

Dach-Facts: Information for Veterinary Surgeons



DACHSHUND HEALTH INFORMATION

There are some health conditions which occur more commonly in Dachshunds than in other breeds and these are covered in this Factsheet. The information identifies those that may be particularly prevalent in Dachshunds as a breed, whilst also highlighting any possible differences between individual varieties of dachshunds.

This paper lists conditions in order of body systems. **Those highlighted in red are current priorities for the Breed Council.**

Points of importance for discussion with clients about owning or breeding are in bold.

References to relevant papers are included and this summary is drawn from the Dachshund Breed Health and Conservation Plan published by the Kennel Club and Dachshund Breed Council in 2018.

For more information, e-mail: info@dachshundhealth.org.uk or visit our website: www.dachshundhealth.org.uk where you will also find advice for buyers and new owners.

Breed Priorities

The Breed Council's priorities, agreed with the Kennel Club, are as follows (**Nos. 1-6 are conditions to watch out for in veterinary practice**):

1. **Intervertebral Disc Disease (IVDD) which can affect around 1 in 4 Dachshunds and its welfare impact ranges from mild pain to life-changing paralysis. A UK Screening programme exists for breeders.**
2. **Lafora Disease (a form of myoclonic epilepsy) in Miniature Wirehaired Dachshunds, for which a DNA test exists.**
3. **Eye disease including PRA (for which DNA tests exist) and Distichiasis; therefore, we recommend all breeding animals are screened using the BVA/KC/ISDS Eye Scheme.**
4. **Mitral Valve Disease in the Smooth and Wire Standard varieties.**
5. **Pes Varus and Patellar Luxation in the Miniature varieties.**
6. **Colour Dilution Alopecia is a concern in Dachshunds with "dilute" colour genetics (Blue, Isabella/Lilac) but atopy is also prevalent across all 6 coats and sizes.**
7. **Maintenance of genetic diversity. The Kennel Club will now allow puppies born with a different coat type to their parents (so-called recessive coats) to be registered as per their coat.**

About the breed

There are 6 varieties of Dachshunds registered with the UK Kennel Club – Miniature (11lb./5Kg. or less) and Standard which should be up to 26 lb - but often may be rather larger. These are guideline weights, not target or “ideal” weights. Both sizes can have Smooth, Long or Wire haired coats. (The Kennel Club, 2009).

Miniature Dachshunds are amongst the longer-lived of dogs; one study found dogs of these breeds to average over 13 years old when they died (VetCompass 2013). The median age of death in the Kennel Club's 2004 Health Survey was just under 12 years. (The Kennel Club, 2004)

Dachshunds are hounds and, as such, should be very intelligent dogs. The downside of this is that they can become bored when left with too little stimulation and this can lead to behavioural problems such as separation anxiety. They normally appreciate their food and a loss of appetite can therefore be highly significant.

The Kennel Club. [Online] Breed Standards. Available from:

<https://www.thekennelclub.org.uk/services/public/breed/standard.aspx?id=1011>

O’Neill et al (2013) Longevity and mortality of owned dogs in England. *Veterinary Journal* 2013;198(3):638-43

The Kennel Club [Online] Dachshund Health Survey

<https://www.thekennelclub.org.uk/media/16390/dachshund.pdf>

Cardiovascular Conditions:

Mitral valve disease (MVD): The Dachshund has been described as predisposed to mitral regurgitation due to myxomatous mitral valve disease. Mitral valve prolapse, diagnosed by echocardiography, is an important prognostic factor for the development of mitral regurgitation. A Danish study of 190 Dachshunds involved clinical examination, echocardiography; although 71% (135 dogs) of study participants had no mitral murmur, 86% of the Dachshunds in the study were found to have some degree of mitral valve prolapse (Olsen et al, 1999). The coat type of the dogs appeared to be correlated with the presence and severity of mitral valve prolapse; Long Haired Dachshunds were more affected than Smooth Haired Dachshunds, which in turn appeared to be more affected than Wire Haired Dachshunds. Standard and Miniature Dachshunds of all coat types were represented, except there were no Miniature Smooth Haired individuals. The study authors noted that they were aware of another study which had found that Wire Haired and Smooth Haired Dachshunds were more likely to have mitral murmurs than Long Haired Dachshunds, suggesting that there may be geographic differences in coat type associations. Mitral valve prolapse appears to be inherited, and the mode of inheritance seems to be polygenic (Olsen et al, 1999).

A subsequent French study of six small breed dogs (excluding the Cavalier King Charles Spaniel, which is considered to be the most predisposed breed to MVD) included dogs which attended the National Veterinary School of Alfort and two veterinary hospitals in Paris

between September 1991 and June 2004. Dogs which were attending for a specialised cardiology consultation were excluded. In total, 942 dogs were included in the study, of which 162 were Dachshunds. The prevalence of left systolic apical murmurs, the first clinical sign of MVD, was 14.4% (± 2.2 95% C.I.s) across all six breeds; for the Dachshund the prevalence was 22.2% ± 6.4 , ranking the breed second out of the six breeds (Serfass et al, 2006). Size and coat type were not specified.

The 2015 UK DachsLife survey results did not indicate specifically a high level of mitral valve disease, instead the results indicated a high prevalence of dogs affected by heart murmurs, with Standard Wirehaired and Standard Smooth affected at a 7.8% and 6.3% prevalence respectively. There is a need for further data to be collated in order to decipher specific heart concerns with the additional necessity to include age of onset and mortality data.

Dermatological Conditions:

Atopic dermatitis (atopy): An Italian reference to Dachshunds being at increased risk of atopy has been reported (Gough, Thomas and O'Neill, 2018); however, no primary references or UK prevalence estimates could be found in the literature.

Atopy had been found to affect up to 20% of Standard Smooths in the 2015 DachsLife study.

However, it has been noted that an owner not familiar with veterinary terminology may find it difficult to correctly identify their dog's skin condition, and therefore atopy could be perceived as an overarching term.

Colour dilution alopecia: There is particular concern for the apparent rise in dogs affected by colour dilution alopecia (CDA), with many owners reporting this condition on social media, specifically in dilute blues, isabellas and chocolate coats. This appears to be on the increase due to the rising popularity in rare colours, with main concerns that there is no current way to identify lines carrying the condition.

We strongly advise potential owners not to buy dilute coloured Dachshunds.

Seven unrelated Dachshunds in Belgium were reported to have been affected with this late onset inherited alopecia, and pedigree analysis suggested the condition had an autosomal recessive mode of inheritance (Beco et al, 1996). The condition has subsequently been reported in two blue Dachshunds in Korea (Kim et al, 2005).

Endocrine Conditions:

Diabetes mellitus: Dachshunds have been reported to be at increased risk of diabetes mellitus (Gough, Thomas and O'Neill, 2018), but no prevalence estimates could be found in the literature. Dachshunds were reported to be more likely to develop anti-insulin antibodies than crossbreeds in a study of blood samples collected in the UK between 2002 and 2010 from 942 cases (including 14 Dachshunds) and 100 controls (Holder et al, 2015).

Development of anti-insulin antibodies can lead to higher doses of insulin being needed to control blood glucose levels.

Gestational diabetes anecdotally appears to be more common in Standard Smooths, causing complications during and post-whelping so it is something to be aware of when advising clients on feeding pregnant bitches.

Hyperadrenocorticism (Cushing's syndrome): This condition involves excessive production of cortisol by the adrenal glands and in dogs is most commonly caused by a benign tumour of the pituitary gland. In a study of 157 dogs with this pituitary-dependent hyperadrenocorticism examined at the University of California Davis Veterinary Medical Teaching Hospital between 1st December 1989 and 18th August 2005, Dachshunds were one of nine breeds described as being 'commonly affected' (Wood et al, 2007). However, the actual number of dogs of the breed represented, or seen for other conditions during this time period, was not given. No other references to this as a possible breed predisposition, nor prevalence estimates, could be found in the literature.

Hypothyroidism: Dachshunds have been reported to be at increased risk of hypothyroidism (Gough, Thomas and O'Neill, 2018); however, no primary references or prevalence estimates could be found to support this.

Gastrointestinal Conditions:

Bacterial cholecystitis and bactibilia: This condition involves bacterial infection of the gall bladder. Dachshunds were overrepresented in a retrospective American study of cases of the condition at the Oregon State University College of Veterinary Medicine from 1st January 2010 to 15th February 2014, with half of the ten cases seen occurring in Dachshunds, which the authors suggested could indicate a breed predisposition (Lawrence et al, 2015). Dachshunds and Dachshund crosses represented just 2.8% of all dogs visiting the hospital in the study period. There are no UK reports of this condition that we are aware of.

Pancreatitis: Dachshunds were reported to be at increased risk of acute pancreatitis in a study of 80 dogs diagnosed with the condition at the Veterinary School Hospital in Budapest between 2000 and 2003, representing 12.5% (10 dogs) of cases (Pápa et al, 2011). The odds ratio for Dachshunds was 3.19 (95% C.I. 1.64 – 6.19) compared to dogs of other breeds. An online breed survey has suggested there could be a link between Lafora disease and pancreatitis in Miniature Wirehaired, but further data is needed to support this.

Sialocoele (salivary mucocoele): This is a cystic swelling of a salivary gland. Dachshunds were significantly overrepresented in a study of 60 cases of the condition seen at the Sydney University Veterinary Teaching Hospital (Bellenger and Simpson, 1992). No more recent studies or prevalence estimates could be found in the literature.

There is a concern for *gastric dilatation/volvulus syndrome* (GDV/bloat), as the Dachshund is a deep-chested breed and has anecdotally been known to be affected; however, more data is needed on this subject. Similarly, *megaesophagus* has been reported in Miniature Smooths and it has been agreed these conditions should remain under watch.

Haematological Conditions:

Pyruvate kinase deficiency (PKD): This inherited deficiency causes congenital haemolytic anaemia and has been described in many breeds of dog including the Dachshund (Harvey, 2006). It has an autosomal recessive mode of inheritance and a DNA test for the mutation is available.

von Willebrand's disease (vWD): vWD is the most common heritable canine bleeding disorder. There are three types; type I vWD is characterised by a low concentration of structurally normal vW factor (vWf) and relatively mild clinical signs and this form has been reported in the Dachshund in an American review (Brooks, 1999).

Hepatic Conditions:

Whilst no hepatic conditions have been found to be correlated distinctly with the breed, there is some concern about *liver shunt*, with Miniature varieties most commonly affected. It has been agreed that whilst this is a low prevalence condition, it is highly distressing for owners and dogs so more data is to be collected in regard to this condition.

Musculoskeletal Conditions:

The Dachshund is a chondrodystrophic breed (Parker et al, 2009). This means that they have abnormal cartilage and bone growth resulting in characteristic disproportionate dwarfism. This is considered to be a breed characteristic in the Dachshund and a number of other breeds (including Basset Hounds and Corgis) rather than a disease condition.

Avascular necrosis of the femoral head (Legg-Calvé-Perthes disease): Dachshunds were reported to be at elevated risk of this condition with a breed-associated odds ratio compared to mixed breeds of 4.8 (with a 95% C.I. 2.0 – 11.2), based on dogs which had attended veterinary teaching hospitals in the USA between January 1986 and December 1995; however this result was only based on 8 cases and 30 non-cases in the breed (LaFond et al, 2002) and we have limited evidence for this being an issue in the UK.

Osteogenesis imperfecta (OI): OI is a congenital, inherited disease involving defects of type I collagen, with affected individuals therefore having fragile, fracture-prone bones and other signs. It has been described in dogs as long ago as 1960 but was first documented in two litters of Wire Haired Dachshunds in Germany in 2003 (Seeliger et al, 2003). A causative missense mutation, c.977C>T,p.L326P, in the *SERPINH1* gene was identified, and a DNA test made available (Drögemüller et al, 2009). Subsequently, 1352 Dachshunds of all sizes and coat types from 12 different European countries were genotyped for the mutation; the overall frequency of carriers was 12.9%, while Wire-Haired Dachshunds of both sizes were overrepresented with 17.3% carriers (Eckardt et al, 2013).

Dogs bred within the UK generally have been tested clear for the causal mutation. There has been discussion into investigating this condition with the Animal Health Trust (AHT) but it has been decided not to pursue this due to its apparent low prevalence in the UK.

Pes varus: This condition, in which the outside part of the growth plate of the tibia closes later than the inner part leading to inward deviation of the tibia and a bow-legged appearance, has been described as affecting Dachshunds most commonly (Radasch et al, 2008). It is suggested that the condition may have an autosomal recessive mode of inheritance.

Other conditions: Dachshunds were reported to be at increased risk of inguinal or scrotal herniation in an Australian veterinary hospital study, and olecranon fracture, patellar luxation (PL) and congenital tail anomalies in three old German case series (Gough, Thomas and O'Neill, 2018); however, the original references could not be accessed and no other reports or prevalence estimates could be found in the literature. **Patellar luxation** was reported at 2% prevalence in the DachsLife 2018 survey. For context, O'Neill et al (2016) found the UK prevalence of PL across all breeds to be 1.3%, although this study did not report Dachshunds to be amongst the top 11 highest prevalence breeds.

Neoplastic Conditions:

Mammary neoplasia: A Czech retrospective case series of 185 dogs treated for mammary tumours at the Small Animal Clinic of the University of Brno between 1997 and 2001 found an increased risk in Dachshunds compared to all dogs; Dachshunds had an odds ratio of 1.6 compared to all dogs, with 43 cases in 2053 dogs of the breed (Zatloukal et al, 2005). It was noted that following the 2015 DachsLife survey there does not appear to be a correlation between neutering and the development of mammary tumours in Dachshunds, but a further study could help support this finding.

Squamous cell carcinoma of digit: An American retrospective case series of 64 dogs diagnosed with digital tumours at 9 veterinary institutions between January 1980 and December 2000 reported that Dachshunds were overrepresented with squamous cell carcinoma of the digit, accounting for three of 33 cases (Henry et al, 2005)

Other cancers: Dachshunds were reported to be at increased risk of mast cell tumours in a German case series, melanoma in a Brazilian and a Thai case series and oral fibrosarcoma in a Polish case series (Gough, Thomas and O'Neill, 2018); however, the original references could not be accessed and no other reports or prevalence estimates could be found in the literature.

In the 2018 DachsLife survey, the median age of diagnosis of cancers and tumours was 9 so, in general, this is a condition of older age. However, during the past 3 years there has been a cluster of early-onset lymphomas reported in Miniature Longhaired Dachshunds and this is being monitored by the Breed Council.

Neurological Conditions:

Idiopathic epilepsy: An American study thirty years ago describing a possible familial form of idiopathic epilepsy in Dachshunds has been reported (Gough, Thomas and O'Neill, 2018); however, the original paper could not be accessed, and no subsequent reports could be found in the literature.

Miniature Longhaired Dachshunds seem to have approximately four times the risk of developing epilepsy compared to the other varieties according to the 2015 and 2018 DachsLife studies. An online reporting tool appears to indicate that currently 50% of affected dogs are Miniature Longhaired.

The Breed Council has an epilepsy reporting database at www.dachshundhealth.org.uk

Intervertebral disc disease (IVDD): Dachshunds have long been known to be predisposed to IVDD. A full review of the literature relating to IVDD in the breed is beyond the scope of this document; however, some key points and recent highlights are described here. A recent study of electronic patient records of 90,004 dogs examined at the University of California-Davis Veterinary Medical Teaching Hospital, USA, between 1st January 1995 to 1st January 2010 found the Dachshund to be the most frequently affected breed with IVDD, with a breed-specific prevalence of 34.92% compared to a mixed breed-prevalence of 4.43% (Bellumori et al, 2013).

A study of 61 Danish dogs of the breed found that Dachshunds with less than three calcified intervertebral discs at 24 months of age were less likely to develop, and had less severe, IVDD than dogs with several disc calcifications (Jensen et al, 2008).

In Finland, Denmark and Norway screening spinal radiography for intervertebral disc calcification (IDC) has been used for more than 15 years. A study of the 1553 Finnish Dachshunds which had been radiographically screened up to 1st May 2015 reported that the number of calcified discs was highest in the Miniature Smooth Haired and lowest in the Miniature Long Haired and standard Long-Haired variants (Lappalainen et al, 2015). The authors estimated a heritability of 53.4% (standard error 5.2%) for the number of calcified discs, suggesting that phenotypic selection against the number of calcified discs should be possible and effective, but that estimated breeding values (EBVs) for the trait would enable faster genetic progress to be made. In 2017, an American study identified a *FGF4* retrogene insertion on chromosome 12 which segregates with the chondrodystrophoid phenotype including limb length and Hansen's Type I IVDD and the authors suggested that this presented an opportunity for genetic testing over time to eliminate Type I IVDD (Brown et al, 2017). However, more recent studies suggest that, because the mutation appears to be fixed in the Dachshund population (at least in the UK), this test is unlikely to be of much use. Additional information and UK prevalence estimates can be found in breed-specific health surveys.

It has also been shown that there is an association between early neutering and increased risk of IVDD.

The Breed Council's advice is that dogs and bitches should be fully mature before considering neutering, unless there is a clinical reason for doing so at a younger age.

There is a UK IVDD screening programme, with an examination costing ~£300, age of screening to be between 2 – 4 years, and the results giving an indication of risk.

Clients should be advised to screen their Dachshunds should they wish to breed from them, as this is a starting point for decreasing the prevalence of IVDD.

The Breed Council has an IVDD website www.dachshund-ivdd.uk with up-to-date information on diagnosis, treatment and prognosis.

Lafora disease: This myoclonic form of epilepsy occurs in the Miniature Wirehaired variety and, prior to the availability of a DNA test, was estimated to have a prevalence of around 10%. Age of onset can be as young as 5 but is quite variable, through to older age. The breed has seen a dramatic drop in prevalence due to the uptake of the DNA test for the condition.

Anyone breeding from a Mini Wire should use the DNA test and it is also the most accessible tool for clinical diagnosis of suspected cases.

Vestibular disease: Dachshunds were overrepresented in a retrospective cases series of 81 cases of vestibular disease diagnosed in a veterinary teaching hospital in southern Brazil between 2006 and 2013 (Chaves et al, 2013); however, the numbers of cases and unaffected Dachshunds seen at the hospital were not presented in the English translation of the original research.

Ocular Conditions:

Progressive retinal atrophy:

A DNA test for Cord1 PRA exists and is recommended for all the Miniature varieties, prior to breeding.

A DNA test for the less common NPHP4 PRA found in Standard and Miniature Wires is also available.

It has been agreed that PRA (cord1) is no longer a concern for Miniature Wirehaired and there could be potential to request this is removed from the Assured Breeder Scheme requirements if this continues to be the case. However, it was agreed it would be prudent to continue testing of imported dogs.

Sudden acquired retinal degeneration syndrome (SARDS): Dachshunds comprised 9% of cases in an American retrospective case series of 140 dogs presenting with acute onset vision loss and subsequently diagnosed with SARDS at two East Coast veterinary hospitals between 2000 and 2006 (Montgomery et al, 2008). This apparent overrepresentation has subsequently been found in three other North American veterinary hospital case studies (Heller et al, 2017; Leis et al, 2017; Auten et al, 2018). SARDS has been infrequently

reported, with eight cases seen in the past 10 years in the UK, but it was noted that this could be due to veterinarians misdiagnosing the condition.

Other ocular conditions: Dachshunds were reported to be overrepresented with keratoconjunctivitis sicca (KCS, 'dry eye') in an American retrospective case series (Gough, Thomas and O'Neill, 2018); however, the original paper could not be accessed and no more recent references or prevalence estimates for the condition could be found in the literature.

The DachLife 2015 and 2018 surveys also highlighted that Longhaired varieties appear to be more commonly affected by *distichiasis*.

BVA/KC/ISDS eye screening is recommended for all breeding animals in all 6 varieties.

Reproductive Conditions:

It has been noted that Dachshunds can be slower at whelping and that inexperienced breeders may be more likely to source veterinary intervention. Cases of undescended testicles were noted to be increasing within the breed, and this is to be monitored.

Respiratory Conditions:

Nasopharyngeal stenosis: This congenital condition was described in seven Smooth Haired Dachshunds in South Africa, and clinical signs included 'expiratory cheek puffing', upper respiratory dyspnoea and dysphagia (Kirberger et al, 2006). No more recent reports or prevalence estimates could be found in the literature.

Urological Conditions:

Urolithiasis – calcium oxalate: The Dachshund was found to be at slightly increased risk of calcium oxalate uroliths in a Canadian case series of urolith submissions between 1998 and 2001, with an odds ratio of 1.55 (95% C.I. 1.06-2.26; 129 cases) compared to crossbreeds (Ling et al, 2003).

Urolithiasis – cystine: Dachshunds were reported to be at increased risk of this type of urolith, with male dogs being predominantly affected (Gough, Thomas and O'Neill, 2018); however, no primary references or prevalence estimates could be found.

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