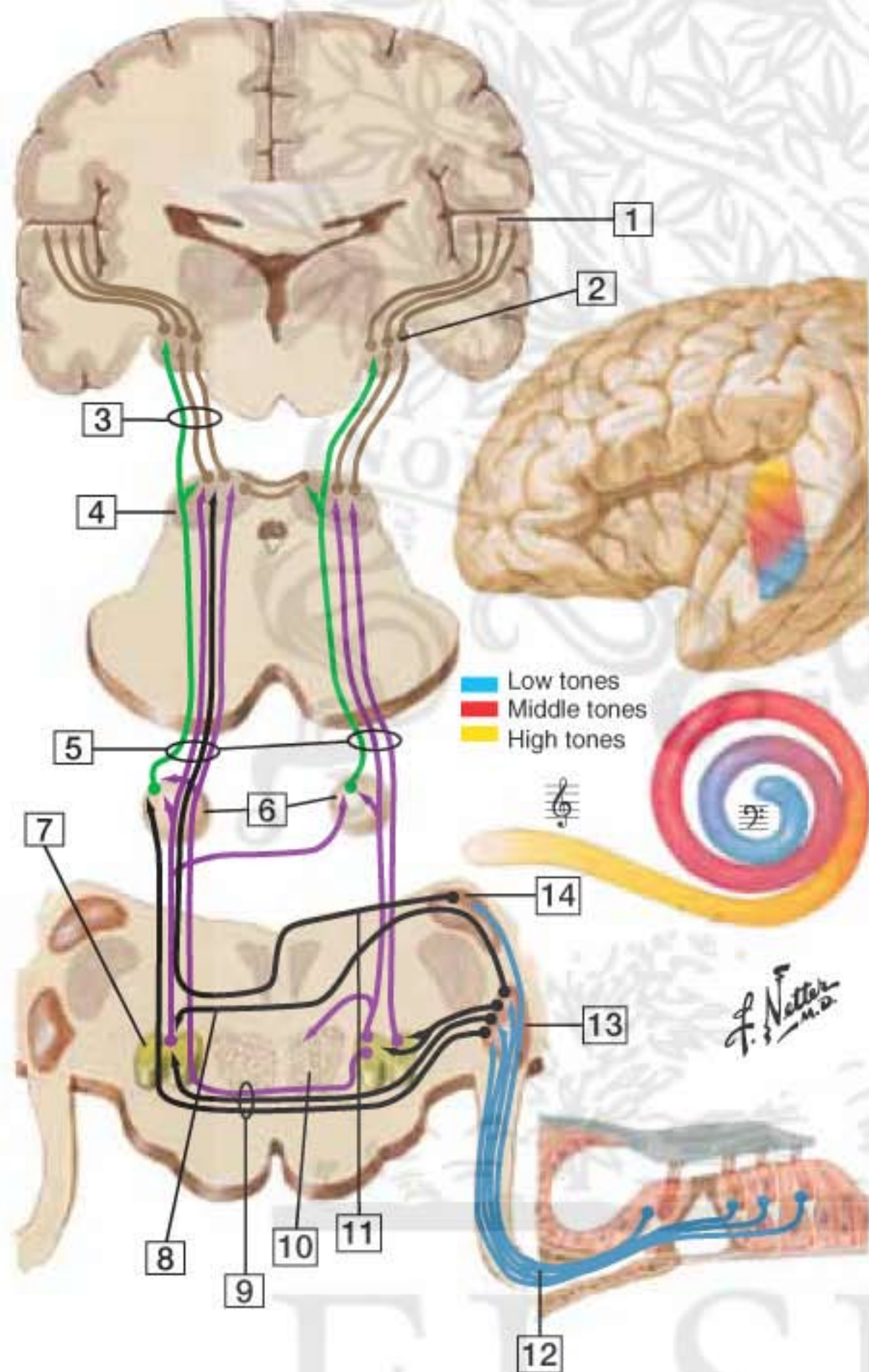


Auditory Pathways

Auditory Pathways



1. Acoustic area of the temporal lobe cortex
2. Medial geniculate nucleus (body)
3. Brachium of the inferior colliculus
4. Inferior colliculus
5. Lateral lemnisci
6. Nuclei of the lateral lemnisci
7. Superior olivary complex
8. Intermediate acoustic stria
9. Trapezoid body (ventral acoustic stria)
10. Reticular formation
11. Dorsal acoustic stria
12. Spiral ganglion
13. Ventral cochlear nucleus
14. Dorsal cochlear nucleus

Comment: The cochlear nerve contains axons that innervate the hair cells of the organ of Corti in the spirals of the cochlea. Central projections of these axons terminate in the dorsal and ventral cochlear nuclei in several tonotopically organized maps. The cochlear nuclei then project into the lateral lemniscus via the acoustic stria; these projections are bilateral. The lateral lemniscus terminates in the nucleus of the inferior colliculus, which in turn projects via the brachium of the inferior colliculus to the medial geniculate nucleus in the thalamus. This thalamic nucleus reciprocally interconnects with the primary auditory cortex on the transverse gyrus of Heschl in the temporal lobe near the lateral fissure. Several additional accessory auditory nuclei receive bilateral projections from the main auditory pathways and in turn project bilaterally. Thus, sound is represented throughout the afferent pathways bilaterally; a unilateral lesion in a site rostral to the cochlear nuclei results in diminished hearing, not a unilateral hearing loss. Damage to the auditory radiations or auditory cortex results in a diminution in hearing and auditory neglect contralateral to the lesion during bilateral simultaneous presentation of sound.