Behavioral Feeding Disorders in Children: Food selectivity & refusal

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CASE HISTORY - Jerome

Jerome is 8 years old and has just moved to your school district. He has severe spastic cerebral palsy. He has seizure disorder and takes Dilantin in liquid form. His mother reports she feeds him baby food from jars as this is quicker than blending his food, and he seems to like the taste of the jarred food better. She usually starts with fruit and sometimes Jerome won't eat the vegetables, so she feeds him only fruit. He usually eats two jars of fruit, two jars of vegetables and ½ jar of meat. She feeds him before school and has to get him up early as it takes about an hour to feed him. She holds him in her lap sitting on the couch and lets him recline against the arm of the couch. He doesn't like to sit in his special wheelchair to eat. After school his mom feeds Jerome several jars of food and later, when the rest of the family eats dinner, she feeds him again. He drinks juice from a sippy cup but loses a lot out the front of his mouth and she wipes his chin after every sip. He drinks two cups of juice during each feeding. Jerome doesn't like to be fed by his older sister and turns his head away, so the older sister usually takes responsibility for cooking dinner for the rest of the kids in the family while Jerome's mother feeds him.

EVALUATION RESULTS - Jerome

Jerome has contractures and increased tone in his trunk. He sits only supported and cannot rotate the trunk. He maintains head upright at midline for 10-20 seconds at a time. His gums are swollen and his teeth ground down. Jerome cannot follow directions, so more complete assessment of oral motor skills cannot be completed. He does tolerate tactile stimulation to the face. When presented with liquids from a regular cup, he shows jaw thrust and poor jaw grading. When he tries to close the jaw onto the rim of the cup, he bites the cup. He coughs when the cup is tipped up and liquids are spurred into his mouth. If placed in prone and given jaw support he did better at controlling the closure of the jaw on the rim of the cup, but still did not use the upper lip to pull liquids into his mouth. When pureed foods are presented per spoon, he thrusts his jaw wide open and his lips are pulled back and his upper lip does not help at all to clear the spoon. When he closes the jaw, he bites on the spoon and his jaw is pulled back. In the prone position, the jaw retraction is reduced and the jaw support he gets from close more easily on the spoon. Added lip support to top and bottom lips helps him use the spoon to remove food from the spoon. Jerome cannot bite through a cookie. When a piece is broken off and placed midline on the tongue, he just lets the piece of cookie sit there. When the piece of cookie is placed on the lateral incisors, he begins a simple munching pattern and continues this until the cookie dissolves. He does not use the tongue to move the cookie to midline of the tongue. Because of poor lip closure, straw drinking was not attempted. Jerome's cooperation had to be re-established several times during the evaluation. Whenever a new texture or implement was presented, he turned his head away and showed increased hyperextension.

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Behavioral feeding problems

- Components of both motivational problems (i.e. choice) and skills deficits (i.e. lack of ability)
- What starts as physiologically-based problem may become a behavioral one
- Difficult to differentiate
- May be called non-organic failure to thrive, growth failure secondary to feeding skills disorder, functional dysphagia, conditioned dysphagia

CASE HISTORY - George

George is 3 years old. He was born 4 weeks premature. He has had several hospitalizations for a variety of problems, including high fever with a gastro-intestinal virus, hiatal hernia surgery, one bout of pneumonia, and had to have tonsils and adenoids removed due to possible sleep apnea (he had PE tubes placed during this surgery as he also had intermittent otitis media). George was breast-fed for 2 months and then made the transition to the bottle. His mother tried to introduce baby cereal at 4 months but George repeatedly gagged and attempts were terminated. She tried again at 6 months. This time George was a little more successful. Transition to fruits and other textures was slow and by 12 months George was taking only stage 3 baby foods. He never took very much at any meal and became fussy when his mother continued to attempt to feed him. He transitioned to a dip around 14 months but was still taking a bottle at night. By age 2 the number of foods that he would tolerate remained very limited and he still preferred stage 3 baby foods to table foods. Mom remained concerned about his poor intake and expressed her concern to George's pediatrician, but he told her not to worry and that some children were just picky eaters. At 3 George was referred to an otology clinic because of his recurrent otitis media and placement of PE tubes. The clinic had a dietician on staff and George's mother expressed her concern about George's limited intake to her. She told the dietician that she was making her own 'stage 3' baby foods and putting them in jars because this was the only type of food apart from cookies and donuts that he would eat. George was only drinking 'Breakfast Shakes'. His mother also expressed some exasperation that George would only eat if the television was on, would never sit at the table for more than a minute or so and would only eat for her. She and George live with her parents and George saw his father every other weekend.

Evaluation Results – George

Additional significant history was obtained from Mom. She is a young (19 y/o) and she has found raising George difficult. She finds her (now) ex with her parents difficult and she expresses considerable dissatisfaction with this situation. She states that her parents make the issue of George not eating more difficult for her because they make suggestions about what she should be doing and she feels what she is doing is OK. Her mother is having a very difficult time with the eating issue, particularly since George won't eat anything for her. George does not attend preschool and is at home with either his mother or his grandmother most of the day.

Oral motor structures and functions are well within normal limits. George was observed eating crunchy, soft and pureed consistencies. He took small bites only but demonstrated no clinical signs of either oral or pharyngeal dysphagia. He did not like it when he had peanut butter on his face suggesting some mild sensory problems but no other significant issues were present. He was observed drinking liquids from a slow flow sippy cup (the one he usually used at home), a straw and an open-top cup without any problems. He had a difficult time sitting at the table and redirection was necessary several times. His mother was observed coaxing him to eat throughout the evaluation. She had no positive verbal reinforcement and made threats of punishment (e.g. "You won't be able to play with Patrick later" several times).

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Behavioral feeding problems

- Range of severity
  - –need supplemental tube feeding
  - –inadequate caloric intake because of excessive juice consumption

Food selectivity/refusal are learned patterns

- Medical or motor factors implicated more in food refusal
- Food selectivity may be more of a learned behavior (except texture)

Behavioral/picky eater

- Signs typically emerge as child enters toddler-hood
- Tends to diminish between ages 4 and 5
- If child is still picky at age 9, may remain so into adulthood

Food refusal vs. selectivity

- Most clinicians differentiate between the child who refuses to eat (Evans-Morris calls them noneaters; p. 625) and children who are very picky eaters (extremely selective eaters).
- Children with food refusal refuse to eat all or most foods and cannot meet their caloric or nutritional needs.
- Food selectivity, described as a "strong preference for few foods, rejection of many foods" (Piazza 2008 p. 176) are also called food jags.

Must rule out other possible causes

- Sensory issues
  - Hyposensitive
  - Hypersensitive
  - Combination
  - Areas of sensitivity
    - Pressure
    - Texture
    - Temperature
    - Color
    - Smell
    - taste
- Medical issues
  - Respiratory: anything that affects breathing can affect swallowing
  - Gastrointestinal problems
  - Oral motor
  - Inappropriate diet
  - Allergies
  - Vitamin or mineral deficiencies

Food selectivity

- These are common in typical children beginning around 18 months of age.
- These preferences can vary day to day or week to week, but typically developing children manage to meet their caloric and nutritional needs and grow. Their hunger cues will lead the child to eat.

Causes of food selectivity/refusal

- Medical problems
  - lead to delay in initiating food by mouth.
  - reason for initial problem may no longer exist
- Critical period
  - Solid food should be introduced by 6 months
  - If this period is missed, problems are likely to occur

Causes of behavioral feeding problems

- Medical problems
  - lead to delay in initiating food by mouth.
  - reason for initial problem may no longer exist
- Critical period
  - Solid food should be introduced by 6 months
  - If this period is missed, problems are likely to occur

Food selectivity

- Food selectivity becomes problematic when the child's diet is limited to foods that are nutritionally deficient (e.g. high in fat) and when the food preferences exist with dramatic, emotional responses to the non-preferred foods (Wilder, Normand and Atwell 2005)

Causes of behavioral feeding problems

- Recurrent trauma
  - NG placement, suctioning, other invasive procedures may result in fear of being touched

Food selectivity

- Addressing significant food selectivity is important. Children with varied diets at age 27 months also had varied diets at 60 months.
- Williams (2009) attributes this to sensory imprinting. That is, early sensory exposure contributes to flavor preferences later in life.

Causes of behavioral feeding problems

- Psychosocial factors
  - forced feeding, sexual abuse, negative eating associations, family eating and mealtime routines, dysfunctional family, maternal inadequacies
- Psychiatric disorders
  - anxiety disorder or depression

Problem may be behavioral if..

- Parents report that feeding is a battle
- Parents report excessively long mealtimes
- Child snacks frequently on junk food, but will not eat a "real meal"
- Child frequently gags or vomits during a meal
- Child is highly selective about food
- Child simply refuses food
- Child holds food in her mouth

Autism Spectrum Disorders (ASD)

- High rate of reported GI symptoms (Horvath & Perman 2002)
  - Abnormal stool consistency (bulky or loose)
- No relationship between stool consistency and dietary intake
- Consumed average amounts of calories, fat and carbohydrates, with high protein compared to RDA
- Most children appear to be getting adequate (or higher) intake of calories and nutrients (Raiten & Massaro, 1986; Shearer et al 1982; Bowers 2002)

Behavioral disorders and the family

- What family factors may contribute to the problem?
  - High levels of dietary restraint (e.g."don't eat that, it's fattening")
  - lack of organization
  - lack of mealtime planning
  - caregiver's psychological difficulties/stress

Autism Spectrum Disorders

- Food and textural selectivity
  - Reports the selectivity based on food presentation and food types
    - (Ahearn et al 2001;Archer & Szatmari 1991; Stone et al 1995; Teplin, 1999)
- Are ritualistic & perseverative behaviors (e.g. eating one type of food; placement of food on plate) representative of OCD? (Gallucci, et al 2003)

Behavioral disorders and the family

- Impact on family can be considerable
  - mothers blame themselves
  - marital difficulty, sibling rivalry, financial
  - cultural importance of eating
- Family must be included in all stages of treatment

ASD

- Comparison of children with autism spectrum to typically developing children Schreck, Williams & Smith, 2004)
- ASD had more feeding problems:
  - Food refusal
  - Idiosyncratic meal time behavior
  - Acceptance of a limited variety and texture of food items
    - Not related to the food texture
    - More related to food presentation (e.g. using particular utensils or different food items touching on plate)

ASD

- Many unproven theories about ASD (Levy et al 2007)
  - GI pathology related to etiology of autism
  - Gluten sensitivity contributes to etiology
  - Gluten or casein sensitivity
    - Theory that subset of autistic children have leaky gut, resulting in neurological damage due to absorption of intact proteins
    - Theory is these substances cross blood-brain barrier and have psychosis-inducing effect

Why is teaming such a good idea?

- Children with feeding/swallowing problems may have multiple medical problems
  - mouth, throat, upper airway, larynx, trachea, esophagus, stomach and lower gastro-intestinal tract involved in swallowing
- They may receive services in a variety of settings

ASD Schreck & Williams cont'd

- Families who ate more restrictive diets had children with more restrictive eating behavior
  - Or could it be that these families ate a more restrictive diet b/c they have a child with autism who eats fewer foods, so they've stopped cooking different things?
- Feeding problems not related to severity of ASD

How does a team work?

- The dysphagia team is led by a coordinator who is frequently a speech-language pathologist.
- Skills needed to manage a team include:
  - identification of core team members and support services;
  - facilitation of team communication; maintenance of team focus, communication and interaction;
  - documentation of team activity;
  - and use of appropriate consultation procedures with other team members and other services

ASD

- All of these theories have resulted in many dietary interventions
- One of the problems with these restricted diet approaches is that these selective eaters may become even more selective on the restricted diet
  - Other problems include expense, lack of benefit and decreased socialization

Different types of teams

- Multi-disciplinary: retain distinctive roles, but exchange information about what each is doing
- Interdisciplinary: make effort to incorporate information and techniques they have learned from other disciplines
- Transdisciplinary: Conscious effort to take on some of the roles of another discipline

Multidisciplinary evaluation

- Structured or unstructured feeding team
  - physician
  - speech-language pathologist
  - pediatrician
  - dietitian
  - occupational therapist
  - behavioral psychologist

Working as part of a team

- Coordinating goals with other disciplines
- Example: Physical therapy is working on sitting balance
- SLP addressing child being able to safely drink from cup
- OT working on hand to mouth
- Classroom teacher wants child to sit with other children and participate in snack time

Steps toward transdisciplinary

Hershberger, 1991

- Role extension – keep abreast of latest developments in the field
- Role enrichment – general awareness and understanding of other disciplines and a sharing of information about basic practices
  - OT might share info about types of toys that cause sensory overload

Who's on the team?

- SLP
- Physician(pediatrician, family practice, physiatrist)
- Occupational Therapist
- Teachers
- Aides
- Parents and the patient
- Developmental interventionists
- Nurse
- Dietitian
- Dentist
- Social worker
- Psychologist
- Physical Therapist
- Audiologist
- Other medical specialists
  - Gastroenterologist
  - Neurologist
  - Neonatologist
  - Otolaryngologist
  - Pulmonologist
  - Radiologist

Steps toward transdisciplinary

Hershberger, 1991

- Role expansion – Exchange info on how to make some judgments outside your discipline
  - SLP trains others how to spot signs of aspiration
- Role exchange – Work side-by-side to acquire skills outside your discipline
  - PT shows SLP how to improve child's sitting balance and SLP shows PT how to provide jaw support during eating

Roles of team members

- Speech-language pathologist
- Evaluates and treats patients/students with swallowing problems, including direct modifications of physiologic responses and indirect approaches such as diet modification
- Physician
- Identifies children with swallowing problems; makes appropriate referrals; integrates recommendations of the dysphagia team with the overall health care and well-being of the child

When does teaming turn into "cross-training"?

- ASHA policy document on cross training
- "Multi-skilled Personnel" document indicates that "ASHA does not support cross-training of clinical skills at a professional level because the welfare of individuals served may be compromised…".

Parent/Care giver Participation

- The Parents
  - Provide information for assessment about
    - Their child's development
    - Their child's medical conditions and medications
    - Their child's current functional capabilities and management strategies
  - Participates in determining IEP objectives
  - Whenever possible provides practice opportunities at home to advance skills for IEP objectives

Roles of team members

- Occupational therapist
- Evaluates and treats sensory and motor impairments and assesses prosthetic needs related to self-feeding and swallowing.
- Teachers and aides
- Manage the instruction of the student and assure follow-up of any special recommendations in classroom setting

Parent Participation

- The parents
  - Provide information on ongoing health and well-being of child
  - Provide feedback on generalization of IEP objectives to home and other living environments
  - Collaborate with staff for medical referrals and appointments

Roles of team members

- Parents
- Provides information to other team members about the patient/student's signs and symptoms of the disorder; demonstrates understanding and implements the recommended management techniques.
- Patient/student
- Provides information to other team members about his/her disorder; demonstrates understanding of the causes and treatment of the dysphagia disorder; follows dietary, compensatory and facilitative techniques to restore swallowing function and maintain adequate nutrition and hydration

Team Role with Parents

The dysphagia team:

- Helps parents understand their child's feeding and swallowing disorder by providing information
- Guides parents to available resources
- Assists them in coping with their feelings. Is sensitive to their cultural views of disability
- Avoids alarming parents or putting them on the defensive

Vision Statement for Parent Involvement

Thanks to ASHA Division 13 for these slides

The Dysphagia Team respects and values the participation of parents as partners in assessment, problem solving and identifying the best dysphagia management plan for their child

Roles of team members

- Physical therapist
- Evaluates and treats body positioning, sensory and motor movements necessary for safe and efficient swallowing, recommends appropriate seating equipment needed during feeding.
- Audiologist
- Assesses hearing acuity and recommends management of hearing disorders

Roles of team members

- Developmental interventionists
- Serves similar role as teacher, but typically in the home setting
- Nurse
- Works with the patient/student and caregivers in implementing and maintaining safe swallowing techniques and compensatory or facilitation strategies during meals and when taking medications.

Other medical specialists

- Gastroenterologist: Determines any difficulties with the GI tract; performs diagnostic tests related to the esophageal segment of swallowing; and places feeding tubes if the patient/student needs an alternative to oral feeding.

Roles of team members

- Dietitian
- Evaluates nutritional needs; follows therapy recommendations regarding consistencies of liquids and solid foods, determines needs for special diets; and ensures adequate nutrition when using alternative means of nutrition.
-
- Dentist
- Evaluates and treats gingival and dental dysfunction, and may specialize in prosthetics to improve swallowing

Other medical specialists

- Neurologist
- Diagnoses and treats neurological causes of swallowing problems.
- Neonatologist
- Identifies infants with swallowing disorders; refers for evaluation; orders interventions as recommended; and oversees the infant's progress.

Roles of team members

- Social Worker
- Assists and counsels patient/student and families in adjustment to disability, access to the least restrictive residential and treatment environments, and third-party payment issues.
- Psychologist
- Evaluates and treats patient/students and their families in adjusting to dysphagia disability, in coping with ramifications of swallowing disorders, and in managing associated stresses; evaluates cognitive status of students (to assure expectations are in line with cognitive skills); participates on teams treating children with behavioral feeding disorders.

Components of evaluation

- Assessment of family issues
  - caregiver psychological issues
    - marital conflict, neglect,depression, family dynamics
  - caregiver social variables
    - poverty, lack of nutritional information, improper feeding techniques
  - financial resources
  - educational resources

Other medical specialists

- Otolaryngologist
- Diagnoses and treats oral, pharyngeal, laryngeal and tracheal pathologies that may cause or contribute to swallowing problems; cooperates with speech-language pathologist in performing endoscopic evaluations of swallowing (FEES ®.)
-
- Pulmonologist
- Evaluates and treats respiratory complications of patients/students with dysphagia; manages chronic pulmonary diseases and patients/students who are ventilator dependent.

Components of evaluation

- Food diary
  - time of meals
  - duration of meals
  - location of meals (high chair, floor)
  - people present
  - if child is fed, who fed
  - type of food eaten/presented
  - amount taken at each meal
  - child's behavior in response to food
  - caregiver's response to "problem" behaviors

Other medical specialists

- Radiologist
- Evaluates swallowing problems through radiologic studies, primarily with Speech-Language Pathologists during videofluorographic swallow studies (VFSS.)
- Who else??

Case information

- The child's case history and parents' presenting complaint provide information about the child's problem(s)
- Helps determine who needs to be involved in the child's care

Components of evaluation

- Medical assessment
  - MBS to rule out pharyngeal problems
  - GI studies to r/o esophageal dismotility,GERD, gastric emptying
  - r/o neurological involvement
    - group of children with NOFT: 1/2 had histories indicating neurological involvement without diagnosis
  - presence/absence food allergies
  - sensory problems (evaluation by OTR/L)

Medical history

- Apgar scores
- Genetic problems
- GI problems
- Respiratory problems
- Medical diagnoses
- Medications
- Current method for nutrition and hydration
- Amount of tube feedings
- Family history

What are some important pieces of information in child's case history? ++

- Weeks gestation/adjusted age
- Medical history
- Sleep patterns
- Feeding patterns
- Feeding concerns reported

Medical history

- Sleep patterns
  - premies need more sleep
  - not easy to wakeup
- Feeding patterns
  - how much
  - when
  - how often
  - how long it takes
- Feeding Concerns Reported e.g.:
  - poor suck
  - breathing disruptions
  - irritability
  - vomiting….

Weeks gestation/adjusted age

- Normal gestation 38-40 weeks (40 average)
- You subtract the number of weeks premature from chronological age to get adjusted age
- Adjustments continue until child is two years of age

Let's practice

- Read the case history
- Identify all potential problem areas
- Determine which professionals might address which problems

Medical history

- problems in prenatal period
  - exposure to drugs/alcohol
  - maternal infection, bleeding, toxemia
- perinatal problems
  - hypoxic event at birth
  - trauma at delivery
  - intubation
  - cardiac status

Hiroyashi

Hiroyashi is a 2-7 year old child who was born with tracheomalacia and partial trisomy of chromosome 14. She received a PEG at one month of age. She was also diagnosed with developmental delay and failure to thrive. When medical clearance was given at 12 months of age for Hiroyashi to begin eating, her mother introduced a bottle. Hiroyashi had a hard time sequencing her suck-swallow, and it took a long time for her to finish a bottle (45 minutes). PEG tube feedings were continued as Hiroyashi was failing to gain weight. Hiroyashi's mother tried cup drinking at about 18 months, but Hiroyashi refused all attempts and continued to carry her bottle with her throughout the day. When cereal was introduced at 20 months, Hiroyashi would take one bite and then vomit (projectile vomiting of tube feeding and the cereal).

Any behavioral problems observed?

- Sylvia
- Hiroyashi

Hiroyashi continued

At the present time, Hiroyashi receives three bolus tube feedings a day and continuous feeding at night. In addition, her mother lets Hiroyashi carry the bottle with her throughout the day, and it usually has fruit juice in it. Hiroyashi will lick cookies, but won't bite them. Hiroyashi does not mouth toys on her hand. She does not like to have her teeth brushed. She is very small for her age (height and weight).

Sylvia

Sylvia has just been moved to her paternal grandmother's care. She is 3 years of age. There is no significant medical history with the exception of failure to thrive. Developmental milestones appear to have been achieved at appropriate ages. Little information is available from her natural home, but it is known that she was being raised by a teen-age single mother in abject poverty. The child's father is living in another state where he could find work, and sometimes sends some money to the child's mother, but this support is sporadic and minimal. Therefore, the mother had little to no money for food, and what money was available was usually spent on soft drinks, chips, cookies and other snack foods. Sylvia is in the 15th percentile for height and 20th percentile for weight compared to her age peers.

Establishing a treatment plan

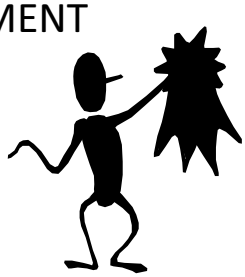
- Nutritional status
  - can child maintain nutrition via PO
- Behavioral vs. physiological
  - are there underlying physiological variables to address? At same time?
- Caregiver variables
  - caregiver's perception of problem
  - ability to facilitate the treatment plan

Sylvia continued

The paternal grandmother has not been granted custody, but the mother has agreed that she needs a break from caring for Sylvia. The paternal grandmother reports her frustration at Sylvia's refusal to eat anything but what she calls "junk food". The grandmother refuses to let Sylvia have any of these snacks (although they are readily available in the house, and grandmother reports she drinks soft drinks in front of Sylvia, but puts milk or juice in her cup). She fills Sylvia's plate at meals and if Sylvia won't take a bite, the grandmother holds her hand over the child's hand, takes the spoon to the child's mouth, pulls the jaw to open the mouth, and holds the mouth closed until the child will swallow. Sylvia is now hiding from grandmother at meal times.

Techniques to increase behavior

- POSITIVE REINFORCE-MENT



- NEGATIVE REINFORCE-MENT

Behaviorally based intervention

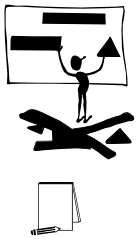
- Techniques to
  - –increase
  - –decrease
  - –change
  - –teach

Positive reinforcement

- Adding something to the child's environment that was not present before
- Increases likelihood behavior will occur again
  - – e.g. flavor of food itself is positive reinforcement
  - – e.g. given preferred food after eating non-preferred

Operationally define the behavior

- Break the behavior down into component parts
- These parts can be learned and reinforced more easily
- Can see where breakdown occurs
- Example: eating cereal



Negative reinforcement

- Taking away something that is a negative for the child
  - – e.g. after swallowing food, child is allowed to leave the table (presuming they didn't want to be at the table)
- Letting the child "get out of something"

Eating cereal

- Pick up spoon
- Move spoon toward bowl
- Put spoon into bowl
- Take spoon out with cereal on it
- Move spoon toward mouth
- Touch spoon to lips
- Put spoon in mouth
- Chew cereal
- Swallow cereal

What kind of behaviors would we want to decrease?

- Pushing food out of the mouth
- Refusing to open the mouth
- Yelling
- Running away
- Vomiting

Positive and negative together

- These techniques can be used together
- e.g. verbal praise after each bite and leaving the table after eating predetermined amount

Extinction

- Termination of ongoing reinforcement
- You may not have been aware you were reinforcing the behavior

How often should you reinforce?

- Gradually decrease the frequency of reinforcement
- Abrupt stopping of reinforcement may lead to the target behavior stopping
- Changing the schedule is very specific to the child

Extinction

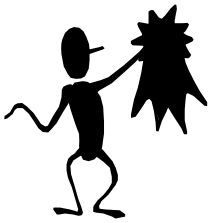
- e.g. Child spits out food and parents terminate meal and let child get down.This is negative reinforcement
- Extinction would involve continuing the meal and making the child take the bites which had been spit out
- May initially cause an increase in the behavior

Techniques to decrease behavior

- Extinction
- Differential reinforcement of other behavior
- Antecedent manipulation
- Punishment

Differential reinforcement of other behavior

- Combines extinction with positive reinforcement of a more acceptable behavior



Extinction - Time out

- e.g. Child refuses to eat an item and parents continue to coax and encourage, providing reinforcement in the form of attention
- Time out would place the child standing by the table with back to parents (being ignored)
- Caution: Time out could be viewed as negative reinforcement if child perceives it is getting him out of something

Differential reinforcement

- e.g. Child throws temper tantrum if given anything other than PB&J and is sent away from the table (negative reinforcement).
- Tantrum is ignored (extinction) and the child remains at the table and is given much praise for trying bites of what is on plate (positive reinforcement)

Using extinction (escape extinction)

- ✂Non-removal of the spoon – the feeder presents the spoon or cup to the child's lips and keeps it there until the child allows the food to be placed in her mouth
- ✂Physical guidance – the feeder applies gentle pressure to the mandibular joint and deposits the solid or liquid into the child's mouth if the child fails to accept the bite within a pre-specified time. Piazza 2008

Another application of differential reinforcement

- Contingency contacting. This is used with children who don't want to swallow. The child's mouth is held with a bite or sip in it until the child swallows and then immediate reinforcement if provided.
- By not allowing the child to spit out the food, you are extinguishing that behavior and then giving the positive reinforcement (Hoch, Babbitt, Coe, Krell, and Hackbert 1994).
- This technique has been used to reduce vomiting by providing reinforcement of the absence of vomiting (Dahlquist 1990).

Does escape extinction work?

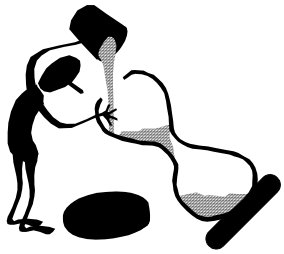
- Acceptance increased and inappropriate behavior decreased when escape extinction was implemented, independent of the presence or absence of differential reinforcement.

Antecedent manipulation

- If the child bats the spoon or plate away, antecedent manipulation would involve putting the child's hands in his lap and holding them there when the spoon is presented.

Antecedent manipulation

- Changing course of events immediately prior to an unwanted behavior to decrease the likelihood that the behavior will occur



Punishment

- Opposite of reinforcement
- Consequence given after a behavior
- Should decrease likelihood of behavior occurring again

Antecedent manipulation

- e.g. Child throws tantrum every time a full plate of food is presented
- Antecedent manipulation would have you present a plate with smaller amount of food to avoid the tantrum
- You can gradually increase the amount of food

Punishment

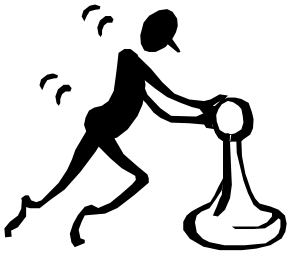
- e.g. Child throws up food deliberately and is allowed to stop the feeding session (this is negative reinforcement)
- Punishment might involve having the child clean up the mess and then continue eating

Antecedent manipulation

- For the child who frequently gets out of his seat and leaves the table, antecedent manipulation might involve use of a seating device that makes it very hard for the child to get up.
- For young children this can be a high chair. For older children, sitting in a chair with arms pulled up to the table. (Ahearn 2001 p. 64).

Modeling

- Child masters a task by imitating someone else (peers, parents)



Techniques to teach new skills

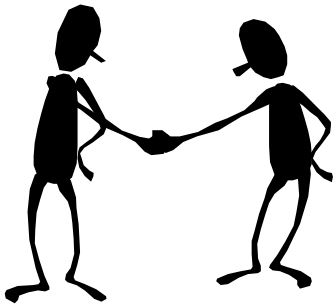
- Prompting
- Modeling
- Shaping a behavior

Modeling

- e.g. Child learns to sit at the table and not get up and run around by watching parents and siblings do the same

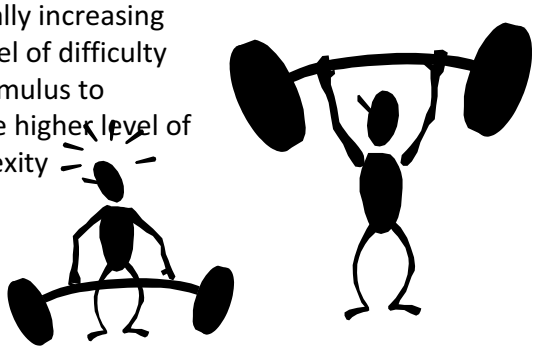
Prompting

- Giving instruction and physical assistance to achieve a target behavior



Shaping a behavior

- Gradually increasing the level of difficulty of a stimulus to achieve higher level of complexity



Prompting

- e.g. Child having difficulty getting the spoon to her mouth without food falling off the spoon
- Prompting might include verbal directions (turn the spoon over) or physically holding the child's hand and helping

Reducing response effort (a form of shaping)

- Change the expectation to make it easier for the child to accomplish.
- If the child has difficulty accepting new foods, start with foods that are similar to those in the child's current diet.
- Giving very small amounts of new foods also reduces the child's response effort.

Shaping

- e.g. Child unable/unwilling to take more than a crumb size piece of cookie
- Shaping would involve gradually increasing the size of the piece given

Reducing response effort

- From smaller to larger pieces
- Placing new food on preferred food
- Increasing concentration of liquids to include more of the new food

Introducing new foods/tastes

- Most parents introduce a food to their child less than 5 times, which is unfortunate because repeated exposure to a novel food results in increased preferences after 10-15 tastings. (Birch & Marlin, 1982)
- Just looking at the food had no impact. (Birch, McPhee, Shoba, Pirok & Steinberg, 1987).

Generalizing the behaviors

- Goal is to use newly learned behaviors in any setting with any person
- When behaviors stable within treatment setting, new elements added
  - people
  - places
  - foods
  - distractions

Food chaining Fraker, Walbert and Cox (2004)

- Combines sensory integration and behavioral modification techniques to expand the child's food repertoire.
- It emphasizes similar features (e.g. taste, texture, temperature) between accepted foods and new or targeted food items.
- The parent or guardian assumes the primary feeding role.
- The approach utilizes a 10-point food acceptance scale that is completed weekly by the child or caregiver. This scale measures the rate and variation of the progression of the types of food the child is eating.

Martin

Martin is reluctant to eat anything. He will take small amounts of crackers and cookies. When presented with a new flavor (carrots) he puts his fingers in his mouth and makes himself gag and then vomit. The next time he causes himself to vomit the feeding therapist says “No Martin!” in a stern voice and he is instructed to stand for the remainder of the meal.

A little practice

- What behavioral technique is this?

Sam

Sam’s parents have noticed that Sam will eat the first 10 or so bites of his meal while watching t.v. but then becomes engrossed in the t.v. program. In an attempt to get him to eat more, they turn off the t.v. part way through the meal. When the t.v. is turned off Sam becomes angry and refuses to eat any more food until the t.v. is turned back on. The problem is solved by keeping the t.v. off from the beginning of the meal.

Lucy

Lucy has applesauce in her bowl. She declines to eat it. Her mother sprinkles cinnamon on it. Lucy takes a bite and likes it. She continues to eat all of the applesauce until it is gone.

John

When John is presented with table food rather than jar baby food he methodically drops the table food off the tray of his high chair. In exasperation his mother leaves the table food where it is and lets him have jar baby food. To deal with this situation the feeding therapist suggests the following: Find 1 item of table food that John will accept and put it on his tray. If he takes a bite use lots of verbal praise. If he drops it on the floor, pick it up (wash as necessary) and present again, giving lots of verbal praise if he makes any attempt to eat it.

Discontinue use of jar baby food.

Alice

Alice does not like using a fork. After using the fork for her omelet she is instructed that she can eat her apple slices and carrot sticks with her fingers.

Establishing trust

- Payne and Sheppard want to teach the child these lessons:
  - you won't give the child anything to do she can't handle
  - you are the boss and in control
  - the child will be reinforced once the task is complete

Helen

Helen constantly gets down from the table throughout a meal because she doesn't want to eat. After she does this a few times her parents allow her to go ahead and play thereby concluding the meal. Helen's parents talk to the feeding therapist about the problem of getting down from the table. The therapist recommends continuing to bring Helen back to the table until they are satisfied with the amount of food eaten.

Establishing trust

- After the child can sit for several minutes and complete the simple activities, introduce food
- Continue the same reinforcement techniques

Goldilocks

Goldilocks takes a bite of Papa bear's porridge but it is too hot (she doesn't eat anymore). She takes a bite of Mama bear's porridge but it is too cold (she doesn't eat anymore). She takes a bite of Baby bear's porridge and it is just right (so she eats it up).

Working with children who are NPO

- Feeding specialist should see children who are NPO to prevent problems
- Without early work, transitioning to eating by mouth will be more difficult later on

Establishing trust – example of a school-based program

- Payne and Sheppard's approach
  - establish appropriate behavioral responses with non-feeding activities
  - reinforcement for sitting in the chair for increasing lengths of time
  - use reinforcement techniques
  - at one minute sitting time, introduce simple activities (e.g. matching) with reinforcement

When to transition

- Child is medically stable
- Child can swallow without significant risk of aspiration
- Solid foods cleared with pediatrician
- Begin by desensitizing

Working with children who are NPO

- Oral motor treatment
  - to address specific problems
- Desensitization
  - establish positive interactions and touch
  - feeding specialist/caregiver needs to be seen as other than providing aversive stimuli

Preparation stage Blackman & Nelson (1985)

- Tube feeding schedule altered to approximate oral feeding times
- Change formula to make it as standard as possible (i.e.cow's milk or soy)
- Registered dietitian to plan for sufficient calories

Working with children who are NPO

- Tactile
  - move threshold of gag reflex posteriorly
- Gustatory and olfactory
  - desensitize child to taste and smell of food
- Regulated feeding times
  - establish rhythms of sleep, activity, hunger and satiation

Transition stage

- Add oral feedings to tube-fed mealtimes, gradually starting with very small amounts of liquids and solids
- To rule out food allergies, try only one new food item every 3-4 days (can also try for allergies through the tube)
- Give child spoons, bowls, cups to play with

Transitioning from tube to mouth

- Severity of feeding problem and length of time of non-oral feeding are related
- Children do better if the transition is made before 6 months (developmental age)

When an in-patient program is needed

(Dunbar et al 1991)

- Extreme stress experienced by parents over failed efforts to achieve adequate oral feeding
- Failed attempts by professionals and parents to make changes in feeding behaviors when treatment has been conducted on OP basis
- Inability of parents to bring child to therapy

Transition stage

- Use of a lot of verbal praise and present easy foods
- Ignore negative behaviors
- Set time limit of 15-30 minutes for oral feeding (rest given through tube)
- If child fights oral feedings, give break before giving tube feedings (or child may think it is easy way out)

In-patient program may be needed:

- Need for medical monitoring during the process of being weaned from tube feeding
- Availability of team involvement
- Treatment time lines as specified by third party payors

Transition stage

- If there are times of day that child seems more "ready", decrease tube feedings prior to that time so child will be hungrier
- When child is able to take majority of calories by mouth, dietitian to help provide diluted tube feedings

In-patient programs can be successful

- 9 children fed by gastrostomy tube only
- Treated in multi-component intensive feeding program
- At d/c, 44% were weaned from g-tube
- At follow-up, 67% were weaned
- IP treatment ranged from 5-16 days
  - Byars et al 2003

Transition

- child and parent already battling, may need to remove caregiver from situation temporarily
- Some children who have been tube fed may prefer May be able to make up calories at night/nap
- Spicier foods may be preferred

- Don't remove tube too soon (6 months)

Intensive day treatment settings

- 46 children (16 to 133 months) dependent on g-tube
- 67% weaned from g-tube
- 30% had tube feeding reduced
- At two year follow-up, 74% still free of g-tube
  - Williams et al 2007

Putting it all together

- Identify the behavioral issues in the evaluation results
- Discuss what approach you might use to treat