



恭喜！您通过了！

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1.

What is a critical aspect of experimental design in a functional magnetic resonance imaging study?

- ☐ Measure brain activity associated in response to presented stimuli
- ☒ All of these options
- ☐ Using carefully selected stimuli to induce a psychological state of interest
- ☐ Determine how the stimuli will be organized within the experiment

正确



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2.

A number of technical limitations hinder the experimental design of an functional MRI study. What is not a technical limitation of fMRI?

- ☐ Stimulus timing and length
- ☐ Subject motion
- ☐ Limited visual field and response options
- ☒ Length of the MRI session

正确



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3.

What is an important psychological consideration in the experimental design of a functional MRI study?

- ☐ None of these options
- ☒ Does the stimulus induce the psychological state intended
- ☐ Does the task make the subject move too much
- ☐ Will the subject be able to respond to all stimuli correctly

正确



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4.



测试 12 个问题



Functional connectivity MRI is a variant of fMRI



Studying brain activation during rest explores the functional organization of the brain



Brain activity is observed in the absence of external task demands or stimuli



The default mode network is the only functionally organized network that is observed during rsfMRI



正确

Several different independent networks of correlated activation can be observed in rsfMRI data.



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5.

The Default Mode Network (DMN) is thought to be involved in?



Thought to support social cognition and emotion



Thought to be involved in supporting cognitive function



All of these options



正确



Thought to support the neurological basis of self, including autobiographical information



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6.

Which of the following statements about the Default Mode Network is not true?



Is completely independent from structural connectivity



正确



Great overlap in the Default Mode Network between rodent and primate brains



Tends to be less active when the subject is engaged in the performance of an external task



Changes in Default Mode Network activation have been observed in a number of diseases and conditions



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7.

Why is hydrogen's the most commonly used gyromagnetic ratio in magnetic resonance imaging?



Hydrogen is abundant and distributed in form of water and fat



Hydrogen has an unpaired proton and therefore a magnetic moment



Hydrogen has a low molecular weight and is therefore easy to excite



Hydrogen has an unpaired proton and therefore a magnetic moment and hydrogen is abundant and distributed in form of water and fat



正确



8.

Diffusion Tensor Imaging studies of fractional anisotropy provide a measure of



All of these options



正确



Fiber density



Brain connectivity



White matter integrity



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9.

Which of the following statements about Diffusion Tensor Imaging is not true?



White matter integrity obtained from Diffusion Tensor Imaging can be correlated with symptoms or cognitive performance



Diffusion Tensor Imaging can provide measures of group differences in white matter integrity



White matter integrity obtained from Diffusion Tensor Imaging can provide a measure of functional ability



正确



Diffusion Tensor Imaging provides a measure of structural connectivity



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10.

Magnetic Resonance Spectroscopy imaging measures?



Structural integrity of local molecules



The local presence of certain chemical compounds



正确



Local water diffusion



None of these options



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11.

Which of the following statements about Magnetic Resonance Spectroscopy is not true?



The spectroscopy signal from water signal is smaller than the common metabolites of interest



正确

The metabolites of interest in magnetic resonance spectroscopy have low concentrations in the brain



Higher magnetic field strength results in greater ability to detect metabolites of interest



Changes in brain metabolites often precede structural brain changes



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12.

Brain metabolites commonly quantified with Magnetic Resonance Spectroscopy are

- ☐ N-acetylaspartate, Lactate, Creatine and Dopamine
- ☐ Lactate, Creatine, Choline and Dopamine
- ☒ Lactate, Creatine, and Choline



正确

Dopamine and Serotonine are neurtransmitters

- ☐ N-acetylaspartate, Creatine, Serotonine and Choline

