.g., Chinese shar pei).

128a. Follicular dysplasia: malformation of skin follicules.

129. Folliculitis: an infection of the hair follicles.

129a. Fragmented coronoid process: osteochondrosis of the elbow joint. (See #221a)

129b. Fucosidosis: an autosomal recessive, fatal disease caused by deficiency of alpha-fucosidase enzyme that results in accumulation of fucose-containing metabolites in cells throughout the body. Neurologic signs predominate. Seen in English springer spaniels.
(See #193a)

130. Furunculosis: an infection of the deeper structures of the skin.

131. Gastric torsion: a condition where the stomach twists, thereby impeding input and output, causing bloat (gastric dilatation volvulus; GDV). (See #31)

132. Generalized myopathy: a condition affecting all the muscles of the body which produces weakness.

133. Genu valgum: malformation of the knee joint ("knock-kneed").

134. Gingival hyperplasia: overgrowth of the gum tissues.

135. Glaucoma: abnormally high pressure in the eye.

136. Globoid cell leukodystrophy: abnormal development and/or function of certain types of white globoid cells in the brain. (See #193a)

136a. Gluten-sensitive enteropathy: also called wheat-sensitive enteropathy of Irish setters. Intolerance to foods containing glutens, affected dogs primarily have chronic diarrhea and weight loss. (See #258a)

137. Glycogen storage disease: a syndrome characterized by an inability to store and utilize carbohydrates. (See #193a.)

138. Goiter: a swelling of the thyroid gland.

138a. Granulocyte dysfunction or adhesion defect: an impairment of neutrophil function or adhesion which causes chronic recurring infections, stunted growth and secondary increase in immune globulins (hypergammaglobulinemia). Seen in Irish setters and Doberman pinschers.

139. Granulomatous colitis: a type of chronic inflammation of the colon characterized by reactive tissue growths.

140. Granulomatous sebaceous adenitis: a disease of sebaceous (sweat) skin glands characterized by reactive tissue growth and autoimmune destruction of the sebaceous glands. Hair loss occurs and is poorly responsive to treatment. Common in standard poodles, Akitas, samoyeds,vizslas and several other breeds.

141. Hair follicle tumors: abnormal growths of the hair follicles.

142. Hairlessness: also called alopecia or loss of hair. Can be a normal pattern for breeds like the Mexican hairless dog.

143. Hanging tongue: a syndrome where the tongue does not retract into the mouth properly, due to neurologic or anatomic defects. Commonly seen in Cavalier King Charles spaniels.

143a. Hemangiosarcoma: a serious cancer of blood vessels involving liver,spleen or skin.

144. Hemeralopia: inability to see in daylight.

144a. Hemorrhagic gastroenteritis: an acute disorder characterized by bloody diarrhea, elevated hematocrit and shock. Common in miniature schnauzers.

145. Hemivertebra: a particular kind of malformation of the vertebra where only half of the structure is formed.

146. Hemolytic anemia: anemia caused by the destruction of the red blood cells by an autoimmune process. Particularly common along with thrombocytopenia in American cocker spaniels and old English sheepdogs, as well as many other breeds.

147. Hemophilia A: a blood clotting disorder due to deficiency of coagulation factor VIII (this is the most common type of hemophilia in dogs). (See #121)

148. Hemophilia B: a blood clotting disorder due to lack of coagulation factor IX. (See #122)

149. Hepatic portosystemic shunt or arteriovenous fistula: a malformation of blood vessels in the liver or an abnormal communication between the arteries and veins in the liver. (See #199a, 252a)

149a. Hepatic lipidosis: an abnormal accumulation of lipids in the liver which leads to liver failure. Common in miniature schnauzers and Shetland sheepdogs.

149b. Hereditary nephritis: also called “samoyed hereditary glomerulopathy,” a sex-linked disease of young males. Affected dogs have renal glomerular disease which rapidly progresses to kidney failure and death. Female carriers have abnormal glomerular basement membrane, as well, but usually remain healthy until later in life when renal failure may occur.

149c. Hereditary spinal muscular atrophy: an autosomal dominant degenerative disease of motor neurons characterized by weakness and muscle atrophy with a typical gait, and progressing to dangling of the head and a drooping, paralyzed tail. Severely affected dogs

become paralyzed and die by 3-4 months of age. Seen in Brittany spaniels.

149d. Hepatocerebellar degeneration: a syndrome of progressive cerebellar and hepatic disease of 6-8-week-old Bernese mountain dogs with lesions of cerebellar abiotrophy and coexistent hepatic lesions. Autosomal recessive inheritance.

150. Hermaphroditism: a syndrome where the individual has anatomical features of both sexes.

151. Heterochromia, iris: the presence of different colors in the same or both irises.

152. Hip dysplasia: a developmental malformation or subluxation of the hip joints.

153. Histiocytoma: a common benign tumor of certain skin tissue cells (i.e., histiocytes).

153a. Histiocytosis: the most prevalent cancer of Bernese mountain dogs, usually leading to early death. Also called malignant histiocytosis.

154. Hydrocephalus: a condition where there is an abnormal accumulation of fluid in the ventricles of the brain.

155. Hygroma: a fluid-filled sac usually occurring on the elbows of large breed dogs such as the Great Dane or Irish wolfhound.

156. Hyperadrenocorticism or Cushing's disease: a common disease where the adrenal glands are overactive. (See #71)

157. Hypercholesterolemia: a disease where the animal has too much cholesterol in the blood system. Commonly associated with hypothyroidism.

157a. Hyperkalemia: a benign condition of large Japanese dog breeds (Akita, Shiba inu, Tosu inu) in which the red blood cell membrane has an altered metabolism and leaks potassium into the serum making concentrations very high. The condition is aggravated by ingesting onions.

157b. Hyperlipidemia: an idiopathic disorder of miniature schnauzers in which blood lipid levels become very high and predisposing to pancreatitis. (See #149a)

157c. Hyperphosphatasemia: a benign familial condition in humans and Siberian huskies in which serum alkaline phosphatase concentrations are very high.

157d. Hypertrophic neuropathy: a form of polyneuropathy seen in Tibetan terriers. (See #250a)

158. Hypertrophic osteodystrophy: a condition of rapidly growing giant breeds where there is an abnormal inflammation of bones with pain and development of excessive bony growths.

159. Hypertrophy of membrana nictitans gland: a condition where the gland of the third eyelid is abnormally large.

159a. Hypoadrenocorticism: a disease where autoimmune or other causes of destruction of the adrenal glands produces a deficiency of corticosteroids. (See #9a)

160. Hypoglycemia: a syndrome where the animal has an abnormally low blood glucose.

160a. Hypomyelinogenesis: failure of the nervous system to form myelin, seen at birth.

160b. **Hypoparathyroidism**: a disease where autoimmune or other causes of destruction of the parathyroid glands produces deficiency of parathormone (PTH), leading to severe hypocalcemia and requiring both calcium and vitamin D3 supplementation.

161. Hypopigmentation, lips and nose: a condition where an animal lacks pigment (color) in areas where it is usually present. (See #328)

162. Hypoplasia of dens: a condition where part of the second vertebra fails to develop fully and leads to instability.

163. Hypoplasia of larynx: a condition where the larynx (cartilage of the "voice box") fails to develop fully.

164. Hypoplasia of trachea: a trachea that fails to develop fully.

165. Hyposomatotropism: failure of the body growth hormones (somatomedins) to develop fully. Also known as growth hormone-responsive dermatosis. Common in pomeranians.

166. Hypothyroidism: a very common endocrine disease where the body produces an abnormally low amount of thyroid hormones. An autoimmune destruction of the thyroid gland which affects more than 50 dog breeds. (See #192, 312)

167. Hypotrichosis: a condition where there is an abnormally small amount of hair growth.

168. Immunoglobulin A deficiency: a condition where concentrations of secretory immune globulins are low. Common in Chinese shar peis and beagles. (See #187)

169. Immunoglobulin G deficiency: a condition where circulating antibody concentrations are low. Produces immune deficiency and susceptibility to infections.

170. Immunoglobulin M deficiency: a condition where antibodies produced in early stages of an immune response are low, producing susceptibility to infection. Seen in Doberman pinschers.

171. Inguinal hernia: a break in the muscular layer of the body wall occurring at the inguinal canal (where the back leg meets the body).

171a. Inherited ventricular tachycardia: a condition of young German shepherds with very rapid heart rates, ventricular arrhythmias, and sudden death.

172. Intestinal malabsorption: a disease where the intestinal tract does not absorb nutrients properly. Also known as protein-losing enteropathy as a consequence of inflammatory bowel

disease. In Irish setters there is also a wheat-sensitive enteropathy. (See #194)

173. Intervertebral disc disease: a disease where the discs between the vertebra are abnormal and prone to rupture and misplacement.

174. Intussusception: a serious condition where the intestinal tract telescopes in on itself.

175. Iris atrophy: a condition where the iris (the colored part of the eye) shrinks and becomes non-functional.

176. Iris heterochromia: a condition where one iris is a different color from the other or has more than one color to it.

176a. Ivermectin sensitivity: a prevalent condition of collies and some other breeds where a mutation of the MDRI gene produces susceptibility to ivermectin toxicity.

177. Juvenile amaurotic idiocy: a syndrome characterized by early onset blindness and low mental capacity.

178. Juvenile cellulitis: an inflammation of cells (usually skin cells) occurring in the young animal.

178a. Juvenile polyarthritis: a form of arthritis affecting multiple joints of young Akitas, and usually occurring within 1-4 weeks of vaccination. Cases typically occur at 3-4 months of age after the second or subsequent booster vaccination and respond poorly to therapy. Affected dogs may progress to develop amyloidosis (#11) and renal failure.

179. Keratitis sicca: a condition where one or both eyes do not produce a normal amount or type of tears. (See #181)

180. Keratoacanthoma: a small growth, usually on the face, filled with keratin material.

181. Keratoconjunctivitis sicca: Also called “dry eye”, and associated with hypothyroidism in some breeds such as the American cocker spaniel. (See #179)

182. Kidney aplasia, unilateral: a developmental abnormality where one kidney fails to develop. Also called renal agenesis.

183. Kinked tail: a developmental abnormality where the tail has a pronounced kink.

184. Lacrimal duct atresia: a condition where the duct draining tears from the eye is too small or not formed.

184a. Laryngeal paralysis: a progressive paralysis of the larynx in young Bouvier des Flandres, Siberian huskies, and Dalmatians. In the Dalmatian, the condition is usually linked to polyneuropathy (#250a). Affected dogs have an unusual bark and are prone to aspiration pneumonia.

185. Legg-Perthes disease: a disease where the blood vessels feeding the femoral head (top

part of the thigh bone) shrink, leading to starvation and death of the femoral head (the ball of the ball-and-socket joint of the hip). Also called Legg-Calve'-Perthes disease. Most common in large breeds.

186. Lens luxation: a condition where the lens in the eye is displaced into an abnormal position.

187. Linear IgA dermatosis: a type of skin disease resulting from an abnormality of the secretory immune system. Common in Chinese shar peis.

188. Lip fold dermatitis: a skin infection caused by redundant skin folds around the mouth.

188a. Lipidosis: a form of lysosomal 'storage' disease where lipids accumulate in nerves. Called GM-1 gangliosidosis in Portuguese water dogs. (See #193a)

189. Lissencephaly: an abnormal brain development where the surface lacks gyri (the grooves).

190. Lung torsion: a condition where one or more lung lobes twist upon themselves.

190a. Lupoid onychodystrophy: (See #218a)

191. Lymphedema: a disorder where valvular blockage of lymph flow or twisted lymphatic ducts causes an accumulation of fluid to swell tissues with edema.

192. Lymphocytic thyroiditis: an autoimmune disease causing inflammation and destruction of the thyroid gland, which becomes infiltrated with lymphocytes (white blood cells) and leads to hypothyroidism. This is the most common endocrine disease of the dog and has an inherited predisposition. (See #166, 312)

193. Lymphosarcoma: a cancerous condition involving the lymphatic system. One of the more common canine cancers.

193a. Lysosomal 'storage' diseases: a group of progressive multifocal neurologic disorders caused by specific enzyme deficiencies leading to death of nerve cells and accumulation of their respective enzyme substrates in cells. (See #299a)

194. Malabsorption syndrome: also called immunoproliferative enteropathy, which is immune-mediated and hereditary in the basenji (See #172)

194a. Malignant histiocytosis: the more aggressive, rapidly fatal systemic form of histiocytosis. Heritable in Bernese mountain dogs, with no cure. (See #153a)

194b. Malignant hyperthermia: an autosomal dominant trait of black Labrador retrievers. Very high body temperatures develop in response to gaseous anesthesia.

195. Malocclusion: a condition where the teeth do not meet properly.

196. Mastocytoma: a rare cancer developing from a type of tissue cell known as a mast cell.

196a. Megaesophagus: heritable and acquired lack of smooth muscle cell tone in the esophagus leading to inability t swallow normally and aspiration pneumonia. Also associated with myasthenia gravis and thymoma. Seen in many breeds but especially in German Shepherd Dogs.

197. Melanoma: a rare cancer developing from the type of skin cell which produces pigment (melanin).

197a. "Merle" eye anomaly: (See #52, 58) The breeding of two merle colored parents can produce some offspring with whiter coat color. These puppies typically inherit a variety of anomalies of the back (fundus) of the eye, which can be confused with choroidal hypoplasia.

198. Metabolic bone disease: any of a number of diseases affecting the bones due to an abnormality of metabolism.

199. Microphthalmia: a condition where one or both eyes are too small.

199a. Microvascular dysplasia: (See #252a)

200. Missing teeth: a condition where there are too few teeth.

201. Mitral valve defects: a group of abnormalities of the mitral valve of the heart.

202. Mononephrosis: a condition where only one kidney is present. (See #182).

202a. Mucinosis: a common skin disorder of Chinese shar peis characterized by generalized pitting edematous folds, variable itching, and severe puffiness and wrinkling of the head and extremities. Vesicles may be present and rupture draining clear, stringy fluid. Often associated with hypothyroidism and IgA deficiency. (See #166, 168)

202b. Mucopolysaccharidosis: an inborn metabolic error of several types leading to storage disease and debilitation. Seen in schipperkes (type IIIb or Sanfilippo syndrome). Seen in miniature pinschers (type VI), German shepherd dogs (type VII). (See #299a)

203. Multiple colobomas: a developmental abnormality of the structures of the eye.

204. Multiple epiphyseal dysplasia: a condition where many of the long bones develop abnormally due to changes in the growth plates.

204a. Muscular dystrophy: a congenital and often inherited form of generalized muscle dysfunction which causes signs such as poor growth, weakness, abnormal gait, difficulty eating and swallowing, and muscle atrophy. Affected animals have serious health problems and may die or be euthanatized. Inheritance is sex-linked in golden retrievers, Irish terriers, Samoyeds, and Belgian shepherds.

205. Muzzle pyoderma: an infectious skin disease on the muzzle of an animal.

206. Myasthenia gravis: a syndrome characterized by muscle fatigue due to an autoimmune disease which produces chemical abnormalities of the muscles and nerves. An enlarged

esophagus called megaesophagus can result and causes regurgitation of food.

206a.Myotonia congenita: a condition present at birth characterized by tonic muscle contractions and twitching. Seen in miniature schnauzers.

206b. Narcolepsy: a neurological disorder characterized by falling asleep suddenly (collapse) which can occur during periods of activity and last for various lengths of time. Seen in Doberman pinschers and Labrador retrievers.

207. Narrow palpebral fissure: an abnormally small opening between the upper and lower eyelids.

208. Nasal pyoderma: a skin infection of the nose.

209. Nasal solar dermatitis: a skin disease of the nose and muzzle which is greatly affected by exposure to sunlight. Common in collies, white bull terriers, and other white coated breeds.

210. Nasolacrimal puncta atresia: (See #23)

210a. Necrotizing meningoencephaliis: heritable encephalitis of pugs. Also called “pug dog encephalitis”; more common in fawn colored females under age 7 years. A genetic screening test is available. (See # 98a).

211. Necrotizing myelopathy: a condition where the spinal cord gradually dies.

212. Necrotizing panotitis: a severe infection of the ear and surrounding tissues.

213. Neuromuscular atrophy: a condition where the muscles waste away due to lack of proper nerve supply.

214. Neuronal ceroid lipofuscinosis: a congenital disease where fatty pigments are deposited in the brain and cause brain dysfunction. (See #193a)

215. Neurotropic osteopathy: a disease of the bones due to abnormalities of the nerves.

216. Nodular panniculitis: a skin disease characterized by nodules of inflammation under the skin.

217. Oligodendroglioma: a cancer arising from a type of cell found in the brain and spinal cord.

218. Oligodontia: an abnormally small number of teeth.

218a. Onychodystrophy: painful symmetrical nail bed disorder causing the nails to fall off; cause unknown. Seen in greyhounds and rottweilers and several other breeds. (See #190a)

219. Open fontanel: a condition where the suture lines between bones of the skull do not fuse together properly.

220. Optic nerve hypoplasia: a condition where the optic nerve going from the eye to the brain

is too small.

221. Osteochondritis dissecans: a specific form of inflammation of the cartilage of certain joints which causes arthritis. (See #221a)

221a. Osteochondrosis: a group of developmental diseases resulting in abnormal formulation of joint cartilage. Commonly involves the shoulder, stifle, hock or elbow. (See #221)

222. Osteodystrophy: any of a number of diseases involving the development of the bones.

223. Osteogenesis imperfecta: imperfect development of the structure and/or mineralization of the bones.

224. Osteopetrosis: a condition where the bones are abnormally dense and hard.

225. Osteosarcoma: a cancer arising from the cells of the bones.

226. Otitis externa: an infection of the external structures of the ear.

227. Otocephalic syndrome: a developmental abnormality where the animal lacks a lower jaw, and the ears meet below the face.

228. Overshot jaw: a condition where the upper jaw is too long for the lower jaw.

229. Pancreatic insufficiency: a condition where the pancreas does not produce the proper enzymes for digesting food (also called pancreatic acinar atrophy in breeds like the German Shepherd Dog).

230. Pannus: an immunologic eye disease characterized by abnormal growth of tissue over the cornea.

231. Panosteitis: (See #105)

232. Parosteitis: inflammation of tissue around a bone.

233. Parotitis: inflammation of the parotid salivary gland. Also called parotiditis.

234. Partial alopecia: some loss of the normal hair coat.

235. Patella luxation: a condition where the knee caps slide in and out of place.

236. Patent ductus arteriosus: failure of the vessel remnant joining the aorta and pulmonary artery in fetal life to close properly at birth, thereby shunting blood away from the lungs.

237. Pattern alopecia or baldness: hair loss occurring in certain patterns. Common in dachshunds.

238. Pemphigus erythematosus: one of many skin diseases caused by an autoimmune mechanism.

239. Pemphigus foliaceous: another skin disease caused by autoimmune destruction of tissues.

240. Perianal adenoma: a cancer arising from a cell of a gland found near the anus.

241. Perianal fistulas: a condition characterized by abnormal communications from deeper tissues to the skin surrounding the anus.

242. Perianal gland tumor: (See #240)

242a. Peripheral sensory neuropathy: a recessive disorder of young puppies born without pain sensation of peripheral tissues. (See #8)

243. Persistent right aortic arch: a developmental abnormality where one of the fetal blood vessels near the heart does not atrophy as it should.

244. Persistent hyaloid artery: as #243, however, involving a blood vessel inside the eye.

245. Persistent pupillary membrane: a developmental abnormality where the membrane forming the iris does not form properly.

245a. Phosphofructokinase deficiency: a deficiency of a specific red blood cell enzyme in English springer spaniels. Causes chronic anemia, exercise-induced acute hemolytic crises and enlarged spleen.

245b. Physiologic leukopenia: a condition of most healthy adult Belgian terverun whereby the total white blood cell count (neutrophils, lymphocytes, and monocytes) is below 6,000/ul. Because of their ancestral relationship to the other Belgian shepherd dogs (Belgian sheepdog, Belgian malinois), these breed/varieties may also show the same phenomenon.

246. Pigmentary keratitis: an inflammatory condition of the cornea characterized by abnormal pigmentation.

247. Pituitary dwarfism: a developmental abnormality resulting in an undersized animal due to a defective pituitary gland.

248. Pituitary tumor: a cancer arising from the pituitary gland.

249. Platelet disorder: a group of abnormalities of small blood cells necessary to control bleeding. (See #311, 311a)

250. Pododermatitis: a skin infection of the paws, often involving yeast.

250a. Polycystic kidney disease: malformation of kidneys where the renal pelvis is cystic. May be associated with heart valvular disease in bull terriers.

250b. Polyneuropathy: a progressive polyneuropathy of young dogs leading to neuromuscular atrophy, variable demyelination, paraparesis, exercise intolerance and hyperesthesia. Seen in Alaskan malamutes, Dalmatians, golden retrievers, rottweilers, German shepherd dogs. (See

#213)

251. Polyostotic fibrous dysplasia: a type of bone disease where the bones are composed of improper fibrous tissues.

252. Polyradiculoneuritis: an acute inflammatory disease of several groups of nerves causing fever.

252a. Portosystemic shunt: a congenital anomaly of blood vessels supplying the liver, causing varying degrees of liver dysfunction or failure. Also can be manifested as microvascular dysplasia. Common in breeds such as the Yorkshire and Cairn terrier, but can occur in any breed. (See #149, 199a)

253. Posterior retinal atrophy: a deterioration of the part of the eye which translates light to electric impulses (the retina). Produces night blindness. (See #256)

253a. Primary hyperparathyroidism: overactive production of parathyroid hormone, most often caused by parathyroid gland tumor, and leading to renal failure from secondary hypercalcemia. Seen in keeshonden.

254. Primary peripheral retinal dystrophy: a certain type of developmental disease affecting the retina.

255. Progressive ataxia: a condition where the animal's sense of coordination deteriorates.

256. Progressive retinal atrophy: a disease where the retina slowly deteriorates, producing night blindness.

257. Prolapsed rectum: a condition where the inside of the rectum protrudes outside the anus.

258. Prolapsed uterus: a condition where the uterus protrudes into the vaginal canal or through the vaginal opening.

258a. Protein-losing enteropathy: a relatively common genetically predisposed condition also called inflammatory bowel disease, or “leaky gut syndrome”. Vomiting, diarrhea, and weight loss are the common signs, often in association with hypothyroidism (#166) and thyroiditis (#192, 312). Seen in many breeds but mostly in soft-coated Wheaten terriers (in conjunction with #258b), rottweilers, Bernese mountain dogs, German shepherd dogs, golden retrievers, Dalmatians, Akitas, Irish setters, English setters.

258b. Protein-losing nephropathy: a condition where protein is lost through the kidney. Affected dogs have excessive thirst and urination, which progresses to peripheral edema and renal failure. Seen in soft-coated Wheaten terriers (in conjunction with #258a).

259. Pseudohermaphrodism (pseudohermaphroditism): a condition where the animal has the gonads of one sex but the appearance is ambiguous or is of the opposite sex.

260. Pulmonic stenosis: a condition where one of the valves of the heart does not open properly.

261. Pyloric stenosis: a condition where the opening leading from the stomach does not function properly.

262. Pyometra: an bacterial infection of the uterus where it fills with pus.

263. Pyruvate kinase deficiency: a deficiency of a specific red blood cell enzyme. Most commonly seen in basenjis; also in beagles and Cairn terriers.

264. Quadriplegia with amblyopia: a syndrome characterized by weakness of all four limbs, as well as of vision.

264a. Rage syndrome: sudden unprovoked aggression of serious nature. Seen in English springer spaniels. (See #27)

265. Recessive retinal dysplasia: a developmental disorder resulting in an abnormal retina, carried by a recessive gene.

266. Renal cortical hypoplasia: a condition where the cortex of the kidney(s) develops incompletely.

266a. Renal dysplasia: a condition where the kidneys form abnormally. Renal failure develops with protein loss in urine.

267. Renal hypoplasia: a condition where the kidney(s) do not develop completely.

268. Renal tubular dysfunction: a condition where the tubules of the kidneys (the filtering structures) do not function properly. (See #124c) In basenjis, glycosuria develops and is called Fanconi syndrome.

269. Retinal detachment: where the retina is unattached to the back of the eye.

270. Retinal dysplasia: a condition where the retina is malformed.

271. Schnauzer comedo syndrome: a skin disease of schnauzers where the skin forms comedones ("blackheads"). Also in Mexican hairless.

272. Scotty cramp: a condition found in Scottish terriers where the animal has periodic, generalized cramping of the muscles.

273. Screw tail: a birth defect where the tail is twisted tightly on itself.

273a. Sebaceous adenitis: (See #140)

274. Sebaceous cyst: a small mass in the skin with a secretory lining and filled with a yellow waxy-like material. (See #107)

275. Sebaceous gland tumor: a tumor arising from sebaceous glands of the skin.

276. Seborrhea: a skin disease with excess scaling of the skin and often an excess of sebum (oil-like substance) and odor.

277. Sertoli cell tumor: a tumor of the testicles which secretes estrogen and causes feminization.

277a. Shar pei fever syndrome: similar to familial Mediterranean fever of humans, affected shar pei have waxing and waning high fevers, and swelling of the tarsus joints (swollen hock syndrome),which can progress to renal or hepatic amyloidosis.

278. Short skull: a skull that is abnormally short for the breed in question.

279. Short spine: a spine that is abnormally short for the breed in question.

280. Short tail: a tail that is abnormally short for the breed in question.

281. Shoulder abnormalities: a group of disorders of the shoulder joint due to malformation or subluxation.

282. Shoulder dysplasia: a looseness of the shoulder joint.

283. Silica uroliths: stones which are composed primarily from silicone that form in the bladder.

284. Sinoatrial syncope: a condition where the electrical impulses of the heart are abnormal and the animal has episodes of syncope (fainting).

285. Skin disorders: any of a number of abnormalities of the skin.

286. Skin neoplasms: any number of tumors arising from cells of the skin.

286a. Soft tissue cancers: prevalent and inherited in flat-coated retrievers.

286b. Spiculosis: a painful condition of the skin, most commonly seen in adult Kerry blue terriers. More common in males. The spicules are very dense, hard strands of hair that are thick and spiky.

287. Spina bifida: a developmental abnormality where some vertebra are malformed thereby exposing the spinal cord.

288. Spinal cord demyelination (ataxia): an abnormality of thenervous tissue of the spinal cord leading to incoordination.

289. Spinal dysraphism: a developmental abnormality where the spinal cord does not form completely. (See #305)

290. Spinal osteochondrosis: a specific type of developmentalabnormality of the vertebrae.

290a. Spinal process (vertebral) malformation: (See #61c)

291. Splenic torsion: a condition where the spleen twists upon itself.

292. Spondylolisthesis (Wobbler's syndrome): a condition where the vertebrae of the neck slip out of joint and are malformed causing progressive incoordination of the rear legs. Commonly seen in Doberman pinschers. (See #51, 332)

293. Spondylosis: a malformation of the vertebrae.

294. Squamous cell carcinoma: a cancer arising from the squamous type of skin cell.

295. Stenotic nares: a condition where the openings of the nose (nares) are too small.

296. Sterile pyogranuloma syndrome: a disease of the deeper layers of the skin characterized by formation of abnormal tissues, with no infectious organisms involved.

297. Sternal callus: a thickened, hairless area forming on the chest of an animal.

298. Stockard's paralysis: a degeneration of parts of the spinal cord causing paralysis.

299. Stomach torsion: (See #131)

299a. Stomatocytosis: disorder where red blood cells have a mouth-like shape leading to frequent bouts of hemolytic anemia, and increased red cell osmotic fragility. (See #13)

299b. 'Storage' disease: (See #193a, 188a)

300. Subaortic stenosis: a tightening of the outflow opening for blood to go from the heart into the aorta. Common in golden retrievers and Newfoundlands.

301. Subcorneal pustular dermatosis: a skin inflammation occurring between certain layers of the skin.

302. Subcutaneous cysts: small fluid-filled masses accumulating under the skin.

303. Subvalvular aortic stenosis: as #300, but the tightening occurs below the aortic valve.

303a. Sulfonamide sensitivity: a condition in genetically-predisposed breeds where metabolism of potentiated sulfonamides is impaired and adverse side-effects are seen, including liver dysfunction, dry eye (#181), rheumatoid arthritis, and bone marrow failure (red blood cell and/or platelet destruction). Seen in Doberman pinschers, samoyeds, miniature schnauzers, American eskimo dogs, kuvasz, great Pyrenees, and other white or dilute coated breeds.

304. Swimmer puppies: a developmental defect which causes a flattening of the body so that newborn pups are unable to place their feet under them for proper locomotion.

304a. Syncope: a brief period of fainting or collapse. (See #206a)

305. Syringomyelia: developmental abnormalities causing cavities within the spinal cord, probably just an effect of #289. Seen in Rhodesian ridgebacks.

306. Systemic lupus erythematosus: an autoimmune disease where antibodies form against the nuclear protein of cells. Characterized by skin lesions as well as other organ dysfunctions and blood abnormalities.

307. Tail abnormalities: any number of problems associated with the tail.

308. Tail fold dermatitis: a skin infection caused by abnormal tissue folds around the tail.

308a. Taurine-deficient cardiomyopathy: a reversible dilated cardiomyopathy caused by taurine deficiency in golden retrievers and Newfoundlands. (See #38)

309. Teeth abnormalities: any number of problems of the teeth.

310. Tetralogy of Fallot: a specific four-way developmental abnormality of the structures of the heart and associated great vessels.

311. Thrombocytopathy: a functional abnormality of small blood cells (thrombocytes or platelets) which are needed to control bleeding. (See #249)

311a. Thrombocytopenia: a reduced number of platelets in the blood which causes pinpoint hemorrhages in the skin and mucosa. Common disorder with high prevalence in breeds such as American cocker spaniels and old English sheepdogs. Often accompanies #146 as an autoimmune syndrome called Evans syndrome.(See #249) In breeds like the Cavalier King Charles and English toy spaniels, mild to moderately severe familial thrombocytopenia can be an incidental finding in clinically normal animals.

311b. Thymic atrophy: a deficiency of cell-mediated immunity expressed by decreased T-cell function and low concentrations of growth hormone. Occurs in Weimaraners. (See #165)

312. Thyroiditis: an autoimmune inflammatory disease of the thyroid gland. (See #166, 192)

313. Tracheal collapse: (See #57)

313a. Transitional cell carcinoma: a form of bladder cancer especially common in Scottish terriers, Shetland shhepdogs, and West Highland white terriers. (See #37)

314. Trembling of the hindquarters: a condition where the rear legs tremble due to muscle weakness or other pathologies.

315. Type II muscle fiber deficiency: a deficiency in form and/or function of a specific type of muscle fiber.

316. Ulcerative colitis: an autoimmune inflammation of the lining of the colon characterized by formation of ulcers.

317. Ulcerative keratitis: an inflammation of the cornea characterized by the formation of ulcers.

318. Umbilical hernia: a break in the abdominal muscle wall at the point where the umbilical cord enters the body.

319. Undershot jaw: a condition where the lower jaw is too long for the upper jaw.

320. Ununited anconeal process: a developmental abnormality of one of the bones of the elbow joint causing pain. (See #221a)

321. Uric acid calculi: bladder stones which are formed primarily from urates. Common in Dalmatians, except for the recently formally accepted genetically modified Low Uric Acid (LUA) Dalmatians, produced by crossing to a pointer and then backcrossing now in the 14th generation to preserve the breed's phenotype yet eliminate the uric acid calculi. (See #321)

322. Uric acid excretion abnormalities: an abnormality in the process of the excretion of the uric acid formed during metabolism. Common in Dalmatians, except those that are LUA stock. (See # 321).

322a. Urolithiasis: stone formation in the urinary tract.

323. Uterine eclampsia: (See #91)

324. Uterine inertia, primary: a condition where the uterus does not have the muscular strength to proceed with the birth process, and not due to any acquired problems (e.g., malnutrition).

324a. Uveodermatologic syndrome: (See #329)

325. Vaginal hyperplasia: an overgrowth of tissues of the vagina.

326. Vasculitis: an inflammatory condition of the blood vessels.

327. Ventricular septal defect: an abnormality (usually a hole) in the wall between the two chambers of the heart.

327a. Ventricular tachycardia: a condition where a ventricle of the heart beats too rapidly, leading to varying degrees of cardiac irregularity or syncope.

327b. Vitamin B12-responsive malabsorption: a disease of young giant schnauzers in which there is selective inability to absorb vitamin B12 from the bowel. Affected puppies have chronic nonregenerative anemia, low white blood cell counts, low serum vitamin B12, metabolites (methylmalonic acid) in the urine, and failure to thrive.

328. Vitiligo: a lack of pigment in the skin (called vitiligo in man and hypopigmentation in nonhuman animals). Common in rottweilers, Doberman pinschers, Old English sheepdogs and dachshunds. (See #161)

329. Vogt-Koyanagi-Harada-like syndrome: an autoimmune disease common in Akitas and the "sled" dog breeds where the eyes, blood and other tissues are progressively destroyed leading to blindness and death. Also called uveodermatologic syndrome.

330. von Willebrand disease: a type of bleeding disorder caused by defective blood platelet function. Occurs in 59 dog breeds but most often in Doberman pinschers. An autosomal trait affecting both sexes.

331. Westie armadillo syndrome: a condition of West Highland white terriers where the skin becomes very thickened. Related to atopic (inhalant) allergies. (See #106)

331a. White dog shaker syndrome: a disorder mainly of white dogs having muscular tremors over entire body, incoordination and rapid eye movements. Episodes occur with stress or excitement.

332. Wobbler's syndrome: (See #51, 292)

333. Zinc deficiency: can be caused by dietary problems, but also from an inability to utilize and store zinc properly. Seen as a lethal problem called acrodermatitis in bull terriers.

334. Zinc-responsive dermatosis: a condition where the skin is abnormal (scaly, hair loss, etc.) but which responds to the administration of zinc in the diet.