

Developmental Milestones



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Goals

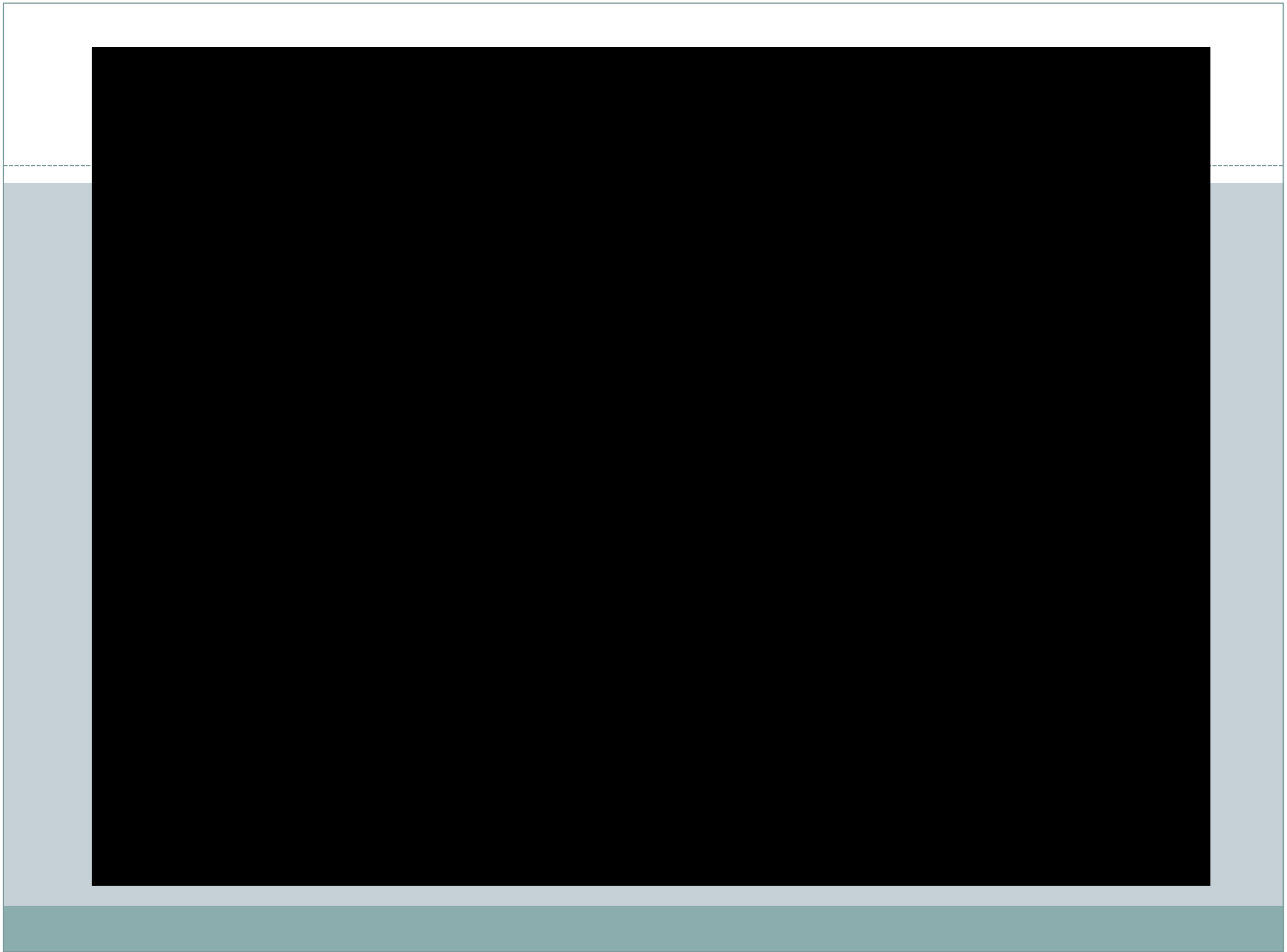


- 1. REVIEW AGE-RELATED PSYSHOCOCIAL TRAITS AND SILLS, SOCIAL-EMOTIONAL DEVELOPMENT, MENTAL, AND MOTOR DEVELOPMENT OF CHILDREN**
- 2. BEHAVIOR THEORIES**
- 3. BMI**
- 4. IMMUNIZATION SCHEDULES**
- 5. ANSWERS TO COMMON PARENT QUESTIONS**

Physical Milestones



Developmental Task	Average Age	Normal Range
Focus on light	2 weeks	1-4 wk
Lies on stomach, lifts chin	3 weeks	1-10 wk
Birth weight doubles	6 mo	5-7 mo
Rolls back to stomach	7 mo	5 ¹ / ₂ -11mo
Sits alone	7 mo	6-11 mo
Stands with support	10mo	9-18 mo
Walks alone	14 mo	10-20 mo
Bowel control	18 mo	1-2 ¹ / ₂ yr

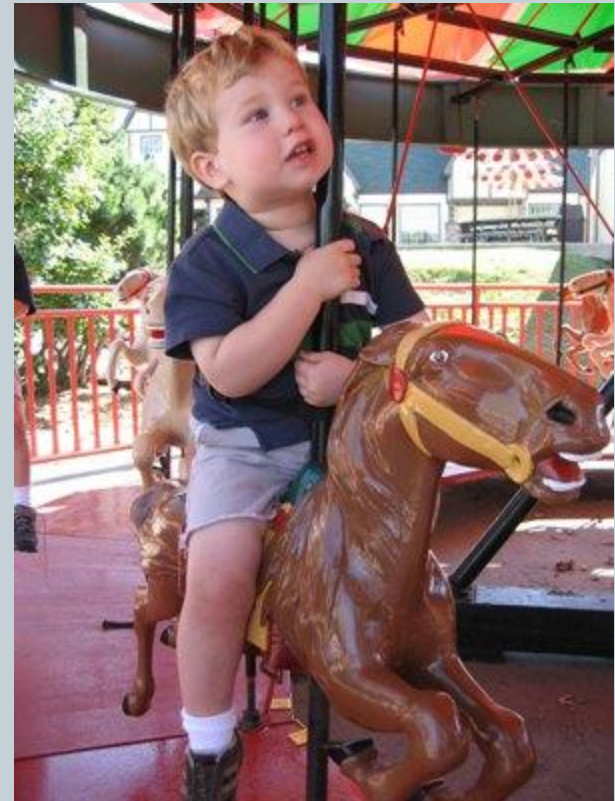


Age-related Psychosocial Traits and Skills



Two year Old

- Likes to see and touch
- Very attached to parent
- Plays alone- does not share
- Limited vocabulary
- Interested in self help skills



Social-emotional development of the 2 year old



- Self-centered
- Clings to the familiar
- Routine dependent
- Contacts by pushing and shoving
- Easily distracted and frustrated
- Complete dependence on adults

Mental Development of the 2 year old

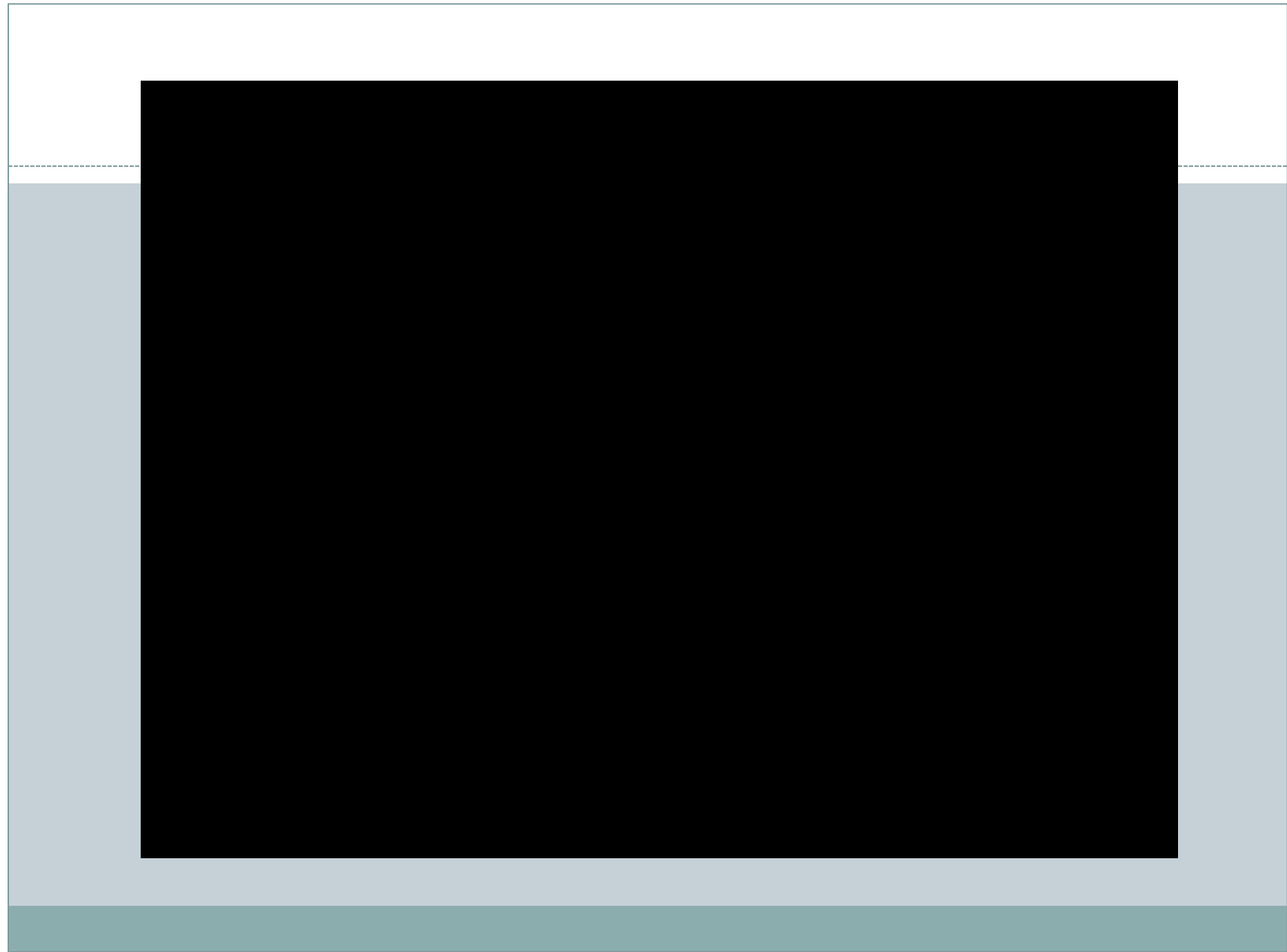


- One thing at a time
- One or two-word sentences
- Time concept “NOW”
- Needs own name used
- Repeats words, phrases, over and over
- ATTENTION SPAN: 1-5 minutes
- Vocabulary – 5 to 200 words

Motor development of the 2 year old



- Hand preference developing
- Climbs into things
- Can help undress
- Awkward with small objects
- Unsteady
- Rotates, fits objects



Age-related Psychosocial Traits and Skills



Three Year Old

- Likes to Please
- Very active imagination- likes stories
- Closely attached to parent
- Jealous
- Plays “animal”
- Avid “me-tooer”
- Wants to please adults, conform



Mental Development of 3 year olds



- Alert, excited, curious
- Names and matches simple colors
- Moves and talks at the same time
- ATTENTION SPAN: 4-8 minutes
- Vocabulary- 800-900 words
- Letter substitutions

Motor development of 3 year old



- Well-balanced body lines
- Rides a tricycle
- Gallops
- Can carry liquids
- Alternates feet in stair climbing

Age-related Psychosocial Traits and Skills



Four Year Old

- Tries to impose powers
- Small social groups- cooperative play
- Independent self help skills
- Knows thank you and please
- Dominates- bossy ,boastful
- Hits, grabs for what he wants



Mental Development of the 4 year old



- Can do TWO things at once
- Has concept of “three”-but names more
- ATTENTION SPAN:8-12 minutes
- Vocabulary- 1500 words
- Recognizes today, tomorrow
- Age conscious and birthday conscious
- Recognizes forms
- Enjoy silly words, rhymed without meaning

Motor Development of the 4 year old



- Dresses self except for back buttons and bow ties
- Throws large ball, kicks with some accuracy
- Can jump about own height
- Builds, drives, pilots

Age-related Psychosocial Traits and Skills



Five Year Old

- Takes pride in possessions
- Relinquishes comfort objects such as blanket or thumb
- Plays cooperatively in groups of 2-5
- Sensitive to ridicule
- Conscious of sex differences of playmates
- Copies adult behavior- acts grown-up



Mental Development of 5 year old



- Curious about everything
- Can carry play interest for more than one day
- Talk to clear ideas
- ATTENTION SPAN:12-28 minutes
- Vocabulary- 12,200 words
- Enjoys making up songs, dictating own stories
- Counts 10 objects

Motor Development of 5 year old



- Enjoys activities using hand skills
- Draws a person
- Able to skip on both feet
- Likes dancing
- Skill using simple tools
- Learn how to tie shoes

Speech and Language Milestones



HEARING AND UNDERSTANDING

Birth-3 Months

- Startles to loud sounds.
- Quiets or smiles when spoken to.
- Seems to recognize your voice and quiets if crying.
- Increases or decreases sucking behavior in response to sound.

TALKING

Birth-3 Months

- Makes pleasure sounds (cooing, gooing).
- Cries differently for different needs.
 - Smiles when sees you.

Speech and Language Milestones



HEARING AND UNDERSTANDING

4-6 Months

- Moves eyes in direction of sounds.
- Responds to changes in tone of your voice.
 - Notices toys that make sounds.
 - Pays attention to music.

TALKING

4-6 Months

- Babbling sounds more speech-like with many different sounds, including p, b, and m.
 - Vocalizes excitement and displeasure.
- Makes gurgling sounds when left alone and when playing with you.

Speech and Language Milestones



HEARING AND UNDERSTANDING

7 Months-1 Year

- Enjoys games like peek-a-boo and pat-e-cake.
 - Turns and looks in direction of sounds.
 - Listens when spoken to.
- Recognizes words for common items like “cup”, “shoe”, “juice”.
- Begins to respond to requests (“Come here”, “Want more?”).

TALKING

7 Months-1 Year

- Babbling has both long and short groups of sounds such as “tata upup bibibibi.”
 - Uses speech or non-crying sounds to get and keep attention.
 - Imitates different speech sounds.
- Has 1 or 2 words (bye-bye, dada, mama) although they may not be clear.

Speech and Language Milestones



HEARING AND UNDERSTANDING

1-2 Years

- Points to a few body parts when asked.
- Follows simple commands and understands simple questions
 - (“Roll the ball”, “Kiss the baby”, “Where’s your shoe?”).
 - Listens to simple stories, songs, and rhymes.
 - Points to pictures in a book when named.

TALKING

1-2 Years

- Says more words every month.
- Uses some 1-2 word questions (“Where kitty?”, “Go bye-bye?”, “What’s that?”).
- Puts 2 words together (“more cookie”, “no juice”, “mommy book”).
- Uses many different consonant sounds of the beginning of words.

Speech and Language Milestones



HEARING AND UNDERSTANDING

2-3 Years

- • Understands differences in meaning (“go-stop”, “in-on”, “big-little”, “up-down”).
 - • Follows two requests (“Get the book and put it on the table”).

TALKING

2-3 Years

- • Has a word for almost everything.
- • Uses 2-3-word “sentences” to talk about and ask for things.
- • Speech is understood by familiar listeners most of the time.
- • Often asks for or directs attention to objects by naming them.

Speech and Language Milestones



HEARING AND UNDERSTANDING

3-4 Years

- Hears you when call from another room.
- Hears television or radio at the same loudness
 - level as other family members.
- Understands simple, “who?”, “what?”, “where?”, “why?” questions.

TALKING

3-4 Years

- Talks about activities at school or at friends’ homes.
- People outside family usually understand child’s speech.
 - Uses a lot of sentences that have 4 or more words.
- Usually talks easily without repeating syllables or words.

Speech and Language Milestones



HEARING AND UNDERSTANDING

4-5 Years

- Pays attention to a short story and answers simple questions about it.
- Hears and understands most of what is said at home and in school.
 - Often asks for or directs attention to objects by naming them.

TALKING

4-5 Years

- Voice sounds clear like other children's.
- Uses sentences that give lots of details (e.g. "I like to read my books").
 - Tells stories that stick to topic.
 - Communicates easily with other children and adults.
- Says most sounds correctly except a few like l, s, r, v, z, ch, sh, th.
 - Uses the same grammar as the rest of the family.

Behavior Theories

- **Psychoanalytic**
 - Behavior shaped by unconscious process
 - example- Freud, Erickson
- **Behaviorism**
 - Relationship between stimulus and response
 - Examples- Pavlov, Skinner
- **Cognitive Theory**
 - Individuals think and choose
 - Example- Piaget

Erikson

- Psychosocial development and orientation
 - every human being goes through a certain number of stages to reach his or her full development, theorizing eight stages, that a human being goes through from birth to death
1. [hope](#) - Basic Trust vs. Mistrust - Infant stage. Does the child believe its caregivers to be reliable?
 2. [will](#) - Autonomy vs. Shame and Doubt - Toddler stage. Child needs to learn to explore the world. Bad if the parent is too smothering or completely neglectful.
 3. [purpose](#) - Initiative vs. Guilt - Kindergarten - Can the child plan or do things on his own, such as dress him or herself. If "guilty" about making his or her own choices, the child will not function well. Erikson has a positive outlook on this stage, saying that most guilt is quickly compensated by a sense of accomplishment.
 4. [competence](#) - Industry vs. Inferiority - Around age 6 to puberty. Child comparing self worth to others (such as in a classroom environment). Child can recognise major disparities in personal abilities relative to other children. Erikson places some emphasis on the teacher, who should ensure that children do not feel inferior.
 5. [fidelity](#) - Identity vs. Role Confusion - Teenager. Questioning of self. Who am I, how do I fit in? Where am I going in life? Erikson believes that if the parents allow the child to explore, they will conclude their own identity. However, if the parents continually push him/her to conform to their views, the teen will face identity confusion.
 6. [love](#) (in intimate relationships, work and family) - Intimacy vs. Isolation - Young adult. Who do I want to be with or date, what am I going to do with my life? Will I settle down? This stage has begun to last longer as young adults choose to stay in school and not settle.
 7. [caring](#) - Generativity vs. Stagnation - the Mid-life crisis. Measure accomplishments/failures. Am I satisfied or not? The need to assist the younger generation. Stagnation is the feeling of not having done anything to help the next generation.
 8. [wisdom](#) - Ego Integrity vs. Despair - old age. Some handle death well. Some can be bitter, unhappy, dissatisfied with what they accomplished or failed to accomplish within their life time. They reflect on the past, and either conclude at satisfaction or despair.

Sigmund Freud

- Founded psychoanalytic school of psychology
- theory of transference in the therapeutic relationship - unconscious redirection of feelings for one person to another
- the interpretation of dreams as sources of insight into unconscious desires

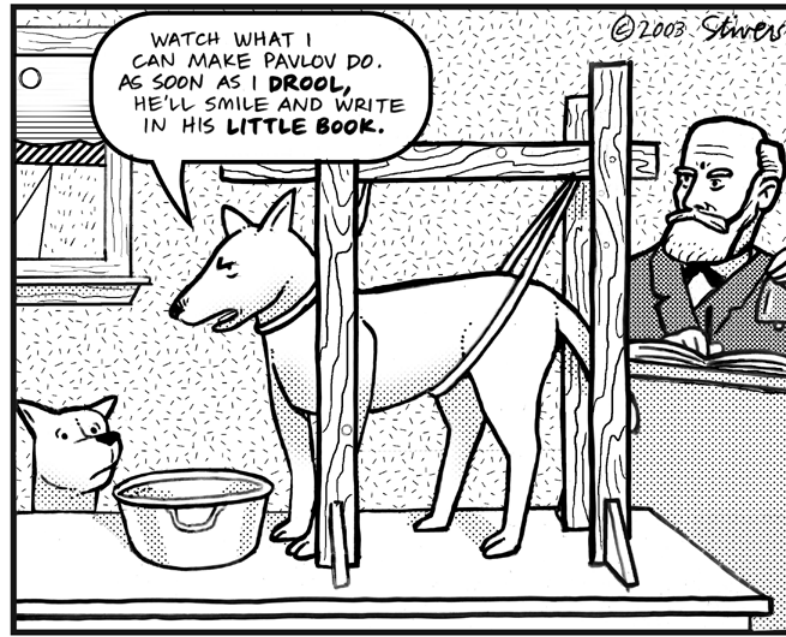
Savage Chickens

by Doug Savage



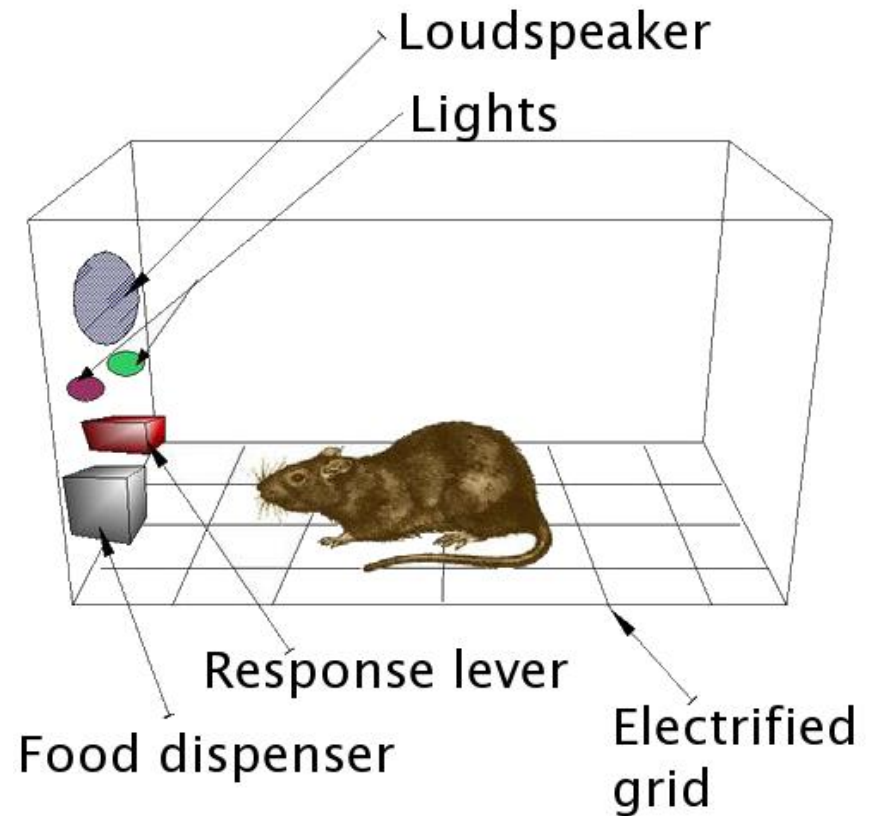
Pavlov

- conditioned reflex
- Pavlov's dog -procedure for inducing classical conditioning involves presentations of a neutral stimulus along with a stimulus of some significance such as a bell, whistle, shock



BF Skinner

- Radical Behaviorism
- Operant Conditioning-
 - automatically detect the occurrence of a behavioral response or action
 - means of delivering a or unconditioned stimulus like food (usually pellets) or water



Skinner cont

- Skinner says that there are five main obstacles in learning:
 1. People have a fear of failure.
 2. The task is not broken down into small enough steps.
 3. There is a lack of directions.
 4. There is also a lack of clarity in the directions.
 5. Positive reinforcement is lacking.
- Skinner suggests that any age-appropriate skill can be taught using five principles to remedy the above problems:
 1. Give the learner immediate feedback.
 2. Break down the task into small steps.
 3. Repeat the directions as many times as possible.
 4. Work from the most simple to the most complex tasks.
 5. Give positive reinforcement.

Piaget's Four Stages of intellectual development

- **Stage one: Sensorimotor Period(0-2 years)**
 - Children learn through sense of taste, touch, sight and sound manipulation.
- **Stage two: Preoperational Period(2-7 years)**
 - Children in state are capable of some intuitive thought, intelligence is based on perception.
 - Ex: Test Tube experiment- exact same amount of water is poured into a tall tube and short wide tube. Children argue that the tall tube has more water.
 - Children believe what they see and hear
- **Stage three: Concrete operational (7-11 years)**
 - Develop ability to reverse their thinking and to employ basic logic
 - Question whether their perceptions are true
- **Stage Four: Formal operational period (11-15 years)**
 - Ability to think abstractly (algebra and geometry)
 - Not reached by all individuals

Temperament

Temperament describes individual differences which are:

- biologically based,
- evident early in life, and
- characteristic of an individual in many situations and over time

Thomas and Chess also described three patterns or constellations of temperament characteristics that influence parent-child relationships and family life.

- “Easy” children are typically adaptable, mild or moderate in activity and intensity, positive in mood, and interested in new experiences.
- “Difficult” children tend to be intense, low in adaptability, and negative in mood.
- “Slow-to-warm-up” children are upset by change, are characteristically reluctant and withdrawing in new situations, and shy with new people, although given time they adapt slowly and well.

Body Mass Index

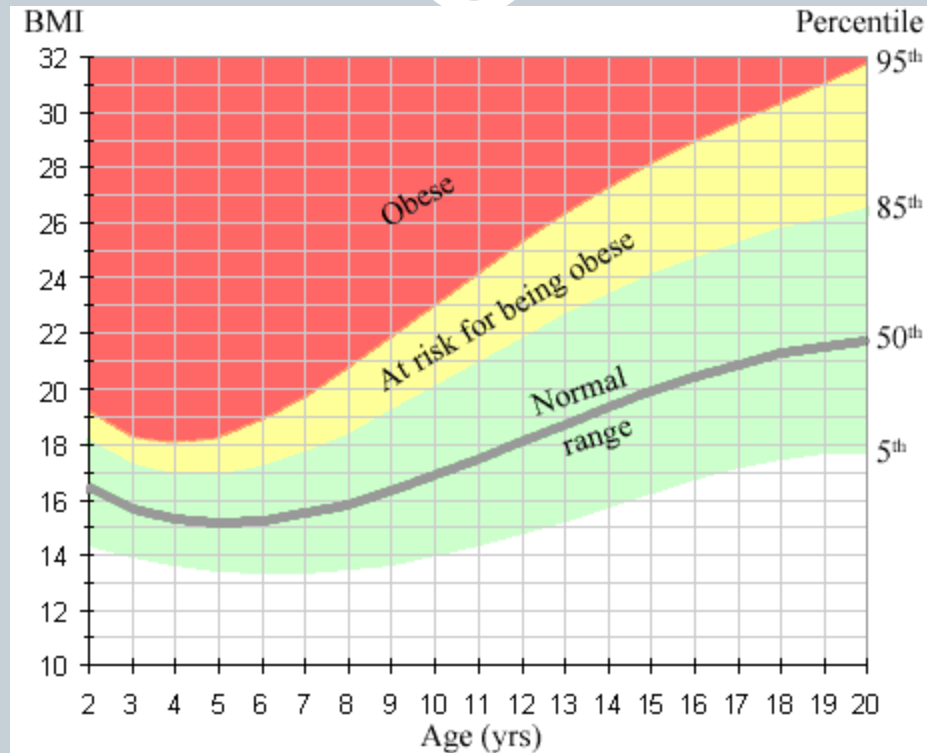


BMI equals a person's weight in kilograms divided by height in meters squared.
($BMI = kg/m^2$)

Risk of Associated Disease According to BMI and Waist Size

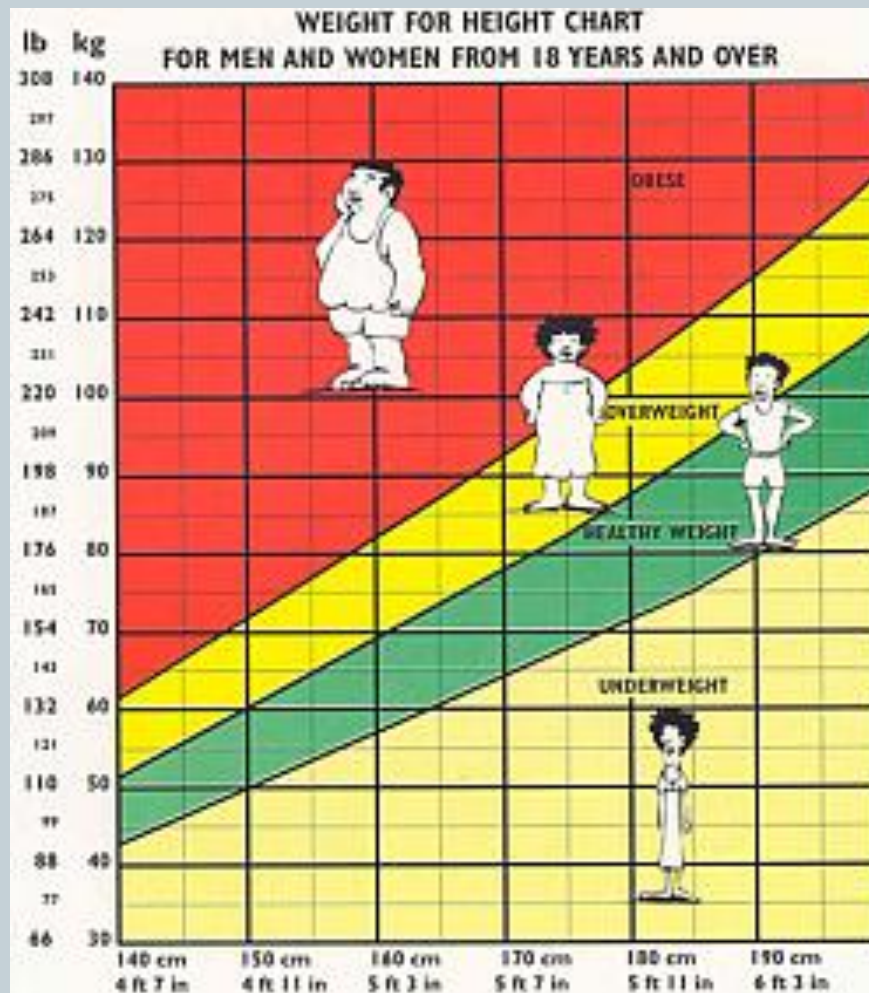
BMI		Waist less than or equal to 40 in. (men) or 35 in. (women)	Waist greater than 40 in. (men) or 35 in. (women)
18.5 or less	Underweight	--	N/A
18.5 - 24.9	Normal	--	N/A
25.0 - 29.9	Overweight	Increased	High
30.0 - 34.9	Obese	High	Very High
35.0 - 39.9	Obese	Very High	Very High
40 or greater	Extremely Obese	Extremely High	Extremely High

BMI for children



Age and sex are considered for children and teens for two reasons:
The amount of body fat changes with age. (BMI for children and teens is often referred to as *BMI-for-age*.)
The amount of body fat differs between girls and boys.

BMI Adults



How to Calculate BMI



$$\text{BMI} = \left(\frac{\text{Weight in Pounds}}{(\text{Height in inches}) \times (\text{Height in inches})} \right) \times 703$$

or

$$\text{BMI} = \frac{\text{Weight in Kilograms}}{(\text{Height in Meters}) \times (\text{Height in Meters})}$$

Example- Weight 150 lbs, Height 5ft 5 in

$$\text{BMI} = 150 / (64 \times 64) \times 703 = 25.7 \text{ (slightly overweight)}$$

Immunization Schedule



Recommended Immunization Schedule for Persons Aged 0–6 Years—UNITED STATES • 2008

For those who fall behind or start late, see the catch-up schedule

Vaccine ▼	Age ►	Birth	1 month	2 months	4 months	6 months	12 months	15 months	18 months	19–23 months	2–3 years	4–6 years
Hepatitis B ¹	HepB	HepB	HepB	<i>see footnote 1</i>	HepB							
Rotavirus ²			Rota	Rota	Rota							
Diphtheria, Tetanus, Pertussis ³			DTaP	DTaP	DTaP	<i>see footnote 3</i>	DTaP					DTaP
<i>Haemophilus influenzae</i> type b ⁴			Hib	Hib	<i>Hib</i> ⁴	Hib						
Pneumococcal ⁵			PCV	PCV	PCV	PCV					PPV	
Inactivated Poliovirus			IPV	IPV	IPV	IPV						IPV
Influenza ⁶						Influenza (Yearly)						
Measles, Mumps, Rubella ⁷						MMR						MMR
Varicella ⁸						Varicella						Varicella
Hepatitis A ⁹						HepA (2 doses)				HepA Series		
Meningococcal ¹⁰											MCV4	

 Range of recommended ages

 Certain high-risk groups

Autism & Vaccination Controversy



- some parents and families of children with autism believe that the Measles/Mumps/ Rubella (MMR) vaccine caused their children's autism
- parents report that their children were “normal” until they received the MMR vaccine
- parents' beliefs and observations were reinforced by a small study of bowel disease and autism, published by Wakefield and his colleagues in 1998 (Wakefield et al 1998)
- study's authors suggested that there was a link between the MMR vaccine and autism

Autism & Vaccination Controversy

- Study did not include scientific testing to find out if there was a link
- Study population was 12 children
- Since this study was published in 1998, a number of other studies have also been published that suggested a link between the MMR vaccine and autism (Singh et al 1998; Horvath et al 1999; O'Leary et al 2000; Wakefield et al 2000; Kawashima et al 2000), but **none of these** provided scientific proof of such a link

AAP RECOMMENDATIONS- Toilet Training



- no set age at which toilet training should begin
- right time depends on child's physical and psychological development
- children younger than 12 months have no control over bladder or bowel movements and little control for 6 months or so after that.
- between 18 and 24 months, children often start to show signs of being ready, but some children may not be ready until 30 months or older.
- child must also be emotionally ready- needs to be willing, not fighting you or showing signs of fear.
- if child resists strongly, it is best to wait for a while.

AAPD RECOMMENDATIONS- Thumb Sucking



- thumb sucking in young children is a very normal response to anxiety and stress
- behavior should decrease by ages 3-4 and stop by age five
- long-term thumb sucking can cause problems with chewing, speech, and facial appearance

AAPD RECOMMENDATIONS- Thumb Sucking



- the patient is checked in 2-4 weeks, and then seen every 1-2 months until the appliance is removed
- as a rule, front tooth position is better within two weeks after crib placement.
- takes 4-6 months for an open bite to close and the front teeth to straighten.
- left on 9-12 months, plenty of time for the habit to fade



AAPD RECOMMENDATIONS- Thumb Sucking



- ideal time to place is when upper primary incisors become mobile, before eruption of permanent incisors.
- this usually occurs just before or after age six



AAP Recommendations for Bottle Feeding



- Pediatricians recommend discontinuing bottle by 12-18 months
- 42 percent of 2- to 3-year-olds were fed about three bottles a day
- 16 percent of 3- to 4-year-olds were given an average of 2.1 bottles a day
- may take up to six months from starting the weaning process before a baby fully uses a cup to drink liquids



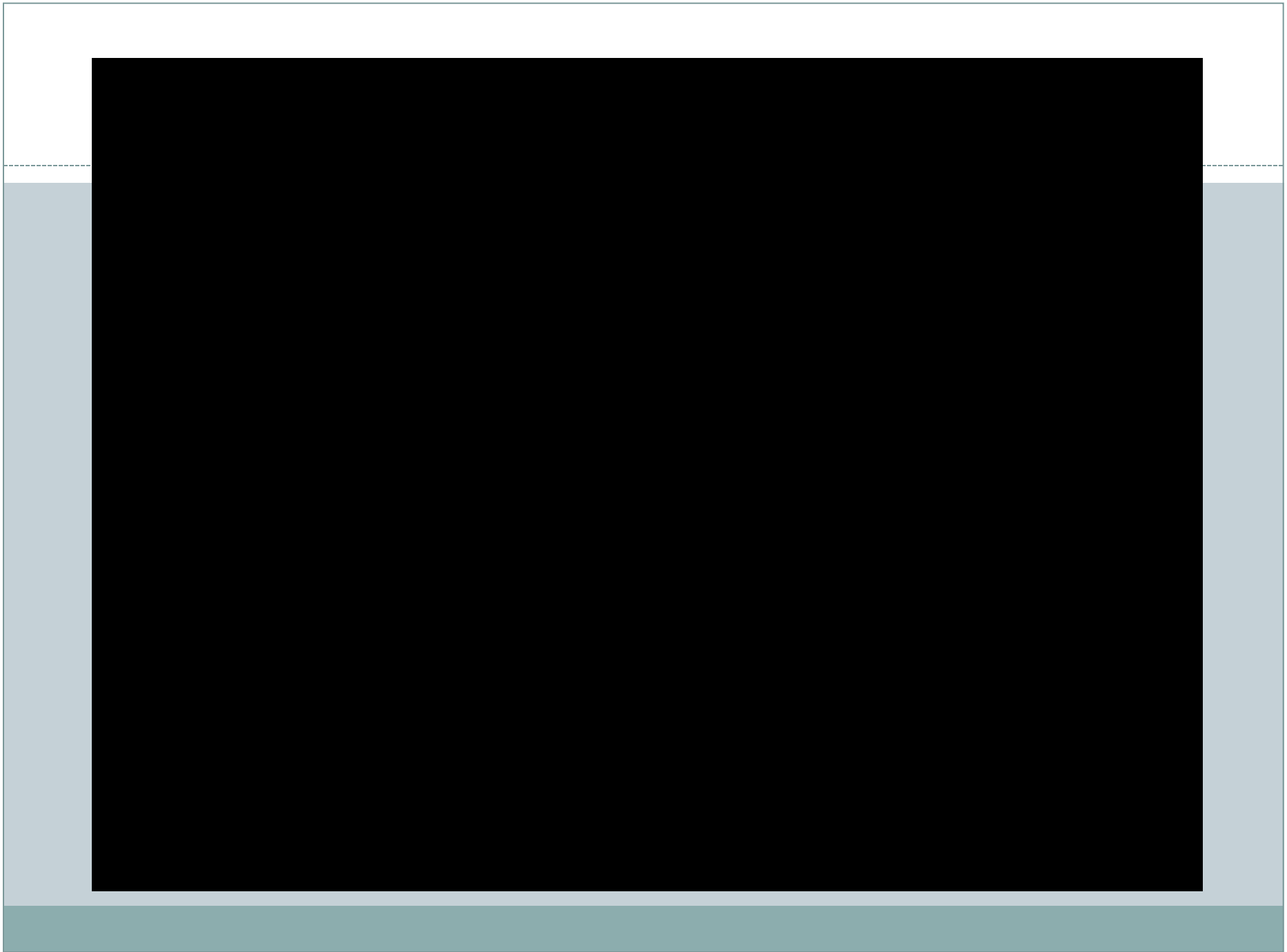
<http://aapnews.aappublications.org/cgi/content/abstract/15/4/2-a>

AAP Recommendations for Bottle Feeding



- links between childhood asthma and bottle feedings in the crib before bedtime
- The AAP says a major disadvantage of bottle use past the age of 1 is the issue of the bottle becoming a security object
- replacing a [sippy cup](#) for bottle or breast at the midday feeding and progressing into morning feedings. Save weaning at bedtime feedings for last, as it is typically the most difficult time of day for toddlers to switch from the bottle.

<http://www.toddlerstoday.com/resources/articles/thecup.htm>



References



- <http://www.nichd.nih.gov/publications/pubs/autism/mmr/sub2.cfm>
- Handbook of Pediatric Dentistry 2ed, Cameron and Widmer, 2003.
- <http://www.nlm.nih.gov/medlineplus/childhoodimmunization.html>
- <http://www.aap.org/healthtopics/stages.cfm#early>
- AAPD reference Manual
- *Pediatric Dentistry Infancy Through Adolescence*, Fourth Edition, Pinkham et al., 2005.
- www.youtube.com
- <http://www.toddlerstoday.com/resources/articles/thecup.htm>