The inclusion and exclusion criteria of the participants

Table S1 The inclusion and exclusion criteria of the CLP participants

The inclusion criteria of CLP participants		
All patients with cleft lip and palate, and have good recovery of palatopharyngeal function after palatoplasty surgery more than 1 year.	□1 Yes	□0 No
The age of CLP adolescents is between 5 and 16 years, and the age of CLP adults is between 18 and 40 years	□1 Yes	□0 No
The native language is Chinese	□1 Yes	□0 No
Normal intelligence quotient (IQ)≥90,Wechsler Intelligence Scale	□1 Yes	□0 No
Right-handed	□1 Yes	□0 No
Free of neurological disease ,psychiatric disorders and contraindications of fMRI	□1 Yes	□0 No
CLP subjects had two or more typical characteristics of articulation disorder, such as hypernasality, nasal emission, weak or absent of consonants and compensatory misarticulations.	□1 Yes	□0 No
CLP subjects with articulation disorder had score ≤70 points in articulation test.(Chinese language clear degree list)	□1 Yes	□0 No
All subjects had not received speech training.	□1 Yes	□0 No
The exclusion criteria of CLP participants		
neurological or psychiatric disorders and contraindications of fMRI	□1 Yes	□0 No
Systematic medication and psychotherapy within 1 year prior to enrollment	□1 Yes	□0 No
Inability to cooperate with the relevant assessment and examination	□1 Yes	□0 No
Refused to participate in fMRI experiment	□1 Yes	□0 No

Table S2 The inclusion and exclusion criteria of the healthy participants

The inclusion criteria of healthy participants		
The age of healthy children and adolescents between 5 and 16 years, and the age of healthy adults is between 18 and 40 years.	□1 Yes	□0 No
The native language is Chinese	□1 Yes	□0 No
Normal intelligence quotient：Normal intelligence by clinical screening	□1 Yes	□0 No
Right-handed	□1 Yes	□0 No
Free of neurological disease , psychiatric disorders and contraindications of fMRI	□1 Yes	□0 No
clinically screened for normal articulation function by a speech therapist	□1 Yes	□0 No
The exclusion criteria of Healthy participants		
neurological or psychiatric disorders and contraindications of fMRI	□1 Yes	□0 No
Systematic medication and psychotherapy within 1 year prior to enrollment	□1 Yes	□0 No
Inability to cooperate with the relevant assessment and examination	□1 Yes	□0 No
Refused to participate in fMRI experiment	□1 Yes	□0 No