Toilet Training

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Toilet training is a developmental task that impacts families with small children. All healthy children are eventually toilet trained, and most complete the task without medical intervention. Most research on toilet training is descriptive, although some is evidence based. In the United States, the average age at which training begins has increased over the past four decades from earlier than 18 months of age to between 21 and 36 months of age. Newer studies suggest no benefit of intensive training before 27 months of age. Mastery of the developmental skills required for toilet training occurs after 24 months of age. Girls usually complete training earlier than boys. Numerous toilet-training methods are available. The Brazelton child-oriented approach uses physiologic maturity, ability to understand and respond to external feedback, and internal motivation to assess readiness. Dr. Spock's toilet-training approach is another popular method used by parents. The American Academy of Pediatrics incorporates components of the child-oriented approach into its guidelines for toilet training. "Toilet training in a day," a method by Azrin and Foxx, emphasizes operant conditioning and teaches specific toileting components. Because each family and child are unique, recommendations about the ideal time or optimal method must be customized. Family physicians should provide guidance about toilet-training methods and identify children who have difficulty reaching developmental milestones. (*Am Fam Physician.* 2008;78(9):1059-1064, 1066. Copyright © 2008 American Academy of Family Physicians.)

▶ **Patient information:** A handout on toilet training, written by the authors of this article, is provided on page 1066.

Mastering toilet training is a milestone in child development. Training occurs when new physical abilities, vocabulary, and self-esteem are rapidly developing.[1] Children must integrate parental and societal expectations with their own evolving needs for independence and self-actualization. All healthy children are eventually toilet trained; most parents and day care providers are involved to some degree.

Currently in the United States and several European nations, toilet training begins significantly later than in the past.[2] In the 1940s, training commonly started before 18 months of age. Recent data show that training now often starts between 21 and 36 months of age, and that only 40 to 60 percent of children complete toilet training by 36 months of age.[3]

The influence of race and socioeconomic status on the initiation of toilet training was explored in a recent cross-sectional survey.[4] The average age at initiation was 20.6 months (range: six to 48 months). White parents indicated that training should begin much later than black parents did (25.4 months versus 19.4 months, respectively; $P < .0001$). Parents of other races cited 19.4 months as the appropriate age. Family income was independently associated with timing of toilet training. Families with annual incomes of more than $50,000 identified 24 months as the correct age; lower-income families thought 18 months was appropriate.

The shift toward later toilet training in the United States has several probable causes. The convenience of disposable diapers and training pants likely has led some parents to delay toilet training. Others may train children earlier to save money and increase day care options. Effects of later training include family stress, environmental effects from nonbiodegradable diapers, and increased risk of infectious diarrhea or hepatitis A from more diaper changes at day care facilities.[5]

Counseling and Assessing Readiness

Physicians are often asked for advice on toilet training, especially when problems arise. Anticipatory counseling about toilet training addresses family perceptions and misconceptions and helps parents develop reasonable expectations. Ideally, parents are

SORT: KEY RECOMMENDATIONS FOR PRACTICE

Clinical recommendation	*Evidence rating*	*Reference*	*Comments*
The Brazelton child-oriented approach and the Azrin and Foxx intensive training method are successful methods for toilet training developmentally normal children.	B	1, 5, 9	No studies have compared the effectiveness of the two methods
Research on the impact of stool toileting refusal, stool withholding, and hiding to defecate on toilet training is too limited for conclusions to be drawn.	C	1	—

A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, go to http://www.aafp.org/afpsort.xml.

counseled at the 18- or 24-month well-child visit. The physician's role in toilet training is multifaceted. Necessary components include understanding family dynamics, assessing the child's readiness, providing education and support, and developing short-term and follow-up goals.

Because each child and family are unique, the ideal age for toilet training varies. Parents must judge when their child is ready. Various readiness skills are associated with successful training.[6] Remaining bowel-movement free overnight is the earliest attained skill, occurring around 22 months of age in girls and 25 months in boys. The ability to pull up underwear or training pants is typically the last skill mastered, occurring around 29.5 months of age in girls and 33.5 months in boys. Girls develop most skills earlier than boys. Usually, children do not master all necessary skills until after 24 months of age, although some do as early as 12 months. Considering the time range for skills acquisition, parents may have difficulty judging when a toddler is ready for toilet training. Children whose parents overestimate readiness may face prolonged training or toileting problems.

Whether the age at which training starts influences training duration is poorly understood. In one study, initiation before 24 months of age resulted in 68 percent of toddlers completing training before 36 months of age, compared with 54 percent who began training after 24 months.[7] Although earlier initiation of intensive toilet training is associated with earlier completion, overall training duration increases.[8] Intensive training is defined as the parent asking the toddler to use the toilet more than three times per day. Although earlier training is not associated with stool withholding, enuresis, or other toilet-training problems, intensive training has little benefit before 27 months of age.[9] Generalization is limited because these studies included a primarily white, upper-middle-class suburban population.[7,8]

Training Methods

Several options are available for developmentally normal children who are toilet training for the first time *(Table 1)*.[9] Common approaches in the United States include the Brazelton child-oriented approach, the guidelines of the American Academy of Pediatrics (AAP), Dr. Spock's training method, and the intensive "toilet training in a day" method by Azrin and Foxx. Most experts recommend that training start after 18 months of age and conclude by 24 to 36 months of age. Methods differ in techniques and end points. The use of operant conditioning, assisted infant toilet training, and elimination communication is more common in developing nations.

Empiric data comparing the various methods of toilet training are limited. In 2006, the Agency for Healthcare Research and Quality (AHRQ) developed an evidence report on toilet training to evaluate the effectiveness

of various toilet-training methods and the factors that influence their effectiveness.[9] Of 772 relevant citations, analysis included only 26 observational studies and eight randomized controlled trials (RCTs). Meta-analysis was not possible because of the extreme heterogeneity and poor methodologic quality of these studies. No trials directly compared the child-oriented method with the Azrin and Foxx method; however, one study showed the Azrin and Foxx method to be more effective than Dr. Spock's method.[10] The report concluded that the child-oriented and the Azrin and Foxx methods appear to be successful in achieving toilet training in healthy children. Some evidence suggests that toddlers using the latter, more intensive method achieve continence sooner, but how long these outcomes are sustained is unclear.

CHILD-ORIENTED APPROACH

The Brazelton child-oriented approach is strongly supported in the pediatric literature. Introduced in 1962, it emphasizes gradual toilet training beginning only after specific physical and psychological milestones are achieved.[11] It requires the participation of both parent and child. Supporting evidence comes from a 1950s retrospective chart review of Brazelton's clinic patients. Whether his patients actually used this approach is unknown, because parents were encouraged to find methods that worked best for their families. Few outcome studies on the child-oriented approach have been published over the past 40 years. A large, prospective, cohort study (n = 482) found that 61 percent of children trained with the Brazelton approach were continent by 36 months of age and 98 percent by 48 months of age; training duration was not discussed.[7] Specifics of the Brazelton approach are outlined in *Table 2*.[9]

AAP GUIDELINES

Guidelines from the AAP incorporate many components of the child-oriented approach.[1,12] The AAP strongly recommends that children not be forced to start training until they are behaviorally, emotionally, and developmentally ready. The guidelines recommend that training begin after 18 months of age using a potty-chair, and that parents assess readiness by looking for signs that suggest interest in toilet training *(Table 3)*.[6] AAP training steps are similar to the Brazelton approach, although the AAP suggests using praise for reinforcement rather than treats.

Table 1. Selected Toilet-Training Methods

Child-oriented approaches
The Brazelton child-oriented approach*
American Academy of Pediatrics toilet-training guidelines (2000)
Begin when child shows signs of readiness (generally after 18 months of age)
Praise success using positive terms
Avoid punishment, shaming, or force
Make training positive, nonthreatening, and natural
Dr. Spock's *The Common Sense Book of Baby and Child Care*
Train without force
Begin training between 24 and 30 months of age
Allow child to accompany family members when they use bathroom
Make process relaxed and pleasant; avoid criticism
Avoid making negative comments about stool or criticizing child
Let child use potty-chair voluntarily; once child shows interest, take him or her to the potty-chair two to three times daily
Praise success
Operant conditioning*
The Azrin and Foxx "toilet training in a day" method†
Goal: establish proper behavior using positive reinforcement/rewards (e.g., parental affection, toys, candy)
Negative reinforcement through punishment or decreased positive attention for accidents
Other methods
Assisted infant toilet training*
Parent-oriented training method
Begin bowel and bladder training at two to three weeks of age
Place infant on toilet after large meal or if shows signs of eliminating
Reward successful voids with food or affection
Most commonly used in China, Africa, India, and South and Central America
Elimination communication*
Begin at birth
Learn to recognize infant body language, noises, and elimination patterns
Place infant over sink, toilet, or special miniature potty-chair while parent makes sound of running water
Some increased interest for this method in the United States since 2005

*—Less commonly used in North America.
†—For more information, see Table 2.

Information from reference 9.

Table 2. Comparison of the Brazelton Child-Oriented and the Azrin and Foxx Toilet-Training Methods

The Brazelton child-oriented method
Equipment
Potty-chair
Snacks or treats (optional)
Method
Begin training when specific physical and psychological milestones are met (usually around 18 months of age; introduce potty-chair and teach child to associate it with the toilet)
Ask child to sit on potty-chair fully clothed; child may sit in close proximity when a parent is using the toilet; use potty-chair in any room or outside to accustom child to sitting on it; allow child to get off the chair at any time; talk to child or read a story during sits
After one to two weeks of fully clothed sits, remove diaper and have child sit on potty-chair; do not insist that child use the potty-chair at this point
If child soils his or her diaper, take both child and soiled diaper to potty-chair and empty diaper into chair; explain that this is where stool goes
Once child understands, take him or her to potty-chair several times daily
As child becomes more confident, remove diaper for short intervals; place potty-chair in close proximity to child and encourage independent use; provide gentle reminders as needed
After these steps are mastered, use training pants, instructing child on how to pull them up and remove them
Azrin and Foxx method
Equipment
Training area with minimal distractions and interruptions
Child's preferred snacks/drinks
Potty-chair with removable/replaceable collection bin
Doll that wets pants
Training pants
Short T-shirt
List of real or imaginary characters admired by child
Method
Provide immediate positive reinforcement (e.g., food, drinks, hugs, small toys) for:
Asking about, approaching, or sitting on potty-chair
Manipulating pants
Urinating or defecating in potty-chair
Do not reinforce refusal or other uncooperative acts
Tell child that a real or imaginary person "is happy that you are learning to keep your pants dry"
Consequences for accidents:
Omit reinforcements
Verbal reprimand
Child changes wet pants by him- or herself
Performance of 10 "positive practice sessions"
Demonstrate correct steps for toileting using a doll
When doll wets, have child empty potty-chair basin into toilet, flush, replace basin, and wash hands
Teach child to differentiate between wet and dry; perform pants checks every three to five minutes and reward dry pants
Give child enough fluids to cause strong, frequent desire to urinate
Encourage child to go to potty-chair, pull down pants, sit for several minutes, and then get up and pull up pants; if child urinates or defecates in potty-chair, reward with praise or a treat
After a productive sit, have child empty potty basin and replace it
Perform pants checks every five minutes and have child help
Start with child sitting on potty-chair for 10 minutes; after several productive sessions, reduce duration
Move toward child initiating request to use potty-chair
As child masters the task, provide praise only for successfully completed sits
Check pants before naps and meals for the following three days; praise child for dry pants; for wet pants, have child change him- or herself and perform additional positive practice sessions

Information from reference 9.

AZRIN AND FOXX METHOD

An alternative approach is "toilet training in a day," a parent-oriented, intensive method by Azrin and Foxx.[13] It evolved from a toilet-training study of institutionalized persons who were mentally disabled.[14] In a later study of 34 developmentally normal children (20 to 36 months of age) who were considered difficult to train, toilet training was accomplished in an average of 3.9 hours using this intensive method; accidents were rare with similar findings at the four-month follow-up.[6] Initially designed for bladder continence, this method has been successfully adapted for bowel control as well. Many parents are familiar with the approach from the book, *Toilet Training in Less Than a Day*.[15]

Azrin and Foxx recommend operant conditioning and the use of training components that facilitate learning. Their method was the first to describe objective criteria for determining training readiness. Specifics of the method are described in *Table 2*.[9]

Although the Azrin and Foxx method is the subject of more research, its acceptability is less understood than other methods. According to one survey of 103 pediatricians, the intensive method of toilet training is less likely to be recommended to patients.[16] Of the 29 percent of physicians who recommended

intensive training, most did not suggest using consequences for accidents or overcorrection techniques. Three RCTs of the Azrin and Foxx method show rapid training and minimal recidivism at 10 weeks.[9] Several cohort studies estimate success rates from 74 to 100 percent in toddlers younger than 25 months, and 93 to 100 percent in older toddlers; follow-up success is 96 to 97 percent.[17]

All methods seem equally capable of achieving toilet-training success in healthy children. Parents who want quick results may have more success with the intensive method, although being comfortable with the regimen and emphasizing positive reinforcement increase the odds of success. Parents with less time or fewer resources may prefer the child-oriented approach, although a longer training duration is likely. Tailoring the method to the individual family situation is essential.

Toilet-Training Complications

Approximately 2 to 3 percent of children develop problems during toilet training.[2] Only four studies in the AHRQ review specifically address problems related to toilet training.[11,17-19] Difficult-to-train children are less adaptable, have a more negative mood, and are less persistent than easy-to-train children; no differences in parenting styles between easy- and difficult-to-train children are described.[20] These children have higher rates of stool toileting refusal, stool withholding, or hiding during defecation.

STOOL TOILETING REFUSAL

Stool toileting refusal is diagnosed when a child who has been trained to urinate in the toilet refuses to defecate in the toilet for at least one month. The authors of one RCT of suburban children found that stool toileting refusal affected 22 percent of those studied.[17] The presence of younger siblings, parental issues with setting limits, and completion of training after 42 months of age are associated with stool toileting refusal.[17] Children with stool toileting refusal are more likely to be constipated and to have painful bowel movements.[21] Dietary changes, including the addition of dietary fiber, and use of stool softeners are options for decreasing constipation.

One RCT examined an intervention to treat stool toileting refusal in children 17 to 19 months of age.[22] Parents of children in the treatment group used only positive language when referring to feces and praised the child for defecating in the diaper. The duration of stool toileting refusal and time to completion of training were significantly shorter in the treatment group. However, parents may not consider stool toileting refusal to be a problem because it usually resolves without intervention and is not linked with behavioral issues.[7,21]

STOOL WITHHOLDING

Stool withholding involves the child doing physical maneuvers in an attempt to avoid defecation (e.g., "potty dance," crossing the legs). Voluntary constriction of the sphincter during bladder or rectal contraction can lead to constipation. The most common interventions for stool withholding include aggressively treating constipation and resuming diaper use. A high-fiber diet may be helpful to decrease constipation.[23]

HIDING

Some children who are toilet trained ask for training pants or hide while defecating rather than using the toilet. Onset of

Table 3. Signs of Toilet-Training Readiness in Developmentally Normal Toddlers

Asks to use potty-chair or wear "big kid" underwear
Can put on/take off clothes
Demonstrates independence and uses the word "no"
Follows parent into bathroom and expresses interest in the toilet
Has regular and predictable bowel movements
Imitates parental behavior
Is able to follow simple instructions, sit, and walk
Reports soiled diapers and wants a clean diaper
Stays dry for two hours at a time or is dry following naps
Uses words, facial expressions, or movements indicating the need to urinate or defecate

Information from reference 6.

this behavior is most common around 22 months of age. Children who hide are more likely to have stool toileting refusal, constipation, stool withholding, and later completion of training.[24] Although this behavior is not well studied, children may hide because of embarrassment or fear, or because they think that defecation is a private behavior.

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