

Special education approaches to teaching independence in oral hygiene for individuals with special needs

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ABSTRACT

Oral hygiene is important for the overall health and quality of life of all people. In individuals with intellectual disabilities (ID), oral hygiene is often poorer due to sensorimotor difficulties, resistance to brushing, communication barriers, medication use, and more difficult access to dental care. The special education program includes the development of hygiene habits, including oral hygiene, as an important part of developing independence. Effective teaching approaches include gradual learning in small steps, multiple repetitions, different levels of assistance (physical guidance, modeling, visual support), and multisensory teaching. The article provides practical guidelines for offering different forms of assistance with tooth brushing, depending on the individual's abilities. Individualized assistance and support enable individuals with ID to achieve the highest possible level of independence in caring for their own oral health in everyday life. **Keywords:** oral hygiene, intellectual disability, developing independence, physical guidance, modeling, visual support, multisensory learning

Specialno-pedagoški pristopi učenja samostojnosti pri ustni higieni oseb s posebnimi potrebami

POVZETEK

Skrb za ustno higieno je pomembna za splošno zdravje in kakovost življenja vseh ljudi. Pri osebah z motnjo v duševnem razvoju (MDR) je ta pogosto slabša zaradi senzo-motoričnih težav, odpora do ščetkanja, komunikacijskih ovir, jemanja zdravil in težjega dostopa do zobozdravstvene oskrbe. V posebnem programu vzgoje in izobraževanja je kot pomemben del področja razvijanja samostojnosti vključeno tudi usvajanje higienskih navad, kamor sodi tudi ustna higiena. Učinkoviti pristopi poučevanja skrbi za ustno higieno vključujejo postopno učenje v manjših korakih, več ponovitev, različne stopnje pomoči (fizično vodenje, modeliranje, vizualna opora) in multisenzorno poučevanje. V članku so podane praktične smernice za nudenje različnih oblik pomoči pri umivanju zob glede na zmožnosti posameznika. Individualizirana pomoč in podpora omogočata, da osebe z MDR dosežejo najvišjo možno stopnjo samostojnosti pri skrbi za lastno ustno zdravje v vsakdanjem življenju. **Ključne besede:** ustna higiena, motnja v duševnem razvoju, razvijanje samostojnosti, fizično vodenje, modeliranje, vizualna opora, multisenzorno učenje

THE IMPORTANCE OF ORAL HYGIENE FOR HEALTH

Oral health is an integral part of overall health and represents an important element of an individual's quality of life (1). The most common oral diseases include dental caries, gingivitis, and periodontal disease. These conditions are mainly caused by the accumulation of dental plaque and poor oral hygiene. If plaque is not removed in time, it can lead to serious gum inflammation, loss of supporting tissue and, consequently, even systemic complications such as pneumonia, chronic inflammation and other infections (2). In addition to poor oral hygiene, other factors such as a diet high in sugar, tobacco use, and excessive alcohol consumption also contribute to the development of oral diseases. Therefore, regular and proper oral hygiene, a healthy diet, and regular dental check-ups are essential for maintaining oral health (1).

Oral health in individuals with intellectual disabilities (ID)

Individuals with ID have poorer oral health compared to the general population (3, 4). They are more likely to have untreated caries, missing teeth, fewer dental fillings, and more severe forms of periodontal disease (4). Resistance to brushing, sensory sensitivity, and motor difficulties often hinder independent oral hygiene. There are also communication barriers that can make it difficult to express discomfort and understand instructions on how to perform proper oral hygiene. Additionally, anatomical characteristics such as abnormalities in the development of teeth and jaws can further impede effective oral hygiene (3). Individuals with ID are more likely to receive medications that cause dry mouth and thus increase the risk of caries. They have limited access to dentists, as confirmed by international studies (5). In Slovenia, many preventive activities are carried out in kindergartens and schools, which should also apply to schools with adapted programs for individuals with moderate, severe, and profound ID (MSPID) (6).

FUNCTIONAL CHARACTERISTICS OF INDIVIDUALS WITH ID

According to the Criteria for defining the type and degree of deficits, impairments, or disorders, ID is a neurologically based disorder that occurs before the age of 18 and is characterized by significantly reduced intellectual abilities and adaptive skills. Limitations in adaptive skills include deviations in the conceptual, social, and practical domains. The practical domain includes everyday skills for independent living, such as self-care, functioning at home and in the community, and maintaining health and safety. It also includes personal hygiene, where oral hygiene is one of the key skills for achieving the greatest possible independence (7). The level of independence and ability to perform activities of daily living in individuals with ID depends on the severity of the ID, which is also reflected in the area of oral hygiene. Individuals with moderate ID are generally capable of basic self-care and simple tasks; those with severe ID understand only simple messages, require constant assistance, and often have additional health problems; while individuals with profound ID typically participate only in the most basic activities, require constant care, and frequently face significant mobility limitations and additional disorders (7,8).

INDEPENDENCE IN INDIVIDUALS WITH MSPID

Individuals with MSPID are never fully independent, but with appropriate and timely encouragement and training, their level of independence can develop. Dependence on others reduces self-esteem; while the realization that one is capable of doing something has a positive impact on personal development (9).

Developing independence and oral hygiene as part of the educational curriculum

Individuals with MSPID receive education in the special education program until the age of 26. The program includes six subjects: developing independence, general knowledge, physical education, music education, art education, and work education. The subject of developing independence includes eating, acquiring hygiene habits and skills, dressing and putting on shoes, personal grooming and caring for one's own safety and health (10). This is where individuals with MSPID acquire most of the skills and knowledge related to oral and general personal hygiene.

Individuals with ID gradually acquire the habit of tooth brushing. At first, they get used to having their teeth brushed by an adult, and then they learn to pick up and hold the toothbrush, bring it to their mouth, and brush their teeth. Over time, they learn to recognize their own toothbrush, pick it up, apply toothpaste, brush their teeth, rinse their mouth, and put the toothbrush back in its place. Further skills may also include the use of dental floss (11).

EFFECTIVE WAYS TO ENCOURAGE INDEPENDENCE

More structure and breaking tasks into smaller steps

Individuals with MSPID have more difficulty understanding complex learning content, including everyday skills. They need more structured teaching based on learning small, manageable steps. They need many opportunities to practice each individual step by itself and, ultimately, to practice all the steps together (12).

More repetition and more time

Individuals with ID need more repetition and practice to learn skills. It is important that they practice skills in different ways and in different contexts so that they can transfer them to different life situations (12). The special education teacher, who teaches at all levels of the special education program, needs to ensure that individuals with ID are given enough time to prepare for and perform each activity. It is equally important that individuals have sufficient time to rest and relax between activities.

Providing different levels of assistance based on individual abilities

When teaching basic skills, individuals with MSPID are provided with different levels of assistance, ranging from the most to the least intensive. These include physical guidance, modeling, and verbal instructions.

The most intensive assistance is provided through physical guidance, meaning the activity is carried out together with the individual, who fully relies on the adult's guidance. This support is gradually reduced, for example by gently guiding or touching the person's hand. Physical guidance is often used with individuals with severe and profound ID, particularly when additional disabilities are present (such as mobility impairments). Modeling is the next, less intensive form of assistance, where the teacher demonstrates the task and accompanies the demonstration with a clear and simple verbal explanation. However, modeling is less effective for individuals with sensorimotor difficulties, which are often present across different levels of ID. The least intensive assistance is provided through verbal instructions, which should be short, specific, and adapted to the individual's level of understanding. Before giving instructions, the teacher addresses the person by name and establishes eye contact. Verbal instructions may be too complicated for students with severe and profound ID, as they often have co-occurring visual and auditory deficits of varying degrees (8,13).

Incorporating multisensory learning

Multisensory teaching activates different sensory channels simultaneously — visual, auditory, kinesthetic, tactile, and even taste and smell (olfactory sensations) (14). In the context of multisensory teaching, teachers often use visual activity schedules. Visual schedules with a sequence of pictures, photographs, or words guide individuals in independently performing the steps of an activity. They are effective in teaching daily living skills and in increasing independence among individuals with ID (15).

PRACTICAL ACTIVITIES FOR PROVIDING ORAL HYGIENE ASSISTANCE TO INDIVIDUALS WITH MSPID

Based on theoretical foundations regarding oral health in individuals with MSPID and effective teaching approaches, a set of practical guidelines and activities was developed. They are organized according to the level of assistance required, with the key principle being to provide only as much support as is truly necessary. The guidelines can be helpful to teachers, professionals, and parents, and should be adapted to the characteristics of each individual. Therapists such as physiotherapists and occupational therapists are often the first to encounter challenges in teaching and supporting proper oral hygiene for individuals with MSPID.

Tooth brushing performed by a care provider and physical guidance

Some individuals with ID need the highest level of assistance with oral hygiene, which includes active involvement by a parent, caregiver, therapist, or nurse. It is crucial that the procedure is carried out calmly to prevent resistance, tension, or uncontrolled physical reactions. The care provider approaches the person from the front, uses calm movements, maintains eye contact and provides short and clear instructions that the person can understand. The environment should be as minimally stimulating as possible, without distractions such as noise, bright lights, or the presence of multiple people. During tooth brushing, it is important for the care provider to ensure the correct position of the body and head of the person with ID (Figure 1). The person should sit upright with their head slightly tilted forward. The care provider holds the lower jaw with the left hand, gently presses on the chin with the middle finger to open the mouth, and uses the index finger to relax the lips and cheeks (maintaining pressure on the orofacial muscles). At the beginning of the procedure, the care provider ensures that the toothbrush slides smoothly into the mouth and then gently cleans the teeth with the right hand, considering the individual's sensory sensitivity (16,17).

When first learning, it is important that oral hygiene is performed under the same conditions at least twice a day. Teeth should always be brushed using the same procedure (16):

1. *Place the toothbrush in the corner of the mouth.*
2. *Gently touch the teeth and rub them with the back of the toothbrush.*
3. *Slowly rotate the toothbrush so that the bristles face the teeth.*
4. *Gently and quickly brush the outside of all teeth with circular movements.*
5. *Brush the inner side of all teeth in the same way.*
6. *Finally, brush the chewing surfaces of the teeth.*

For individuals with neuro-motor deficits, the care providers constantly monitor their responses during toothbrushing and adjust the procedure accordingly. If muscle tension increases, they temporarily stop and continue when the muscle tone relaxes. If the person is able, the care providers can perform the procedure with physical guidance. They hold the toothbrush together with the person and gradually reduce their assistance until the person gains greater independence (13).

Modeling

If an individual with MSPID is able to hold a toothbrush and brush their teeth, care providers can offer assistance in the form of modeling. They can demonstrate the steps of toothbrushing on themselves, or they can use a jaw model available in dental clinics or a homemade jaw model (Figure 1).



Figure 1. Proper tooth brushing. A - Optimal head position during tooth brushing (16); B - Jaw model.

Modeling should always be accompanied by appropriate verbal instructions. An example of such instructions is provided below. It is important to note that both the modeling and the accompanying verbal instructions should be adapted to the abilities and understanding of the individual. When demonstrating each step of tooth brushing, care providers encourage the individual to perform the step on the model. If necessary, they provide additional assistance by guiding their hand, giving verbal instructions, and repeating the step several times. At all stages of learning, the teacher or other professional checks the individual understands and performance of the procedure. Example of verbal instructions when modeling tooth brushing:

- *Brushing the outer surfaces of the teeth: "First, brush the upper teeth. Place the toothbrush on the teeth. Use circular motions. Brush the outer side of your teeth."*
- *Brushing the inner surfaces of the teeth: "Place the toothbrush on the inner side of the teeth. Use circular motions. Brush the inner side of your teeth."*
- *Brushing the chewing surfaces of the teeth: "Place the toothbrush on top of the back teeth. Use short back and forth movements (like »sawing«) and brush the back teeth."*
- *In the same way, when modeling, give verbal instructions for brushing the lower teeth.*

Visual support with verbal instructions

Visual support is the next level of assistance after modeling and represents a less intensive form of help. It is used when the individual no longer needs a demonstration of each step during tooth brushing, but can rely on a visual sequence of the process. Visual materials such as photographs or illustrations (Figure 2) remind them what to do and allow them to perform the activity more independently. This level of assistance is effective if the person has adequately developed visual-motor coordination. If the person with ID needs it, short and clear verbal instructions can be added to each photograph or illustration to reinforce understanding and correct performance of each step.

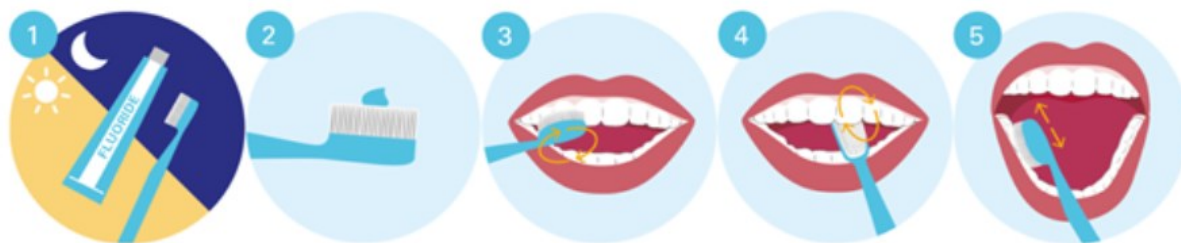


Figure 2: Visual support for the tooth brushing procedure (17).

CONCLUSION

Individuals with MSPID require different levels of lifelong assistance and support in maintaining oral hygiene. With timely and individualized support, their independence can gradually develop to an optimal level. Support should always be limited to the amount truly necessary, while encouraging the highest possible level of independence.

Forms of assistance include physical guidance, modeling, and visual support with verbal instructions - the choice of appropriate form of assistance depends on the abilities and needs of the individual. Effective teaching of oral hygiene to individuals with MSPID should be structured, gradual, multisensory, and involve multiple repetitions. Teaching should be practical, realistic, and take place in a variety of natural settings. The practical activities presented in this article can serve as useful tools, but should always be appropriately adapted, taking into account the heterogeneity of individuals with ID.

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