



Longevity of Purebred Dog Breeds

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Abstract

Body mass is a very significant factor for influencing longevity. Generally, large animal species tend to live longer than small species. In domestic dogs, the relationship between body size and lifespan shows opposite trend and increasing bodyweight is negatively correlated with longevity. Crossbred dogs have increased longevity, compared with purebreds. In the Cane Corso Italiano breed, a relationship between longevity and hair colour was found for the first time in mammals.

Understanding longevity and aging across species and individuals is critical for reaching higher ages at death in animals, as well as in humans. By understanding genetics, the age limits of animals and humans can be significantly prolonged. Detection and analysis of genes associated with longevity present a very promising method for prolonging life.

Body mass is a very significant factor for influencing longevity. Generally, large animal species tend to live longer than small species [1,2]. This rule has some exceptions. In domestic dogs, the relationship between body size and lifespan shows the opposite trend, and increasing bodyweight is negatively correlated with longevity [3,4]. A negative correlation has also been observed between height and longevity [5]. The lifespan of most dog breeds has already been described in the past [3,4]. Cane Corso is the last dog breed in which their lifespan was determined [6]. Breed – specific age at death is shown in Table 1.

Table 1: Longevity of Purebred Dog Breeds.

Breed Name	Median Longevity (Years)	Breed Weight Group**	Source
Affen pinscher	11,42	2	Adams (2010)
Afghan hound	11,92	4	Adams (2010)
Airedale terrier	10,75	3	Adams (2010)
Akita	9,92	4	Adams (2010)
Alaskan malamute	10,71	3	Adams (2010)
American cocker spaniel	10,33	3	Adams (2010)
Anatolian/Karabash	10,75	4	Adams (2010)
Australian cattle dog	11,67	3	Adams (2010)
Australian shepherd	9	3	Adams (2010)
Australian silky terrier	14,25	1	Adams (2010)
Australian terrier	12,08	1	Adams (2010)
Basenji	13,54	2	Adams (2010)
Basset Fauve de Bretagne	10,42	3	Adams (2010)
Basset griffon vendeen	12,04	3	Adams (2010)
Basset hound	11,29	3	Adams (2010)
Beagle	12,67	2	Adams (2010)
Bearded collie	13,5	3	Adams (2010)
Bearded collie	13,7	3	O'Neil (2013)
Bedlington terrier	13,38	2	Adams (2010)
Belgian shepherd	12,5	4	Adams (2010)
Bernese mountain dog	8	4	Adams (2010)
Bichon frise	12,92	1	Adams (2010)

Breed Name	Median Longevity (Years)	Breed Weight Group**	Source
Bichon frise	12,7	1	O'Neil (2013)
Bloodhound	6,79	5	Adams (2010)
Border collie	12,25	3	Adams (2010)
Border collie	13,5	3	O'Neil (2013)
Border terrier	14	2	Adams (2010)
Border terrier	12	2	O'Neil (2013)
Borzoi	9,08	4	Adams (2010)
Boston terrier	10,92	2	Adams (2010)
Bouvier des flandres	11,33	4	Adams (2010)
Boxer	10,25	4	Adams (2010)
Boxer	10	4	O'Neil (2013)
Briard	11,17	4	Adams (2010)
Brittany	12,88	3	Adams (2010)
Bull terrier	10	3	Adams (2010)
Bull terrier	11,2	3	O'Neil (2013)
Bulldog	6,29	3	Adams (2010)
Bulldog	8,4	3	O'Neil (2013)
Bullmastiff	7,46	4	Adams (2010)
Cairn terrier	14	2	Adams (2010)
Cairn terrier	13,4	2	O'Neil (2013)
Canaan dog	14,63	3	Adams (2010)
Cane corso italiano	9,29	4	Korec (2017)
Cavalier king charles spaniel	11,38	2	Adams (2010)
Cavalier king charles spaniel	9,9	2	O'Neil (2013)
Cesky terrier	8,42	2	Adams (2010)
Clumber spaniel	10,33	4	Adams (2010)
Cocker spaniel	11,17	3	Adams (2010)
Cocker spaniel	11,5	3	O'Neil (2013)
Collie	12,67	3	Adams (2010)
Curly coated retriever	10,75	4	Adams (2010)
Dachshund	12,67	2	Adams (2010)
Dalmatian	12,5	4	Adams (2010)
Dalmatian	13,3	4	O'Neil (2013)
Dandie Dinmont terrier	12,17	2	Adams (2010)
Deerhound	8,67	5	Adams (2010)
Dobermann	9,2	4	O'Neil (2013)
Dobermann	10,5	4	Adams (2010)
Dogue de Bordeaux	3,83	4	Adams (2010)
Dogue de Bordeaux	5,5	4	O'Neil (2013)
English setter	11,58	4	Adams (2010)
English springer spaniel	12	3	Adams (2010)
English springer spaniel	13,3	3	O'Neil (2013)
English toy terrier	12	1	Adams (2010)
Estrela mountain	9,75	3	Adams (2010)
Field spaniel	11,63	3	Adams (2010)
Finnish lapphund	7,33	2	Adams (2010)
Finnish spitz	11,13	3	Adams (2010)



Breed Name	Median Longevity (Years)	Breed Weight Group**	Source
Flat-coated retriever	9,83	4	Adams (2010)
Fox terrier	13,13	2	Adams (2010)
French bulldog	9	2	Adams (2010)
German longhaired pointer	10,5	3	Adams (2010)
German pinscher	11,38	2	Adams (2010)
German shepherd dog	11	4	O'Neil (2013)
German shorthaired pointer	12	4	Adams (2010)
German spitz	11,33	2	Adams (2010)
German wirehaired pointer	10	4	Adams (2010)
Giant schnauzer	10	4	Adams (2010)
Glen of imaal terrier	10,42	3	Adams (2010)
Golden retriever	12,25	4	Adams (2010)
Golden retriever	12,5	4	O'Neil (2013)
Gordon setter	11,08	3	Adams (2010)
Grand bleu de gascoigne	4,54	3	Adams (2010)
Great dane	6,5	5	Adams (2010)
Great dane	6	5	O'Neil (2013)
Greenland dog	8,46	3	Adams (2010)
Grey hound	9,08	4	Adams (2010)
Grey hound	10,8	4	O'Neil (2013)
Griffon bruxellois	12	1	Adams (2010)
Hamilton stovare	10,13	3	Adams (2010)
Havanese	10,25	3	Adams (2010)
Hovawart	12,92	3	Adams (2010)
Hungarian puli	12,42	3	Adams (2010)
Hungarian vizsla	12,92	4	Adams (2010)
Hungarian wirehaired vizsla	9,83	3	Adams (2010)
Chesapeake bay retriever	10,75	3	Adams (2010)
Chihuahua	12,42	1	Adams (2010)
Chihuahua	7,1	1	O'Neil (2013)
Chinese crested	10,08	1	Adams (2010)
Chow chow	9,38	3	Adams (2010)
Irish red & white setter	11,42	3	Adams (2010)
Irish setter	12	4	Adams (2010)
Irish terrier	14,83	2	Adams (2010)
Irish water spaniel	9,33	4	Adams (2010)
Irish wolfhound	7,04	5	Adams (2010)
Italian greyhound	13,5	1	Adams (2010)
Italian spinone	9	4	Adams (2010)
Jack russell terrier	13,4	2	O'Neil (2013)
Japanese chin	9,25	1	Adams (2010)
Japanese spitz	12,29	1	Adams (2010)
Keeshond	12,21	3	Adams (2010)
Kerry Blue terrier	11,5	3	Adams (2010)
King charles spaniel	10,04	2	Adams (2010)
King charles spaniel	12	2	O'Neil (2013)
Komondor	9,13	5	Adams (2010)



Breed Name	Median Longevity (Years)	Breed Weight Group**	Source
Kooikerhondje	3,92	3	Adams (2010)
Labrador retriever	12,25	4	Adams (2010)
Labrador retriever	12,5	4	O'Neil (2013)
Lakeland terrier	15,46	2	Adams (2010)
Lancashire heeler	11,75	2	Adams (2010)
Large munsterlander	11,33	4	Adams (2010)
Leonberger	7,08	5	Adams (2010)
Lhasa apso	13	2	O'Neil (2013)
Lhasa apso	14,33	2	Adams (2010)
Lowchen	10	1	Adams (2010)
Maltese	12,25	1	Adams (2010)
Manchester terrier	12,83	1	Adams (2010)
Maremma sheepdog	10	4	Adams (2010)
Mastiff	6,83	5	Adams (2010)
Mastiff	7,1	5	O'Neil (2013)
Miniature bull terrier	6,08	2	Adams (2010)
Miniature dachshund	13,5	1	O'Neil (2013)
Miniature pinscher	13	1	Adams (2010)
Miniature poodle	13,92	2	Adams (2010)
Miniature poodle	14,2	2	O'Neil (2013)
Miniature schnauzer	12,08	2	Adams (2010)
Neopolitan mastiff	2,33	4	Adams (2010)
Newfoundland	9,67	5	Adams (2010)
Norfolk terrier	11	2	Adams (2010)
Norwegian buhund	12,67	2	Adams (2010)
Norwegian elkhound	13,17	3	Adams (2010)
Norwich terrier	13,38	2	Adams (2010)
Nova Scotia duck tolling retriever	8	3	Adams (2010)
Old english sheepdog	10,75	4	Adams (2010)
Otterhound	10,21	4	Adams (2010)
Papillon/Butterfly dog	13,08	1	Adams (2010)
Parson russell terrier	13	2	Adams (2010)
Pekingese	11,42	1	Adams (2010)
Pharoah hound	11,83	3	Adams (2010)
Pointer	12,42	3	Adams (2010)
Polish lowland sheepdog	9,58	3	Adams (2010)
Pomeranian	9,67	1	Adams (2010)
Portuguese water dog	11,42	3	Adams (2010)
Pug	11	2	Adams (2010)
Pyrenean mountain dog	9,58	5	Adams (2010)
Pyrenean sheepdog	5,79	4	Adams (2010)
Rhodesian ridgeback	11	4	Adams (2010)
Rottweiler	8,92	4	Adams (2010)
Rottweiler	8	4	O'Neil (2013)
Rough collie	12	3	O'Neil (2013)
Russian black terrier	1,79	3	Adams (2010)
Saluki/gazelle hound	12	4	Adams (2010)



Breed Name	Median Longevity (Years)	Breed Weight Group**	Source
Samoyed	12,5	4	Adams (2010)
Scottish terrier	10,25	2	Adams (2010)
Scottish terrier	12	2	O'Neil (2013)
Sealyham terrier	12,25	2	Adams (2010)
Shar pei	6,29	3	Adams (2010)
Shetland sheepdog	12,5	2	Adams (2010)
Shetland sheepdog	12,5	2	O'Neil (2013)
Shiba Inu (Japanese)	7	2	Adams (2010)
Shih-tzu	13,17	2	Adams (2010)
Shih-tzu	13,3	2	O'Neil (2013)
Schipperke	13	2	Adams (2010)
Schnauzer (standard)	11,96	3	Adams (2010)
Siberian husky	12,58	3	Adams (2010)
Skye terrier	11	2	Adams (2010)
Soft coated wheaten terrier	12,5	3	Adams (2010)
St Bernard	7	5	Adams (2010)
Staffordshire bull terrier	10,7	3	O'Neil (2013)
Staffordshire bull terrier	12,75	3	Adams (2010)
Standard poodle	12	4	Adams (2010)
Sussex spaniel	11,13	3	Adams (2010)
Swedish vallhund	14,42	2	Adams (2010)
Tibetan mastiff	11,92	4	Adams (2010)
Tibetan spaniel	14,42	2	Adams (2010)
Tibetan terrier	12,17	2	Adams (2010)
Toy poodle	14,63	1	Adams (2010)
Weimaraner	11,13	4	Adams (2010)
Weimaraner	12,6	4	O'Neil (2013)
Welsh corgi	12,21	2	Adams (2010)
Welsh springer spaniel	12,58	3	Adams (2010)
Welsh terrier	12,67	2	Adams (2010)
West highland white terrier	13	2	Adams (2010)
West highland white terrier	13,5	2	O'Neil (2013)
Whippet	12,79	2	Adams (2010)
Yorkshire terrier	12,67	1	Adams (2010)
Yorkshire terrier	13	1	O'Neil (2013)

** Breed Weight Group: 1 = toy, 2 = small, 3 = medium, 4 = large, 5 = giant

Crossbred dogs have increased longevity, compared with purebreds, irrespective of bodyweight, based on predicted effects from hybrid vigour. Crossbreds demonstrated a 1.2 year average survival advantage over purebreds [4]. A valuable study of dog breeds compared purebred and crossbred longevity across five bodyweight categories, which demonstrated that age at death for purebred dogs was significantly lower than that of crossbred dogs for each bodyweight group [7]. This finding suggests that hybrid vigour substantially affects longevity in dogs. One possible explanation is that hybrid dogs are less likely to be homozygous for deleterious genes [8]. Only molecular genetic analysis of genes associated with longevity can explain this feature.

Young dogs usually died from gastrointestinal and infections causes, whereas older dogs died of neurological and neoplastic causes [9]. Breed specific proportional mortalities were described as the most common causes of death in 72 breeds. The breeds with the highest proportional mortalities for cancer included, in descending order, Irish water spaniel, Flat-coated retriever, Hungarian wirehaired vizsla, Bernese mountain dog, Rottweiler, Italian spinone, Leonberger, Staffordshire bullterrier, Welsh terrier, and Giant schnauzer [3]. Breeds with a cardiac condition as the highest breed specific proportional mortality, in descending order, included Cavalier King Charles spaniel, Norfolk terrier, Deerhound,



Griffon Bruxellois, and the British bulldog [3]. In the Cane Corso Italiano breed, a relationship between longevity and hair colour was found for the first time in mammals [6]. This finding can suggest some relationship between genes associated with longevity and genes responsible for hair colour.

Conclusion

Understanding longevity and aging across species and individuals is critical for reaching higher ages at death in animals, as well as in humans. By understanding genetics, the age limits of animals and humans can be significantly prolonged. Detection and analysis of genes associated with longevity present a very promising method for prolongation life. In the Cane Corso Italiano dog breed a relationship between longevity and hair colour was found for the first time in mammals.

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