

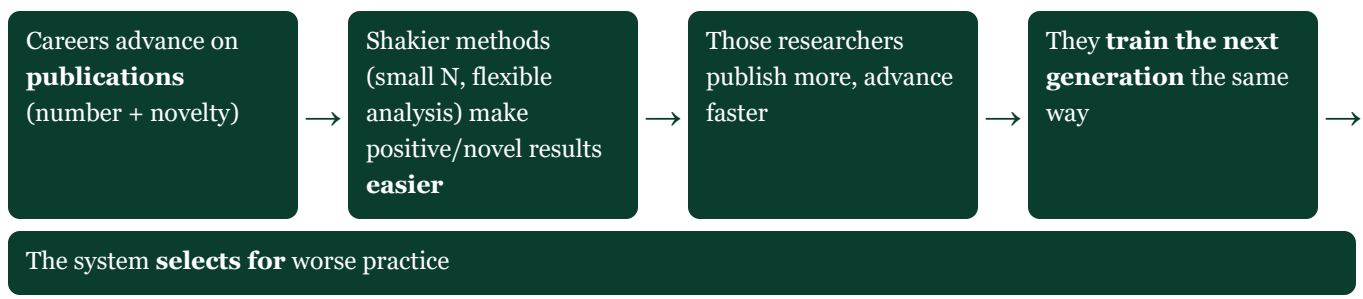
Reflection & Research Culture

Companion to the final episode. If everyone knows the good practices, why don't we all follow them?

1. The one idea

The biggest obstacle to good science **isn't ignorance of methods** — it's **incentives**. Science is done by people in a system of jobs/grants/publications; if the system rewards the wrong things, even well-informed, well-intentioned researchers get pulled toward bad practice.

2. The natural selection of bad science (Smaldino & McElreath, 2016)



The sting: this needs **no villains and no cheating** — just publication being the currency of success. → the fix is *redesigning the environment*, not blaming individuals.

3. The incentives that pull the wrong way

Publication bias (from inside) — positive/novel far more publishable than nulls/replications	Quantity — "publish or perish"
Novelty > confirmation	Speed — being first is rewarded; rigour is slow

The *individually rational* career move and the *collectively good* scientific move point in different directions. Recognising this honestly — not assuming you're immune — is a mark of a mature scientist.

4. What you can do — at every level

Researcher	Practise reforms visibly: preregister, report nulls, share data, do replications — each normalises it.
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Mentor / supervisor (huge leverage)	Teach good defaults; model quality over quantity; praise a rigorous null as warmly as a flashy positive.
Reviewer / editor	Reward rigour & transparency; ask for preregistration/data; judge question & method, not excitement (Registered Reports institutionalise this).
Author	Fair credit; take responsibility; resist over-claiming.
Field member	Support the initiatives (replication centres, open-science platforms, better-standard journals).

5. It's working (not wishful thinking)

In ~a decade: preregistration fringe → mainstream; Registered Reports at hundreds of journals; open data increasingly expected; sport science has its own transparency manifestos & replication projects; **metascience** (science testing its own methods) has emerged. The most serious effort in the soft sciences' history to become reliable — working, unevenly but unmistakably. **You are part of why.**

6. The whole course, one thread

Good science is a disciplined, honest, communal effort to not fool ourselves — and every tool (calibration, clear concepts, falsifiable pre-committed hypotheses, valid/reliable measures, adequate power, honest pre-specified analysis, complete reporting, cautious claims, transparency, cumulative thinking) is a defence against a *specific* way we fool ourselves. It also takes a **culture and character** that value getting it *right* over getting it *published*.

7. Do this — the final task

Reflect, then commit

- 1. Honest self-audit:** against the 13 weeks — where are the incentives pulling *you* toward shortcuts you know aren't ideal? (No shame in the answer; only in not looking.)
- 2. Pick ONE thing to change** in your next study — preregister it / properly power it / report the nulls / share the data / run a replication. Just one real, specific commitment.
Culture changes through many people each doing one more thing right.

References

- Smaldino, P. E., & McElreath, R. (2016). The natural selection of bad science. *Royal Society Open Science*, 3(9), 160384.
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Improving Research Practices in Sport & Exercise Science — a free short course for the Sports Science Replication Centre. Week 13 workbook (course finale). For education.