LinguaGraph 3D Electropalatography System

3D Electropalatography (3D EPG) uses state-of-the-art computer animation and 3D modelling techniques to illustrate where the tongue touches the hard-palate during speech. The 3D model, which can be rotated 360˚, provides direct articulatory information in real-time.

How 3D Electropalatography works

3D Electropalatography determines tongue-palate contact by using a special artificial palate that contains 62 electrodes embedded on its lingual surface. The palate is custom-made for each user and simply clips to the upper teeth. The wires from the palate are connected to the EPG unit, which is worn around the neck.

A small electrical signal is passed to the user, which is conducted through the tongue to any touched electrodes. The detected tongue-palate contact is transferred to a computer and used to animate a 3D model of the tongue in real-time. The figure below illustrates six tongue-palate contact shapes observed in normal English-speakers when producing lingual consonants:
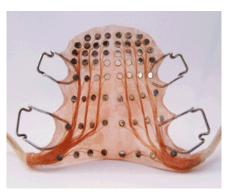

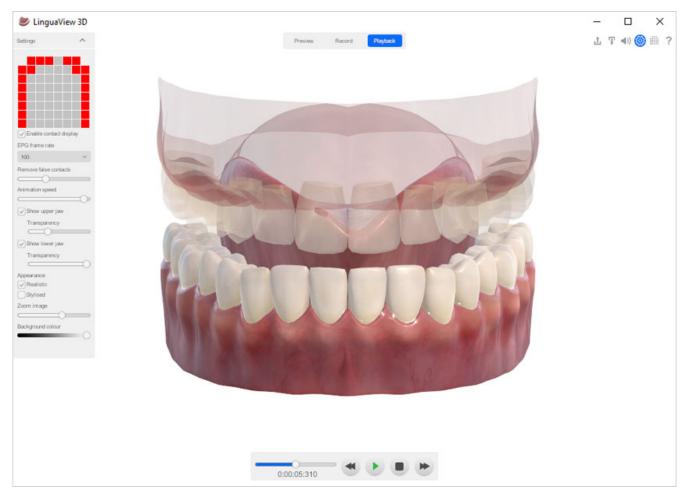| Alveolar Stop /t/, /d/, /n/ | Alveolar Grooved /z/, /s/ | Post-Alveolar Grooved /ʃ/, /ʒ/ | Double Alveolar-Velar /tk/, /kt/, /kl/ | Velar Stop /k/, /g/, /ŋ/ | Apical /l/ |

3D Electropalatography palate

3D Electropalatography is compatible with the Reading electropalatography palate. Each palate, sold separately, is custom-made to ensure a comfortable fit. Please contact us for details about our EPG palate manufacturing service. We also supply EPG palate kits that enable orthodontic technologists to manufacture palates locally.

3D software

LinguaView 3D incorporates state-of-the-art computer animation and 3D modelling techniques:

- Preview 3D tongue-palate contact in real-time
- Record 3D tongue-palate contact at up to 200 FPS with fully synchronised audio
- 3D tongue-palate contact template library
- 3D tongue-palate contact template editor
- 360˚ photorealistic and stylised views
- Upper and lower jaw with adjustable transparency
- File format compatible with icSpeech Professional Edition
- Compatible with Windows 64-bit 10 and 8

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Speech Therapy Software & Instrumentation