



IWDC 2015 BEHAVIOURAL AND CORTISOL RESPONSES IN A STANDARDISED TEST FOR MILITARY WORKING DOGS

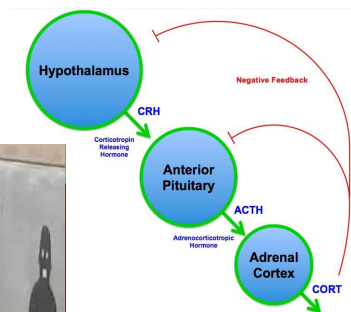
PhD Candidate Pernilla Foyer



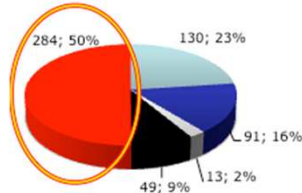
Background



→ Stress response



SAF K9 Breeding programme



SAF Breeding result 2005-2015:
>1000 tested dogs

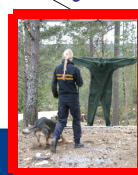
Production ≈ 250 GSD/year
≈ 30% kept for training



Female leave



8w, Puppy off to puppy raisers



SAF K9 Breeding Kennel Sollefteå



The T-test

Leash

Affability

Handling

25 behavioural variables, Behavioural Ratings (BR)
13 behavioural traits, Subjective Ratings (SR)

Acoustic Startle

Visual Startle

Material and Method

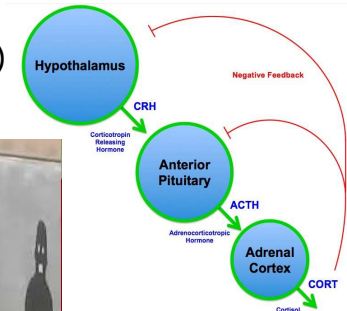
Behaviour

- ❖ Behavioural Rating, BR
- ❖ Subjective Rating, SR (IV)
- ❖ Behavioural Coding, BC (video)



Physiology

- ❖ Cortisol (saliva)



Behaviour and Cortisol Responses in a Standardised Temperament Test used for MWD:s

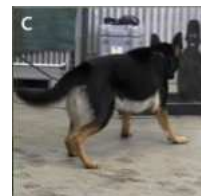
Part one. Behavioural responses

- ❖ Comparing methods, BR and BC
- ❖ N=85 (N_M=44, N_F=41)
- ❖ 24 litters (litter size 3-11)
- ❖ Age when tested 15-19 month



Part two. Cortisol responses

- ❖ Behaviour (IV) and cortisol analysis
- ❖ N=37 (N_M=18, N_F=19)
- ❖ 10 litters (litter size 3-11)
- ❖ Age when tested 15-19 month



The four chosen sub-tests



Result part one

PRINCIPAL COMPONENT ANALYSIS									
Behavioural Rating					Behavioural Coding				
Variable	PC1	PC2	PC3	PC4	Variable	PC1	PC2	PC3	PC4
A.Flight distance	0.78	0.11	0.24	-0.07	Seeking cover	0.58	-0.24	0.33	-0.12
A.Secondary response	0.68	0.06	0.28	0.20	Standing still	0.79	0.34	-0.08	0.06
A.Lasting effect	0.86	0.08	0.12	0.13	Hunching	-0.62	0.40	0.15	-0.11
V.Flight distance	0.65	0.41	-0.02	-0.32	Short bark	0.58	0.38	-0.31	0.01
V.Lasting effect	0.63	0.48	0.10	-0.03	Support seeking	0.73	0.14	-0.10	-0.10
V.Secondary response	0.46	0.66	0.13	-0.18	Backing away	0.05	0.82	-0.08	-0.05
G.Fearfulness	0.08	0.89	0.13	0.05	Rapid barking	0.20	0.76	0.10	-0.02
G.Agression	-0.04	0.77	0.00	0.35	Interacting with stimuli				
G.Secondary response	0.45	0.58	0.12	-0.03	Sniffing	-0.06	0.02	0.87	0.04
G.Lasting effect	0.46	0.54	0.18	-0.30	Escapes	0.02	-0.08	-0.23	0.81
Search intensity	0.20	0.12	0.92	-0.14	Circling/wandering	-0.11	-0.03	0.45	0.73
Search persistence	0.22	0.13	0.92	0.02	Approaches stimulus	-0.27	0.48	0.49	-0.19
V.Agression	0.08	0.09	-0.08	0.90					
Variance explained (%)	41.0	13.1	9.6	9.1	Variance explained (%)	23.7	18.3	11.9	10.6
Total Variance 72,7%, N=67					Total Variance 64,5%, N=85				
Principal component analysis, after Varimax rotation with Kaiser normalisation.									

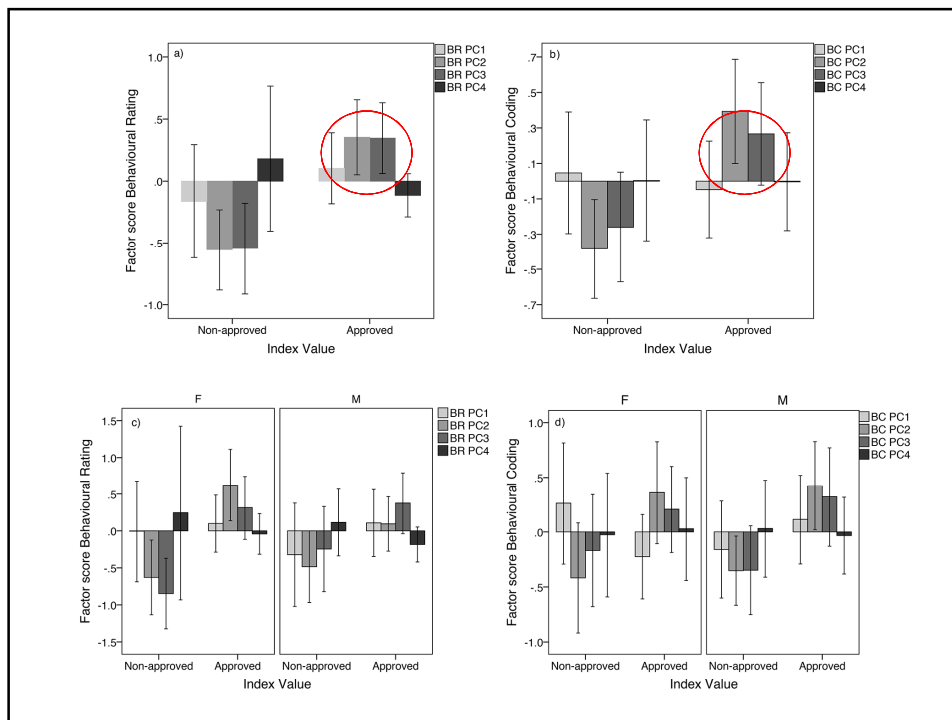




Result part one



	Behavioural Rating PC1	Behavioural Rating PC2	Behavioural Rating PC3	Behavioural Rating PC4
Behavioural Coding PC1	-0.005 (0.967)	-0.162 (0.190)	-0.155 (0.210)	0.109 (0.380)
Behavioural Coding PC2	-0.146 (0.238)	0.416 (>0.001)*	0.048 (0.700)	0.224 (0.068)
Behavioural Coding PC3	-0.005 (0.966)	-0.238 (0.052)	0.273 (0.025)*	0.018 (0.884)
Behavioural Coding PC4	-0.315 (0.009)*	-0.150 (0.225)	-0.201 (0.103)	0.159 (0.198)



Behaviour and Cortisol Responses in a Standardised Temperament Test used for MWD:s

Part one. Behavioural responses

- ❖ Comparing methods, BR and BC
- ❖ $N=85$ ($N_M=44$, $N_F=41$)
- ❖ 24 litters (litter size 3-11)
- ❖ Age when tested 15-19 month

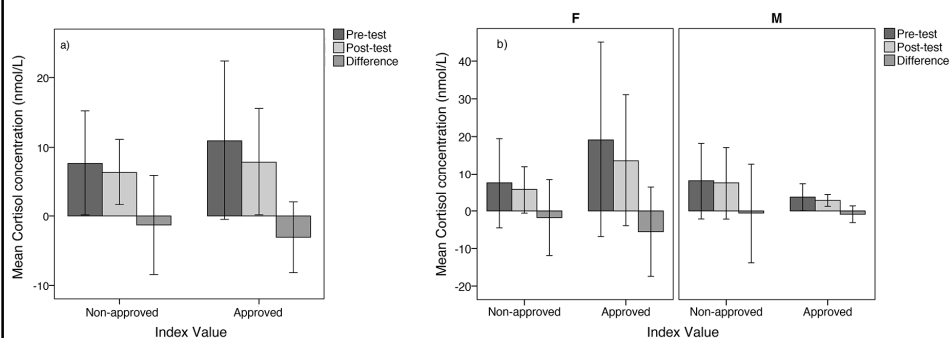


Part two. Cortisol responses

- ❖ Behaviour (IV) and cortisol analysis
- ❖ $N=37$ ($N_M=18$, $N_F=19$)
- ❖ 10 litters (litter size 3-11)
- ❖ Age when tested 15-19 month



Result part two



$N_A=19$
 $N_{N-A}=18$

$N_{A(F)}=8$
 $N_{N-A(F)}=11$

$N_{A(M)}=11$
 $N_{N-A(M)}=7$

Conclusion

- There were few correlations between PC scores for BR and BC, indicating that the two methods assess different aspects of dog behaviour in the standardised T-test.
- We found no differences in saliva cortisol levels between approved and non-approved dogs, suggesting that the T-test is not selecting dogs based on their physiological stress levels.



Thanks to

- ❖ IWDC scientific committee
- ❖ Supervisor Professor Per Jensen
- ❖ Master students Anna-Maria Svedberg & Emma Nilsson
- ❖ SAF K9 centre
- ❖ Swedish Centre of Excellence in Animal Welfare Science, financed by the research council Formas.
- ❖ European Research Council, within the project GENEWELL.



SWEDISH ARMED FORCES



