
States of Arousal Are Related to Successful Working Guide Dogs

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Why?






Behavior Checklist (BCL)


Definition for each score for each of 51 items	
Absent	5
Very Mild	4
Mild	3
Moderate	2
Severe	1
Not Applicable	0

Released for item?
Yes
No

James Serpell, PhD

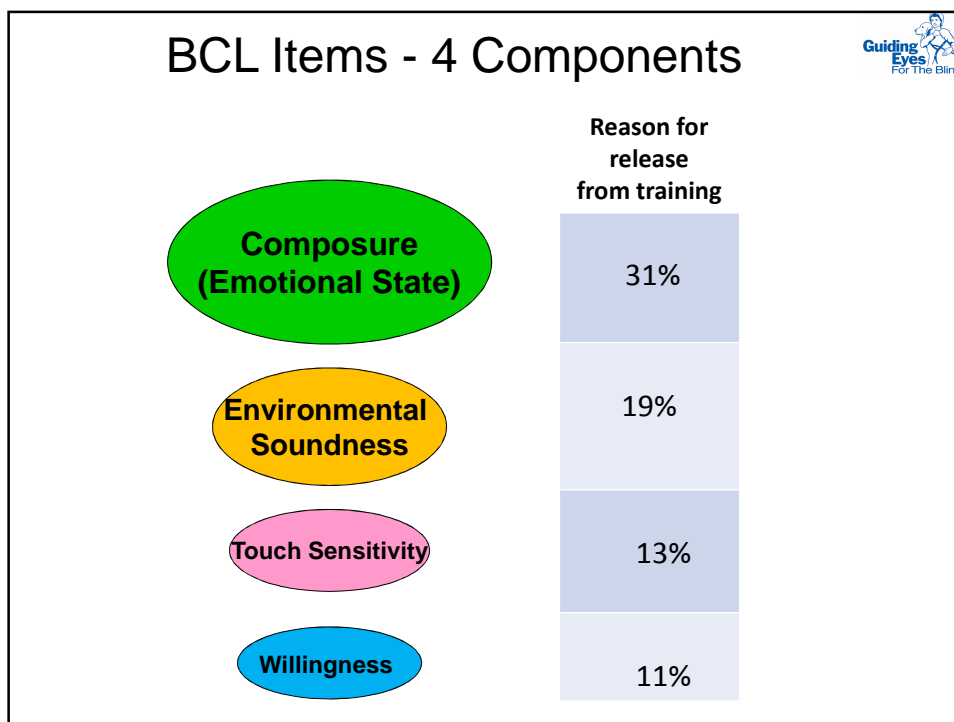



3



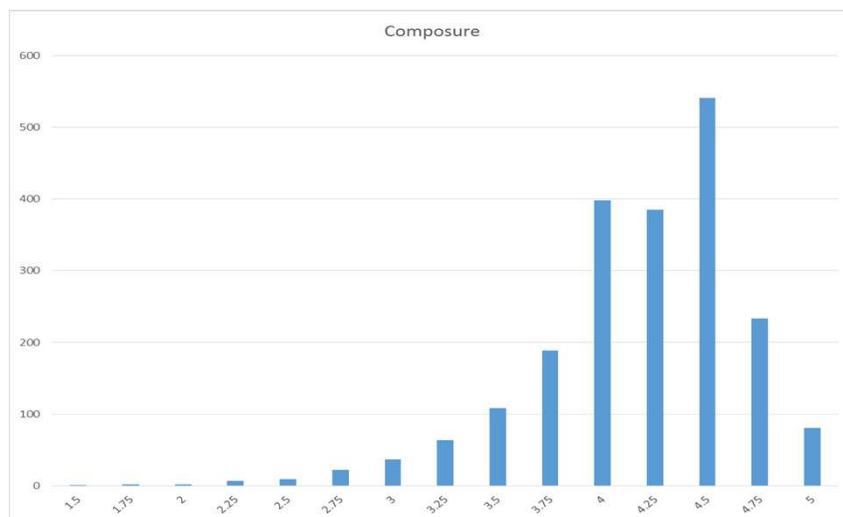
Collected Longitudinal Data

Age in Months	What observed	Stored	Number
2	<ul style="list-style-type: none"> • Socialization and training • Puppy test 	BCL & Video	1500
4,8,13	<ul style="list-style-type: none"> • Puppies with raisers 	BCL & Video	1000
14-18	<ul style="list-style-type: none"> • Training induction test 	BCL & Video	1200
>14	<ul style="list-style-type: none"> • Preliminary blindfold test and trainer's observations –first 2 months or when rejected • Final blindfold test and trainer's observations 	BCL	1200



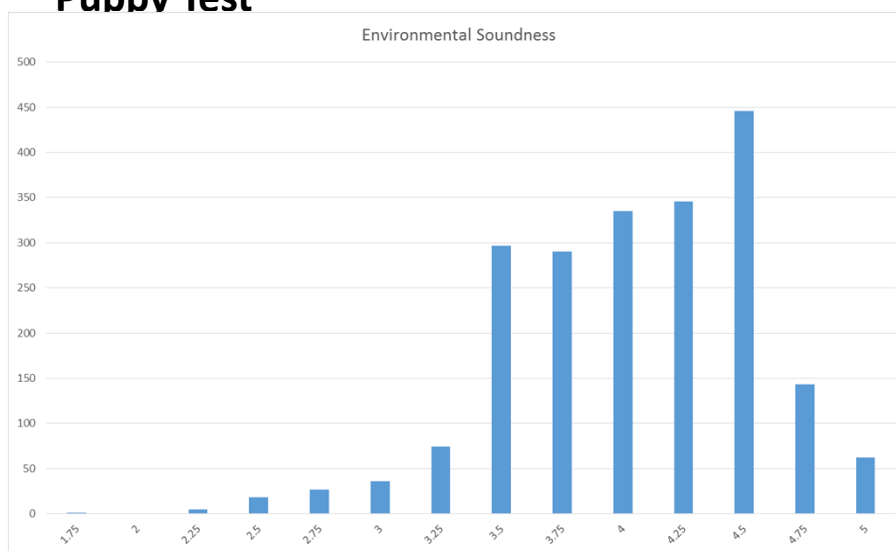
Composure		Causes What % Release from Training
Activated With Stress		15%
Slow Return to Productive State		9%
Excitable		4%
Inability to Focus		3%
Slow to Settle When Handler Idle		3%
Barks Excessively		2%
Movement Excites		2%
Distraction Dogs		2%
Poor Social Manners		1%
High Energy		0

Composure Score Distribution Puppy Test



Environmental Soundness	Causes What % Release from Training
Anxious in New Places/Situations	7%
Fear of Noises	4%
Fear of Objects	3%
Fear of Stairs	3%
Fear of Underfootings	2%

Environmental Soundness Score Distribution Puppy Test



Touch Sensitivity

Causes
What %
Release
from
Training

Harness Sensitivity (drops rear)

Body Sensitivity



10%

Poor Body Handling

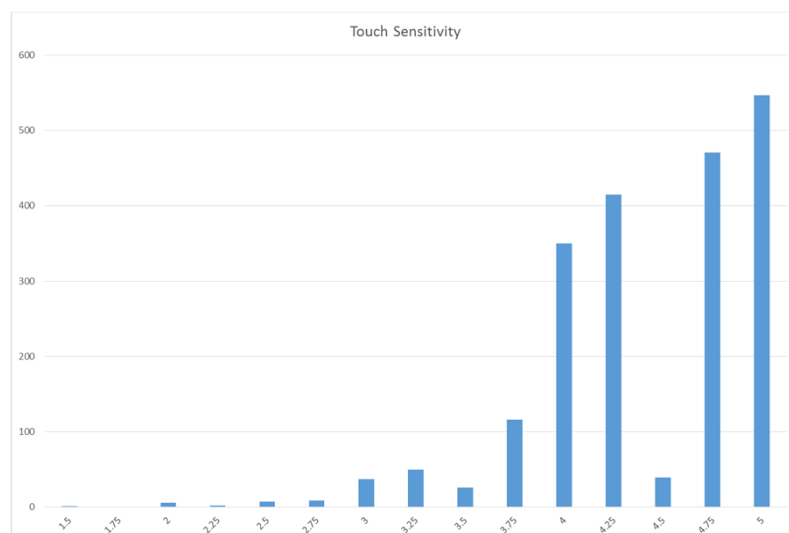
3%

Moves away when reached for

0%

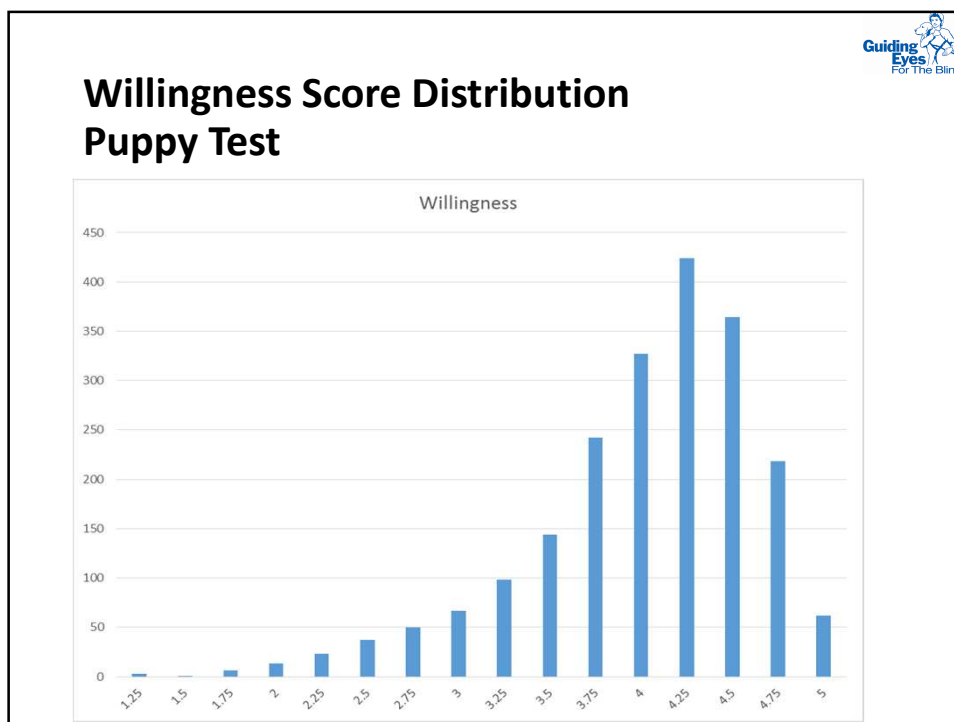



Touch Sensitivity Score Distribution Puppy Test



Willingness		Causes What % Release from Training
Inhibited By Stress		9%
Sniffing		2%
Unwilling		0
Handler Dog Team		0







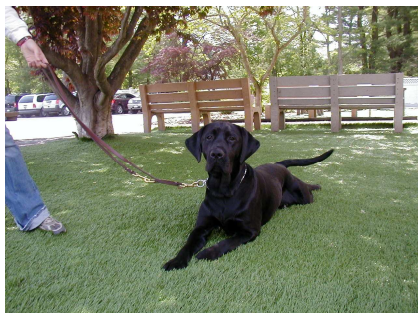
What Influences Success

Age of dog Months	Evaluation	Composure (Emotional State)	Environmental Soundness	Touch Sensitivity	Willingness
2	Pup test & Observation	0.52**	0.81**	0.13	0.11
4	With raiser	0.28	1.07**	0.13	0.21
8	With raiser	0.23	0.94**	0.20	-0.02
13	With raiser	0.42*	1.02**	-0.13	0.15
15-18	In-for-training test	0.15	0.85**	-0.11	-0.20
21-24	Trainers observation	0.78**	0.21	0.21	-0.24
24+	Trainers observation	1.10**	-0.48	0.57*	-0.34

Numbers represent betas. * = $p < 0.05$, ** = $p < 0.01$

Courtesy of Jamie Fratkin, U. Texas 2015, SPSP poster, 3112 March 2015

Puppy Test -2 Brothers



Axel- poor scores on pup test
Failed guide dog training

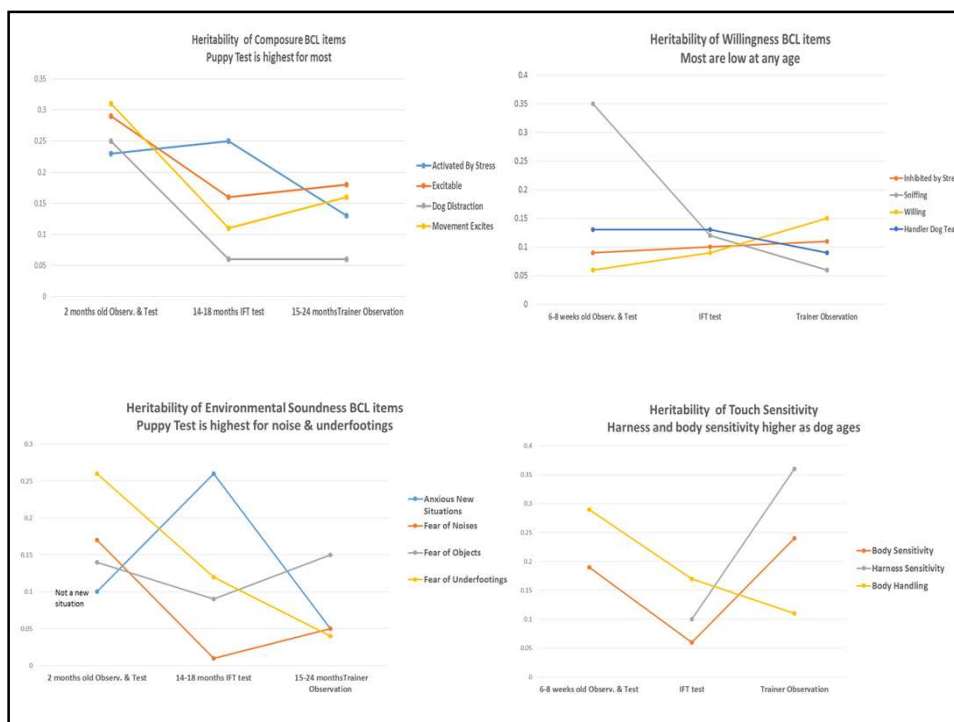



Anders- good scores on pup test
Successful as a guide dog



"What do you think ---
heredity or
environment?"

" Maybe a little of
both."





Arousal


Guiding Eyes For The Blind



Important For:

- Motivation
- Fight-or-flight response

Regulates:


- Awareness
- Attention
- Information processing



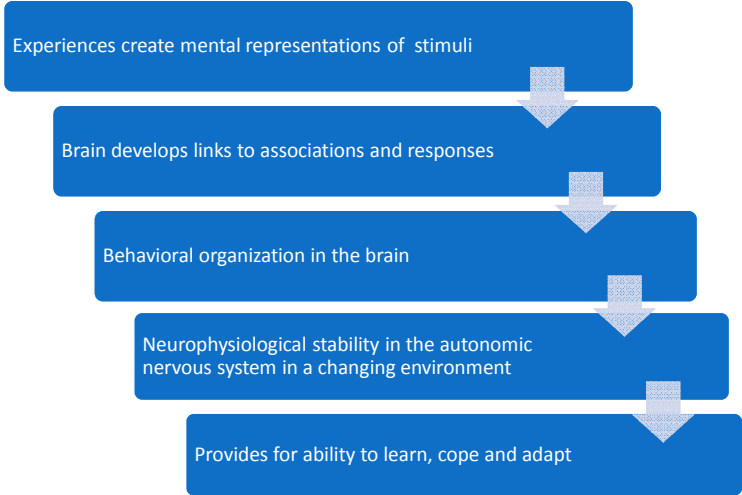


Productive State of Arousal

- Willing to learn
- Alert to environmental cues
- Have the initiative to perform
- Able to respond to handler

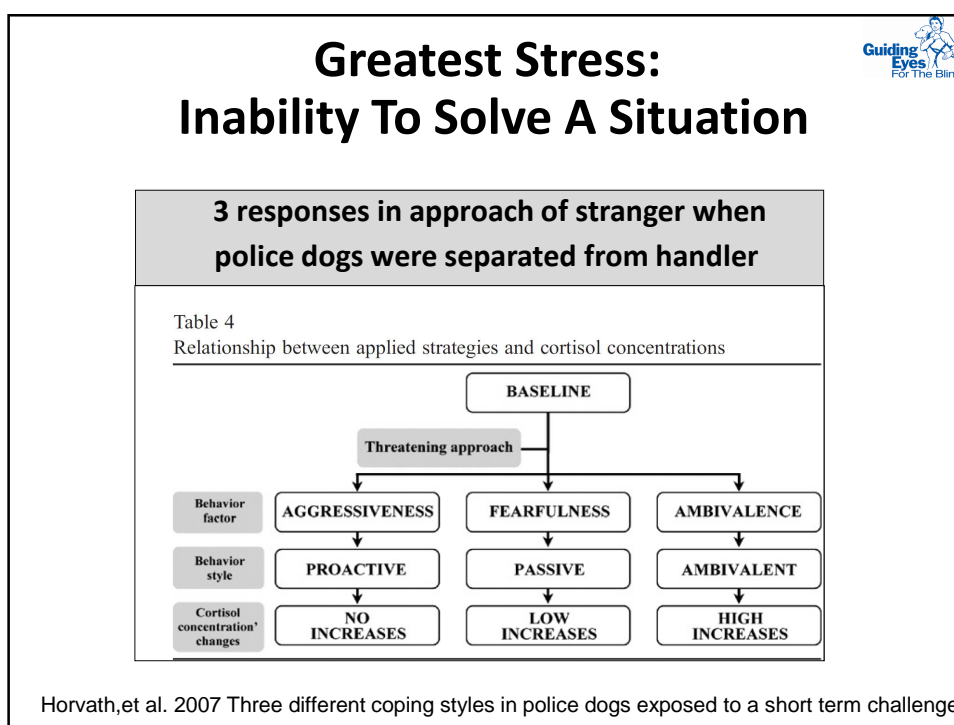
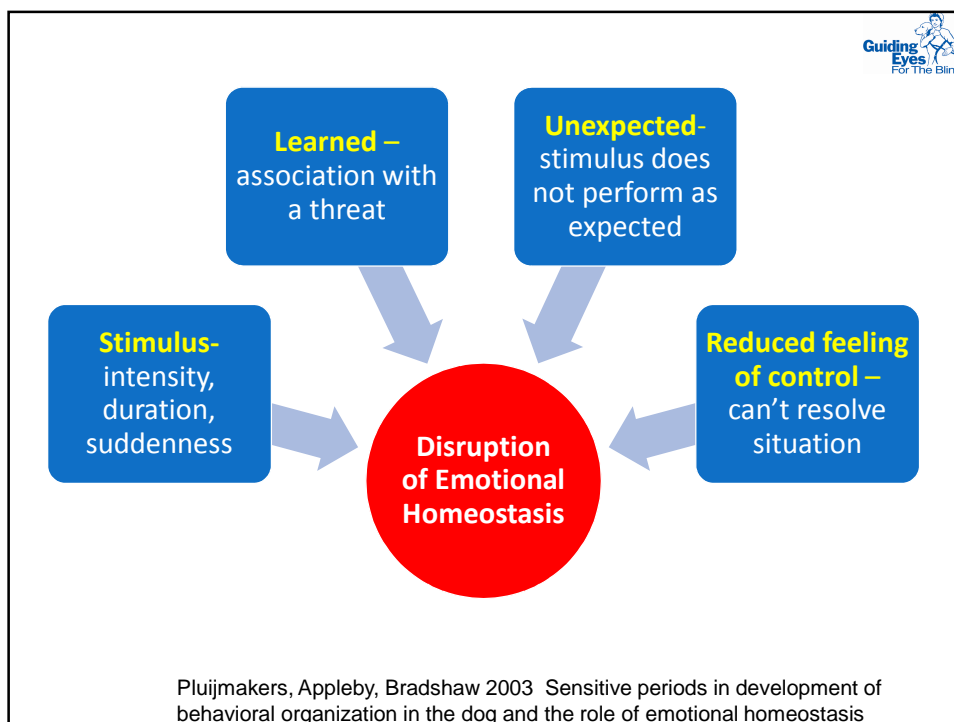



Developing Emotional Homeostasis




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graph TD; A[Experiences create mental representations of stimuli] --> B[Brain develops links to associations and responses]; B --> C[Behavioral organization in the brain]; C --> D[Neurophysiological stability in the autonomic nervous system in a changing environment]; D --> E[Provides for ability to learn, cope and adapt];
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Pluijmakers, Appleby, Bradshaw 2003 Sensitive periods in development of behavioral organization in the dog and the role of emotional homeostasis









Unproductive State of Arousal

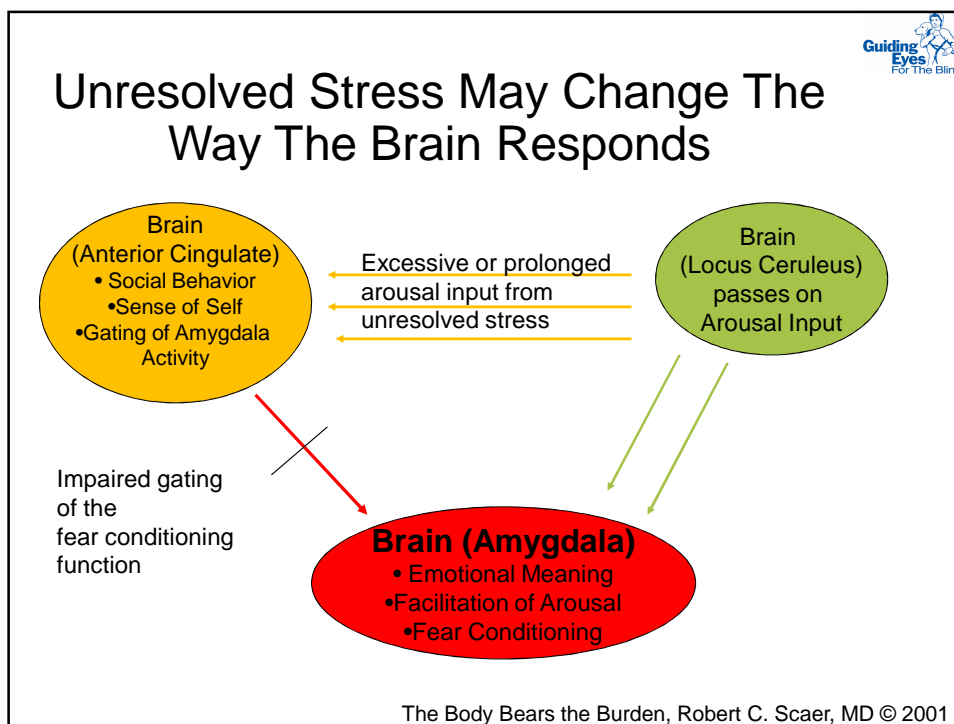



- Decreased ability to pay attention to cues
- Decreased fine motor control
- Over-reaction to stimuli (impacts excitability, environmental soundness)



Environmental Influence

<p>New Raiser: Unresolved stress</p> <ul style="list-style-type: none"> • Not adjusting approach based dog's arousal level • Confusing communication 	<p>Experienced Raiser: Resolves stress</p> <ul style="list-style-type: none"> • Adjusts approach • Clear communication <div style="text-align: center;">  </div>
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Summary

- Ability to remain productive when aroused is a key trait related to success
- 2 months old = Best age to measure genetic influence of many behaviors- including arousal
- Prediction of success increases with age
- Best environment = Allows dog to solve a situation in successive steps

Acknowledgements

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