

Transparency & Reproducibility

Companion to the Week 9 episode. Could someone else check your work — or rebuild your result from your data?

1. The one idea

Science is **self-correcting** — impossible if no one can see inside your study. Sharing turns a *claim* into something the community can **verify and build on** (a central pillar of Munafò et al., 2017; the TOP guidelines, Nosek et al., 2015).

2. Reproducibility ≠ replicability

Reproducibility	Replicability (Week 12)
Same data + same analysis → same numbers. Computational integrity of <i>your</i> result.	New study , new participants → same effect. Does it hold?

Alarminglly, many results aren't even *reproducible* — undocumented processing, lost files, errors mean people can't re-run the author's own analysis on the author's own data. A problem **before** replication.

3. What to share — each closes a gap

Data (de-identified, participant-level)	Others check & re-analyse your work, and pool it for a bigger answer — a lasting contribution.
Materials (protocol, instructions, settings)	Others reproduce your <i>methods</i> (vague methods → non-replication, Week 5).
Code / analysis steps	Others reproduce your <i>numbers</i> exactly; eliminates undocumented "we cleaned the data."

Athlete privacy — share responsibly: de-identify; share a subset / summary / code+materials / controlled access where raw data can't be open. Principle: "**as open as possible, as closed as necessary**" — and *say why* for anything restricted. Don't use privacy as a blanket excuse to share nothing.

4. Reproducible workflow (habits, not fancy tools)

✓ Keep raw data untouched	✓ Do all cleaning in a script (never overwrite by editing cells)
✓ Organise the project folder	✓ Comment the logic / document each step

The test: could a stranger — or *future you* — rebuild the result from the raw data? If "not sure how I got from raw files to the final figure", that's normal undocumented analysis — and exactly what a workflow fixes. It benefits *you* first (re-run in minutes for reviewers/extensions/error-checks).

5. Where + the culture

Open Science Framework (OSF) — free, Center for Open Science: host your preregistration + de-identified data + materials + code, get a permanent citable link. The TOP guidelines/manifesto push a *culture* where transparency is the norm; sport journals increasingly ask for data-availability statements & open badges. Every open study normalises it for the next researcher.

6. Do this — this week

Build a transparency package

- 1. Data:** de-identified participant-level file; decide what's open vs controlled (and why).
 - 2. Materials:** exact protocol, instructions, settings.
 - 3. Code:** a documented, re-runnable analysis from raw data → result.
 - 4. Home:** an OSF project holding it all + your preregistration; get a citable link.
- Test: could a competent stranger rebuild your exact result?*

References

- Munafò, M. R., Nosek, B. A., Bishop, D. V. M., et al. (2017). A manifesto for reproducible science. *Nature Human Behaviour*, 1, 0021.
- Nosek, B. A., Alter, G., Banks, G. C., et al. (2015). Promoting an open research culture. *Science*, 348(6242), 1422–1425.
- Caldwell, A. R., et al. (2020). Moving sport and exercise science forward. *Sports Medicine*, 50(3), 449–459.