

TABLE SDC1. Details of records included in the meta-analysis broken down by relevant component studies.

Author(s) and year	Study	n	Group	Age* (years [†])	Onset of deafness	Age at CI activation (years [†])	Duration of CI use (years [†])	Prosody	Language	Stimuli	Cues				Measure	Comment
											f ₀	int	dur	AFC		
Agrawal et al. (2012)	1	20	V	41 (7.1; 25–55)	—	—	—	Emotional	German	Sentences	U	U	U	3	Percentage	ACE + PACE collapsed
Chatterjee et al. (2015)	2.1	67	CI	12.2 (3.5; 6–18)	Varied	Unknown	8.8	Emotional	English	Sentences	U	U	U	5	Percentage	—
	2.2	31	V-8ch	10.8 (3.1; 6–18)	—	—	—	Emotional	English	Sentences	U	U	U	5	Percentage	—
	2.3	19	CI	52.2 (13.2; 27–69)	Varied	Unknown	8.0 (3.1)	Emotional	English	Sentences	U	U	U	5	Percentage	—
	2.4	10	V-16ch	23.9 (2.8)	—	—	—	Emotional	English	Sentences	U	U	U	5	Percentage	—
	2.5	10	V-8ch	23.9 (2.8)	—	—	—	Emotional	English	Sentences	U	U	U	5	Percentage	—
	2.6	10	V-4ch	23.9 (2.8)	—	—	—	Emotional	English	Sentences	U	U	U	5	Percentage	—
Fengler et al. (2017)	3.1	14	CI	24.4 (9.4; 15–44)	Congenital	11.6 (14.5)	12.9 (5.4)	Emotional	German	Words	U	U	U	4	Proportion	Unimodal voice task only
	3.2	14	CI	25.1 (8.3; 19–43)	< 3 years	8.7 (10.0)	16.4 (3.7)	Emotional	German	Words	U	U	U	4	Proportion	Unimodal voice task only
	3.3	25	CI	48.5 (10.0; 28–60)	> 3 years	40.8 (9.3)	7.6 (2.6)	Emotional	German	Words	U	U	U	4	Proportion	Unimodal voice task only
Fuller et al. (2014a)	4.1	25	V-8ch	22.4 (19–28)	—	—	—	Emotional	Dutch	Phrases	U	U	U	4	Percentage	Non-musicians only
	4.2	25	V-8ch	22.4 (19–28)	—	—	—	Emotional	Dutch	Phrases	U	N	N	4	Percentage	Non-musicians only
Geers et al. (2013)	5	90	CI	10.5 (0.8; 9–12)	Congenital	1.8 (0.6)	8.5 (0.9)	Emotional	English	Sentences	U	U	U	4	Percentage	—
Gilbers et al. (2015)	6.1	40	CI	65.0 (10.9; 28–78)	Postlingual	Unknown	4.6 (3.4)	Emotional	Dutch	Phrases	U	U	U	4	Percentage	—
	6.2	20	V-8ch	22.9 (3.9; 19–35)	—	—	—	Emotional	Dutch	Phrases	U	U	U	4	Percentage	—
Hopyan-Misakyan et al. (2009)	7	36	CI	10.2 (1.7; 7–13)	Prelingual	2.9 (0.9)	7.2 (1.3)	Emotional	English	Sentences	U	U	U	4	DANVA2 scores	—
Huang et al. (2017)	8.1	57	CI	54 (16; 19–76)	Varied	Unknown	7.4 (4.3)	Linguistic [‡]	English	Sentences	U	U	U	4	Percentage	Experiment 1 (nouns)
	8.2	64	V-8ch	Unknown	—	—	—	Linguistic [‡]	English	Sentences	U	U	U	4	Percentage	Experiment 1 (nouns)
	8.3	57	CI	56 (17; 21–80)	Varied	Unknown	6.6 (4.6)	Linguistic [‡]	English	Sentences	U	U	U	4	Percentage	Experiment 2 (adjectives)
	8.4	64	V-8ch	Unknown	—	—	—	Linguistic [‡]	English	Sentences	U	U	U	4	Percentage	Experiment 2 (adjectives)
Kalathottukaren et al. (2015)	9.1	27	CI	58.4 (16.1; 25–78)	Varied	Unknown	5.4 (5.8)	Linguistic [§]	English	Words	U	U	U	2	Percentage	—
	9.2	27	CI	58.4 (16.1; 25–78)	Varied	Unknown	5.4 (5.8)	Emotional	English	Words	U	U	U	2	Percentage	—
	9.3	27	CI	58.4 (16.1; 25–78)	Varied	Unknown	5.4 (5.8)	Linguistic [¶]	English	Phrases	U	U	U	2	Percentage	—
	9.4	27	CI	58.4 (16.1; 25–78)	Varied	Unknown	5.4 (5.8)	Linguistic [‡]	English	Phrases	U	U	U	2	Percentage	—
Luo et al. (2007)	10.1	16	CI	57.5 (10.0; 41–73)	Postlingual	Unknown	7.4 (5.3)	Emotional	English	Sentences	U	U	U	5	Percentage	—
	10.2	16	CI	57.5 (10.0; 41–73)	Postlingual	Unknown	7.4 (5.3)	Emotional	English	Sentences	U	N	U	5	Percentage	—
Lyxell et al. (2009)	11	16	CI	(5–13)	< 3 years	3.3	Unknown	Linguistic	Swedish	Words	U	U	U	2	Count	—
Marx et al. (2015)	12.1	25	CI	66.9 (10.2; 44–76)	Postlingual	Unknown	3.8 (2.2)	Linguistic [§]	French	Sentences	U	U	U	2	d'	No residual hearing only
	12.2	25	CI	66.9 (10.2; 44–76)	Postlingual	Unknown	3.8 (2.2)	Linguistic [§]	French	Sentences	N	U	U	2	d'	No residual hearing only
	12.3	25	CI	66.9 (10.2; 44–76)	Postlingual	Unknown	3.8 (2.2)	Linguistic [§]	French	Sentences	U	N	N	2	d'	No residual hearing only
Meister et al. (2011b)	13	26	CI	58.5 (16.9; 19–81)	Postlingual	Unknown	4.7 (3.4)	Linguistic [‡]	German	Sentences	U	U	U	3	Percentage	—
Meister et al. (2009)	14.1	24	CI	58 (13.3; 38–75)	Postlingual	Unknown	2.9 (1.9)	Linguistic [§]	German	Sentences	U	U	U	2	Percentage	—
	14.2	24	CI	58 (13.3; 38–75)	Postlingual	Unknown	2.9 (1.9)	Linguistic [‡]	German	Sentences	U	U	U	3	Percentage	—
Moein et al. (2017)	15	75	CI	8.9 (1.4; 7–11)	Congenital	2.6 (1.7)	6.3 (2.7)	Linguistic [§]	Farsi	Sentences	U	U	U	2	Count	—
Morris et al. (2013)	16.1	31	CI	64.3 (14.5; 40–82)	Postlingual	Unknown	4.6 (1.9)	Linguistic [‡]	Swedish	Words	U	U	U	2	Percentage	In quiet only
	16.2	31	CI	64.3 (14.5; 40–82)	Postlingual	Unknown	4.6 (1.9)	Linguistic [¶]	Swedish	Phrases	U	U	U	2	Percentage	In quiet only

Author(s) and year	Study	n	Group	Age [*] (years [†])	Onset of deafness	Age at CI activation (years [†])	Duration of CI use (years [†])	Prosody	Language	Stimuli	Cues			AFC	Measure	Comment
											f ₀	int	dur			
Most and Aviner (2009)	17.1	20	CI	13.8 (1.6; 10–15)	Prelingual	3.9 (1.3)	9.6 (2.0)	Emotional	English	Sentences	U	U	U	6	Percentage	Auditory condition only
	17.2	20	CI	15.1 (2.6; 10–17)	Prelingual	11.3 (3.7)	3.7 (2.8)	Emotional	English	Sentences	U	U	U	6	Percentage	Auditory condition only
Nakata et al. (2012)	18	62	CI	8.6 (2.0; 5–13)	Varied	3.6 (0.9)	4.9 (1.7)	Emotional	Japanese	Sentences	U	N	U	3	Percentage	—
O'Halpin (2010)	19.1	38	CI	10.3 (3.3; 5–16)	Varied	6.2 (4.3)	4.0 (1.9)	Linguistic [‡]	English	Phrases	U	U	U	2	Percentage	—
	19.2	38	CI	10.3 (3.3; 5–16)	Varied	6.2 (4.3)	4.0 (1.9)	Linguistic [‡]	English	Sentences	U	U	U	3	Percentage	—
	19.3	38	CI	10.3 (3.3; 5–16)	Varied	6.2 (4.3)	4.0 (1.9)	Linguistic [¶]	English	Phrases	U	U	U	2	Percentage	—
Peng et al. (2012)	20.1	17	CI	58.9 (14.0; 23–70)	Varied	Unknown	6.7 (4.6)	Linguistic [§]	English	Sentences	U	U	U	2	Percentage	—
	20.2	4	V-16ch	Unknown	—	—	—	Linguistic [§]	English	Sentences	U	U	U	2	Percentage	—
	20.3	4	V-8ch	Unknown	—	—	—	Linguistic [§]	English	Sentences	U	U	U	2	Percentage	—
	20.4	4	V-4ch	Unknown	—	—	—	Linguistic [§]	English	Sentences	U	U	U	2	Percentage	—
	20.5	4	V-1ch	Unknown	—	—	—	Linguistic [§]	English	Sentences	U	U	U	2	Percentage	—
Peng et al. (2008)	21	43	CI	13.9 (4.2; 7–20)	Prelingual	3.8 (1.5)	10.0 (3.7)	Linguistic [§]	English	Sentences	U	N	U	2	Percentage	—
Petersen et al. (2012)	22	15	CI	58.6 (10.6; 45–73)	Varied	Unknown	Unknown	Emotional	Danish	Varied	U	U	U	2	Percentage	Non-music group only
See et al. (2013)	23	49	CI	10.6 (2.3; 7–14)	Unknown	2.9 (2.0)	7.7 (2.9)	Linguistic [§]	English	Sentences	U	N	U	2	Percentage	—
Straatman et al. (2010)	24	31	CI	12.1 (4.6; 6–19)	Unknown	8.4 (3.8)	> 1 years	Linguistic [§]	Dutch	Words	U	U	U	2	Percentage	f ₀ continuum collapsed
Torppa et al. (2014)	25.1	34	CI	7.1 (2.1; 4–13)	Unknown	1.9 (0.5)	5.2 (1.9)	Linguistic [‡]	Finnish	Sentences	U	U	U	3	Percentage	Non-music group only; T1
	25.2	34	CI	7.1 (2.1; 4–13)	Unknown	1.9 (0.5)	5.2 (1.9)	Linguistic [¶]	Finnish	Phrases	U	U	U	2	Percentage	Non-music group only; T1
	25.3	34	CI	7.1 (2.1; 4–13)	Unknown	1.9 (0.5)	5.2 (1.9)	Linguistic [‡]	Finnish	Sentences	U	U	U	3	Percentage	Non-music group only; T2
	25.4	34	CI	7.1 (2.1; 4–13)	Unknown	1.9 (0.5)	5.2 (1.9)	Linguistic [¶]	Finnish	Phrases	U	U	U	2	Percentage	Non-music group only; T2
van de Velde et al. (2017)	26.1	40	V-15ch	23.1 (4.1; 18–35)	—	—	—	Emotional	Dutch	Phrases	U	N	U	2	d'	Filter slopes collapsed
	26.2	40	V-15ch	23.1 (4.1; 18–35)	—	—	—	Emotional	Dutch	Phrases	U	N	N	2	d'	Filter slopes collapsed
	26.3	40	V-15ch	23.1 (4.1; 18–35)	—	—	—	Emotional	Dutch	Phrases	N	N	U	2	d'	Filter slopes collapsed
	26.4	40	V-15ch	23.1 (4.1; 18–35)	—	—	—	Linguistic [‡]	Dutch	Phrases	U	N	U	2	d'	Filter slopes collapsed
	26.5	40	V-15ch	23.1 (4.1; 18–35)	—	—	—	Linguistic [‡]	Dutch	Phrases	U	N	N	2	d'	Filter slopes collapsed
	26.6	40	V-15ch	23.1 (4.1; 18–35)	—	—	—	Linguistic [‡]	Dutch	Phrases	N	N	U	2	d'	Filter slopes collapsed
van Zyl (2014)	27	14	CI	42.7 (17.9; 24–71)	Varied	Unknown	10.3 (5.1)	Emotional	Afrikaans	Sentences	U	U	U	4	Percentage	In quiet only
van Zyl and Hanekom (2013)	28.1	20	CI	37.3 (17.0; 21–70)	Varied	Unknown	9.0 (4.9)	Linguistic [§]	Afrikaans	Words	U	U	U	2	Percentage	In quiet only
	28.2	20	CI	37.3 (17.0; 21–70)	Varied	Unknown	9.0 (4.9)	Emotional	Afrikaans	Words	U	U	U	2	Percentage	In quiet only

* Age reported for cochlear implant users/simulation listeners only.

[†] Mean (standard deviation; range).

[‡] Inferring focus/prominence/stress.

[§] Distinguishing intonation (i.e. question vs. statement).

[¶] Chunking connected speech (e.g. compound vs. noun phrase).

^{||} Five-step f₀ continuum (collapsed for analysis), but not normalised.

AFC, alternative forced choice; CI, cochlear implant; ch, number of channels; dur, duration; f₀, fundamental frequency; int, intensity; n, sample size; N, normalised; U, unmanipulated; V, vocoder simulation.