

QUANTIFYING CHANGES IN ARTICULATORY WORKING SPACE FOLLOWING ORAL CANCER TREATMENT

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INTRODUCTION

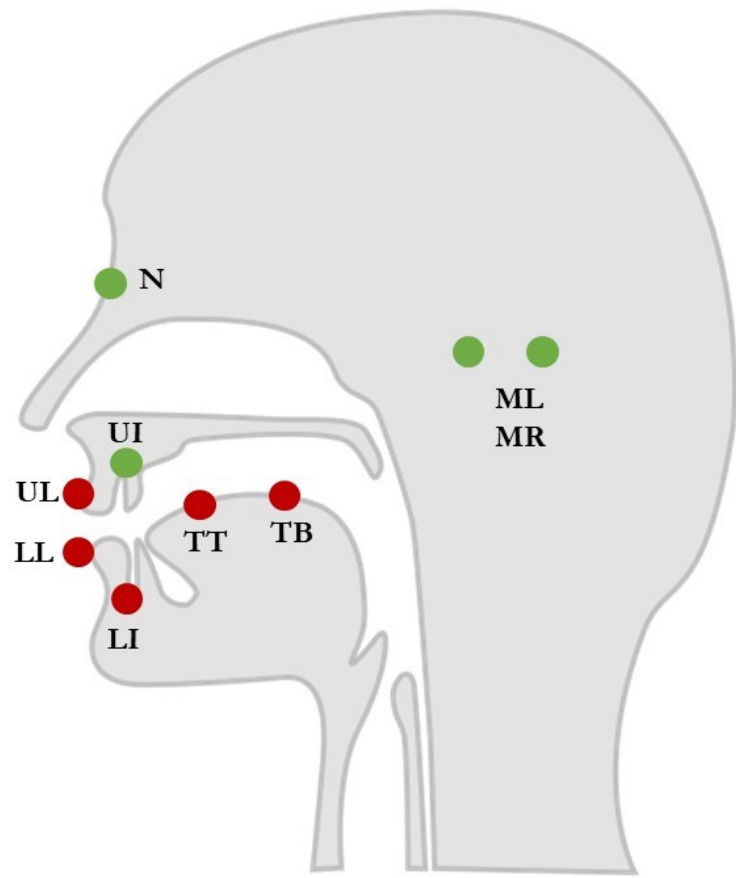
- Surgical treatment may limit the **range of motion** (ROM) of the articulators [1]
→ But evidence is limited to non-speech tasks
→ **Articulatory Working Space** (AWS) as 2D ROM during speech
- **AWS** is related to intelligibility and speech rate in dysarthric populations [2-3]

Questions:

- (1) Compared to control speakers, does the AWS decrease post-treatment?
- (2) Are changes related to type of treatment?
- (3) Is the size of the AWS related to self-reported speech problems?

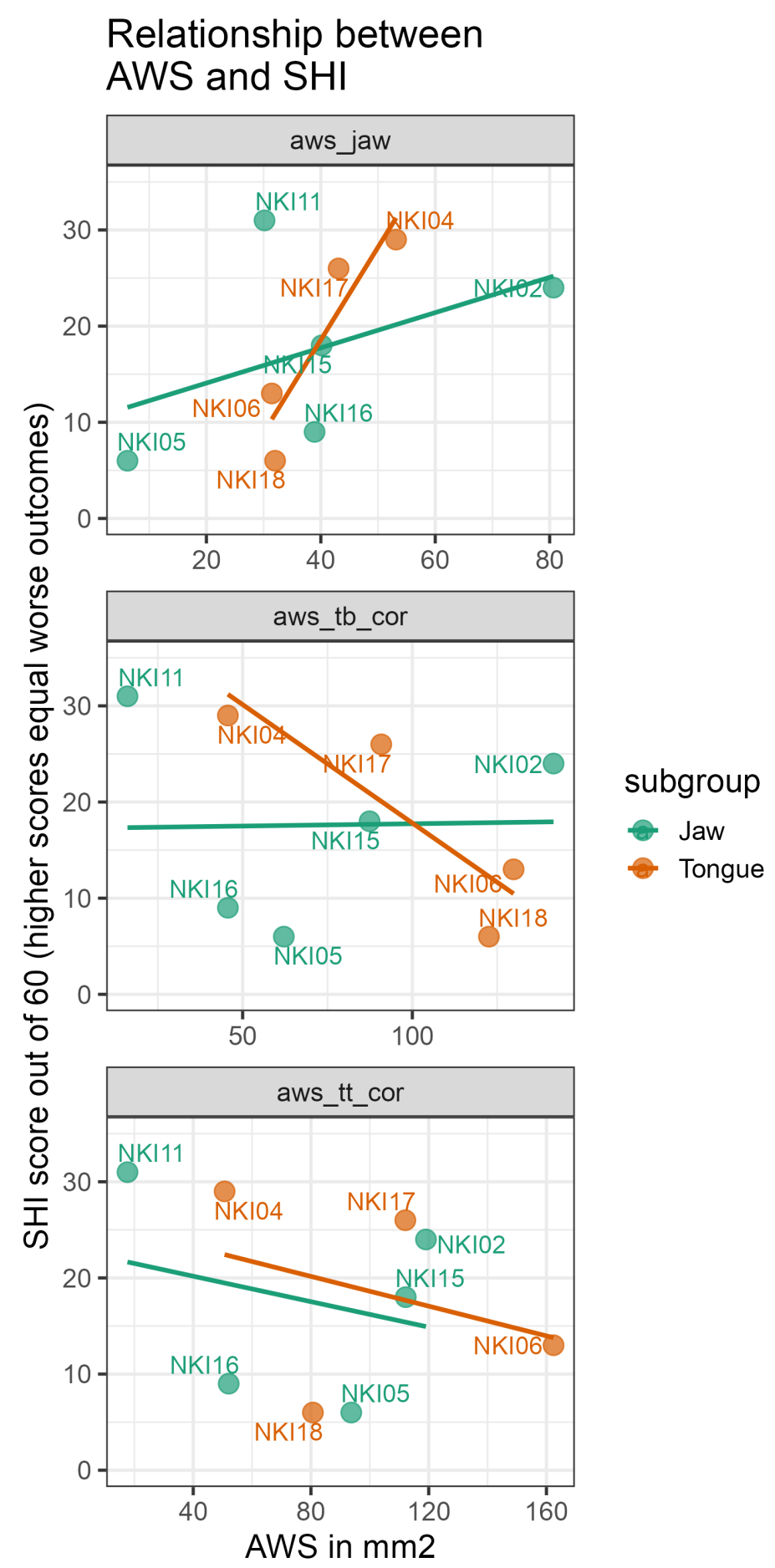
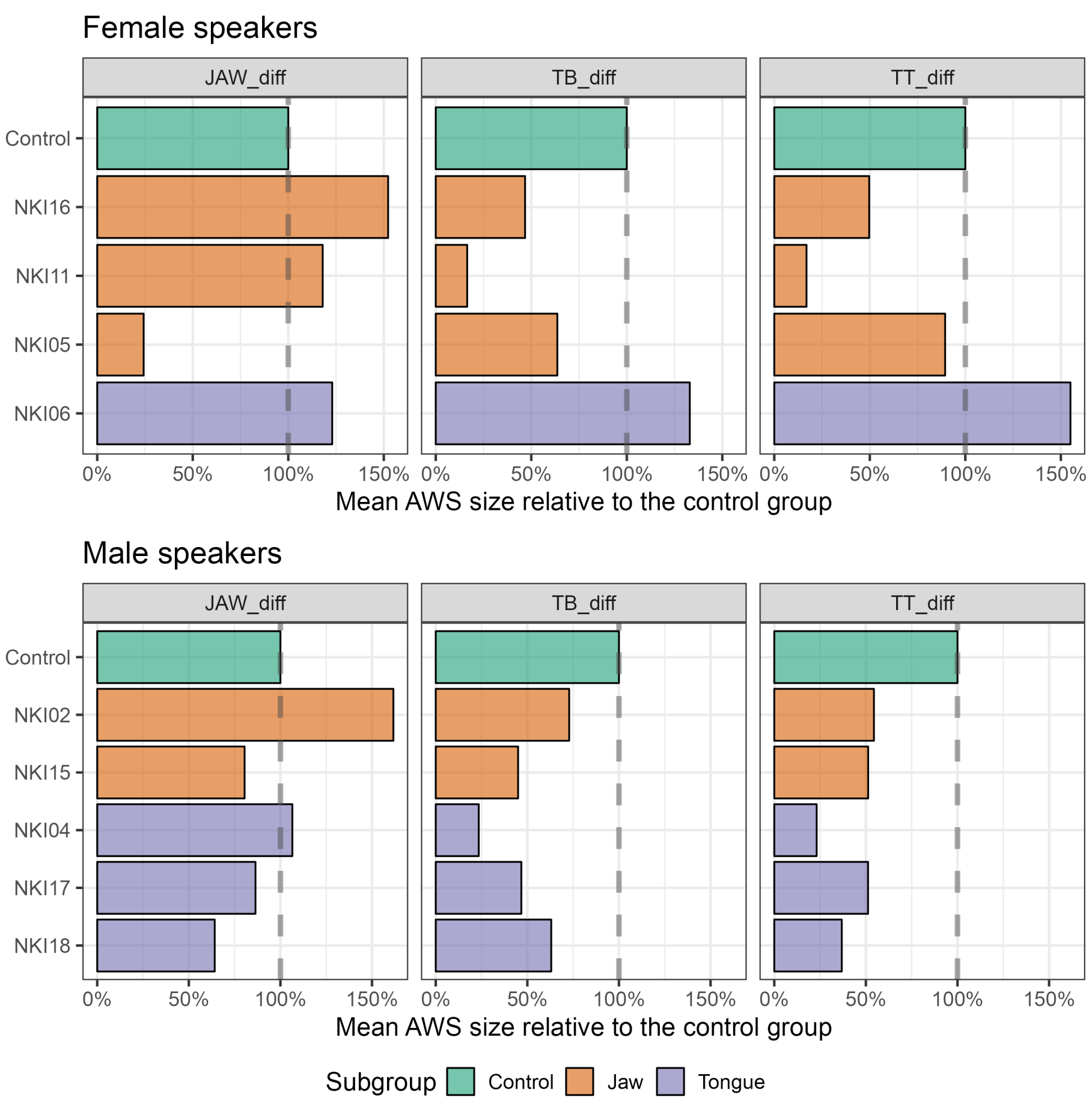
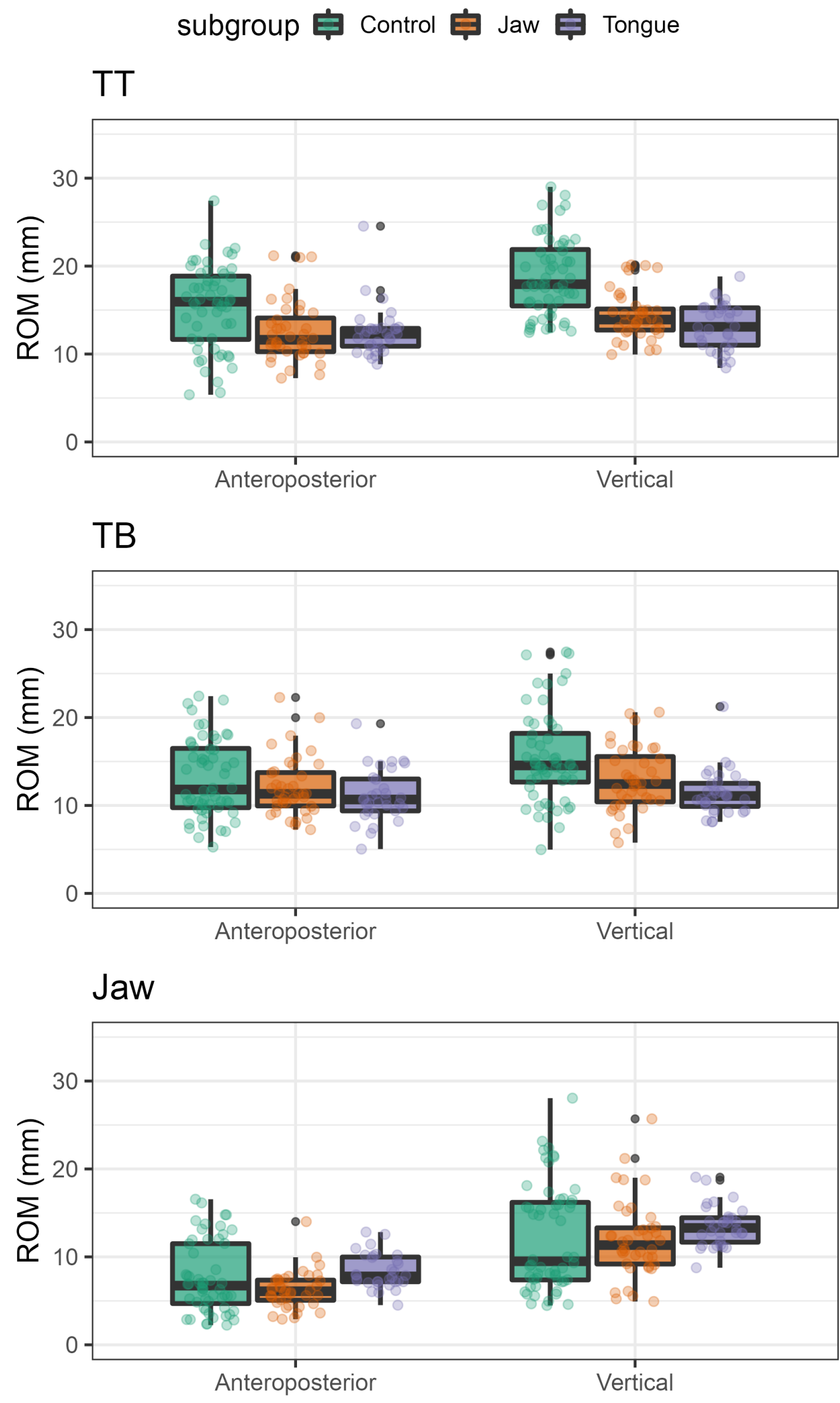
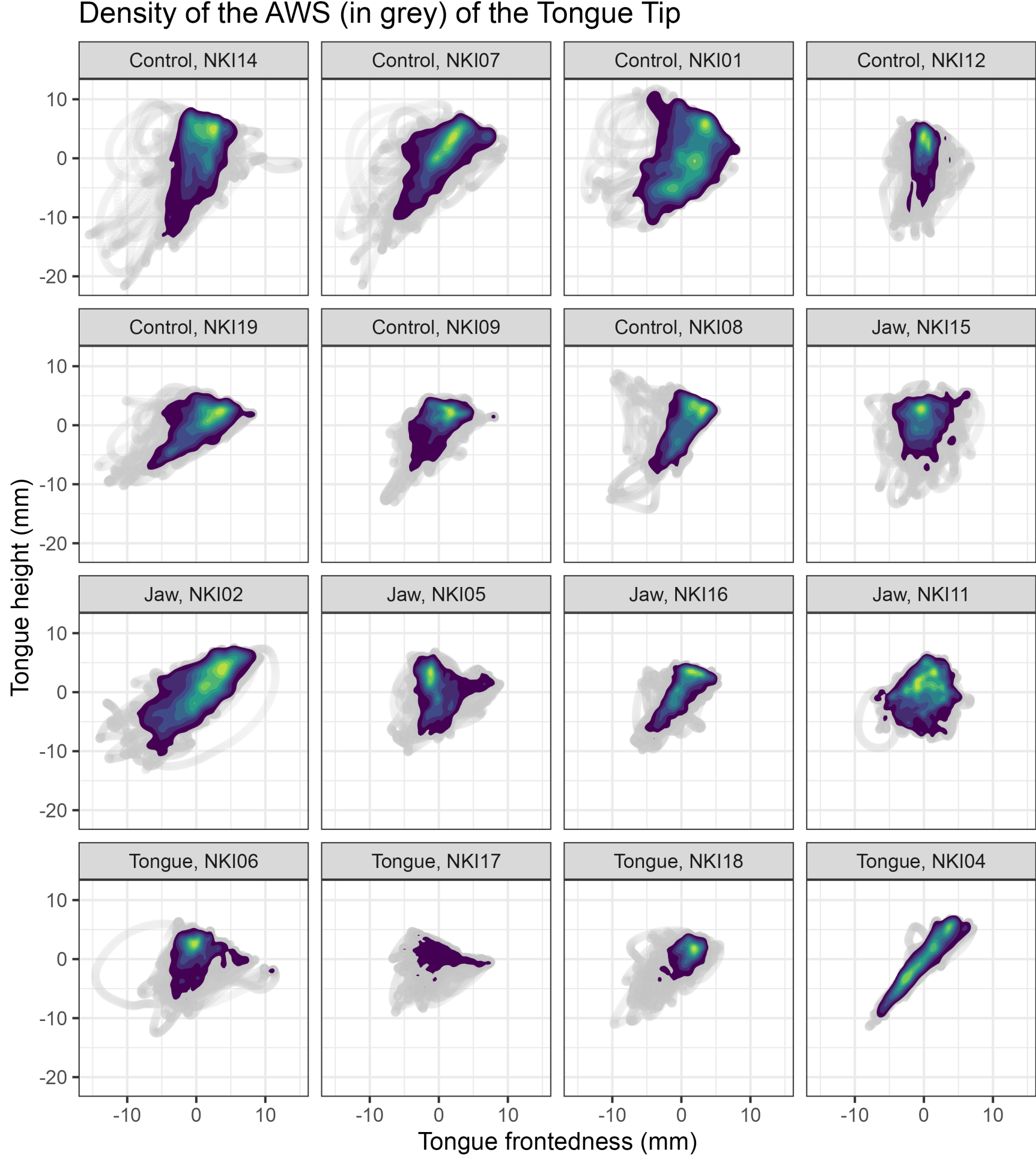
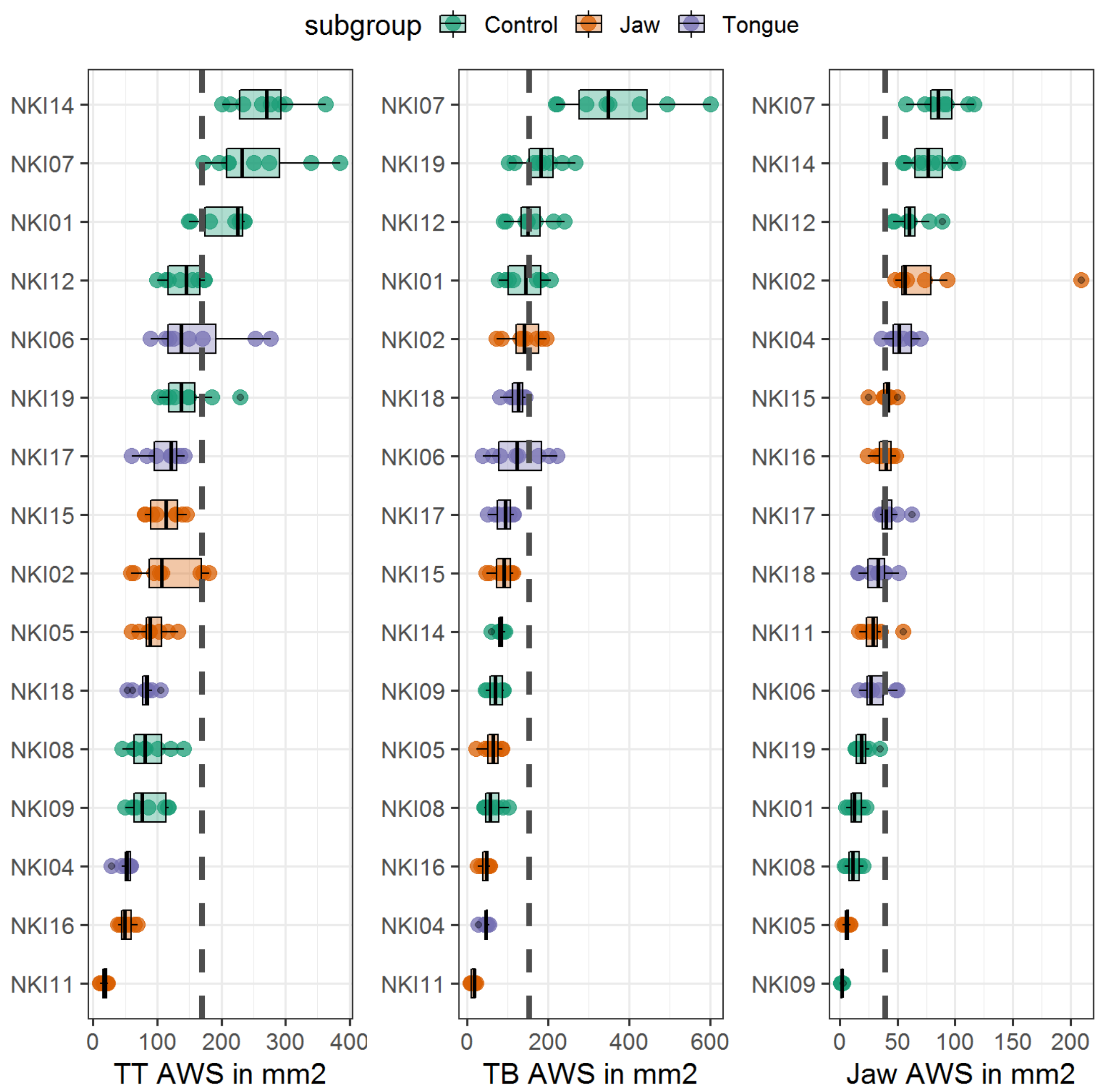
METHODS

Group	N	Age (sd)	Time post-op (sd)
Control	7 (4M; 3F)	61.3 (7.61)	-
Tongue	4 (3M; 1F)	59 (11.7)	6.33 years (4.85)
Jaw	5 (2M; 3F)	63.3 (7.96)	4.14 years (2.6)



- The North Wind and the Sun passage in eight sentences [4]
- Measurement sensors: tongue tip (TT), tongue back (TB), and jaw
- AWS measured as the hull area in mm² for the measurement sensors
- Vertical and anteroposerior ROM in mm
- Speech Handicap Index to measure self-reported speech problems

RESULTS



CONCLUSION

- In general, the tongue AWS is reduced following treatment whereas the jaw AWS shows more variable results
- All but one patient have reduced tongue AWS
- No uniform relationship between SHI and AWS
- Possible compensatory role of vertical jaw movement for patients treated for a lingual tumour?

Next steps

- Find a (better) proxy to control for oral cavity size
- Assess relationship between AWS and intelligibility

REFERENCES

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