Computed tomography (CT) scan data of a 157 cm, 59 kg, 79-year-old male was used to segment and reconstruct a 3D model using Simpleware software. The mesh was imported into ANSYS Workbench for finite element analysis (FEA). Mesh convergence was explored, and a final mesh of 409,216 nodes was used.

Properties of passive pharyngeal tissue were estimated under the restriction of small deformations, such that linear elasticity is a reasonable assumption. Cross-sectional area at the oropharynx and velopharynx was analyzed over data in relaxed, anesthetized normal subjects.

The area versus pressure relationship for the passive the velopharynx and 2.53 cm² for the oropharynx, and are identified by a dot and circle in both cases. The cross-sectional area at the oropharynx and velopharynx was analyzed over data in relaxed, anesthetized normal subjects.

Slopes were compared with published data in relaxed, anesthetized normal subjects. The length of the bottom scale represents 2 cm.

The name of each number-labeled structure is given in Table 2. The colors also differentiate anatomical structures.

Cross-sectional area at the oropharynx and velopharynx was analyzed over data in relaxed, anesthetized normal subjects.