

## THE IMPACT OF READINESS ON THE ACQUISITION OF BLADDER CONTROL: A PILOT STUDY

### Hypothesis / aims of study

Thirty percent of the parents is insecure about the appropriate time to start toilet training [1]. In the 1950's, 50% of the parents in Western culture started toilet training (TT) before the age of 1 year.[3] Recently, only 20% initiate TT at this age. Western toilet training is often based on the child-oriented approach. It will not be initiated until a certain degree of readiness is present.[2] The importance of this readiness is commonly accepted [2] but the age suggested to initiate toilet training differs. In this concept the child itself leads the process. In contrast, the 'parent-oriented approach' focuses more on the parental convenience, bringing the child on structured base to the toilet leading ultimately to independent toilet behaviour. Even though signs predicting readiness are listed, it is unclear whether in an intensive toilet training method readiness of the child is obliged. So the aim of this study was to assess the impact of the infantile readiness on the toilet training process and the duration of the toilet training.

### Study design, materials and methods

Thirty-five typically developing children, between 18 and 30 months of age, participated in this cohort study. Between September 2016 and March 2017, infants from 18 months staying in day care received toilet training. In a first stage readiness signs were assessed of the individual child by the researchers. Afterwards infants received a two hours intensive toilet training in day-care. This procedure was repeated the next day. Parents were asked to participate and continue training at home and in the weekend. Outcome was duration of toilet training and whether infants had acquired bladder control. Statistics were performed to assess the influence of the RS on the odd of acquiring bladder control.

### Results

Age of the infant was significantly higher in infants with being considered ready for toilet training ( $U=47.000$ ,  $p = .001$ ). Mann Whitney analysis was run to determine the relationship between the level of readiness and the duration of training ( $U=24.5$ ,  $p=.001$ ). Time of toilet training is significantly longer in children considered not ready. The correlation between duration and the number of readiness signs present was  $-.596$  ( $p= 0.003$ ). Being able to express a need to evacuate and showing awareness of the need to void or to have a bowel movement ( $p< .001$ , effect size:  $.740$ ) is strongly related to being toilet trained. No significant correlation could be detected between the age or number of days infants attained daycare per week and the duration of toilet training ( $p=.980$ ). However, when only assessing children considered to be ready to toilet train, it can be detected that toilet training will last longer when the infant attends fewer days in daycare per week ( $r= -.621$ ,  $n= 11$ ,  $p=0.042$ ). Interrater agreement for the assessment of readiness signs by professionals and parents was moderate ( $0.339 - 0.484$ ).

### Interpretation of results

The results of this study indicate that the older an infant is, the more it is considered to be ready to be toilet trained. Being mature for toilet training, indicated by a higher number of readiness signs present in children, leads to a decreasing duration of toilet training. The most important sign is the awareness of the need to void or defecate and having the capacity to express this. Remarkable is the fact that expressing the need to void seems to be related to be sooner toilet trained. In many cultures this is defined as an 'elimination signal'. So, one might wonder if recognizing elimination signals in the younger infant will lead to an advanced toilet training, possibly occurring at a younger age. Interestingly, parents can perceive the same elimination signals compared to experts trained in voiding behaviour. By this, it becomes easier for parents to anticipate on the process when recognizing these signals. However, the influence of socio-cultural factors must be considered when hypothesizing the influence of the recognition of these elimination signals in the toilet training process. In some African and Asiatic cultures implementation of the latter signs in toilet training is very common. In these cultures mean age of acquiring bladder control is reported to be between 9-12 months.

### Concluding message

The purpose of the current pilot study was to assess the influence of readiness on the duration of toilet training. The most obvious finding to emerge was that being considered as mature, based on certain predefined readiness signs, will shorten duration of toilet training. However, being aware of the need to void and being able to express it, can be defined as an elimination signal. Recognition of the latter signs is in some cultures implemented in early toilet training. Further research should focus on whether it is necessary to obtain all readiness signs or implementation of the one signal: 'expressing the need' is enough to advance toilet training.

### References

1. Kaerts N, Vermandel A, Van Hal G, Wyndaele JJ: Toilet training in healthy children: results of a questionnaire study involving parents who make use of day-care at least once a week. *Neurourol Urodyn* 2014, 33(3):316-323.
2. Schum TR, Kolb TM, McAuliffe TL, Simms MD, Underhill RL, Lewis M: Sequential acquisition of toilet-training skills: a descriptive study of gender and age differences in normal children. *Pediatrics* 2002, 109(3):E48.
3. Bakker E, Wyndaele JJ. Changes in the toilet training of children during the last 60 years: the cause of an increase in lower urinary tract dysfunction? *BJU Int.* . 2000; Aug;86(3)::248-252.

### Disclosures

**Funding:** no disclosure **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics Committee:** Ethics Committee of the Antwerp University Hospital- University of Antwerp **Helsinki:** Yes **Informed Consent:** Yes