4. Case study:
   • In-depth look at a single individual
   • Difficult to generalize to others
   • May not be reliable

5. Physiological tests:
   • Many uses; technology is constantly improving
   • Functional magnetic resonance imaging (fMRI): uses electromagnetic waves to construct images of brain tissue and biochemical activity (neuroimaging)
   • Blood samples from adolescents (check hormonal changes)

*Research designs*

1. Descriptive research:
   • Descriptive: aims to observe and record behavior
   • Methods discussed so far are descriptive
   • Cannot prove causation, but can reveal important information
   • Analyze using mean, percentages, …

2. Correlational research:
   • Correlational: describes the strength of the relationship between two or more events or characteristics
   • Correlation Coefficient (r): a number based on a statistical analysis that is used to describe the degree of association between two variables
   • Ranges from +1.00 to -1.00
   • + means a positive association; - means a negative association
   • Higher number indicates a stronger association
   • Could have zero correlation
   • Correlation does not equal causation (third variable might interfere)

3. Experimental research:
   • Experiment: carefully regulated procedure in which one or more factors believed to influence the behavior being studied are manipulated while all other factors are held constant
   • Can demonstrate cause and effect
   • Independent Variable: manipulated, influential, experimental factor
   • Dependent Variable: a factor that can change in an experiment, in response to changes in the independent variable
   • Experimental Group: a group whose experience is manipulated (one or more)
   • Control Group: a comparison group whose experience is not manipulated (one or more)
   • Random Assignment: researchers assign participants to experimental and control groups by chance
   • Reduces the likelihood of preexisting differences between groups

4. Time-Span research:
   • Cross-Sectional: simultaneously compares individuals of different ages
   1. Advantage: researcher does not have to wait for individuals to grow older