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·研究前沿(Regular Articles)·

McGurk *

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McGurk 效应(麦格克效应)是典型的视听整合现象, 该效应受到刺激的物理特征、注意分配、个体视听信息依赖程度、视听整合能力、语言文化差异的影响。引发 McGurk 效应的关键视觉信息主要来自说话者的嘴部区域。产生 McGurk 效应的认知过程包含早期的视听整合(与颞上皮层有关)以及晚期的视听不一致冲突(与额下皮层有关)。未来研究应关注面孔社会信息对 McGurk 效应的影响, McGurk 效应中单通道信息加工与视听整合的关系, 结合计算模型探讨其认知神经机制等。

McGurk 效应; 视听言语感知; 视听整合; 多感觉整合
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(multisensory integration)

(Stein & Stanford, 2008; , , , 2011; , 2009)

(audiovisual speech perception) —— , , (audiovisual integration) , “ ” , , , “ ” (lipreading) (Summerfield, 1992; , 2006; , 2013)

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(Ross, Saint-Amour, Leavitt, Javitt, & Foxe, 2007)——

McGurk (McGurk effect / McGurk illusion) (McGurk & MacDonald, 1976) , , (“ga” “ba” , “da”),

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, “aga” “aba” “ada” (Bertelson, Vroomen, & de Gelder, 2003; Buchan & Munhall, 2012)
, “gaga” “baba” “dada” (Mallick, Magnotti, & Beauchamp, 2015; McGurk & MacDonald, 1976) McGurk ,
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(hierarchical predictive coding model, Olasagasti, Bouton, & Giraud, 2015)
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Navarra, & Soto-Faraco, 2007)
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Munhall, 2012) ,
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McGurk —— , McGurk ; , McGurk , (8~13) McGurk , (Proverbio, Massetti, Rizzi, & Zani, 2016) , McGurk , McGurk (Moro & Steeves, 2018), , , , (McGurk), , , (Sekiyama, Soshi, & Sakamoto, 2014) ( ) McGurk (McGurk) , (autism spectrum disorder, ASD)

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(Soto-Faraco & Alsius, 2009) ,
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(functional magnetic resonance imaging, fMRI)
(transcranial magnetic stimulation, TMS) MEG
(superior temporal cortex)
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(Beauchamp et al., 2010; Miller & D'Esposito, 2005; Nath & Beauchamp, 2012)
fMRI , McGurk ,
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(Jones & Callan, 2003) McGurk
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(left superior temporal sulcus, lSTS) , McGurk (Nath & Beauchamp, 2012) 6~12 (Nath, Fava, & Beauchamp, 2011) , Beauchamp (2010) fMRI STS, TMS STS , TMS STS , McGurk , , Marques, Lapenta, Merabet, Bologninni Boggio (2014) (transcranial direct current stimulation) STS, Beauchamp (2010) EEG , Saint-Amour (2007) McGurk-MMN , MEG , McGurk , (left superior temporal gyrus) Beta , (Keil, Müller, Ihssen, & Weisz, 2012) McGurk , , , STS STS (voxels) , , STS , STS , , ( ) ( ) (Zhu & Beauchamp, 2017) , McGurk , STS (McGurk ,) STS McGurk , McGurk (Fernández et al., 2017; Gau & Noppeney, 2016; Nath & Beauchamp, 2012) McGurk fMRI (Jones & Callan, 2003) MEG (Kaiser et al., 2005) McGurk , , (inferior frontal gyrus, IFG) (McGurk) IFG McGurk McGurk IFG , (Nath & Beauchamp, 2012) , McGurk , McGurk , IFG —— (anterior cingulate cortex, ACC) (Fernández et al., 2017) McGurk Gau Noppeney (2016) McGurk , Fernández (2017) , Gau Noppeney (2016) fMRI McGurk , (“ ” “ ”) , , , McGurk (McGurk) , (left inferior frontal sulcus, lIFS) ( ) , Fernández (2017) McGurk (McGurk) , lIFS , (McGurk) (McGurk) Fernández (2017) ——Fernández (2017) McGurk , IFG , McGurk (1) Fernández (2017) McGurk ; Gau Noppeney (2016) McGurk (2) fMRI ,

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(model of causal inference in multisensory speech perception, Magnotti & Beauchamp, 2017) ,
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(Bertelson et al., 2003) ,
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(Lüttke, Ekman, van Gerven, & de Lange, 2016) , McGurk
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(“ba”
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(“bait” “gate” “date”,
Alsius et al., 2005, 2007) ,
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雷江华, 方俊明. (2005). 聋人唇读的大脑机制研究. *心理科学, 28*(1), 10–12.
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The influential factors and neural mechanisms of McGurk effect

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Abstract: The McGurk effect is a typical audiovisual integration phenomenon, influenced by characteristics of physical stimuli, attentional allocation, the extent that individuals rely on visual or auditory information in processing, the ability of audiovisual integration, and language/culture differences. Key visual information that leads to the McGurk effect is mainly extracted from the mouth area of the talker. The McGurk effect implicates both audiovisual integration (which occurs in the early processing stage and is related to the activation of superior temporal cortex) and the conflict of the incongruent audiovisual stimuli (which occurs in the late processing stage and is related to the activation of inferior frontal cortex). Future studies should further investigate the influence of social factors on the McGurk effect, pay attention to the relationship between unimodal information processing and audiovisual integration in the McGurk effect, and explore the neural mechanisms of McGurk effect with computational modeling.

Key words: McGurk effect; audiovisual speech perception; audiovisual integration; multisensory integration