**Evaluating the Merits of Quantitative**

**Research Studies in Kinesiology**

**6**



**Learning Objectives**

* Explain the concept of validity and how it is used as a standard to evaluate the quality of quantitative research studies
* Define and apply the concepts of logical, construct, internal, and external validity as they relate to kinesiology-based studies
* Describe how study design (i.e., experimental versus non-experimental) relates to each type of validity in an evaluative context

**Activities**

1. You and your research team have been provided with a new “state of the art” portable lightweight tool that assesses bone density – the BD3000. Identify five ways you could evaluate the tool’s construct validity. Provide a depiction of these tests using a nomological network (i.e., web of evidence).
2. Locate a randomized controlled trial in the literature and assess the extent to which the information reported aligns with the CONSORT guidelines checklist and flow diagram.

**Additional Readings and Websites**

Amonette, W. E., English, K. L., & Kraemer, W. J. (2017). *Evidence-based practice in exercise*

*science: The six-step approach.* Champaign, IL: Human Kinetics.

Boston University School of Public Health. (2015). *Internal and external validity*. Retrieved

from <http://sphweb.bumc.bu.edu/otlt/mph-modules/ProgramEvaluation/ProgramEvaluation6.html>

Campbell, N., Gaston, A., Gray, C., Rush, E., Maddison, R., & Prapavessis, H. (2016). The short

questionnaire to assess health-enhancing (SQUASH) physical activity in adolescents: A

validation using doubly labeled water. *Journal of Physical Activity and Health, 13*, 154-158.

Roberts, P., Priest, H., & Traynor, M. (2006). Reliability and validity in research. *Nursing*

*Standard, 20*(44), 41045.

**Short Answer Questions**

1. Discuss the appropriateness of using external, internal, construct, and logical validity to evaluate the merits of experimental and non-experimental studies.

All four criteria can be used to evaluate the merits of experimental studies. Because internal and external validity involve making claims regarding a treatment or intervention (i.e., an independent variable), they cannot be used to assess the quality of non-experimental (e.g., cross-sectional) studies. Only logical and construct validity are appropriate in this regard. (pp. 114-115)

1. Explain the limitations of using non-random selection of participants for studies (i.e., volunteers).

It is imperative that the ethical principal of autonomy be adhered to when conducting research – that is, humans can choose whether or not they want to participate. Because it is likely that those who volunteer for studies have an inherent interest in the topic (e.g., physical activity), a bias exists which can influence the results. Information will be missing on other types of individuals who aren’t necessarily interested in the topic, thereby limiting external validity. (p. 128)