



Sports Science Replication Centre

SSRC

MISSION STATEMENT

The SSRC intention is to create a worldwide, collaborative investigation into the replicability of research findings specific to the field of Sports Science using objective, transparent and multiple-replication studies of current evidence.

To date, a host of research has identified concerns with the replication of psychological research, leading to the formation of projects such as Many Labs, STORK (society for transparency, openness and replication in Kinesiology), and the Reproducibility Project in Psychology.

However, very little research has investigated the quality, practice and reliability of findings within the field of Sports Science. This field is under threat from low sample sizes, high risk of bias, and invested interests in the outcomes of applied or commercial findings for sport (; Heneghan *et al*, 2012; Knudson, 2017; Halperin *et al*, 2018).

Scientific progress may be halted because of questionable research practices and the focus on novel or unexpected results. Therefore, the SSRC intends to investigate the credibility of these replication concerns within our own field, to improve the standard of scientific enquiry, thus leading to a better understanding in the interpretation and conduct of research for all moving forward.



IRISH RESEARCH COUNCIL
An Chomhairle um Thaighde in Éirinn

WHY IS REPLICATION NEEDED?

PROJECT AIM

The ultimate goal of science is the advancement of knowledge and the achievement of this goal relies on producing novel claims that are true and robust (Agnoli *et al.*, 2017; Isager *et al.*, 2020).

For a claim to be true and robust, it should be replicated repeatedly, ideally with similar procedures in adequately powered studies and across varied contexts (Simons, 2014). Consequently, one goal of replication is to advance these claims through the addition of new understanding to the existing research by providing diagnostic evidence for the claims (Nosek *et al.*, 2015; Nosek *et al.*, 2020)

Replicability should be used as foundations for future knowledge as true results will be replicated repeatedly (Chambers and Sumner, 2012). If a lack of replication exists, then many accepted practices could be brought into question.

AIM

This projects aims to produce high level systematic and transparent replication trials of experimental trials published within the last 5 years

OBJECTIVES

- Establish a collaborative lab network worldwide
- Critically evaluate the replicability of research via replications
- Report replication outcomes using meta-analytic procedures
- Present an initial assessment of overall replicability and reporting practices of sports science research

**"Published research, however, can only be useful for theory or applications if it is credible"
(LeBel, McCarthy, Earp et al., 2018)**

HOW CAN YOU HELP US?

WHO

Researchers, research groups and research labs in applied Sports and Exercise Science

WHY

Volunteer labs will run replication trials as part of this large collaboration project to contribute to this replication movement and assist with the improvement of research practices and quality in the field

WHERE

Worldwide!

WHAT

Equipment, hardware and software that is currently available in the lab will be needed. Labs will not be running a replication trial that they are not equipped for.



WHY BECOME INVOLVED

This collaboration project needs volunteers to successfully provide an initial assessment of replicability in Sports Science. By collaborating with like-minded individuals, volunteers will assist with improving experimental rigor and increase scientific transparency in this field. Additional reasons to become involved are:

- Contribute towards the first collaborative replication project in Sports Science
- Lead the way towards open science in the field
- All methods and analysis are pre-planned by the team leader decreasing the workload of volunteer labs
- Write up and final analysis will be completed by the team leader decreasing the workload of volunteer labs
- Each lab will receive a study that is feasible to conduct
- Each researcher who makes a substantial contribution to the project will receive authorship

**"Replication
is the
cornerstone
of science"
(Simons,
2014, p.76)**

SUGGESTIONS FOR CONDUCTING A REPLICATION STUDY

At the Sports Science Replication Centre, we understand that as researchers and/or lecturers, you may be busy with your research projects. Therefore, if it is not possible to conduct the replication study yourself, we suggest conducting them as part of:

**"True results
will be
replicated
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(Chambers
and Sumner,
2012)**

Research
internships

Closely
supervised
undergraduate
research
projects

Closely
supervised
postgraduate
research
projects

We must insist that if students are involved in conducting the replication study, they must adhere strictly to all guidelines provided and be closely supervised at all times.

BRIEF OVERVIEW OF TIMELINE

1. Study selection

A replication study is randomly selected from available pool of studies as per the established selection protocol.

2. Study allocation

The lab is allocated the study by the project leader.

3. Feasibility check

Lab checks for the available equipment and software. Another study allocated if it is not feasible to run the assigned replication study.

4. Procedural guidelines

Guidelines for study procedures and analyses are provided to the lab and must be adhered to at all times.

TIMELINE

5. Ethics submission

Labs submit an ethics form to the institution's Research Ethics Committee for approval. This process is assisted by the replication team.

6. Participant recruitment

Labs are provided with the sample characteristics guidelines for recruitment of participants.

7. Study commencement

Labs undertake the replication study using the specified guidelines.

8. Materials return

All raw data and syntax are sent back to the project leader.



TERMS

- All labs must adhere to the methods and analysis provided to them by the project leader. Deviation from the guidelines provided will affect the outcome of the replication.
- All labs must adhere to the sample recruitment guidelines. Deviation from the guidelines provided will affect the outcome of the replication.
- All data and syntax must be returned to the project leader following completion of the replication study.
- Individuals will be expected to communicate in a timely manner with the project leader.
- Any issues arising must be communicated to and discussed with the project leader before any actions are taken.

AUTHORSHIP

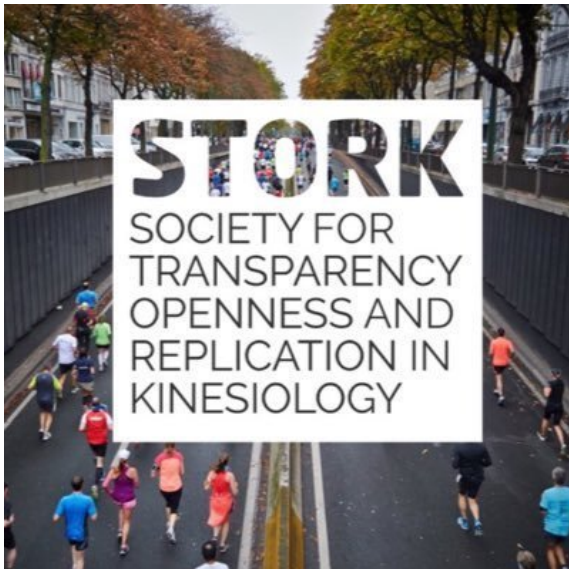
As per the International Committee of Medical Journal Editors (ICMJE) guidelines, researchers involved in participating labs or those who have contributed substantially to data collection will be identified as authors.

Labs will be asked not to publish or discuss the study data and results in any public domain until they have discussed it with the project leader.

The full criteria for ICMJE authorship can be found on www.icmje.org

ENDORSEMENTS

The Sports Science Replication Centre is supported by the Society for Transparency, Openness and Replication in Kinesiology (STORK). The mission of STORK is to provide a platform for all those in Sports Science and related disciplines to collaborate and improve methods and practices within the field. More details can be found on their website <https://www.storkin.org>



<https://twitter.com/STORKinesiology>

An expert panel of researchers who have published in the field of replication, reproducibility and open science was created during the funding application process for the centre. These researchers are from disciplines such as Psychology, Biomechanics, and Physiology. The expert panel are consulted during the development of new guidelines for the centre, provide advice and have endorsed the protocol for selection of replication studies.

"A scientific man ought to have no wishes, no affections – a mere heart of stone."

(Darwin, 1857)

WHO WE ARE



Jennifer is a PhD researcher in this centre and is an awardee of the Irish Research Council's Government of Ireland Postgraduate Scholarship Programme. Her research interests include replication, open science and statistics. She has a long term interest in improving the quality and rigor of research in Sports Science.

Jennifer Murphy



Cristian is a PhD researcher in this centre and is funded by TU Dublin. His research interest is concerned with the reliability of Sports Science research findings. Specifically, he is interested in statistical power observed in Sports Science research. Cristian's other research interests include endurance physiology and triathlon and swim performance.

Cristian Mesquida



Joe is actively engaged in education of Research Methods and Sports Science at TU Dublin. He is the key instigator of this collaborative replication project. He has multiple academic publications and is known for having a critical and unapologetic approach to research quality. His primary area of expertise is the physiology and biomechanics of running and footwear science.

Dr. Joe Warne

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