CLINICAL PRACTICE

OT PROCEDURES
ESCAPE/AVOIDANCE HIERARCHY
SELF CONTROL

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OCCUPATIONAL THERAPY: SENSORY INTEGRATION

Assumption: Unusual /problem behavior is a result of abnormal processing of sensory stimuli (Lang et al, 2012)

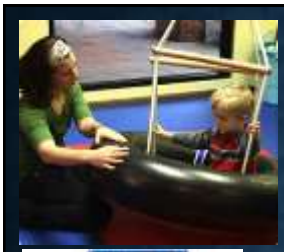
Therefore…perhaps providing exposure to sensory stimuli, in the appropriate dosage, will improve processing of sensory stimuli

Resulting in…improvement in problem behavior and learning

SENSORY INTEGRATION

Procedures

Swinging
Weighted blankets
Pressure vests
Bouncing on a ball
Brushing
(Case-Smith, Weaver, & Fristad, 2015)








SENSORY INTEGRATION

Question: Do SI procedures have behavioral functions?

1. Are they positive reinforcers?
2. What happens when contingent on problem behavior?

SENSORY INTEGRATION

Question: Do SI procedures have behavioral functions?

McGinnis, A., Blakely, E., Harvey, A, Hodges, A., & Rickards, J. (2012). The behavioral effects of a procedure used by pediatric occupational therapists. *Behavioral Interventions*, 28, 48-57.

SENSORY INTEGRATION

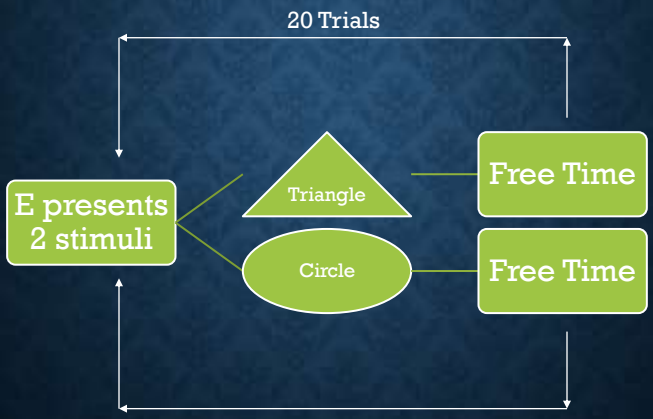
- Preference Assessment Using Sensory Activities: Multiple Stimulus Without Replacement
- Select Most Preferred Activity

SENSORY INTEGRATION

Reinforcer Assessment

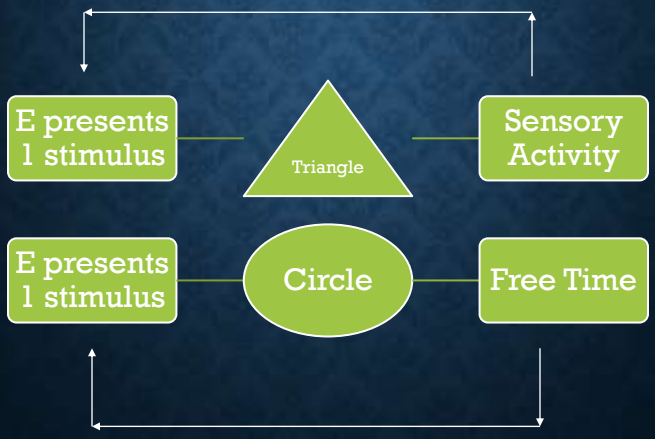
- Choice between 2 shapes
  - Shape #1: exposure to sensory activities
  - Shape #2: free time

BASELINE

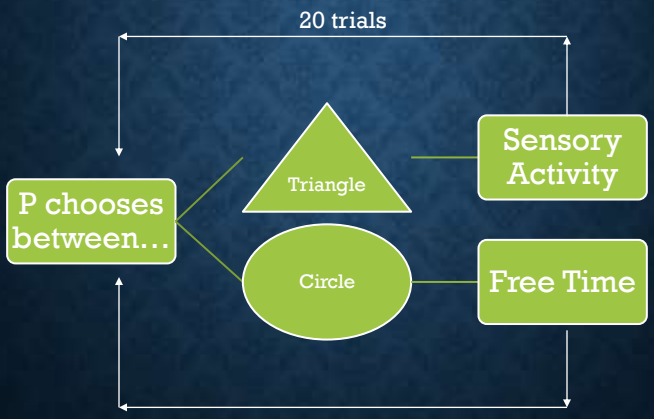


TREATMENT: FORCED EXPOSURE TRIALS

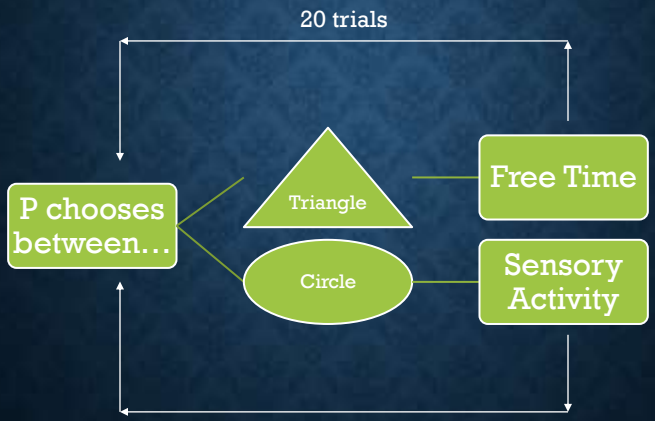
10 trials: 5 of each



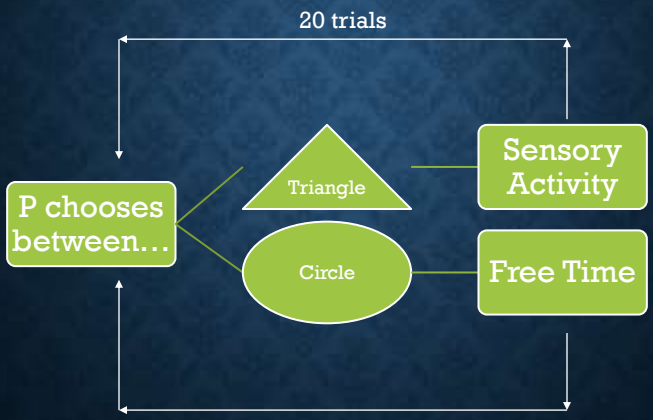
CHOICE TRIALS



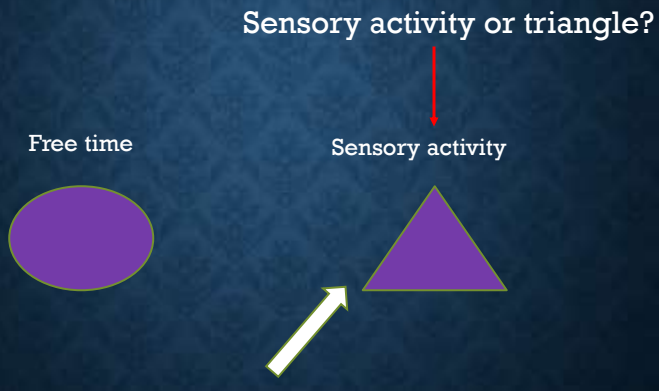
CONTINGENCY REVERSAL



RETURN

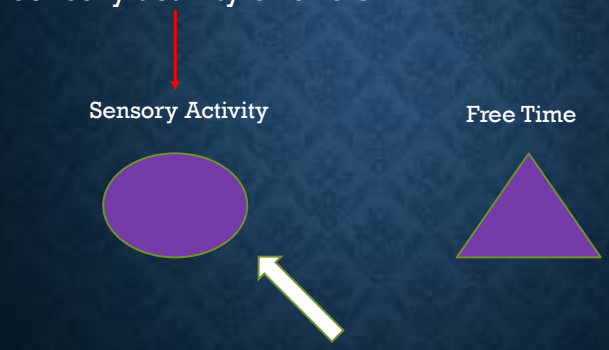


WHY REVERSALS?



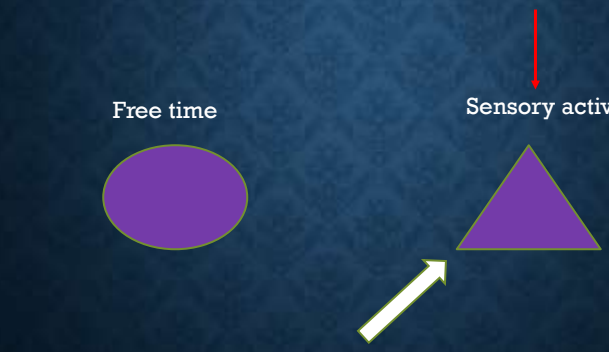
WHY REVERSALS?

Sensory activity or circle?

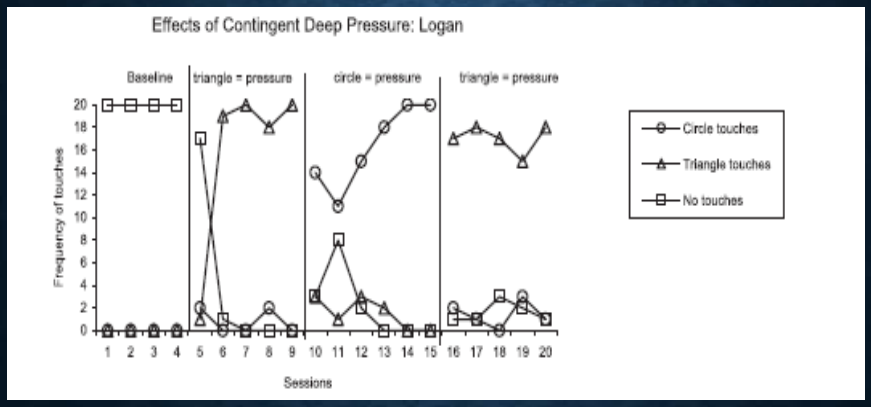


WHY REVERSALS?

Sensory activity!

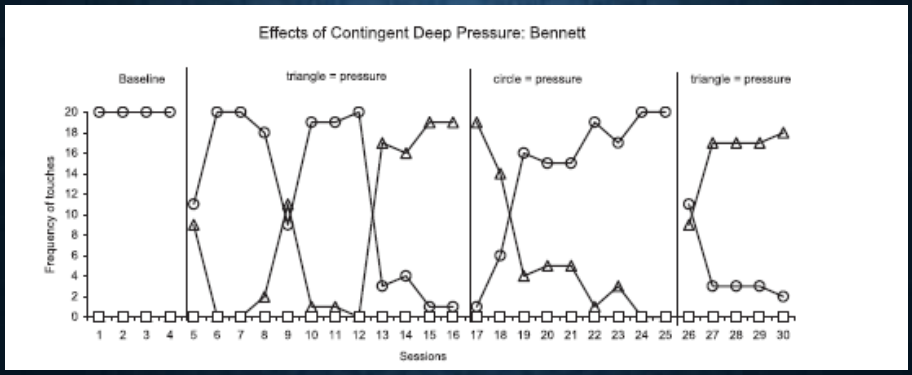


RESULTS: LOGAN

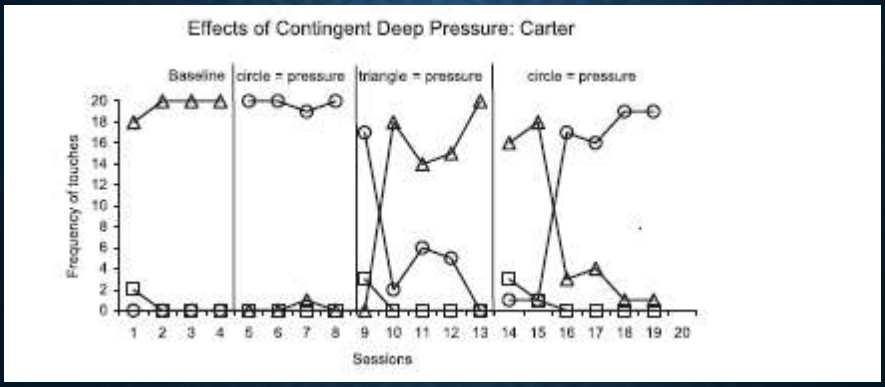


Circle choices -
Triangle choices -
No choice -

RESULTS: BENNETT



RESULTS: CARTER



CONCLUSIONS

- Sensory integration activities are behaviorally active
  - For some individuals such activities function as a form of positive reinforcement
- Raises the question: What if they are used to "calm" problem behavior

SENSORY INTEGRATION

Question #2: What is the effect of sensory activity presented after problem behavior?

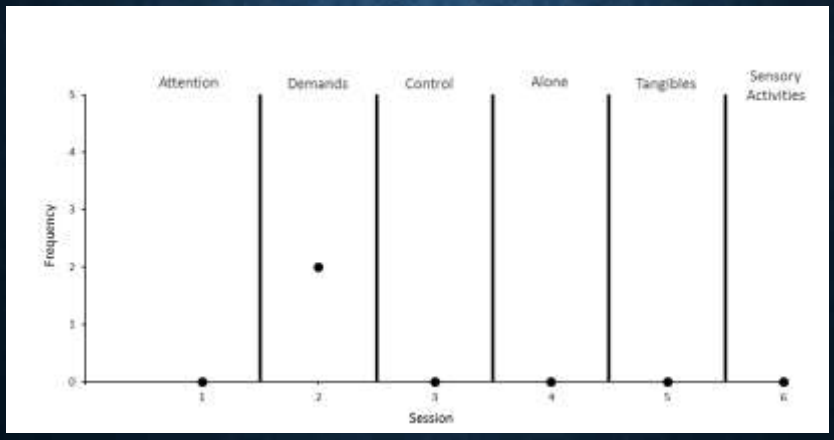
McGinnis-Stango, A., Blakely, E., Gast, R., & Orta, M. The behavioral effects of contingent sensory breaks.

FUNCTIONAL ANALYSIS: BRIEF FA

- Attention: Contingent disapproval for 15 s
- Demand: Contingent removal of task for 15 s
- Tangible: Contingent toys for 15 s
- Control: Toys available with attention every 15 s
- Sensory activity: Contingent sensory activities for 15 s
- Alone: In empty room with no programmed consequences

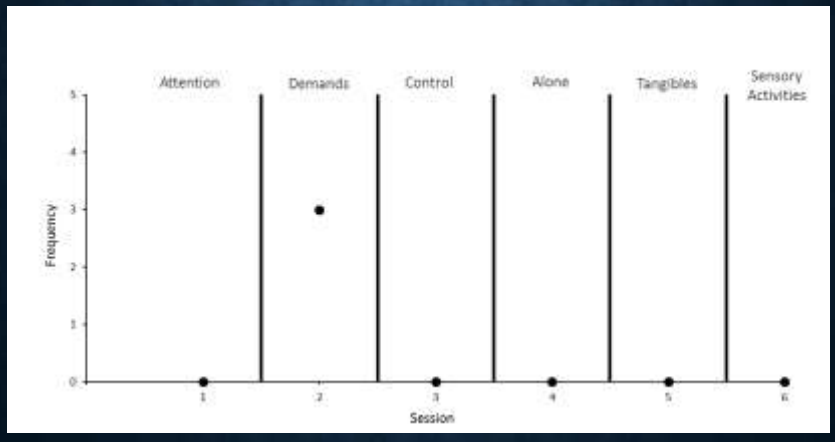
FUNCTIONAL ANALYSIS

Bryce: Brief FA



FUNCTIONAL ANALYSIS

Liam: Brief FA

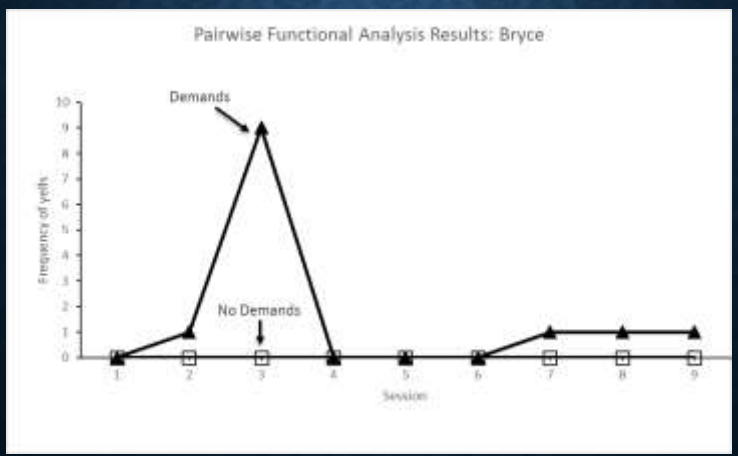


FUNCTIONAL ANALYSIS: PAIRWISE

- Demand: Contingent removal of task for 15 s
- Control: Toys available with attention every 15 s

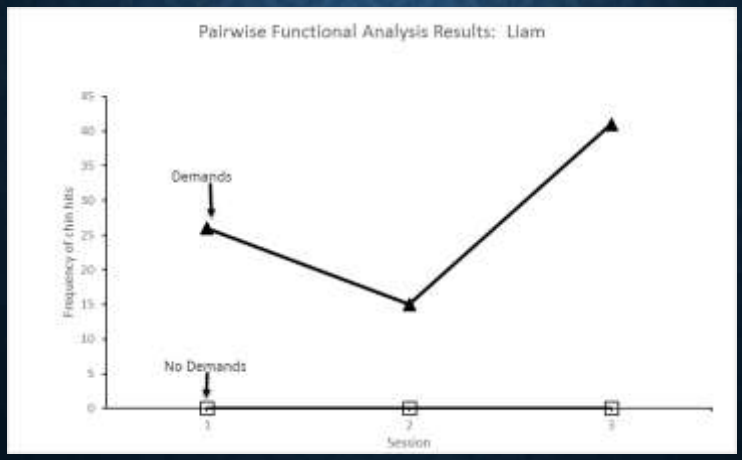
FUNCTIONAL ANALYSIS

Bryce: Pairwise FA



FUNCTIONAL ANALYSIS

Liam: Pairwise FA



CONTINGENT SENSORY INTEGRATION

Experimental Conditions

- Contingent sensory break: After every problem behavior
- Non-contingent sensory break: After fixed period of time*

❖ The fixed time period was yoked to the inter-reinforcement interval in the contingent sensory break condition

- Bryce: IRI = 35 s → FT 35 s
- Liam: IRI = 44 s → FT 44 s

YOKING

Purpose

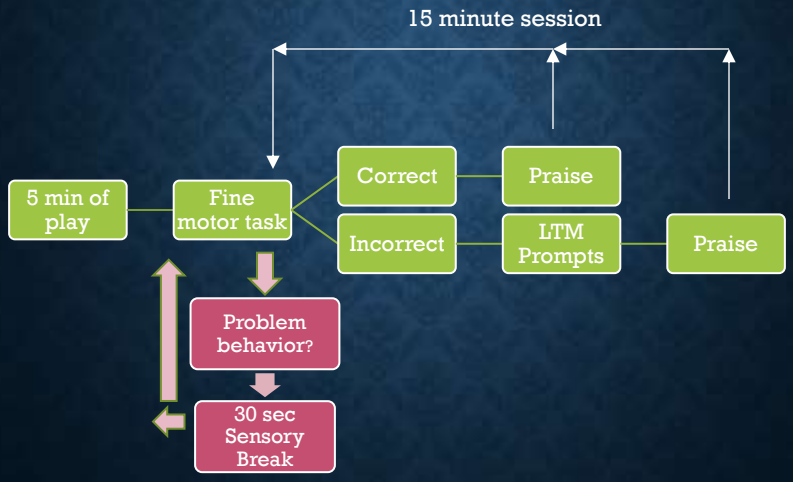
Separate effects of a contingency between behavior and stimulus from the effects of merely delivering the stimulus

Sensory activity exposure

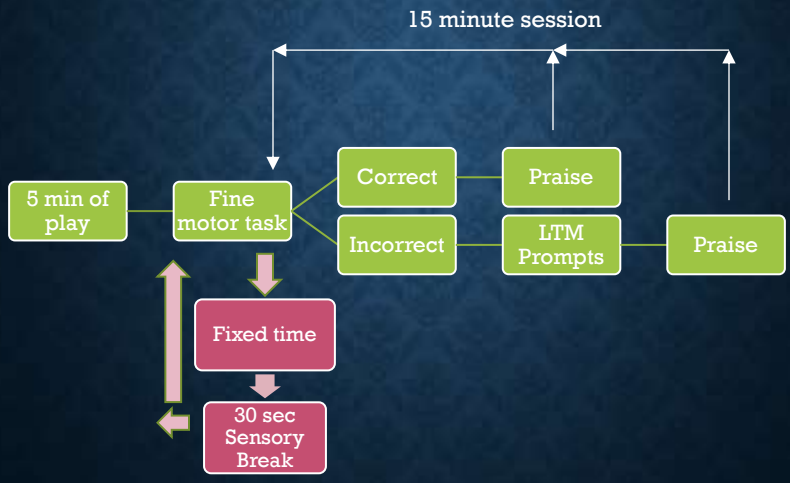
Behavior → Sensory activity

Reinforcer

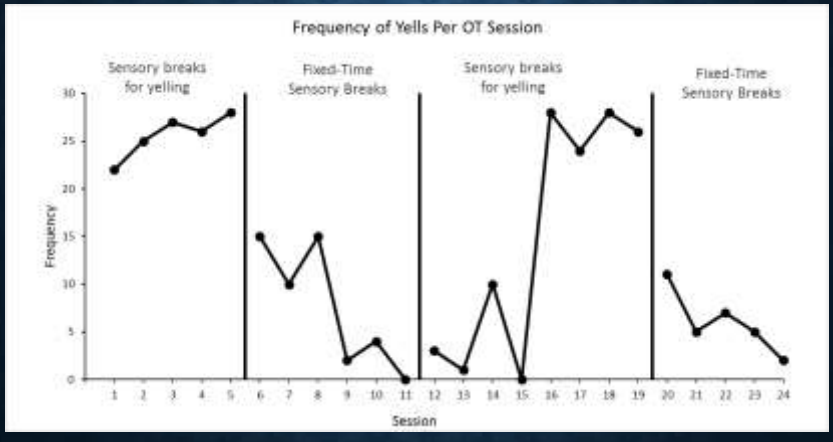
SENSORY BREAK CONTINGENT ON PROBLEM BEHAVIOR



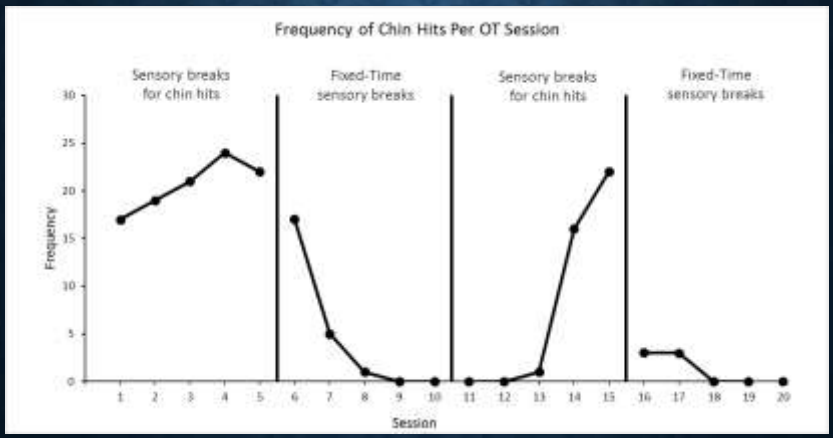
SENSORY BREAK UNDER YOKED FIXED TIME



RESULTS



RESULTS



CONCLUSIONS

- Sensory activities contingent on escape behavior functioned as a reinforcer
- Non-contingent sensory activities actually decreased escape behavior
  - Mechanism:
    - Mere exposure? No
    - Removal of contingency? Yes
  - Key element: Contingency!

FUTURE RESEARCH

Can sensory integration procedures reinforce attention/tangible-maintained problem behavior?

OVERALL CONCLUSIONS

- Sensory integration procedures are behaviorally active
- These activities can function as positive reinforcers for choice behavior
  - Application: Consider for use in acquisition programs
- If presented after problem behavior, this behavior may be reinforced

QUESTIONS?

ESCAPE/AVOIDANCE HIERARCHY

Problem

- Children and adults avoid unpleasant situations/activities
- If the situations/activities involve health and safety, the avoidance can be particularly troublesome

EXAMPLES

- 25 year old female who had not had dental care since early childhood
- 25 year old female who had never had OB/GYN exam
- 11 year old male never had dental care
- 7 year old male with ear problems and requires surgery who will not tolerate ear exam
- 12 year old male, who needs frequent blood draws, will not tolerate said draws and has to be restrained

TX OPTIONS

Drugs: (e.g., Xanax)

- Side effects
- Efficacy?

General anesthesia

- Risk events

TX OPTIONS

Power through these activities

- Emotional behavior
- Risk events

TX OPTIONS

Contracting

- Can be effective
- Long sequences?

GRADUAL INTRODUCTION OF STIMULI

People With Phobias

- Use hierarchies of feared stimuli
- Learn relaxation skills
- Apply to hierarchy of feared stimuli

TX OPTIONS

Hierarchy Example

- Sight of picture of a snake
- Sight of snake at 20 ft distance
- Sight of snake at 10 ft distance
- Sight of snake at 5 ft distance
- Sight of snake at 1 ft distance
- Touch snake for 1 sec
- Touch snake for 5 sec
- Touch snake for 10 sec and so on until…

ROCK AND ROLL APPLICATIONS

APPLICATIONS TO HEALTH & SAFETY

Social Validity of the Hierarchy: What is required?

- Interview provider of services
- Interview others who have successful experience
- Go through the experience
  - Such as…Taking a pill…

PILL INGESTION EXAMPLE

1. Tolerate empty capsule within 1 ft
2. Tolerate empty capsule within 6”
3. Tolerate empty capsule touching lip
4. Accept ½ empty capsule into mouth for 2”
5. Accept ½ empty capsule into mouth for 5”
6. Swallow ½ empty capsule into mouth with chaser
7. Swallow whole empty capsule into mouth with chaser

BLOOD DRAW EXAMPLE

Clinic

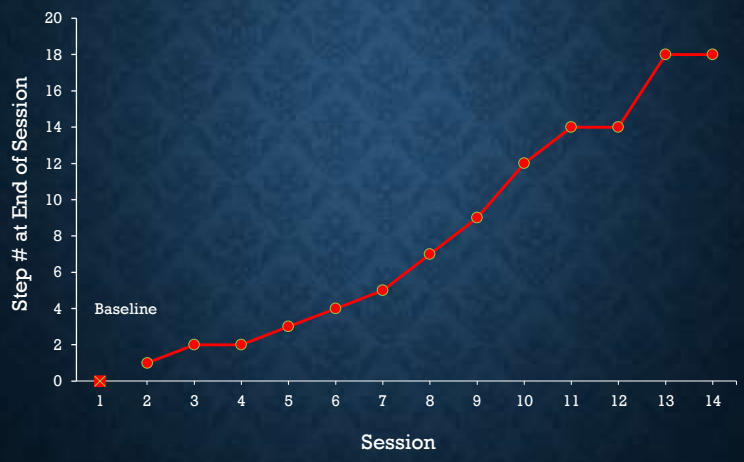
1. Sit in chair for 5”
2. Sit in chair for 10"
3. Sit in chair for 15"
4. Sit in chair with T holding tools
5. Sit in chair with tools within 1”
6. Tolerate alcohol wash 1”
7. Tolerate alcohol wash 5”
8. Tolerate tie off for 5”
9. Tolerate tie off for 10”
10. Tolerate tie off for 15”
11. Touch mock needle to arm
12. Hold mock needle to arm for 5”
13. Hold mock needle to arm for 10”
14. Hold mock needle to arm for 20”

BLOOD DRAW EXAMPLE

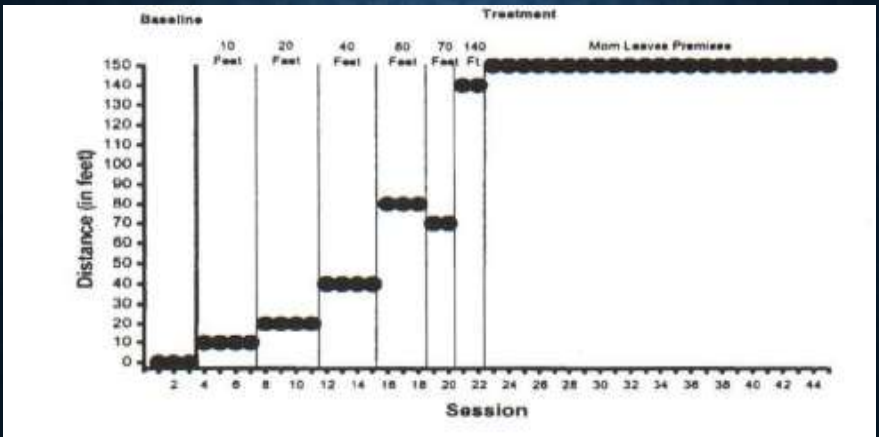
In Vivo

15. Sit in chair for 5”
16. Tolerate nurse holding tools within 1”
17. Tolerate alcohol wash
18. Tolerate tie off for 15”
19. Tolerate needle stick for required time

DATA COLLECTION



DATA COLLECTION



Flood, W. & Wilder, D. (2008), The use of differential reinforcement and fading to increase time away from a caregiver in a child with separation anxiety disorder. *Education and Treatment of Children*, 27, 1-8.

PROCEDURES

- Potential Reinforcers:
  - Escape from hierarchy
  - Transition to previous step
  - Preferred items during break
- Prompts as needed
- Escape extinction or non-contingent escape
- High probability request sequence prior to introducing step

CASES

- James
  - Requires ear surgery
  - Requires frequent ear exams
  - Problem behavior: run away, tantrums

HIERARCHY

1.) Sit on parent lap, watch peer get ears checked
2.) Sit on parent lap, watch model get ears checked
3.) Tolerate model + otoscope 1 foot for 5 s
4.) Tolerate model + otoscope 6 in for 5 s
5.) Tolerate model + otoscope touching cheek for 5 s
6.) Tolerate model + otoscope touching outer ear 1 sec (repeat both sides)
7.) Tolerate model + otoscope touching outer ear 5 s (repeat both sides)
8.) Tolerate model + otoscope touching outer ear 10 s (repeat both sides)
9.) Tolerate model + otoscope inside ear for 10 s (repeat both sides)
10.) Tolerate model + otoscope touching inside ear 1 sec (repeat both sides)
11.) Tolerate model + otoscope touching inside ear for 5 s (repeat both sides)
12.) Tolerate model + otoscope touching inside ear for 10 s (repeat both sides)
13.) Tolerate model + otoscope inside ear for 10 s (repeat both sides)
14.) Fade out model + otoscope inside ear 10 s (repeat both sides)
15.) No model + otoscope inside ear for 10 s (repeat both sides)

FINALE

Video

APPLICATIONS

- Taking pills
- Dental exams
- Medical exams
- OB/GYN exams
- Hair cutting
- Food acceptance
- Church attendance
- Bar mitzvah
- Allergy shots
- Blood draws
- Car rides
- Restaurants
- Time away from caregiver
- Toothbrushing
- Hair brushing
- Wearing bandaid
- Wearing socks
- Wearing clothes

SUMMARY

- Identify unpleasant activity that is required
- Develop socially validated hierarchy
- Present hierarchy step-by-step
- Reinforcement
  - Escape from hierarchy
  - Transition to previous step
  - Preferred items/activities
- Escape extinction as needed
  - Teach mand for escape
  - Non-contingent escape

QUESTIONS?

SELF CONTROL: CHOICE PROCEDURES

Self Control

Behavior is directed to reinforcers of larger magnitude or higher value

Self Control

Behavior is directed to more immediate reinforcers

Self Control

Value vs Delay?

Self Control

Assessment: Progressive Ratio (PR)

PR 5

FR1 → Reinforcer

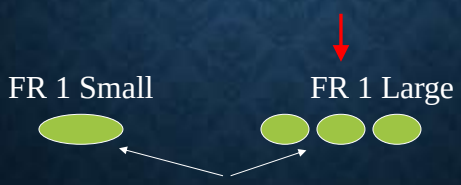
FR 6 → Reinforcer

FR 11 → Reinforcer until…

Break point where participant stops responding

Assessment

Value vs Effort

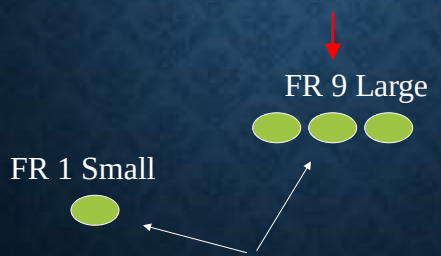


Assessment

Value vs Effort

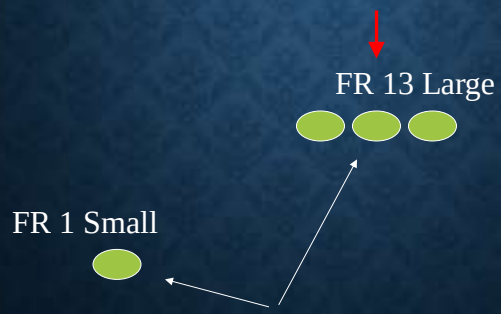
Self Control

Value vs Effort



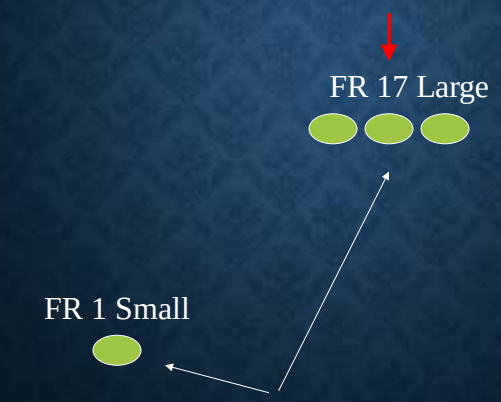
Self Control

Value vs Effort

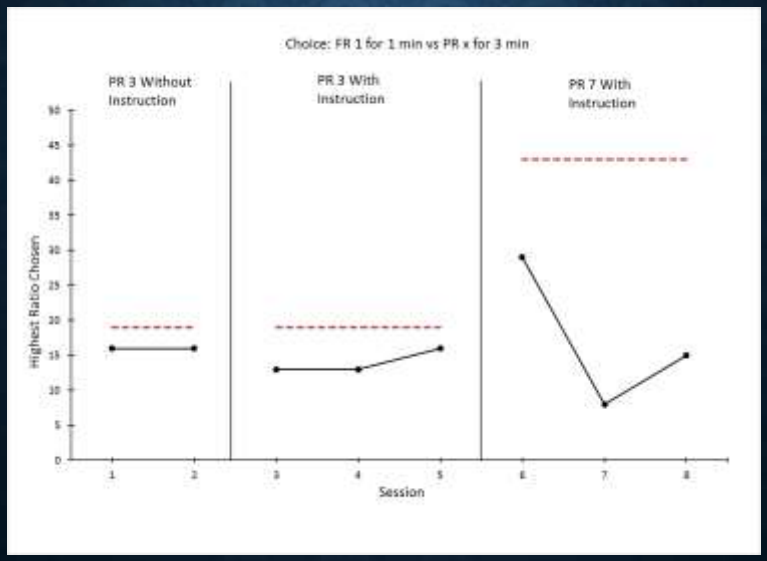


Self Control

GRADUAL DELAY INTRODUCTION



Self Control



Self Control

GRADUAL DELAY INTRODUCTION
Clinical Utility

Hypotheses?

1. Which is more important: immediacy or magnitude
2. Test reinforcer value in opposition to immediacy
3. How quickly can response requirements/wait times be increased

Self Control

Questions??