Key Note

# Chapter 6: Hearing

## Key note 6C: Enlarged Heschl’s gyrus in musicians

An incidental finding of the Schneider et al. (2005) study was that Heschl’s gyrus tended to be larger in musicians than in non-musicians, suggesting that repeated experience of pitch discrimination had led to an increase in the volume of brain tissue devoted to that particular perceptual skill. This hypothesis was supported by a recent study that combined fMRI and MEG methods found that 90% of musicians show Heschl’s gyrus multiplications in either one or both hemispheres (remarkably, a quarter of musicians showed multiple duplications with up to four gyri found) and fMRI activations during auditory stimulation extended with the degree of Heschl’s gyrus gyrification, with recruitment of all parts of Heschl’s gyrus (including multiplications; Benner et al., 2017). The results indicate that Heschl’s gyrus multiplications occur much more frequently in musicians than non-musicians (i.e. the population at large) and constitute both structural and functional extensions in musicians.

Benner J, Wengenroth M, Reinhardt J, Stippich C, Schneider P, Blatow M (2017) Prevalence and function of Heschl’s gyrus morphotypes in musicians. *Brain Structure and Function* 222(8): 3587–3603.

Schneider P, Sluming V, Roberts N, Scherg M, Goebel R, Specht HJ, Dosch HG, Bleeck S, Stippich C, Rupp A (2005) Structural and functional asymmetry of lateral Heschl’s gyrus reflects pitch perception preference. *Nature Neuroscience* 8(9): 1241–1247.