ADDRESSING PROBLEMATIC FEEDING BEHAVIOURS USING A BEHAVIOURAL APPROACH

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Team

West Coast
Feeding and Behaviour Specialists

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- Heather Wilson MEd, BCBA, Feeding Therapist
- Christine Powell, BCaBA, Feeding Therapist

Clients we serve:

- Ages 18 months to 8 years (ideally)
- Lower Mainland and Kamloops
- Sessions are in the home or school
- Funding sources include:
  - ASD government funding
  - Variety Children's Charity
  - Parents

Prevalence of Feeding Problems:

- Reported to occur frequently in young children with developmental disabilities
- Studies have reported prevalence figures ranging from 33% to 90%
- An estimated 30%-45% of typically developing children also experience problematic feeding behaviours during childhood
  - Intermittent or transitory

Comparison of Eating Problems Between Children with and without ASD

- Many anecdotal reports from parents, teachers, and clinicians of children with ASD and problematic feeding behaviours
- One study to date compared patterns of eating between children with and without ASD (Schreck, Williams, & Smith, 2004)
- Results: Children with ASD have more restricted eating patterns
  - Type and texture of food
- Participants were older (age 5-8) which suggests for children with ASD that this can become an enduring problem

Comparison of Eating Problems Between Children with and without ASD

Follow-Up Study (Schreck & Williams, 2006)

- Examined factors influencing food selectivity for children with ASD
- Study found no evidence that supports the commonly held assumptions that feeding problems are related to autism symptoms
- Data suggests that feeding problems were related to family food preferences
- Which came first, “Chicken nugget or egg?”

Type of Feeding Problem

- Food Selectivity by type, texture, brand, appearance, colour
- Oral motor delay
- Tube dependence (Food Refusal)
- Frequent gagging or vomiting
- Lack of self-feeding
- Inappropriate mealtime behaviours
- Refusal to eat in public places or will eat in public places but not at home

How does it begin?

- Physiological and/or behavioural factors
- Often begins as a physiological or anatomical problem:
  - Dysphagia: A swallowing dysfunction
  - Cerebral Palsy
  - Respiratory or cardiac problems
  - Gastrointestinal Disease
  - Choking incident
  - Allergic Reaction
  - Major surgery
  - Delayed oral motor skills

In other words…

- “ If food ingestion is paired with nausea/discomfort, the food then may become aversive. Basic research has demonstrated that food aversions can be created in a single trial and these food aversions are persistent and strong.” (Kerwin, 2003, pp. 166)

Factors Associated with Feeding Problems

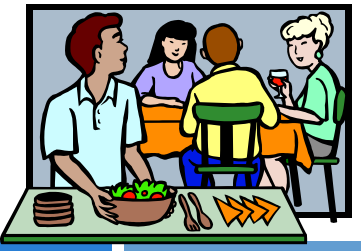
- Developmental Delays: 79%
- Gastrointestinal Disease: 9%
- Oral motor delays: 28%
- Other Medical Conditions: 7%
  - Cardiopulmonary condition
  - Neurological condition
  - Renal disease
  - Anatomical anomalies
- 16% had no prior medical or physical issue

Why a Behavioural Approach?

- Strong empirical evidence to support the effectiveness of behavioural interventions in the amelioration of persistent feeding difficulties
- Data is collected continuously to track progress and make decisions regarding intervention
- Most effective if medical and physical concerns have been assessed and are managed

A Behavioural View of Feeding Problems

- We define feeding problems as either motivationally based or skill based
- Motivation problem: Feeding problem is maintained by the child's environment (e.g., phobia, effort, hypersensitivity)
- Skill-based problem: Child does not have the necessary skills for eating (e.g., chewing, swallowing)



Changing an Ecology

Integrates three levels to assessment and intervention:

Child Eating and Related Mealtime Behaviour

(Iwata et al., 1982; Piazza et al., 2003)

Three Term Contingency

Functional Behaviour Assessment (FBA)

Antecedent

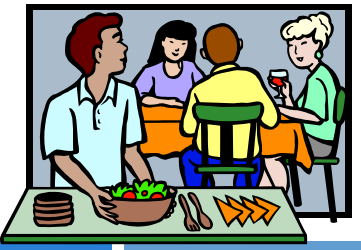
- Request to try a new food (fear)
- Request to try a new texture (effort)
- AN AVERSIVE EVENT

Problem Behaviours

- Refusing to open mouth
- Protesting/Crying
- Gagging/Vomiting
- Running away from the table

Consequence and Functions of Behaviour

- Food is removed (avoid)



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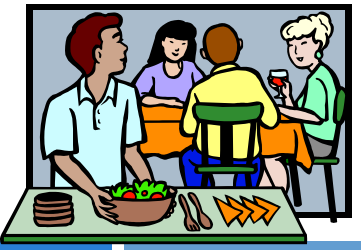
Parent-Child Interactions

(Patterson, Reid, & Dishion, 1992)

Escape Driven Process

Parent: Demand → Withdraw Demand

Child: Problem Behavior → Terminate Problem Behavior



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Mealtime Context

(Gallimore, Goldenberg, & Weisner, 2003; O'Donnell & Tharp, 1990)

Overview of Model

- Assessment
- Plan Development
- Intensive Training with Feeding Therapist
- Parent Training
- Maintenance and Follow Up Support

Assessment

- Medical Assessment: Are there any physical or medical factors that might be affecting eating?
  - Gastrointestinal disease
  - Allergies
  - Delayed Gastric Emptying
- Oral-Motor Assessment: does the child have the pre-requisite skills for eating?
- Dietary Assessment: Is the child consuming adequate calories and nutrients?
- Behavioural Feeding Interview and Observation of natural meal routine
- Routine Assessment: What is the family's vision of a successful meal routine?

Plan Development

- Multi-component Plan
  1. Strategies to motivate eating behaviour
  2. Strategies that teach the child new skills at mealtimes
  3. Strategies that ensure problem behaviour is not rewarded

Intervention with Feeding Therapist

- Feeding sessions occur 4-5 times a week, for 30 minutes to one hour, in a distraction free room (home or school)
- Child practices tasting or consuming small bites of food
- Data is collected on frequency of problem behaviour and amount of food consumed
- Work with therapist continues until child is successfully eating targeted number (10-15) new foods across the major food groups
- Parents are not present but sessions are videotaped

Parent Training

- Once the child is accepting a range of foods, the interventionist teaches the parents to use the strategies with their child in the natural meal routine
- Training Strategies Used: modeling, coaching, rehearsal, training videos, checklists

Monitoring and Follow Up

- Fade to once every three weeks to once a month, to once every three months
- Monitor via email and phone calls
- Provide booster sessions when ever necessary
- Follow up for approximately one year

Monitoring and Follow Up

- Empower parents to become self-sufficient in their use of strategies
- Develop a plan to prevent or overcome a potential relapse in the child's eating
- Plan for:
  - Illness
  - Dental problems
  - Surgery
  - Vacations

Our Outcomes to Date

- What we consider a success:
  - Child is accepting, chewing, and swallowing 15-20 table foods.
  - Parent can successfully feed their child a new food without us present
  - Outcomes have maintained beyond six months
  - Child is no longer dependent on extraordinary methods of artificial feeding

Food Selectivity by Type or Texture

Children	22 children, Average age: 5.9, Range: 2-11
Length of intervention	Average: 19.7 weeks, Range 6-37 weeks
Hours of Intervention	Average: 48.6 hours, Range: 9.25-94.25
Outcomes	Average: 17 foods introduced Range: 5-39 foods introduced 19 successful, 100% with Feeding Therapist but services were terminated due to insufficient funds

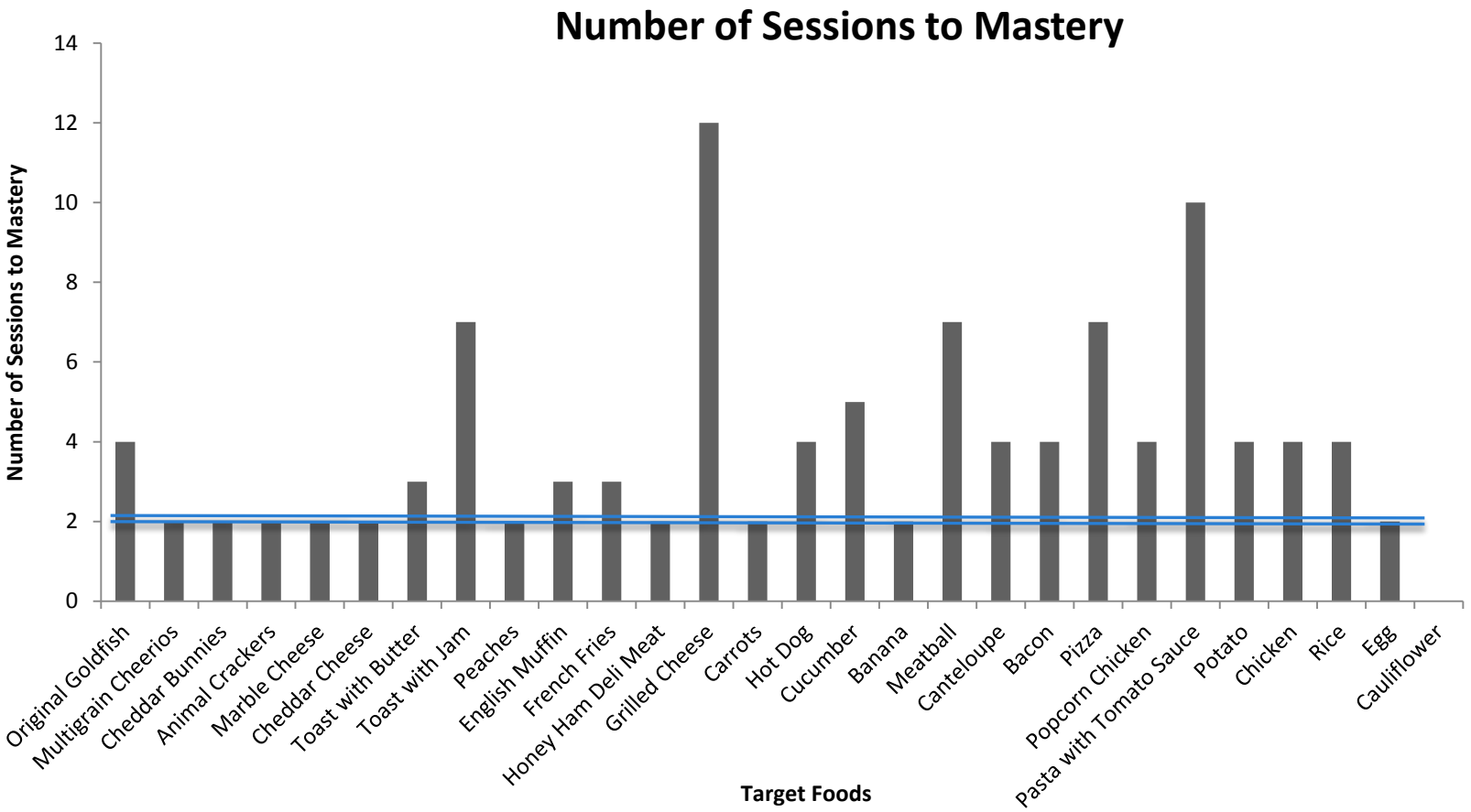
Sam: Case Example

- Diagnosis of ASD
- Six years of age at the start of intervention
- Lives at home with his older brother who also has ASD and parents
- Feeding issue: Food selectivity by type and texture (no mixed dishes)
- At the time of intervention his diet primarily consisted of: a few fruits (e.g., berries, apple, grapes), ham, dinner buns, cereal, crackers, cookies, chocolate milk, and yoghurt.
- Ate all meals in front of the television or computer

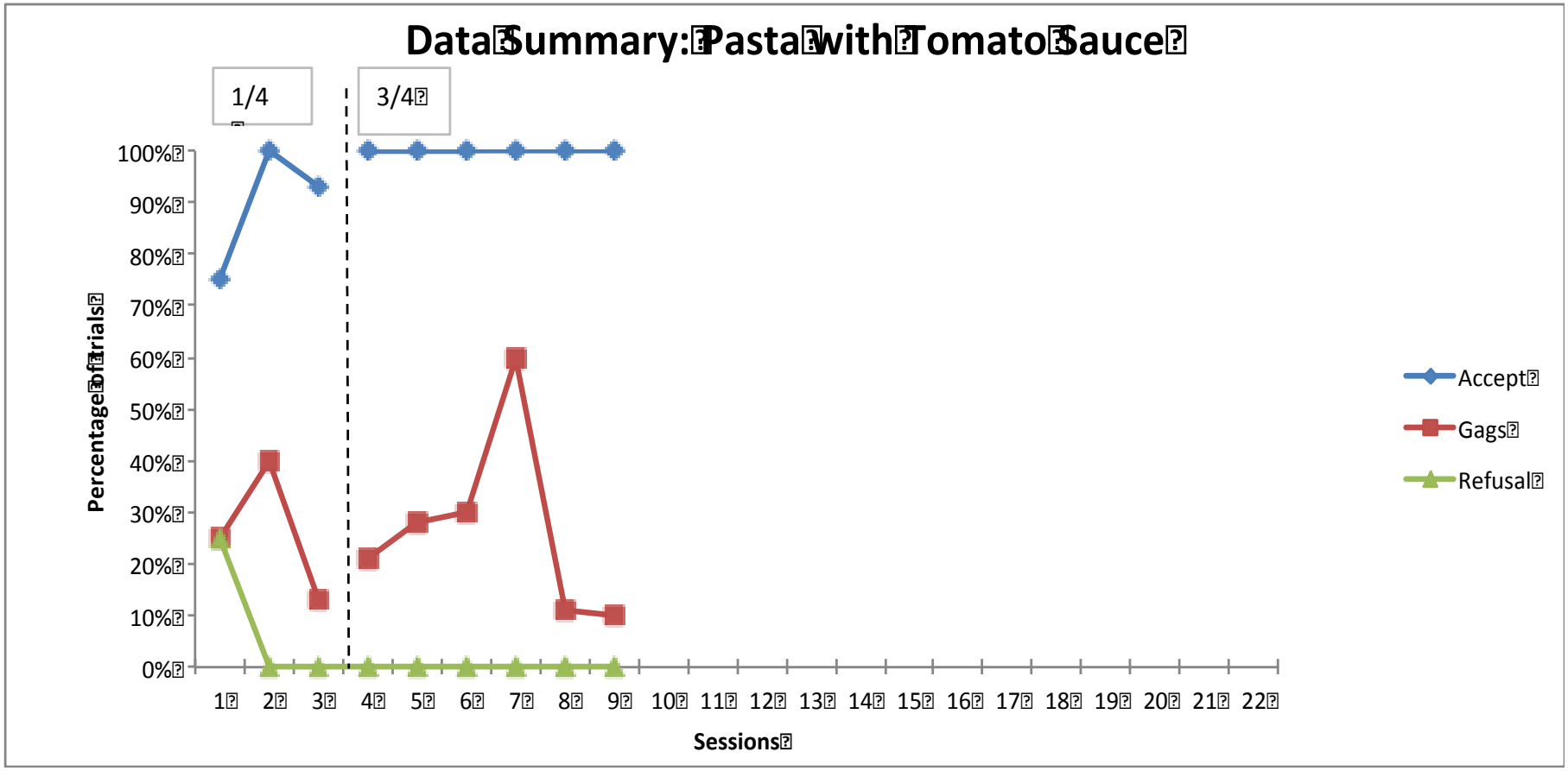
Sam: Plan of Intervention

- Hunger
- Limited access to reinforcers
- Choice
- Stimulus fading (increasing size of bite over time)
- High probability sequence (lick, lick, eat)
- Visual contingency-number of bites
- Reinforcement-iPad
- Escape Prevention
- Response Cost
- Beat the clock

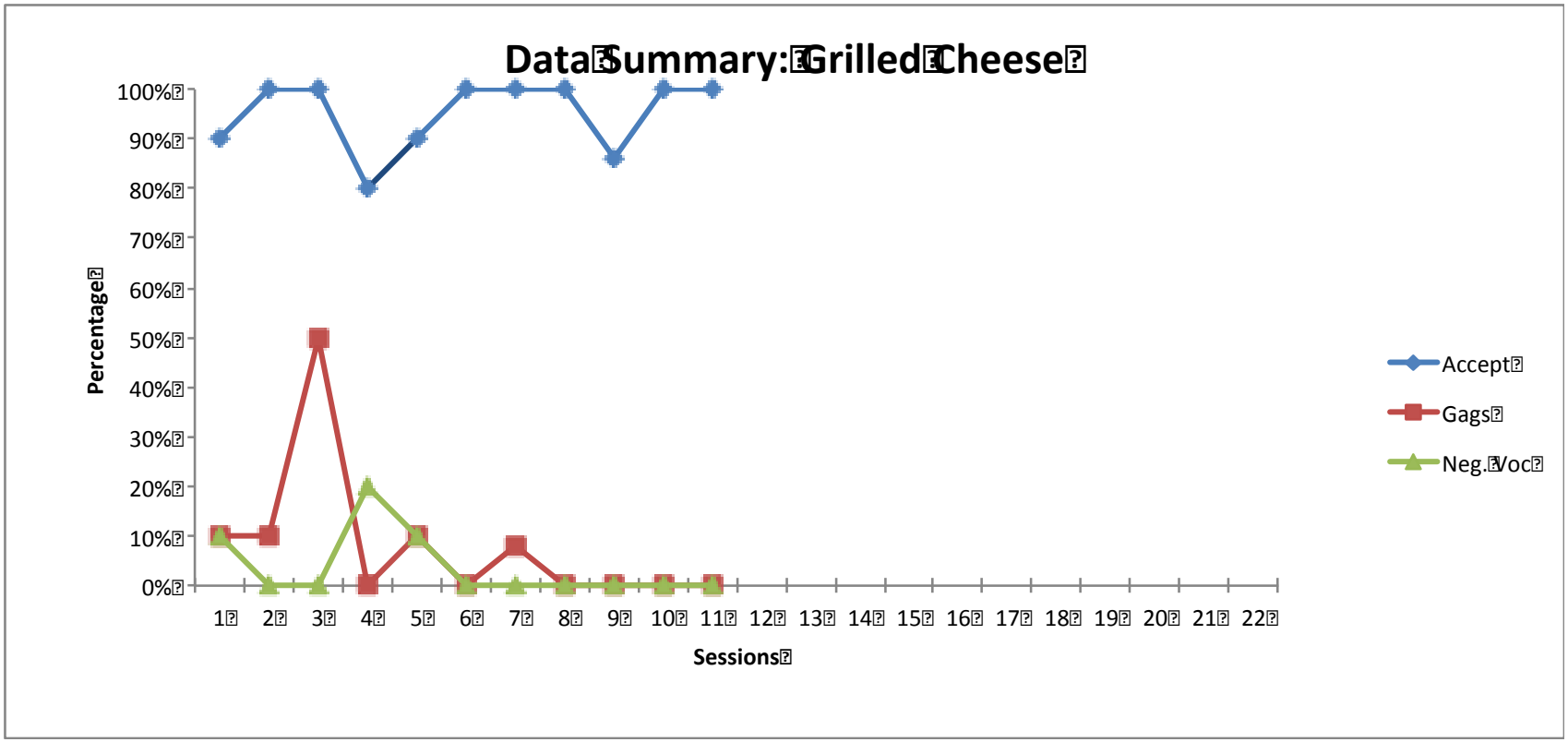
Sam: Food Selectivity



Sam: Pasta with Tomato Sauce

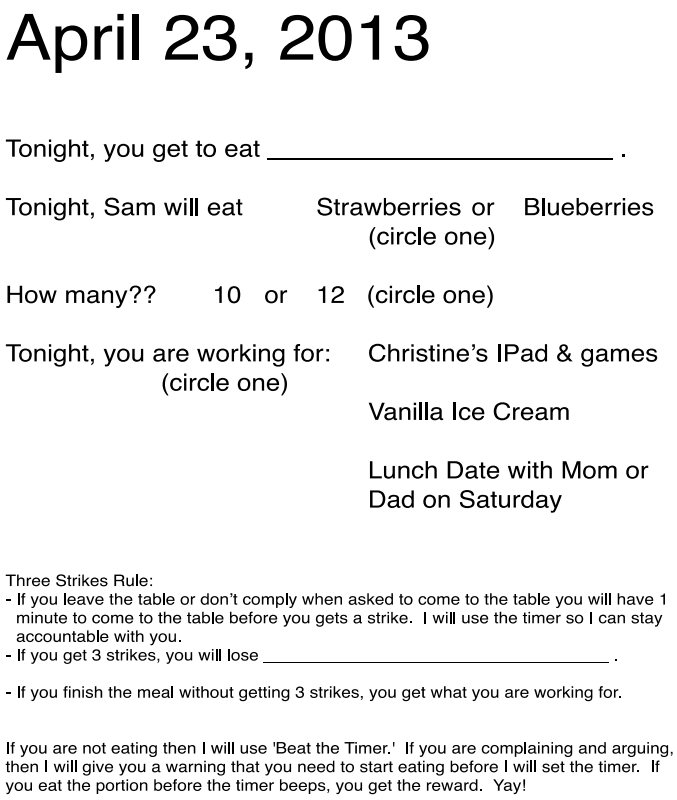


Sam: Grilled Cheese



Contextual Fit Considerations

- Can't have a meal together as a family for the older brother refuses to eat with Sam
- Implemented an adjunct behaviour support plan



April 23, 2013

Tonight, you get to eat _____ .

Tonight, Sam will eat Strawberries or Blueberries (circle one)

How many?? 10 or 12 (circle one)

Tonight, you are working for: (circle one)
Christine's IPad & games
Vanilla Ice Cream
Lunch Date with Mom or Dad on Saturday

Three Strikes Rule:
- If you leave the table or don't comply when asked to come to the table you will have 1 minute to come to the table before you gets a strike. I will use the timer so I can stay accountable with you.
- If you get 3 strikes, you will lose _____ .
- If you finish the meal without getting 3 strikes, you get what you are working for.

If you are not eating then I will use 'Beat the Timer.' If you are complaining and arguing, then I will give you a warning that you need to start eating before I will set the timer. If you eat the portion before the timer beeps, you get the reward. Yay!

Sam: Outcomes

- Eating 30+ foods across all major food groups
- Mom has fed him at least 10 new foods without Christine present
- 53.5 hours of ITT
- 20.75 hours of PT
- 12.25 hours of Monitoring (to date)
- Across 50 weeks

Oral Motor Delay: Failure to Transition to Table Foods

Children	11 kids, Average age: 4.3, Range: 1.5-7.5
Length of intervention	Average: 33 weeks, Range: 18-65 weeks
Hours of Intervention	Average: 76.6 hours, Range: 41.5-150.25 hours
Outcomes	Average: 18 table foods introduced Range 5-29 foods introduced 10 successful, 100% with feeding therapist, but 1 case was terminated due to insufficient funds.

How do we teach chewing?

- Oral stimulation activities
- Tongue lateralization activities
- Shaping
- Reinforcement
- Escape Prevention

Oral Stimulation and Tongue Lateralization

- Vibration to the cheeks, chin, and upper lip.
- Stimulation to the tongue with a NUK brush by applying pressure to the anterior (tip) and lateral sides of the tongue. This stimulation serves to facilitate movement and increase acceptance of tactile sensation in the mouth.
- Blowing activities.
- Licking food from corners of mouth
- Imitating side to side movements with tongue
- Hiding small pieces of food (e.g., cheerios, grape nuts) in the child's cheek pockets

Shaping:

- A teaching procedure in which the adult prompts and reinforces closer and closer approximations to the target behaviour.
- Begin with reinforcing low effort behaviours and gradually increase expectations as the child shows progress
- Inappropriate behaviours are ignored

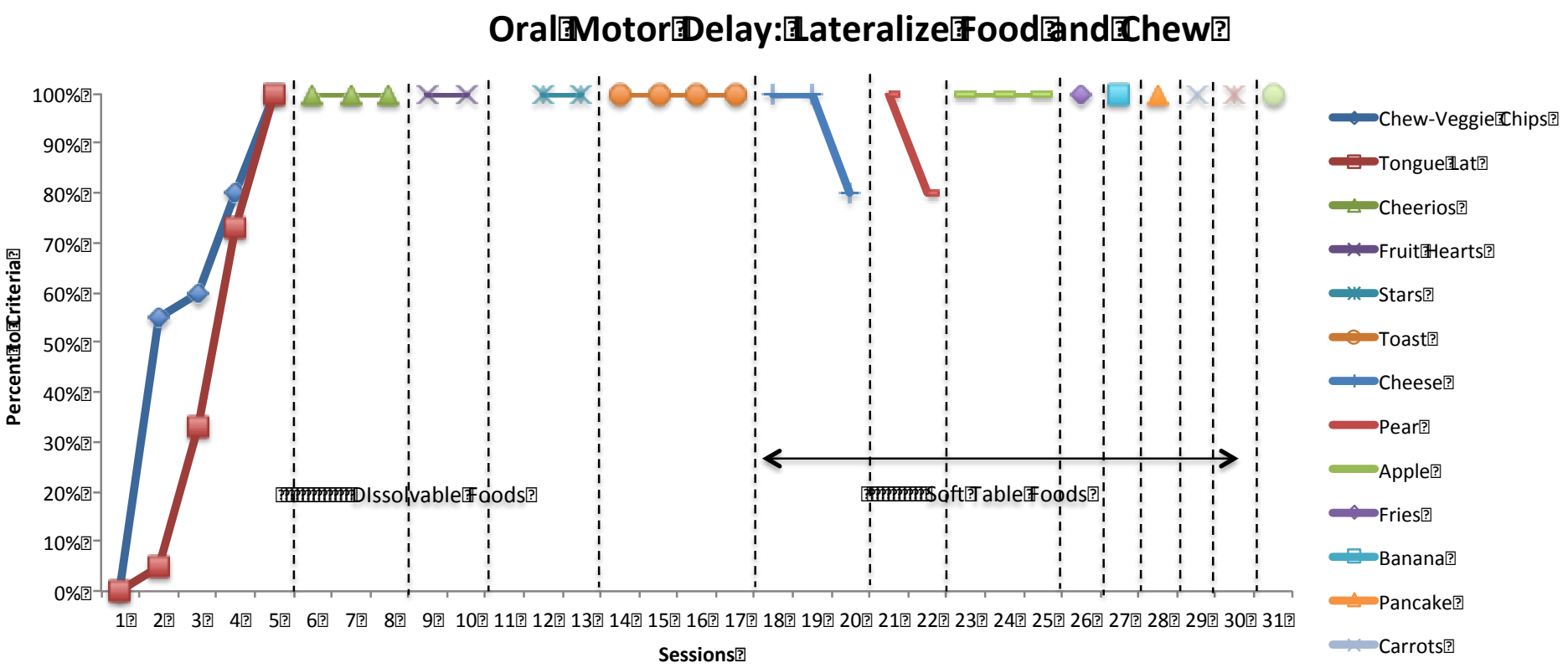
Shaping:

- The progression of successive approximations to the terminal goal include the following:
- Child will accept a chewing tube or straw in his mouth.
- Child will practice chewing using the chewing tube on left and right sides of his molars.
- Child will chew at least four meltable solids (meltable solids are foods that are relatively soft and dissolve easily).
- Child accepts, chews, and swallows at least 4 soft table foods—i.e., foods easy to chew and swallow
- Child accepts, chews, and swallows small bites of regular table food from all major food groups.

Jason: Case Example

- Diagnosis of Down's Syndrome and ASD
- Five years of age at the start of intervention
- Feeding Problem:
  - Oral motor delay-unable to lateralize and chew foods
  - Food selectivity with pureed foods
- Lives at home with his parents and older brother who has ASD

Jason: Case Example



Jason: Contextual Fit Considerations

- Non-contingent access to the iPad when eating together as a family
- Educated older brother about Jason's problem behaviour, taught him to ignore
- Enlisted social supports: Heather trained both grandmas on how to feed Jason

Jason: Outcomes

- Consuming 20 table foods
- 53 hours of ITT
- 12 hours of PT
- 3. 5 hours of monitoring
- Across 24 weeks

Tube Dependence

Children	6 kids, Average age: 4.2, Range: 2-6 years
Length of intervention	Average: 20 weeks, Range: 6-38 weeks
Hours of Intervention	Average: 86.12 hours, Range: 24-111 hours
Outcomes	3 children, tubes were removed 1 child: 10 + purees**,** severe GER 1 child: 25 purees, 11 table foods (intervention ongoing) 1 child: 10 purees, 16 table foods, tube feeding reduced by half

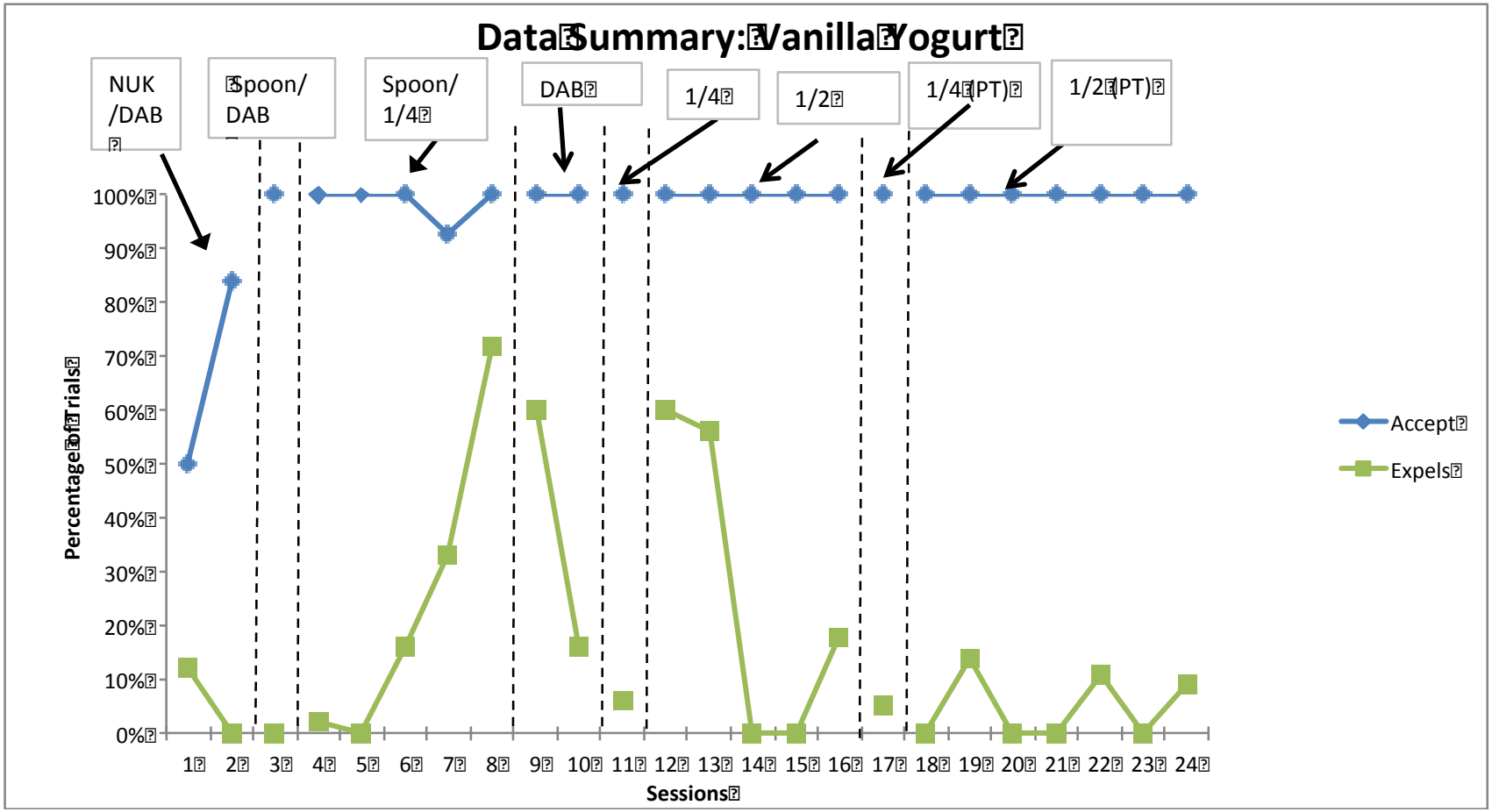
Hayden: Case Example

- 6 years of age at the start of intervention
- Diagnosis of ASD
- Lives at home with his mom and dad
- Born prematurely at 26 weeks
- He has gastroesophageal reflux and is fed 100% by a gastrostomy tube

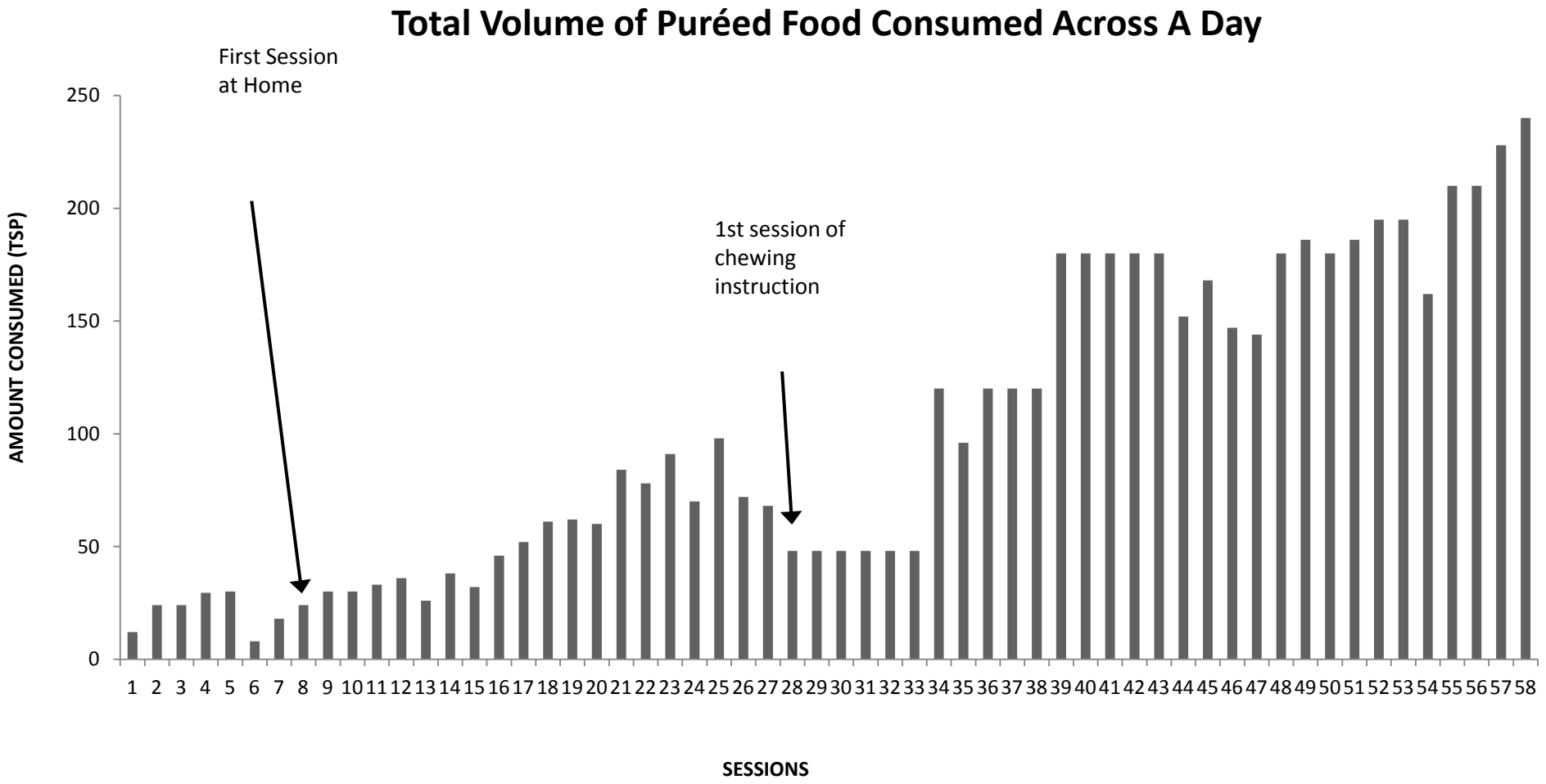
Hayden: Plan of Intervention

- Demand fading
  - Nuk brush (empty, dab)
  - Spoon (empty, dab, ¼ sized bite and so on…)
- Reinforcement
- Wiped the expel off his chin, with-held reinforcement and repeated the trial

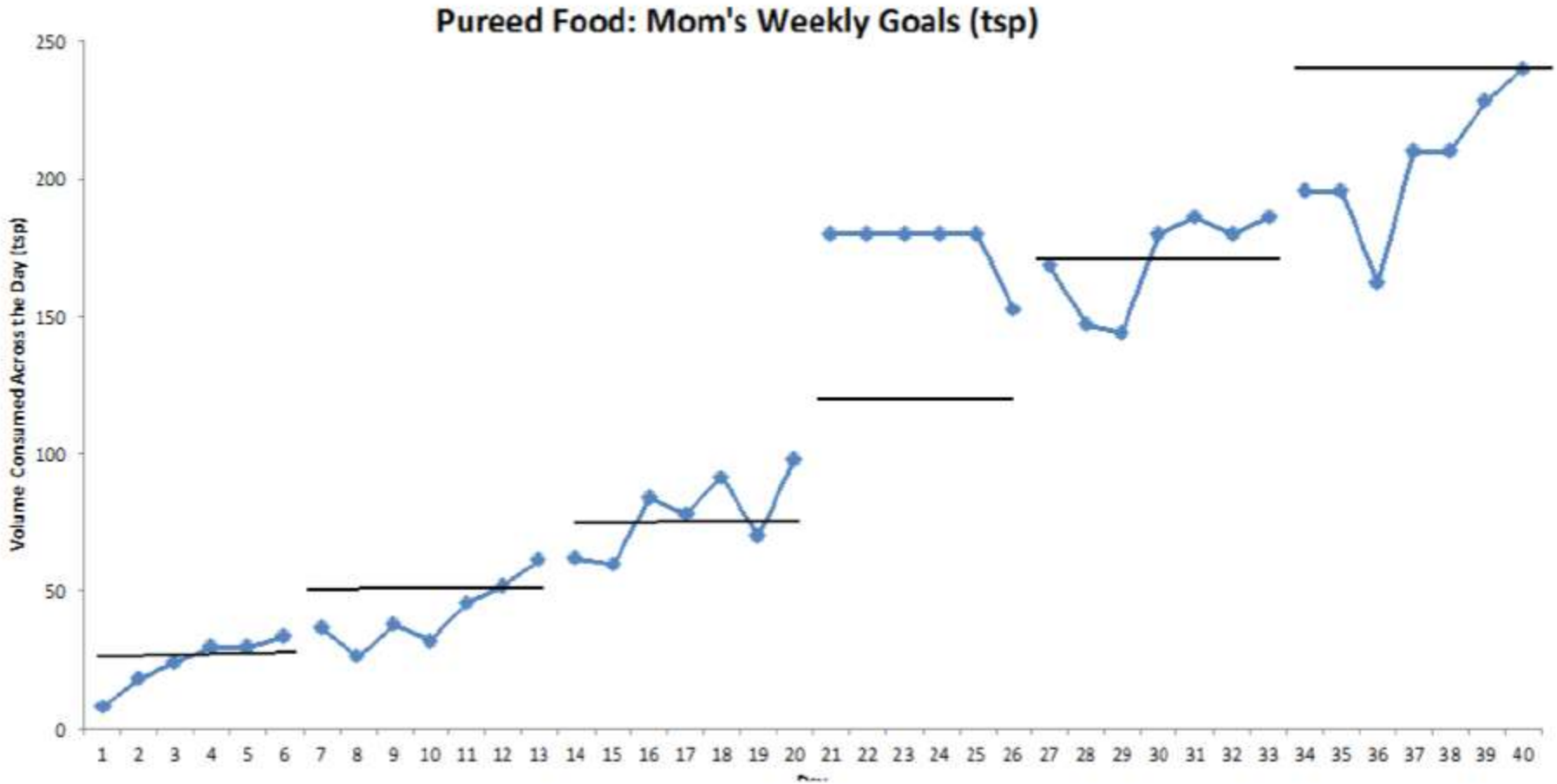
Hayden: Yoghurt



Hayden: Total Volume/Day



Mom's weekly goals



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Food Volume and Calories Tracking Form

Child's Name: Hayden

Week of: April 14

14th	Volume	Calories	Types of Food Consumed
Sunday			
Breakfast	13 Tbsp		(5) Yog (4) RC (3) Spin (1) Yam
Snack	13 Tbsp		(4) Yog (3) SP (3) Spin (3) BS
Lunch	13 Tbsp		(2) Yog (3) RC (3) BS (3) SP (3) SP
Snack	13 Tbsp		(3) SP (4) Peach (3) Spin (3) BS
Dinner	13 Tbsp		(6) Peach (7) Yogurt
Snack			
Total Volume & Calories Consumed Across the Day:			
MONDAY			
Breakfast	13 Tbsp		(5) Yog (5) Peach (3) RC
Snack	13 Tbsp		(4) Yog (3) SP (3) Spin (3) BS
Lunch	13 Tbsp		(4) Peach (3) Yam (3) SP (3)
Snack	13 Tbsp		(5) Yog (3) Yam (3) BS (2) Spin
Dinner	13 Tbsp		(5) Peach (5) Yam (5 Yog)
Snack			
Total Volume & Calories Consumed Across the Day:			
TUESDAY	17.8 Kg - 39.16		
Breakfast	13 Tbsp		(5) Yog (4) RC (3 4) Peach
Snack	13 Tbsp		(5) Yog (4) SP (4) RC
Lunch	13 Tbsp		(5) Peach (4) Yam (4) BS
Snack	14 Tbsp +1Tbsp CP		(4) Spin (2) Yam (4) BS (4) Yog
Dinner	Missed - Swimming		
Snack			
Total Volume & Calories Consumed Across the Day:			
WEDNESDAY			
Breakfast	14 Tbsp		(5) Yog (5) Peach (4) RC
Snack	14 Tbsp		(5) Yog (5) SP (4) RC
Lunch	14 Tbsp		(5) ~~Yog~~ Peach (5) Yam (4) BS
Snack	14 Tbsp		(3) BS (4) Yam (1) CP (3) SP (4) Yog
Dinner	14 Tbsp		(4) BS (3) Yam (1) CP (3) SP ~~(5)~~ (2) Peach
Snack			
Total Volume & Calories Consumed Across the Day:			

	Volume	Calories	Types of Food Consumed
THURSDAY			
Breakfast	14 Tbsp		(5) Yog (5) Peach (4) RC
Snack	14 Tbsp		(5) Yog (5) Yam (4) SP
Lunch	14 Tbsp		(5) Peach (5) RC (4) BS
Snack	14 Tbsp		(5) Spin (5) Peach (5) Yam
Dinner	14 Tbsp		(5) Yog (5) SP (4) Chick Peg
Snack			
Total Volume & Calories Consumed Across the Day:			
FRIDAY			
Breakfast	14 Tbsp		(5) Yog (5) Peach (4) RC
Snack	15 Tbsp		(5) Yog (5) Yam (5) SP
Lunch	15 Tbsp		(5) Peach (5) Chick Peg (5) BS
Snack	16 Tbsp	(¼C Yam)	(¼C Soup) (¼ Peach) (¼C Yogurt)
Dinner	16 Tbsp	(¼C BS)	(¼C Soup) (¼ Yog) (¼C Spin)
Snack			
Total Volume & Calories Consumed Across the Day:			
SATURDAY			
Breakfast	16 Tbsp		¼C - Yog Peach Spin SP
Snack	16 Tbsp		¼C - Yog Yam Spin SP
Lunch	16 Tbsp		¼C - Yog Soup Chick Peg SP
Snack	16 Tbsp		¼C - CP Yam SP Yog
Dinner	16 Tbsp		¼ C - Yam SP Soup Yog.
Snack			
Total Volume & Calories Consumed Across the Day:			
NOTES FROM THE WEEK:			
TOTAL VOLUME CONSUMED ACROSS THE WEEK:			
TOTAL CALORIES CONSUMED ACROSS THE WEEK:			

Hayden: Outcomes

Pureed Foods

- 18 hours of ITT
- 13 hours of PT
- .75 hours of Monitoring
- Consuming 10 purees
- Across 4 weeks

Solid Foods

- 49.75 hours of ITT
- 17.25 hours of PT
- Presently being monitored
- Consuming 20 solid foods
- Across 6 weeks

LESSONS LEARNED

Feeding Strategies

- Very difficult behaviour to change, but not impossible!
- Requires intensive support (up to 60+ hours of intervention)
- Intervention should be conducted under the direction of experienced and qualified professionals

Feeding Strategies

- Rule out any physical or medical issues
- Motivation is key!
  - If the child is motivated and expectations are reasonable there is less of a need for an escape prevention procedure.
- Repeated practice with tasting new foods
- Use a generalization promotion strategy
  - Choose foods that vary in appearance, texture, taste, temperature, and method of eating (e.g., spoon, finger foods)

Working in Family Contexts

- Develop collaborative and trusting relationships
- Begin intervention with interventionist to prime the child to be more responsive to changes in parenting behaviour
- Teach parents to pay attention to the ways in which their child influences them to **remove or modify their demand**

Working in Family Contexts

- Assessing current problematic routine and the parent's vision of a desired (envisioned) meal routine
- Provide ongoing maintenance support
  - Once a month
  - Fade to once every 2-3 months

Thank You!

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