

Table 3. Timing of Major Milestones in Sensory System Development.

Parameter	Age (Day)
Eye (sight)	
Optic vesicles (Figure 5)	8.0
Optic sulci	8.5
Lens placode forms	9.5
Lens placode (eye) begins to invaginate	10.0
Lens separated	10.5
Lens vesicle closed (Figure 13)	11.0–11.5
Retinal pigmentation develops	11.5–12.0
^a Optic nerve axons reach optic chiasm	12
Cornea differentiates	13.0
Eyelids form	13.0
^a Cones—peak generation	14
^a Optic nerve axons reach visual cortex	14
Anterior chamber differentiates	14.0
Retinal ganglion cells	14.0
^a Rods—onset of generation	15
Eyelids fuse	16.0–16.5
Iris and ciliary body differentiate	18.0
^a Rods—peak generation	PND 2
^a Optic tract—onset of myelination	PND 8
Eyelids open	PND 12
Ear (hearing)	
Otic placodes form	8.0–8.5
Otic vesicle forms	8.5–8.75
Otic pits develop	9.0
Endolymphatic duct forms	10.0–10.5
Endolymphatic duct separates from otic vesicle	11.0
Sacculles and utricle form	11.0
Cochlea and vestibular apparatus begin differentiating	11.0–11.5
Semicircular canals forming	11.5–12.0
Cochlea present	12.0
External auditory meatus	12.5–13.0
Pinnae form	13.0
Organ of Corti forms	14.0
Sacculles and utricle are partitioned	14.5
Otic capsule forms (as cartilage)	14.5
Pinna overgrows and occludes external auditory meatus	16.5
External auditory meatus—opens	PND 11
Auditory tracts—onset of myelination	PND 11
Nose (smell)	
Olfactory placodes form (Figure 5)	8.5–9.0
Olfactory pit develops	10.0–10.5
Olfactory bulb differentiates	11.0
Nasolacrimal duct	14.5
External nares open	18.5 to 19.0
^a Olfactory tract—onset of myelination	PND 9

Source: Data adapted from values reviewed in references nos. (DeSesso 2006; Hoar and Monie 1981; Theiler 1972; Nishimura and Shiota 1977; Szabo 1989). Reproduced with minor modifications from Bolon and Ward (2015).

Note: Values represent the day(s) of development. Numbers without associated letters denote embryonic days (E), while numbers with “PND” denote postnatal days.

^aDenotes predicted value based on statistical modeling (Clancy et al. 2007; Clancy et al. 2013).

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