

# An Exploration of Vocal Training Methods for Voice Repair in Children with Cleft Palate and Their Application in Education



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**Abstract:** Cleft palate is a common congenital oral craniofacial malformation, and patients are often accompanied by speech and voice impairment. Vocal training is an effective treatment method that can help patients with cleft palate repair their speech defects, enhance self-confidence, and promote social interaction. In schools, children with cleft palate also have special educational needs. Therefore, combining vocal training with education is important for the rehabilitation and education of children with cleft palate. This paper reviews the basic principles and specific methods of vocal training, as well as its application in cleft palate patients and its importance in education. Also, this paper presents some practical examples of combining vocal training with education. Taken together, the combination of vocal training and education can better meet the educational needs of cleft palate patients and promote their rehabilitation and social adaptation.

**Keywords:** vocal training; voice repair; special education; self-confidence

## Introduction:

Cleft palate is a common birth defect in which patients have certain impairments and deficits in articulation, hearing, oral function, and orofacial appearance, posing considerable challenges to their lives and education. Vocal training, as a speech therapy method, can help cleft palate patients improve their speech defects, enhance their self-confidence and social skills, and improve their academic performance and quality of life through targeted training on voice production and modulation, which is of great significance for the rehabilitation and education of cleft palate patients. In recent years, the application of vocal training in cleft palate patients has gradually gained wide recognition and application, however, there are still some challenges and problems, and further exploration and research are still needed on how to better combine vocal training and education to meet the special needs of cleft palate patients. The purpose of this paper is to

explore the application of vocal training in cleft palate patients and its significance in education, to provide a reference for the rehabilitation and education of cleft palate patients.

## 1. Overview of cleft palate

The cleft palate is a common congenital malformation in which the palate at the top of the mouth does not close completely, forming one or more clefts. A cleft palate can occur in the anterior, middle, or posterior part of the mouth, or can affect both the soft and hard palates of the mouth. The incidence of this malformation varies across regions and ethnic groups, but the global average incidence is approximately 1-2 per 1000 births. The cleft palate can have an impact on the appearance, oral structure and function, speech, hearing, and psychosocial development of the affected child (Hu et al., 2022). Therefore, early diagnosis and treatment of children with cleft palate is very important and includes various interventions such as surgical repair, speech

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correction, hearing testing, and psychological support.

## **2. Vocal training methods**

### **2.1 Vocal training goals for children with cleft palate**

The goal of vocal training for children with cleft palate is to help them correct their speech defects and improve their speech expression and language communication skills. Due to the abnormal oral structure caused by the cleft palate, makes the children's pronunciation difficult and some pronunciations are even incorrect, such as tongue pronunciation, nasal sounds, and coughing sounds. These deficiencies can seriously affect the affected child's verbal communication ability, causing communication barriers and reducing social skills and self-esteem. Therefore, the goal of vocal training is to help affected children correct incorrect pronunciation, improve voice fluency and intonation, and enhance self-confidence and social skills through methods such as skillful training and music therapy. In addition, vocal training can improve the child's breathing and posture, which can help alleviate the negative effects of a cleft palate on the child's physical health (Gulzibar et al., 2022). In conclusion, vocal training aims to help children with cleft palate achieve normal speech development and language communication and improve their quality of life.

### **2.2 Basic Principles of vocal training**

The basic principles of vocal training are based on the theories of music therapy and speech correction, which mainly include the following aspects: first, individualization and customization. Vocal training needs to be tailored according to the individual differences of children with cleft palates to achieve the best results. Different children have different voice defects and physical conditions, therefore, the training program must be individualized. Second, moderate reinforcement and gradual progress. Vocal training should be intensive to achieve the best results. However, the training process must also be gradual, and the training should not be too intensive, resulting in excessive fatigue

and maladjustment. The intensity of training should be gradually increased and the time should be reasonably arranged to avoid affecting the child's study and life. Third, focus on practice, and evidence-based treatment. Vocal training should be practice-oriented, with continuous training and feedback in order to adjust the training program on time. In addition, the training program must also be evidence-based treatment, using reliable empirical methods for evaluation to ensure the effectiveness and safety of training. Finally, attention is paid to integrated interventions and multidisciplinary synergy (Chen et al., 2022). Vocal training is only one aspect of comprehensive intervention for children with cleft palate and needs to be combined with other interventions, such as surgical treatment, speech correction, and psychological support. In addition, it is important to have multidisciplinary synergy to improve the effectiveness and quality of interventions.

### **2.3 Specific Methods of vocal training**

The specific methods of vocal training can be individualized according to the specific situation and needs of the child, using music therapy and speech correction, adding emotional training and psychological support in order to achieve the best training effect. Specifically, the child first needs to undergo a speech assessment to determine his or her speech deficits and develop an individualized training plan. Depending on the child's specific situation, the training plan may include speech training in the areas of the tongue, nasal sounds, and coughing sounds. Next, vocal training is conducted using a music therapy approach. The basic principle of music therapy is to stimulate human emotion and expression through the elements of music such as rhythm, melody, and beat. In vocal training, singing and spoken rhythm exercises can be used to help the child correct incorrect pronunciation and improve voice expression and verbal communication skills (Wang et al., 2022). In addition, vocal training can also use speech correction methods, including breathing training, mouth shape training, and voice lengthening training. These pieces of training can

help the affected child improve the coordination of oral muscles and increase the accuracy and fluency of articulation. Emotional training and psychological support can also be added to the vocal training to help the affected child relieve anxiety and tension and improve self-confidence and social skills.

### **3. Application of vocal training in children with cleft palate**

#### **3.1 Repairing voice defects**

The application of vocal training in children with cleft palate is mainly to repair their voice defects. Due to the presence of a cleft palate, children with a cleft palate will have poor oral muscle development, which will affect normal articulation and speech expression. Vocal training can help children with cleft palate correct their articulation errors and improve their vocal expression through targeted training methods, thus repairing their voice deficiencies. Vocal training can strengthen the coordination of oral muscles and train the accuracy of pronunciation through music therapy and speech correction methods. For example, singing and spoken rhythm exercises can be used in the training to help the affected children improve the accuracy and fluency of their pronunciation. At the same time, specific training methods, such as tongue training, nasal training, and coughing sound training, can be used for different pronunciation problems of the children. In addition, vocal training can also include emotional training and psychological support to help the affected child relieve anxiety and tension and improve self-confidence and social skills. This is especially important for children with cleft palate, as they may be rejected and discriminated against because of their voice defects, leading to emotional and psychological distress.

#### **3.2 Enhancing self-confidence**

In addition to repairing voice defects, the use of vocal training in children with cleft palates can also enhance their self-confidence. Children with cleft palate often have inaccurate pronunciation due to the poor development of oral muscles, which may affect their self-esteem and self-confidence. Through vocal

training, children with cleft palate can gradually master the correct pronunciation skills and voice expression, thus feeling their progress in language communication. This can stimulate their self-confidence and self-esteem, which makes them more willing to participate in social activities and communicate with others (Zhang et al., 2021). In addition, during vocal training, coaches and therapists can teach children some self-relaxation techniques and emotional regulation methods to help them relieve anxiety and tension and increase their mental toughness. This is very important for children with cleft palate because they often need to face various challenges and stresses in their lives.

#### **3.3 Promoting social interaction**

In addition to repairing speech defects and enhancing self-confidence, the use of vocal training in children with cleft palate can also facilitate their social interactions. Children with cleft palate often feel speech impediment, lack self-confidence, and are reluctant to communicate with others due to problems such as inaccurate pronunciation, which may affect their social skills and interpersonal relationships. Through vocal training, children with cleft palate can gradually acquire the ability to express their voice correctly, enabling them to communicate with others more confidently. This can facilitate their interaction and communication with their peers and enhance their social skills and interpersonal skills (Yan & Xu, 2021). In addition, vocal training can also help children with the disease master some skills to express their emotions and thoughts, so that they can express their thoughts and feelings more clearly and thus communicate better with others.

### **4. Applications in education**

#### **4.1 The importance of vocal training in the education of children with cleft palate**

Vocal training is of great importance in the education of children with cleft palate. Children with cleft palate often have inaccurate pronunciation due to the poor development of their oral muscles, which may affect their speech communication ability and

academic performance. Vocal training can help children with cleft palate gradually acquire correct pronunciation skills and phonological expression, which can improve their verbal communication skills and academic performance (Xu & Yan , 2021). Correct phonological expression is very important when learning skills such as reading and writing because it can help students better understand and express their ideas and improve their learning outcomes. In addition, vocal training can promote self-confidence and social skills in children with cleft palates, making them more willing to interact with others and participate in group activities, which leads to better integration into the social and school environment. Finally, the use of vocal training in the education of children with cleft palate can also promote cooperation and communication between students and parents, allowing parents to better understand the student's situation and work together with educational institutions to provide better education and services for children with cleft palate.

#### **4.2 Special needs of children with cleft palate in schools**

Children with cleft palate have special needs in school. Because a cleft palate affects the oral muscles and phonological abilities of children with a cleft palate, children with a cleft palate may face special needs in schools in the following areas: First, children with cleft palate need special speech therapy and vocal training to help them improve their phonological expression. This requires schools to provide specialized treatment and training facilities to ensure that children with cleft palate are effectively assisted. Secondly, children with a cleft palate may encounter barriers to oral comprehension and expression, which may affect their academic performance. Therefore, schools need to provide special learning aids and teaching methods for children with cleft palates to ensure that they can keep up with the curriculum (Mo et al., 2021). In addition, children with a cleft palate may encounter issues such as body image and self-esteem in school, which may affect their self-identity and self-confidence. Therefore, schools need to provide

mental health services and special socialization activities to help children with cleft palates build self-confidence and social skills. Finally, children with cleft palates also need special attention to their health and nutrition in school to ensure their physical health and ability to learn. Schools need to provide professional health services and dietary guidance to help children with cleft palate maintain a healthy lifestyle and a good body image.

#### **4.3 Practice of integrating vocal training and education**

The practice of integrating vocal training with education is a very important educational practice that can provide comprehensive help and support for children with cleft palates to better adapt to the school and social environment. Specifically, the practice needs to establish a comprehensive vocal training mechanism, including professional speech therapists, vocal coaches, and rehabilitation teachers, to provide comprehensive vocal training services for children with cleft palate. In addition, educational institutions need to fully understand the special needs of children with cleft palate and provide targeted learning aids and teaching methods to help them learn and express themselves better. Second, the practice needs to focus on the mental health and social skills of children with cleft palate. Schools can provide mental health education and social training activities for children with cleft palates to help them build self-confidence and social skills to better integrate into society. Finally, the practice also needs to focus on nutritional health and physical exercise. Schools can provide healthy dietary guidance and physical exercise programs to help children with cleft palate maintain a healthy lifestyle and body image.

#### **Conclusion:**

In summary, vocal training is an effective voice therapy method that is important for the rehabilitation and education of patients with cleft palate. Through targeted training, it can help patients improve their voice disorders, enhance their self-confidence and social skills, and improve their academic performance and quality of life. At the

same time, the combination of vocal training and education can better promote the comprehensive development and the ability of cleft palate patients to adapt to social life. Although there are still some problems and challenges in the application of vocal training in cleft palate patients, through continuous exploration and practice, we believe that we can better meet the special needs of cleft palate patients and bring greater hope and opportunities for their rehabilitation and education.

### Conflict of Interest

The authors declare that they have no conflicts of interest to this work.

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