

Importance of Electropalatography in Speech Therapy

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DESCRIPTION

Speech disorders are typically assessed using auditory perception, which is based on Speech-Language Therapists (SLTs) anatomical and physiological understanding of tongue movement. During a treatment, SLTs must picture the tongue moving from one place to another while producing continuous speech. This approach requires an expert SLT to do speech analysis. Because of the nature of the auditory perception approach, the speech treatment procedure is not completely comprehensive, particularly in some countries. However, in the year 1970, a technique known as electropalatography was invented to pinpoint the placement of the tongue and hard palate. EPG allows for the recording of dynamic speech characteristics, allowing for the identification of sound generation. At the same time, the EPG patterns can identify tongue movement and firm palate contact. The EPG is used to assess and analyze the tongue and hard palate contacts pattern during real-time continuous speech production. Each consonant produced during a continuous utterance has a distinct contact pattern. The essence of the contact pattern is determined by where the tongue and hard palate make contact. Electrode sensors placed on an artificial palate detect the position of the tongue and hard palate contact. These electrode sensors detect the touch and transmit the information to a computer.

Speech-language and communication problems are widespread in people with Speech Sound Disorder (SSD), auditory processing disorder, Down syndrome, cleft palate, and glossectomy. Some examples are caused by an individual's anatomy of the tongue and hard palate. This is likely to have an influence on daily communication and lower one's quality of life. SLT's have historically relied on an auditory-based transcription approach. SLT's will ask the individual to make the sound, which will then be recorded, during the therapy session. SLT's will repeat the sound and instruct the individual on how to generate the right sound based on the location of articulation. SLT's must have the knowledge and competence to determine the articulation location during sound creation. For more than 50 years, EPG has been used to monitor and optimize the articulation patterns of SSD speakers. Research done by Carter and Edwards demonstrated the usefulness of EPG in treating an

SSD speaker (2004). Ten speakers from varied backgrounds and ages were chosen for this study. The results showed that the EPG treatment done on ten SSD speakers increased sound output. Furthermore, EPG aids in the improvement of sound production among hearing disease speakers. The research was carried out to look at the use of EPG as a therapy tool for improving speech output in a cochlear implant patient. After 5 weeks of therapy, there was an improvement in generating velar plosive sounds, indicating a good outcome. Researchers performed research to investigate the use of EPG for teenagers with hearing impairment. Three patients with significant hearing impairment were chosen to participate in this program. The duration of the remediation procedure is six weeks. Their findings revealed that the treatment pattern affected articulation improvement. Down syndrome is another clinical disease connected with a speech problem. Down syndrome is a genetic condition characterized by malformations. Physical development is an issue for people with Down syndrome, and speech difficulties are mostly responsible for swelling of tongue size.

CONCLUSION

EPG has been demonstrated to be beneficial in both the diagnosis and rehabilitation of speech disorders. The fundamental function of EPG is to identify tongue and hard palate contact patterns. However, further development of the EPG device is underway to guarantee that the system is safe, durable, and contains the most recent technology on the market. EPG may be modified to include contemporary medical technologies such as Bluetooth technology, telemedicine, and mobile applications. Three new improvements have been proposed to improve the EPG system in the future: safety, usability, and cost-effectiveness. However, the enhancement might be enhanced beyond the three elements discussed in this assessment. By incorporating cutting-edge technology into the EPG system, data may be sent from users to therapists and vice versa. Furthermore, a cloud system may be used to store data and conveniently communicate medical data among therapists. Simultaneous real-time monitoring becomes feasible, which could result in more effective speech therapy for patients.

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