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综述

基于fMRI的脑功能整合数据分析方法综述

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摘要:

脑功能成像在人脑信息处理和认知活动的神经关联中发挥了不可轻视的作用。从大脑功能整合出发，可以将脑功能成像数据分析方法分为探测大脑功能整合的功能连接和有效连接两方面，功能连接探究空间远离的两个脑区之间的连接，有效连接研究一个脑区对另一个脑区作用的大小。根据这两个概念，相应地可以将功能磁共振数据分析方法分为两大类。本文着重对它们各自的分析原理、优缺点、方法的改进及在大脑功能整合上的应用做简要介绍。

关键词: 大脑功能整合 功能连接 有效连接 fMRI 方法

Review of Methods for Functional Brain Integration Detection Using fMRI

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Abstract:

Functional magnetic resonance imaging (fMRI) has played an important role in the information processing of human brain and neural-related activities. Computational methodologies developed on functional connectivity and effective connectivity, based on the conception of brain integration. Functional connectivity describes the temporal correlations between spatially remote neurophysiological events, and the effective connectivity which characterizes the influence one neural system exerts over another. So the methods can be classified into two general categories. For each type of methods, principles, main contributors, their advantages and drawbacks, and applications are discussed in this paper.

Keywords: Functional brain integration Functional connectivity Effective connectivity fMRI Method

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