



✓ **Congratulations! You passed!**

TO PASS 80% or higher

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GRADE
100%

Quiz 1

LATEST SUBMISSION GRADE

100%

1. Which types of selection biases are at the heart of many problems in neuroimaging (and beyond)?

1 / 1 point

- ☐ The 'file drawer' problem
- ☐ Flexibility in which outcome and covariates to include, as well as which modeling procedure to use
- ☐ Flexibility in which subjects to include, how many subjects to run
- ☒ All of these options

✓ **Correct**

2. Which of the following are risk factors for obtaining false positives.

1 / 1 point

- ☐ Neither large studies or large number of tests conducted
- ☐ Large studies
- ☐ Both large studies and large number of tests conducted
- ☒ Large number of tests conducted

✓ **Correct**

3. Which of the following are good approaches towards analyzing your data?

1 / 1 point

- ☐ Uncorrected exploratory analyses with strong conclusions
- ☐ Circular analyses
- ☐ P-hacking
- ☒ Testing on independent data (data splitting)

✓ **Correct**

4. Meta-analysis can help establish:

1 / 1 point

- ☐ The likelihood of true findings
- ☐ Generalizability of findings across studies/populations
- ☐ None of these options
- ☒ Generalizability of findings across studies/populations and the likelihood of true findings

✓ **Correct**

5. "Coordinate-based" meta-analysis use the following data:

1 / 1 point

- ☒ Activation coordinates from published tables.
- ☐ None of these options
- ☐ Full statistical maps from a single study
- ☐ Full statistical maps from published studies

✓ **Correct**

6. Valid reverse inference requires:

1 / 1 point

- ☐ High specificity
- ☐ High positive predictive value

- ☐ Low base rate of brain activation across all tasks
- ☒ All of these options
- ☐ High sensitivity

✓ Correct

7. Meta-analysis can be used to:

1 / 1 point

- ☐ Improve spatial resolution beyond that in individual studies
- ☒ Define a priori regions of interest based on consensus across studies
- ☐ Develop within-subject activation maps
- ☐ None of these options

✓ Correct

8. The replicability crisis is caused by:

1 / 1 point

(select all that apply)

- ☒ Pressure to publish high-profile results

✓ Correct

- ☒ Selecting studies or maps that fit one's hypothesis

✓ Correct

- ☐ The fact that clinical uses of fMRI are rare

- ☐ Nones of these options

9. What are some benefits of high spatial resolution?

1 / 1 point

(select all that apply)

- ☐ Decreased temporal resolution

- ☐ Lower signal-to-noise

- ☒ Reduced 'partial volume' effects

✓ Correct

- ☒ Reduced susceptibility artifacts

✓ Correct

10. What are some benefits of high temporal resolution?

1 / 1 point

(select all that apply)

- ☐ Cost in coverage or spatial resolution

- ☒ Less problems with aliasing

✓ Correct

- ☒ Better sampling of task-related hemodynamic response function.

✓ Correct

- ☒ Better ability to separate and remove artifacts.

✓ Correct

11. Which of the following represents the time between volume acquisitions?

1 / 1 point

- ☐ Field of view (FOV)
- ☐ Echo time (TE)
- ☐ Flip angle (FA)
- ☒ Repetition time (TR)

✓ Correct

12. Functionally relevant, spontaneous BOLD oscillations are typically studied in which frequency range?

1 / 1 point

- ☒ (0.01–0.08 Hz)
- ☐ (0.6–1.2 Hz)
- ☐ (0.1–0.5 Hz)
- ☐ (10–15 Hz)

✓ Correct

13. There is a fundamental tradeoff between:

1 / 1 point

(select all that apply)

- ☐ Thinner slices and increased susceptibility artifacts
- ☒ Spatial resolution and temporal resolution

✓ Correct

- ☒ Whole-brain coverage and spatial resolution

✓ Correct

- ☒ A short TR and whole-brain coverage

✓ Correct

14. Accelerated imaging using multi-band or simultaneous multi-slice imaging has the benefit of:

1 / 1 point

(select all that apply)

- ☒ Reducing susceptibility artifacts by allowing for relatively faster acquisition of thinner slices

✓ Correct

- ☒ Improved spatial resolution for a given coverage area

✓ Correct

- ☐ Increased basic image contrast
- ☐ None of these options