

FRENCH BULLDOG SPINE DATABASE

Dr. Greg Keller of OFA presented a seminar at the 2004 National Specialty in which he summarized the data gathered in the French Bulldog Spine Database Pilot Project that began in approximately 2001.

The initial goal of this research project was to obtain radiographs of Frenchie spines in an attempt to determine how common the major types of vertebral anomalies are in French Bulldogs, the regions of the spine most often involved, and whether there is a relationship between these anomalies and clinically significant "back trouble."

None of the dogs were reported as having had symptomatic back problems at the time that the original radiographs were submitted, either related to vertebral anomalies or to disc herniations. A follow-up questionnaire was sent out in 2004 to determine whether the dogs in the database have developed symptoms attributable either to vertebral anomalies or to herniated discs since being entered in the database. Of the 106 dogs on whom follow-up responses were received, 7 were reported to have had intervertebral disc disease, and of these dogs three were reported on their initial evaluations as having identifiable calcified intervertebral discs. None of those herniated discs were anatomically related to vertebral malformations. Further follow-up questionnaires will be sent, as disc herniations generally occur at age 5 years and the average age of the dogs on whom follow up questionnaires were returned was only 42.3 months with the average age of the dogs on initial radiographic evaluation being 19.2 months. Therefore, these dogs need to be followed through the ages at which disc herniation is most likely to occur.

A second follow-up questionnaire will be sent out to participants in 2008 to determine whether any clinical problems have developed in the dogs entered in the database; and if so, whether it can be determined whether those are attributable to the anomalies.

At present, a total of 245 Frenchies have been entered in the database.
A total of 941 vertebral anomalies were found in those 245 Frenchies.
Of these 245 dogs, 12 (4.9%) have "normal" spines free of vertebral anomalies.
Therefore 95.1% of the Frenchies studied have spines with one or more vertebral anomalies.

There are four types of vertebral anomalies seen in Frenchies:

- Hemivertebra (wedge-shaped vertebral body)
- Butterfly vertebra ("butterfly" shaped vertebral body with central portion missing or reduced)
- Block vertebra (a pair of adjacent vertebrae fused together)
- Transitional vertebra (a vertebra showing some characteristics of two types, such as cervical plus thoracic characteristics, or thoracic and lumbar characteristics).

Of the 941 anomalies seen in this study, the frequency of each type was:

Hemivertebrae:	694	(73.8%)
Butterfly vertebrae:	170	(18.1%)
Block vertebrae	65	(6.9%)
Transitional vertebrae	12	(1.2%)

Of the 941 anomalies, the parts of the spine in which they were located are:

Cervical spine	14 anomalies	(1.5%)
Thoracic spine	895 anomalies	(95.1%)
Lumbar spine	32 anomalies	(3.4%)

THE NUMBER OF ANOMALIES PER DOG WERE:

- Cervical spine:
3 dogs had 1 anomalous cervical vertebra
1 " " 2 " " "
1 " " 4 " " "
1 " " 5 " " "
- Thoracic spine:
38 dogs had 1 anomalous thoracic vertebra

41	“	“	2	“	“	“
35	“	“	3	“	“	“
37	“	“	4	“	“	“
33	“	“	5	“	“	“
17	“	“	6	“	“	“
11	“	“	7	“	“	“
7	“	“	8	“	“	“
3	“	“	9	“	“	“
2	“	“	10	“	“	“
1	“	“	11	“	“	“
2	“	“	13	“	“	“

(NOTE: from the above, note that 81% of the dogs with thoracic anomalies had five or fewer. A few dogs with extremely affected thoracic spines were noted to have compromised chest cavities, which can adversely affect the lungs and heart.)

• Lumbar spine:

23 dogs had 1 anomalous lumbar vertebra

3	“	“	2	“	“	“
1	“	“	3	“	“	“

LOCATION PER DOG:

• Cervical spine:

C3: 1 dog had anomaly at this level.

C4: 3 “ “ “ “ “ “

C5: 3 “ “ “ “ “ “

C6: 2 “ “ “ “ “ “

C7: 2 “ “ “ “ “ “

• Thoracic spine:

T1: 1 dog had anomaly at this level.

T2: 8 “ “ “ “ “ “

T3: 25 “ “ “ “ “ “

T4: 48 “ “ “ “ “ “

T5: 91 “ “ “ “ “ “

T6: 110 “ “ “ “ “ “

T7: 105 “ “ “ “ “ “

T8: 90 “ “ “ “ “ “

T9: 81 “ “ “ “ “ “

T10: 53 “ “ “ “ “ “

T11: 36 “ “ “ “ “ “

T12: 20 “ “ “ “ “ “

T13: 9 “ “ “ “ “ “

(NOTE: 70% of the thoracic anomalies were in the region from T5 to T9)

• Lumbar spine:

L1: 1 dog had anomaly at this level.

L2: 3 “ “ “ “

L3: 1 “ “ “ “

L5: 1 “ “ “ “

CONTIGUOUS ANOMALIES PER DOG:

• Cervical Spine:

0 continuous anomalies in C-spine in 3 dogs with cervical anomalies

2 “ “ “ “ “ 1 “ “ “ “

4 “ “ “ “ “ 2 “ “ “ “

- Thoracic Spine:

0 continuous anomalies in T-spine in 92 dogs with thoracic anomalies

2	"	"	"	"	"	65	"	"	"	"
3	"	"	"	"	"	38	"	"	"	"
4	"	"	"	"	"	19	"	"	"	"
5	"	"	"	"	"	19	"	"	"	"
6	"	"	"	"	"	11	"	"	"	"
7	"	"	"	"	"	8	"	"	"	"
8	"	"	"	"	"	1	"	"	"	"
9	"	"	"	"	"	2	"	"	"	"
10	"	"	"	"	"	1	"	"	"	"
13	"	"	"	"	"	1	"	"	"	"

- Lumbar spine:

0 continuous anomalies in L-spine in 23 dogs with lumbar anomalies

2	"	"	"	"	"	1	"	"	"	"
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IN SUMMARY, THE DATA TO DATE IN 2004 SHOWED:

- 95.1% (233) of the 245 Frenchies studied have spines with one or more vertebral anomalies. (in 2007, 564 of the 593 dogs in the databasae had one or more vertebral anomalies, which is the same percentage as was noted in 2004.)
- Thoracic hemivertebrae were the most common anomalies.
- 81% of dogs with anomalies had 5 or fewer anomalies (the same percentage was found in 2007)
- 70% of thoracic anomalies were between T5 and T9 (the same percentage was found in 2007)
- 75.6% of dogs with thoracic anomalies had 3 or fewer contiguous anomalies
- 7 dogs have had herniated discs, none related to vertebral anomalies; further follow-up is planned as the study group of dogs ages.

Dr. Keller's seminar, which included hips as well as the spine data, is available on videotape or DVD (e-mail Ann Jensen for info: BullyMom@aol.com).