



RESEARCH

INFORMATION

SonoSpeech Cleft Pilot



AIMS

Around one in every 600-700 babies are born with a cleft palate with or without cleft lip (CP±L). Children with this condition can continue to have problems producing clear speech after surgery. Treatment involves teaching children the correct tongue movements to produce speech sounds. This is known as articulation intervention. However, this intervention is challenging because the tongue is hidden from view and movements are difficult to see and describe. This project trialled a new treatment, ultrasound visual biofeedback where children view ultrasound images of their tongue moving in real time. We wanted to know:

- How feasible a research study comparing two treatments for speech problems in CP±L is. The two treatments were: articulation intervention and ultrasound visual biofeedback.
- To find out how easy it is to recruit families to this type of study; whether they stay in the study until the end; and what their opinions on the study are.
- To use this information to decide if a larger research study should be carried out.



KEY FINDINGS

- Recruiting families to the study was challenging, but once they had joined, they stayed in the study until the end.
- Children and their parents enjoyed taking part in the study, but some participants found the articulation intervention “boring”.
- Families told us that there was considerable burden involved in travelling to the hospital.
- A larger study is feasible if we can reduce the travel burden by offering more locations for the study.





WHAT DID THE STUDY INVOLVE?

This project was a pilot feasibility randomised control trial. This means that children aged 5 to 16 with CP±L were randomly put into two groups: one group had six sessions of articulation intervention, and one group had six sessions of ultrasound biofeedback speech therapy. For both groups, we wanted to test how feasible this type of research is for these patients. This information will be used to plan for a larger study. We looked at: how feasible it is to recruit children to the study; whether once they are recruited, they are able to attend all the appointments; and whether the Speech and Language Therapists are able to complete all of the research assessments. We also held online discussions and used questionnaires with children and families to ask them what they thought of taking part.



WHAT WERE THE RESULTS AND WHAT DO THEY MEAN?

- Around 60% of families approached agreed to take part.
- 89% of those recruited to the study completed all the intervention and assessment sessions. All the families who took part were happy with the study design. Participants in both groups said they enjoyed the intervention, but the articulation intervention was more boring. Ultrasound therefore might be a more engaging intervention for children.
- Participants in both groups said that travelling to the hospital was a significant time and financial burden and suggested that future studies offer more locations.
- Overall, it was difficult to recruit to the study due to the travel burden.
- A larger trial is feasible if more treatment locations can be offered.
- Ultrasound biofeedback shows promise as an engaging and effective intervention, but it is likely that more than six intervention sessions will be needed to improve children's speech. NHS policies should allow for more sessions of speech interventions.

Ultrasound Biofeedback Intervention



In ultrasound intervention a probe is placed under the speaker's chin. They can see their tongue moving in real time and use this to change speech patterns.





WHAT IMPACT COULD THE FINDINGS HAVE?

- Patients
 - Findings support testing ultrasound visual biofeedback therapy in a larger research study. If successful, more cleft centres in the UK could offer this treatment.
- Policy
 - Travelling to hospital for speech therapies places a burden on families and offering treatments in more locations could aid recruitment to trials and help more families access treatments.
- Practice
 - Speech and Language Therapists can offer children a new treatment which has emerging evidence and children find enjoyable.



HOW WILL THE OUTCOMES BE DISSEMINATED?

- Results have been submitted to scientific journals and will be available at the chief investigator's website <https://pureportal.strath.ac.uk/en/persons/joanne-cleland/publications/>
- We have presented our results at the Cleft and Craniofacial Society of Great Britain and Northern Ireland, the American Speech and Hearing Association Convention and the International Clinical Linguistics and Phonetics Association Conference
- An Online event for families of children with Cleft Lip and Palate was held and the recording is available on the Cleft Lip and Palate Association's YouTube channel <https://www.youtube.com/watch?v=ZgQRiellIdAg>



CONCLUSION

- Children with Cleft Lip and Palate need speech interventions to help their speech become more easily understood by others
- Ultrasound visual biofeedback is an engaging speech intervention that needs to be tested in a larger clinical trial



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