

**Deerhound society/Capital Diagnostics PSS survey
Report May 2017**

For the purpose of this survey a bile acids value of $>30\mu\text{mol/l}$ is taken as a cut off for stating no PSS present. It is appreciated that this value is somewhat arbitrary, with a value of $40\mu\text{mol/l}$ or sometimes higher often reported as being the upper limit of normality for a post-prandial bile acids. For any results $>30\mu\text{mol/l}$ the advice was always to re-test at 10-12 weeks. The pups have been grouped into those with values $<30\mu\text{mol/l}$, those with equivocal values that are probably of no concern ($30\text{-}70\mu\text{mol/l}$) and those with values $>70\mu\text{mol/l}$ which are likely to have a PSS.

- Post-prandial blood samples were received from 624 pups >6 weeks of age from 92 litters, from 52 different breeders.
- 593 pups had a post-prandial bile acid concentration under $30\mu\text{mol/l}$, and thus were considered not to have a PSS.
- 31 pups from 7 litters had a bile acids concentration of $>30\mu\text{mol/l}$ raising the possibility of a PSS and a recommendation was made that pups should be re-tested in 2-4 weeks.
 - For 16 pups no follow up samples were received. The bile acids values for these 16 pups ranged from $31.8\text{-}165\mu\text{mol/l}$. The 8 pups that had bile acids values $>70\mu\text{mol/l}$ are more likely than not to have had a PSS. Three pups with bile acids values between 40 and $70\mu\text{mol/l}$ are of equivocal status. Five pups had bile acids concentrations $<40\mu\text{mol/l}$ and probably do not have a PSS.
 - For 15 pups from 7 litters follow-up samples were received at 10-12w.
 - a. Seven pups that showed high bile acids values at 8 weeks ranging from $35.2\text{-}129.6\mu\text{mol/l}$ had values ranging from $0.3\text{-}2.6\mu\text{mol/l}$ at 10-12 weeks if age and were considered not to have a PSS
 - b. Eight pups that showed high bile acids values at 8 weeks ranging from $42.7\text{-}131.6\mu\text{mol/l}$ had values ranging from $34.5\text{-}288.3\mu\text{mol/l}$ at 10-12 weeks of age. The actual values are shown in table 1. For 2 of the pups bile acids concentrations dropped but remained above the value of $30\mu\text{mol/l}$. It probable that these pups do not have a PSS. Two other pups showed slight rises in their bile acids but remained $<100\mu\text{mol/l}$. Further assessment was recommended but no further samples were received. For four pups the values unequivocally support a diagnosis of a PSS.

Table 1

Bile acids value at 8 weeks	Bile acids value at 10-12 weeks	
85.1	34.5	Probably not PSS
42.7	36.4	Probably not PSS
45.8	63.9	Suspicious PSS
55.4	70.1	Suspicious PSS
107.2	196.8	Definite PSS
112.1	244.8	Definite PSS
43.3	288.3	Definite PSS
131.6	202.7	Definite PSS

Therefore:

- a. 4/624 pups from 3/92 litters are classed as definitely having a PSS.
- b. 10/624 pups from 8/92 litter are classed as suspicious for a PSS
- c. 3/624 pups from 2/92 litters are classed as equivocal for a PSS
- d. 7/624 pups from 6/92 litters are classed as probably not having PSS
- e. 600/624 pups are classed as definitely not having a PSS.

Summary

Number of litters tested	92
Total number of pups tested	624
Number of pups with BA concentrations < 30 µmol/l at the first test	593
Number of pups with BA concentrations > 30 µmol/l at first test (usually 8w)	31
Number of pups retested at 10-12 weeks of age whose BA concentration dropped to below 30 µmol/l	7
Number of pups retested at 10-12 weeks of age whose BA concentration persisted above 30 µmol/l	8
Number of pups with concentrations >30 who were not retested	16
Number of pups who definitely or probably have a PSS (Bile acids >70µmol/l)	14
Number of pups equivocal for or probably do not have a PSS (Bile acids 30-70µmol/l)	10
Number of litters containing at least one pup who definitely or probably has a PSS	9
Number of litters where all pups showed bile acids values <30µmol/l	73

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