

THE DOPAMINE DIVE

Using Box Feeding for

Behavior Modification

And Beyond!

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The Dopamine Box – Concept or Tool?

“Tool”

Dopamine is a Neurotransmitter

Coordinates smooth & controlled movements; affects mood and emotional responses, involved in attention, learning, and memory; regulates various bodily functions imbalances can lead to mood disorder

“Feel Good” or “Happy” Hormone

Release of dopamine reinforces positive experiences

Dopamine Released during Food Consumption

Home cooked meal; Mexican food; pot pie

Recent research = the anticipation of the reward

Dopamine released when expecting a reward; training session (bait bag, training room...) raises seeking system which is vital to dogs well-being which are designed for seeking.

The Dopamine Box – Context or Tool “Tool”

Variable Rewards – Slot Machine

Creates a cycle of anticipation, reward, and reinforcement

Develop Dopamine Seeking Reward Loop

Marker training activates loop; IE loopy training! Variable reinforcement increases anticipation and keeps dog working harder and guessing when next reinforcement is coming with anticipation which leads to more dopamine!

The Dopamine Box – Context or Tool “Concept”

Framework utilizes brains dopamine release for learning

Both the box & markers provide framework for release of dopamine

Dopamine Levels rise in anticipation of reward

Most powerful part of marker training is between the mark & the reinforcement. With the box, anticipation of dopamine may look like fast wagging tail, or stillness and extreme focus

Dogs learn to associate specific behaviors with rewards

Dopamine is carried over into the behavior

Concept of marker training creates anticipation

Marker training activates the dopamine seeking-reward loop

The Dopamine Box – Context or Tool “Concept”

Teaches patience, impulse control, work ethic

Both predict food is coming, requiring control to wait for delivery; anticipation builds buy in.

Develops mental & emotional strength, confidence and
Resilience

Being successful increases confidence. Confidence & resilience hinge on positive mindset which is crucial to overcome challenges and setbacks

BOX ORIGINS

Bart & Michael Bellon

Training applications

- Scent work

- Tracking

- Article Indication

- Duration/Commitment to Behavior

- Concentration

- Socialization

- Mental Toughness

- Add + Punishment for Duration

BOX ORIGINS

Behavior applications

- Noise Sensitivities

- Movement Over arousal

- Handling

- Confidence Building

- Acclimation in New Environments

- Reactivity (people/dogs)

- Aggression

- Resource Guarding

Original Process

1. Condition eating in box
2. Create Dedication to head in Box 3-10 seconds
 1. With target
 2. Without target
3. Add distraction (low level)
4. Feed
5. Build duration in box
6. Increase distraction
7. *Add P+ to maintain duration



Overview of Progressive Process

1. Select Box
2. Utilize Appropriate Food
3. Counter Condition/shape eating in box if needed
4. Create Conditioned Emotional Response to Box
5. Generalize Location of Box
6. Create Release Cue
7. Reinforcement Strategies
8. Build & Generalize Dedication to the Box
9. Impulse Control & Duration as a Concept
10. Teach Duration Nose Target
11. Build Duration of Head in Box

Overview of Progressive Process

12. Modify Type of Box If Necessary
13. Present Trigger
14. Level 1 – Feed to Get Head in Box after Trigger
15. Level 2 – Offers head after trigger – May lift head
16. Increase Duration in Box
17. Level 3 – Duration in Box–Add Trigger–Feed – Rel/Rew
18. Level 4 – Duration in Box-Add Trigger – Rel/Rew
19. Apply principles of Desensitization
20. Create Pressure & Toughness
21. Level 5 – Start Button

Dopamine and Arousal

Synergistic relationship

Dopamine Increases 'approach' behavior which raises arousal

Arousal increases sensitivity to reinforcement which can increase dopamine release

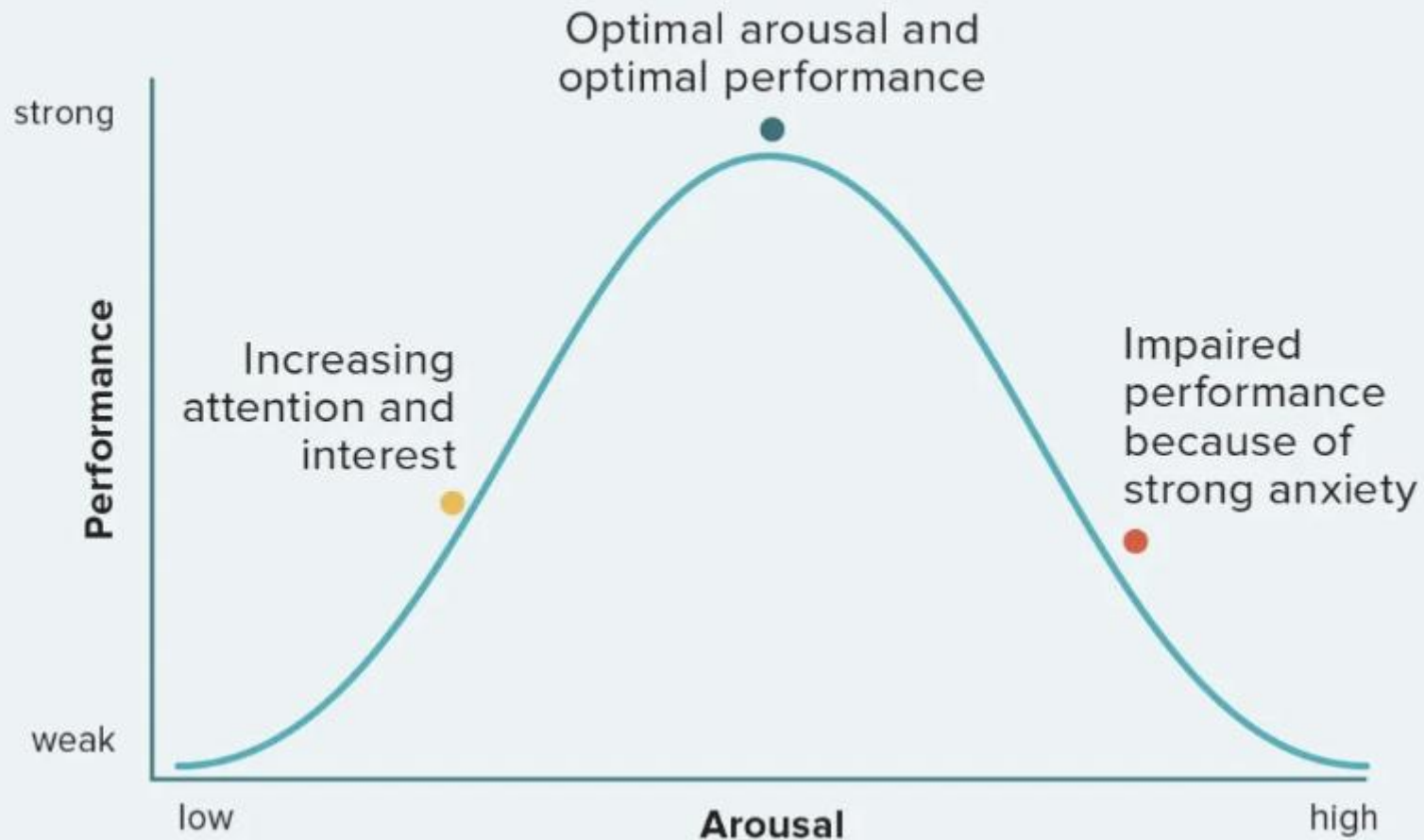
Amplify Each Other... To a Certain Point

Over arousal may cause dopamine to drop

Dog can't take food; Can't perform learned behaviors; Forget cues that are fluent

Understanding Arousal

YERKES-DODSON LAW BELL CURVE



Dopamine and Arousal

Synergistic relationship

Optimal Learning

Dopamine is high enough to motivate

Arousal is high enough to engage

Neither is TOO high that creates impulsivity or stress

“Goldilocks Zone” for

Distraction Training

Premack-based reinforcement

Movement-based rewards

Generalization in new environments

Dopamine Pathways

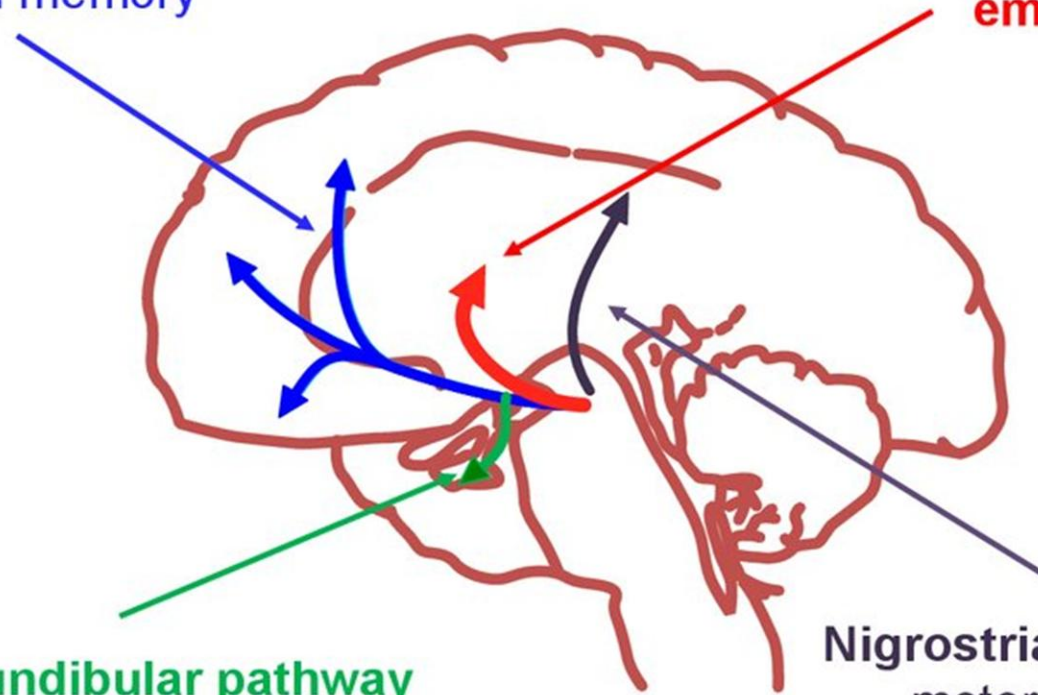
DOPAMINERGIC SYSTEM

Mesocortical pathway -
learning and memory

Mesolimbic pathway -
emotions

Tuberoinfundibular pathway
regulation of prolactin

Nigrostriatal pathway -
motor regulation



Dopamine Pathways

Mesolimbic Pathway

Increases wanting, seeking, and pursuit

Heightens approach behavior

Boosts emotional intensity (excitement)

Drives learning through reinforcement

Behavioral relevance: This is the pathway that makes a terrier *launch* toward movement, a friendly dog *pull* toward people, or a scent hound *dive* toward odor. It's the engine behind motivation and arousal synergy.

Dopamine Pathways

Mesocortical Pathway

Enhances focus, memory, and cognitive control

Supports behavior regulation ("think first, act second")

Helps the dog evaluate consequences

Maintains learned behaviors

Modulates arousal; dog stays in the learning zone

Behavioral relevance: This is the pathway that helps a dog *pause, listen, choose the trained behavior, and stay regulated* even when the mesolimbic system is screaming "GO GET IT."

Dopamine Pathways

Dysregulation

Excess Dopamine in Nucleus Accumbens

Impulsivity

Obsession

Outbursts

Fixations

Extended Recovery Time

Takes over 20 minutes to return to baseline or never settles = compromised dopamine regulation

Reward Threshold Inflation

Need increasingly valuable reinforcement to achieve same response

Rapid State Switching

Flips from calm to explosive with minimal apparent trigger; unstable neurochemical regulation

Dopamine Balancing

Three-Second Pause Rule

Brief pause teaches success leads to calmness, not immediate excitement, allows dopamine levels to regulate

Interval Training with Built in Calm

Train in 'sets' – 3 repetitions of a behavior, follow w 2-3 minutes of calm activity, (sniffing, calm petting, rest) - repeat. Rhythm prevents dopamine overload

Progressive Reward Downgrading

Reduce reinforcement value after behavior is reliable, hierarchy of food, praise, Premack

The Calm Before the Storm Protocol

Require 10-30 seconds of calm before exciting activity, dog learns calm leads to good things, which rewards dopamine regulation

Dopamine Balancing

Environment Enrichment Over Arousal

Replace or supplement high arousal activities (fetch, chase, etc...) with mental enrichment

Predictable Daily Structure

Create Consistent routines, knowledge of what happens next relaxes nervous system instead of constant anticipatory mode

How Does the Dopamine Box Help?

Three-Second Pause Rule

Develops reinforcement for pauses

Interval Training with Built in Calm

Utilize box in between Arousing Training Sessions

Progressive Reward Downgrading

Reduce Value of Reinforcement in Box

The Calm Before the Storm Protocol

Start sessions with the Box

Predictable Daily Structure

The box creates a predictable pattern & expectation

Type of Over Arousal

Active Over Arousal

Structured Environment

Calm & Focused

Self Regulate

Committed to Task

Develop Impulse Control

Type of Over Arousal

Passive Over Arousal

Predictability reduces Stress/Anxiety

Confidence

Resilience

Mental Toughness

Physical Toughness

Counter Conditioning Process

THE BOX

Length/Width

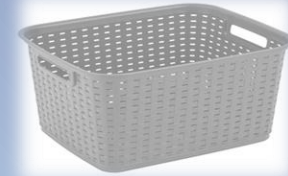
Depth

Material

Opaque

Translucent

Transparent



Appropriate Food

Value Of Food

- Create Hierarchy

Size of Food

- Small enough to eat quickly

- Not too small that it gets trapped in corner

Texture of Food

- Makes Sound when hits the bottom

- Does not require chewing

- Does not Crumble in box or dogs mouth

CONDITION EATING IN BOX

Ensure dog will eat!

Eat food off floor

Add box

Previous learning

Location

Visual (bowl/mat)

Shaping (size/depth)



Creating Conditioned Emotional Response

Visual Start

Hold Box



Drop Food in Box so dog sees it

Place Box on Ground

Continue to drop food as dog eats

Olfactory Start

Place Box with food outside vision of dog

Release Dog

Dog discovers box with food

Continue to drop food as dog eats



Creating Conditioned Emotional Response

Classical Conditioning

Constant Stream of Food In Box



Generalize Location of Box

Constant Feeding in Novel Location



Box as Cue to start Game (Visual to Verbal)



BALANCING ACT

Emotions versus Thinking

Dysregulation

Excess Dopamine in Nucleus Accumbens

Impulsivity

Obsession

Outbursts

Fixations

Extended Recovery Time

Reward Threshold Inflation

Rapid State Switching

Create Release or Marker Cue to end Duration

Teach response to Release Cue to move away



Teach marker cue that causes head lift and leads to reinforcement (food)



Teach marker cue that causes head lift and leads to reinforcement (Toys)



Create Dedication To Head in the Box

Approaches and offers head in box without pre-loading
Doesn't lift head or look at handler when food delayed
Will re-engage with box after marker cue without food



Generalize Dedication in new Location & Leash

Ensure same Dedication in new location
Add Leash (if haven't already)



Concept Training – IMPULSE CONTROL

Impulse Control

Ability to wait patiently

Control impulses

Show comprehension of Delayed Gratification

Food

Hand



Bowl



Thresholds

Crate



Doors

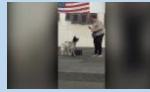


Concept Training - DURATION

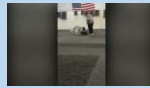
Duration Marker Cue
"Room Service"



Withholding Marker Cue
Mark ends behavior



Reverse Luring
Builds off IYC



Nose Target
Above Techniques

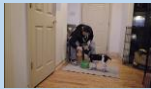
Build Duration In the Box

Up to 3 seconds

Lower value food

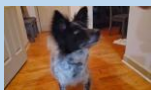
Variable Rate (Ratio) Reinforcement

Behavior is reinforced after unpredictable number (length) of response



Duration Marker Cue

Mark and feed in position (room service)



Build Duration In the Box (Cont)

Delayed Marker Cue

Dog offers duration until terminal bridge of movement marker cue



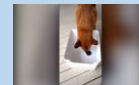
Reverse Luring

Creates black & white with negative punishment



Nose Target

Capturing, Duration Marker
Delayed Marker, Reverse Luring



Modify Type of Box

Translucent

For Dogs who benefit from more sound and vision during conditioning

Less Pressure

Visual Trigger - muted

Increase Volume of Trigger



Transparent

Ready for full Vision of Trigger

Movement

Eye Contact



Level One – Trigger – Feed to get head in box

Head may or may not be in box when trigger presented

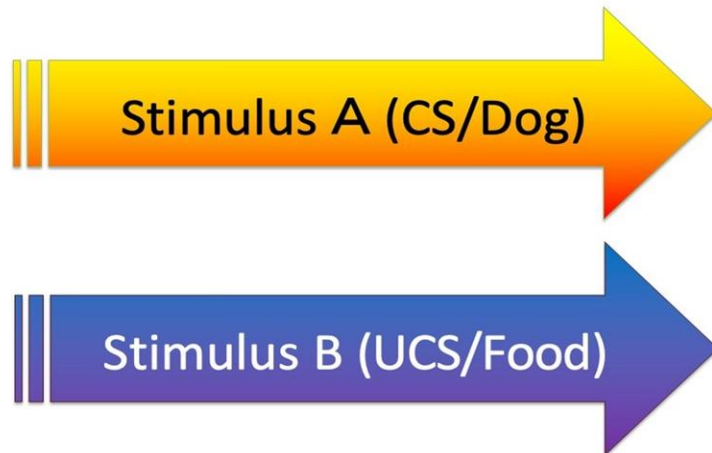
Simultaneous Conditioning

Technique where the conditioned stimulus (CS) and unconditioned stimulus (US) are presented at the same time.

Considered Less Effective

Food gets head in Box

Simultaneous Conditioning



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Level One – Trigger – Feed to get head in box

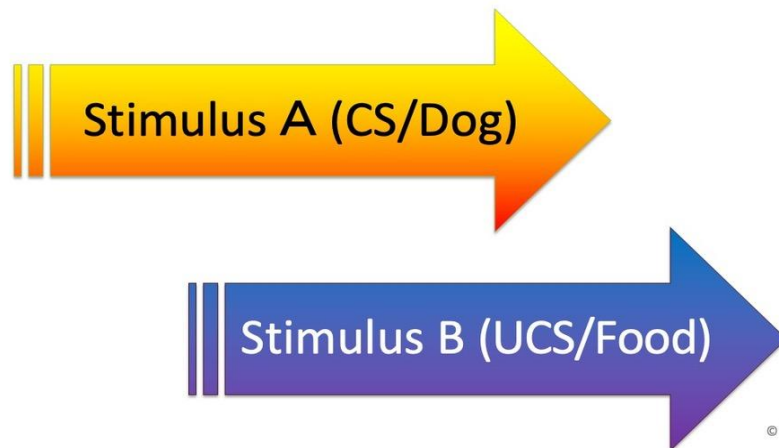
Head may or may not be in box when trigger presented

Forward Delay Conditioning

Technique where there is a time gap between the conditioned stimulus (CS) and the unconditioned stimulus (US). CS is presented first and remains present until the US appears.

Food gets head in Box

Forward Delay Conditioning



Level One – Trigger – Feed to get head in box

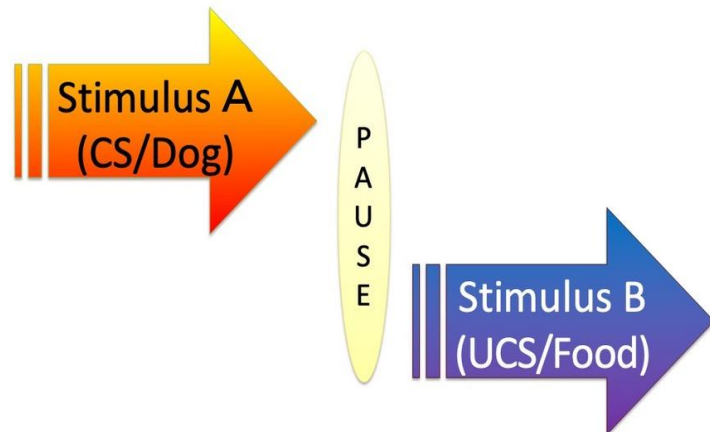
Head may or may not be in box when trigger presented

Forward Trace Conditioning

When the presentation of the Conditioned Stimulus (CS) and the Unconditioned Stimulus (US) is separated in time by an interval

Food gets head in Box

Forward Trace Conditioning



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Level Two – Trigger – Dog Offers Head in Box

Head may or may not be in box when trigger presented

Trigger Presented

Dog May Acknowledge Trigger (head lift)

Dog Offers Head in (back in) Box

Feed (in box or marker cue)



Level Three – Head in Box – Trigger – Stays in Box

Feed or offer head in box

Present Trigger

Head stays in box

Feed to stay in box

Counter Condition trigger



Level Four – Head in box – Trigger – Stays in Box

Feed or Offer head in box

Present Trigger

Head stays in box

Duration without food

Condition, Release or marker cue



Building Toughness

Created as side effect of the process

Is a Barometer of the dogs' mental fortitude

Teaches Problem Solving

Natural Stress Release

Mental - Intrinsic

- Focus & Concentration

- Impulse Control

- Confidence & Resiliency

- Commitment to Behavior

- Calm Under Stimulation

Building Toughness

Extrinsic

Pressure

Outside Box



Inside Box



Surfaces

Elevated



Under



Wobbly

Sound



Restraint



Building Toughness

Extrinsic

Touch & Tough Handling



Deep Massage



Tension to pulling



Ears

Tail



Hair



Skin

Level Five – Start Button

Start button



Progressive Process for Dopamine Dive

1. Choose Correct Box
2. Utilize Appropriate Food
3. Get Dog eating in Box Easily
4. Create Conditioned Emotional Response to Box
5. Generalize Location of Box
6. Create Release Cue

Progressive Process for Dopamine Dive

7. Reinforcement Strategies
8. Build & Generalize Dedication to the Box
9. Impulse Control & Duration as a Concept
10. Teach Duration Nose Target
11. Build Duration of Head in Box
12. Modify Type of Box If Necessary

Progressive Process - Continued

13. Present Trigger – Use rules of counter Conditioning

14. Level 1

Trigger - Feed to get head in box

15. Level 2

Head in Box - Trigger – May lift head but goes back to box–Feed to Maintain

16. Increase Duration in Box

Progressive Process - Continued

17. Level 3

Offer or Feed to get head in Box – Trigger – Feed to hold head in box – No head lift - Reward/release

18. Level 4

Offer or Feed to get head in Box – Trigger – No food/hold –Reward/release

19. Apply principles of Desensitization

20. Create Pressure & Toughness

Progressive Process - Continued

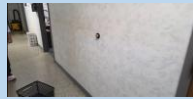
21. Level 5 – Start Button – Dog offers head in box –
Trigger – Duration in box – Release/reward

Alternatives

Does it have to be Progressive to be effective???



Who Else Can Benefit?



Add Snuffle Mat for easy Conditioning



Alternatives

Acclimation



Combine with other Protocols



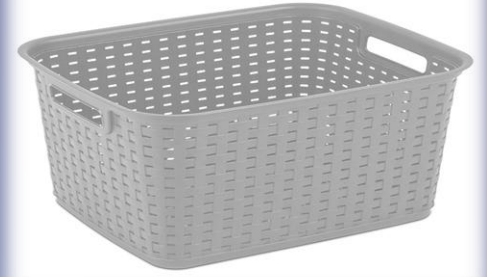
Eliminating the Box



Alternatives

As a Distraction – Stimulus Control





QUESTIONS?

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