

## Auxiliary devices for management of special needs patients during in-office dental treatment or at-home oral care

*Métodos alternativos para manejo do paciente com necessidades especiais durante o atendimento odontológico no consultório e a higiene bucal domiciliar*

Iza Teixeira Alves Peixoto<sup>1</sup>  
Cristiane Tomaz Rocha<sup>2</sup>  
Patrícia Motta Fernandes<sup>1</sup>  
Paulo Nelson-Filho<sup>3</sup>  
Alexandra Mussolino de Queiroz<sup>4</sup>

1-DDS, MSc, Department of Pediatric Clinics, Preventive and Community Dentistry, Dental School of Ribeirão Preto, University of São Paulo, Ribeirão Preto, SP, Brazil

2-DDS, MSc, PhD Student, Department of Pediatric Clinics, Preventive and Community Dentistry, Dental School of Ribeirão Preto, University of São Paulo, Ribeirão Preto, SP, Brazil

3-DDS, MSc, PhD, Chairman, Department of Pediatric Clinics, Preventive and Community Dentistry, Dental School of Ribeirão Preto, University of São Paulo, Ribeirão Preto, SP, Brazil

4-DDS, MSc, PhD, Associate Professor, Department of Pediatric Clinics, Preventive and Community Dentistry, Dental School of Ribeirão Preto, University of São Paulo, Ribeirão Preto, SP, Brazil

Correspondence

Alexandra Mussolino de Queiroz, Faculdade de Odontologia de Ribeirão Preto, USP, Avenida do Café, S/N, CEP: 14040-904 Ribeirão Preto, SP, Brasil. Phone: +55-16-3602-4116. Fax: +55-16-633-0999.e-mail: amqueiroz@forp.usp.br.

### ABSTRACT

Special needs patients often have features or limitations that limit their cooperation with in-office dental treatment or at-home oral care. This paper addresses the use of some auxiliary devices, such as physical restraint bands, Godoy's device, "Grandma's pants", "The Worm" and mouth gags and mouth props. These auxiliary devices are intended to aid the dental treatment in office and outpatient settings with increased comfort for both the patient and the professional and the oral homecare provided by parents/caregivers. Pediatric dentists should have knowledge of auxiliary devices that might be helpful during dental treatment of special needs patients and instruct the use these resources to parents/caregivers for maintaining a good-quality oral homecare of these patients.

**Key-words:** oral hygiene, dental care, disabled children

### RESUMO

Os pacientes especiais geralmente apresentam características que, muitas vezes, podem torná-los incapazes de colaborar com a realização do atendimento odontológico e com a higiene bucal domiciliar. Esse trabalho se propõe a apresentar métodos alternativos, como faixas de contenção física, dispositivo de Godoy, a "calça da vovó" e a "minhoca", além de abridores de boca, que permitem viabilizar o tratamento odontológico desses pacientes em ambiente ambulatorial, promovendo conforto ao paciente e ao profissional. Estes dispositivos também permitem que os responsáveis consigam realizar uma higiene bucal satisfatória no domicílio.

**Palavras-chave:** higiene bucal, assistência odontológica, crianças com deficiência

### INTRODUCTION

Special needs patients are considered as those who have some kind of physical, mental and/or behavioral deficiency or limiting condition, and who therefore require either short-term or lifelong medical assistance and/or specialized health care<sup>1</sup>.

Dental care of these patients is usually complicated due to a combination of factors that include uncontrolled involuntary body movements, lack of motor ability, intellectual deficit and limited mouth opening. Low-quality oral hygiene (with a consequent great accumulation of dental biofilm) allied to a liquid/pasty diet, malocclusions, reduced salivary flow and chronic use of medication make these patients potential candidates to high caries risk and activity<sup>2-6</sup>.

Oral health promoters are not usually familiarized with the disease-specific medical features or with the implications and demands involved in treating special needs

individuals<sup>3-6</sup>. Because of this, most dentists feel unprepared to deal with these patients and prefer to refer them to dental schools or public services<sup>7</sup>. Having access to professional dental care is often an additional challenge to these patients<sup>8-9</sup>.

Several devices have been developed to facilitate the dental treatment in office and outpatient settings. These resources are intended to accommodate the patient's body more properly in the dental chair and increase the comfort for both the patient and the dentist during clinical sessions<sup>3,10,12</sup>. Currently available examples of these resources include physical restraint bands, Godoy's device and foam or fabric rolls called "Grandma's Pants" and "The Worm"<sup>12</sup>. Mouth gags and mouth props are also a major aid to maintain an adequate mouth opening. All these adjunctive elements can also be of great help for the oral homecare provided by parents and/or caregivers<sup>12</sup>.

This paper describes the use of these auxiliary devices in special need patients for  
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both in-office dental treatment and at-home oral care.

## LITERATURE REVIEW

### Restraint Bands

Physical restraint resources are indicated for patients with continuous, uncontrolled, involuntary movements, individuals with severe cerebral palsy, who are unable to understand the need of dental care and uncooperative, aggressive patients, who may accidentally cause injuries to themselves or to the dental staff during the clinical sessions.

Restraint bands are a good option to stabilize the patient in the dental chair during treatment (Figure 1A). Whenever needed, the technique should be first explained to the patient and the parents/caregivers and written informed consent should be obtained. The bands should be made of a washable, smooth cloth and Velcro, and tied up firmly, though not tightly, in order to avoid hurting the patient during his/her attempts to move. Two standard sizes may be used: 145 cm x 35 cm for the legs and chest and 37cm x 13.5 cm for the arms.

Restraint bands have the advantage of being inexpensive, reusable, simple to attach, adaptable to any dental equipment, applicable to patients of all ages and easily borne or transported, which is a positive point in case of home dental appointments.

### Godoy's Device

Godoy's device is a type of physical restraint developed to provide immobilization of patients with uncontrolled movements or aggressive behavior during treatment. According to the manufacturer, this device may be used by children over 4 years of age and adults<sup>13</sup>.

Godoy's device is composed by two shirts (upper and lower) that are used to secure the arms. The lower shirt stabilizes the patient in a comfortable position, allowing the arms to bend up to the chest, but restraining movements that could disturb the treatment. The upper shirt is used only if necessary (Figure 1B). The device has also a cervical collar that can be used in patients with uncontrolled involuntary head movements and can be regulated according to the patient's body size. A silicone thimble accompanies the product kit and is employed to keep the patient's mouth open

during the procedures as well as to stabilize the patient's head against the chair. For individuals with spinal lesions, the manufacturer recommends the use of a rigid triangle, which will maintain the cervical spine straight and immobilized patient's body in a firmer and safer manner<sup>13</sup>.

### Blanket

Physical restraint of children up to 10 years of age can be done with blankets (Figure 1C). After this age, the use of blankets is usually no longer effective because of the child's size and strength. For an adequate immobilization, the patient must be put with the arms crossed over the chest, in such a way that the legs can also be immobilized.



Figure 1. Examples of auxiliary devices used to accommodate the patient's body in the dental chair during clinical sessions A: Restraint band to immobilize a patient on the dental chair; B: Godoy's device: stabilization of patient on the chair; C: Physical restraint by the use of blankets.

### "Grandma's Pants" and "The Worm"

"Grandma's pants" (Figure 2A) and "The Worm" (Figure 2B) are easy-to-make and easy-to-use devices made of foam rolls and

cloth, which have been developed by occupational therapists to provide support for the trunk, arms and legs of special needs patients with physical limitations. These devices provide comfort to the patient during treatment and a good working position to the dentist, which directly contribute to shorter and less fatiguing clinical sessions with consequently better treatment outcomes<sup>12</sup>. However, the "Grandma's pants" and "The Worm" are not intended to provide patient immobilization and so other resources should be used in association whenever physical restraint is required.



Figure 2. Examples of devices made of foam rolls and cloths to provide support for the trunk, arms and legs of special needs patients with physical limitations. A: "Grandma's pants"; B: "The Worm".

#### Mouth Opening Techniques

Patients with uncoordinated involuntary

muscle movements and intellectual deficit are not able to keep the mouth open during in-office dental treatment or at-home oral care. To overcome this problem, dentists and parents/caregivers of special needs individuals can use devices specifically developed to help maintaining a good access to the oral cavity during cleaning or interventional procedures<sup>14,15</sup>. The most frequently used mouth openers are metallic mouth gags, which consist of reverse "C" shaped frames with an adjustable tongue depressor (Figure 3A), and rubber mouth props, which are usually found as trapezoidal (Figure 3B) or cork-shaped (Figure 3C and 3D) devices. These types of mouth openers are commercially available in the market and can be autoclaved.

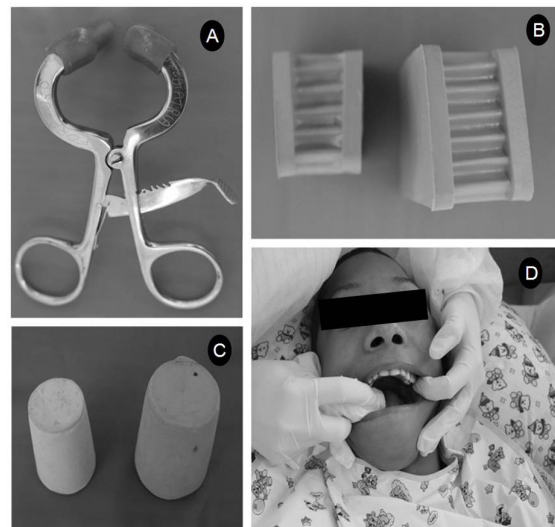


Figure 3. Examples of commercial mouth openers. A: Metallic mouth gag; B: Trapezoidal mouth prop; C: Cork-shaped mouth prop; D: Cork-shaped mouth prop.

When commercial devices are not available, custom-made resources can be prepared by the dentist or caregiver. An acrylic thimble can be easily fabricated by casting the dentist's or caregiver's forefinger and duplicating the cast in acrylic resin (Figure 4A). Low-cost mouth openers can also be prepared with the neck of disposable plastic bottles (Figure 4B), wooden sticks (Figure 4C) and ethylene vinyl acetate (EVA) plates wrapped around two or three wooden spatulas (Figure 4D). According to a previous study<sup>15</sup>, PVC tubing can also be used for keeping the mouth open.

It has been demonstrated the action of cryotherapy on the masseter muscle produced a temporary reduction of spasticity and a significant increase of the inter-incisal distance after cold application to the

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masseter, facilitating the access to the occlusal and palatal surfaces of the maxillary molars<sup>16</sup>. This better access can be highly useful during dental treatment and oral hygiene.

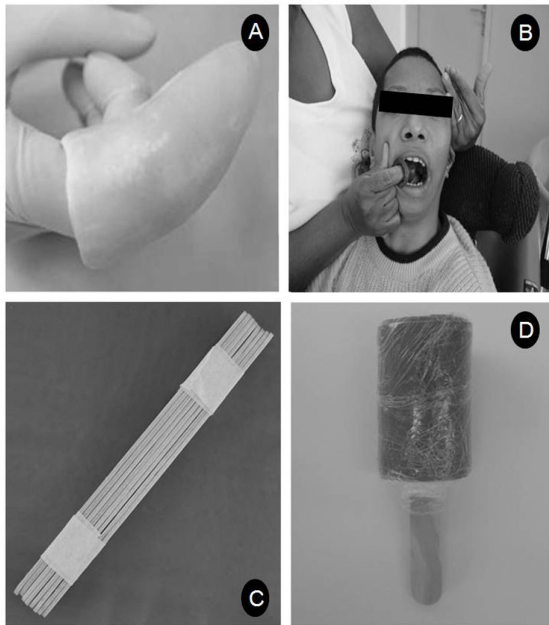


Figure 4. Examples of ease-to-make devices that can be used when commercial mouth openers are not available. A: Custom-made acrylic thimble; B: Custom-made mouth opener made from disposable plastic bottle neck; C: Custom-made mouth opener made from wooden spatulas. D: Custom-made mouth opener made from an ethylene vinyl acetate (EVA) plate wrapped around wooden spatulas.

## DISCUSSION

Dental care of special needs patients is usually challenging because of their lack of motor ability, intellectual deficit and difficult to open the mouth or inability to maintain a sufficient interincisal space to permit adequate hygiene or treatment. Dental professionals dealing with these patients should have knowledge of commercial and custom-made auxiliary devices that might be helpful during treatment of these individuals, such as those presented herein. We agree with a previous study<sup>15</sup> that parents/caregivers must be instructed on the use of these resources and work together with the dentist, maintaining a good-quality oral homecare. Families should be motivated to realize that positive attitudes towards oral health may reduce the likelihood and/or severity of caries

disease. Health professionals should discuss the importance of maintaining a good oral health status for patients who usually present with a complex medical history and systemic fragility.

Coping with the problems of parenting and treating patients with debilitating and even life-threatening disorders is a challenging, lifelong experience. The physical disabilities, limitations and medical problems of these patients are so demanding that, sometimes, oral health care is excusably not regarded as a priority. However, adequate oral hygiene habits allied to an efficient in-office preventive support can avoid dental problems that would bring additional pain, discomfort and complications to these individuals.

## CONCLUSION

In conclusion, the knowledge and use of auxiliary devices are of great help for during in-office dental treatment or at-home oral care of special needs patients.

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