

Medical Vision Technologies

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Medical Vision is a technology to measure and visualize a human body non-invasively. Among the medical vision technologies, functional magnetic resonance imaging (fMRI) is one of the advanced tools to evaluate human linguistic function which is indispensable for qualified life. By listening of comprehensive but non-native language, activation representing enhanced semantic and syntactic processing was observed, although only augmentation of phonological processing was observed by non-comprehensive language (Fig.1). In an experiment of cocktail party phenomenon, cooperation among sound source detection, phonological processing and semantic processing for selective auditory attention was indicated (Fig2).



Fig.1



Fig.2

MEG Technology and Its Application for Medical Welfare

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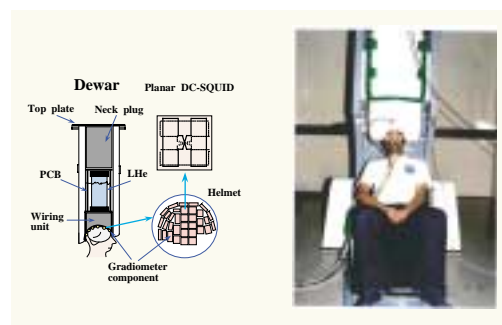
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Magnetoencephalography (MEG) is one of the most important non-invasive measurements of human brain activity and a valuable technology to understand human sense, cognition, and various actions in daily life. Using the advantage of MEG; the excellent time resolution and good signal source localization, we found the olfactory nervous center in the orbito-frontal area and a fine control mechanism on attention and emotion. Ultrasonic hearing has been recently revealed by bone conduction method with an ultrasound vibrator using MEG, so that the development of a ultrasonic hearing aid is expected for hearing deaf people.



Whole-head type neuromagnetometer using 122-channel SQUID sensors(left) and olfactory MEG experiment(right)