Theory Development & Conceptual Clarity

Companion to the Week 2 episode. You cannot test a claim you can't state clearly, or measure a construct you haven't defined.

1. The one idea

Conceptual clarity comes before statistics. A claim that is clear enough to be *wrong* has the shape of science; a vague concept that survives any result tells you nothing. Get the concepts sharp and everything downstream — question, hypothesis, measure — gets easier.

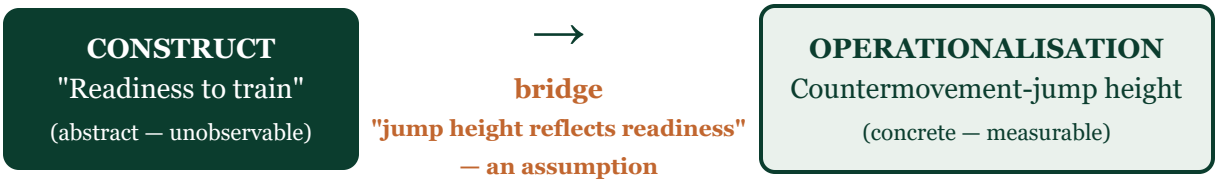
2. Clear claim vs vague concept

Vague (survives any result)	Clear & testable (could be shown wrong)
"Managing training load optimises adaptation."	"In these athletes, weekly load increases above ~10% are associated with more injuries the following week."
Forbids nothing — a slogan.	Specifies who / what / how much / when — a study could refute it.

Balance note: "clear & testable" ≠ "true". The 10%/acute-to-chronic-workload-ratio rule is itself *methodologically contested* — it's used here only as an example of a claim with the right *shape*, not an endorsed rule.

3. Construct vs operationalisation — mind the bridge

The abstract thing you care about is **not** the number you collect. The measure is a *bridge* — and it can be a good or a bad one.



Habit: **never confuse the two.** "Recovery improved" — the construct, or a questionnaire score treated as recovery? "The athlete isn't ready" — or a jump number below baseline? A perfect study with a broken bridge learns nothing about the construct. (Whether the bridge holds = **validity & reliability**, Week 5.)

4. The jingle & jangle fallacies

Fallacy	The error	Real sport-science example
Jingle	Same name → assumed same thing	"Fatigue" covers muscle-fibre fatigue, perceived fatigue, and chronic over-reaching. Enoka & Duchateau (2016) split it into *performance fatigability* (objective decline) vs *perceived fatigability* (sensations).
Jangle	Different names → assumed different things	Different labels for overlapping monitoring constructs ("wellness", "readiness", "recovery") may index much the same thing.

"Training load" is routinely conflated: **external** load (the work done — distance, speed, weight) vs **internal** load (the biological response — HR, RPE). Impellizzeri, Marcora & Coutts (2019) re-published to re-clarify their *own* terms — a model of the field doing conceptual clarity out loud.

5. Descriptive vs causal — the big leap

A pattern (description) is **not** an explanation (causation). Before you act on "X relates to Y", rule out the alternatives:

Observation: athletes with lower "wellness" scores tend to have poorer sessions.

Possible explanation	Meaning	Would "fixing wellness" help?
Causal (X→Y)	Low wellness *causes* poor sessions	Yes — if it's truly causal
Reverse (Y→X)	Something causing poor sessions also lowers wellness reports	No — you'd be treating a symptom
Common cause	Underlying tiredness lowers *both*	No — propping up the number does nothing
Confounding	Sleep / training age / life stress drives both	Not directly

Rule: description needs *observation*; causation needs *intervention + comparison*. Never let a descriptive finding quietly promote itself to a causal recommendation.

6. The clarity workflow

1. Name the phenomenon
The real, repeatable thing ("some fade late, others don't").

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2. Define the construct
One sentence; note it's a construct, not a fact.

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3. Operationalise + state the bridge
The measure, and the assumption linking it to the construct.

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4. Map relationships + challenging observations

What you'd see if right — and only if wrong.

7. Do this — this week

Sharpen one of your concepts

1. Pick a concept you use in practice — "readiness", "load", "recovery", "durability".
2. Write the **construct** definition in one sentence.
3. Write the **operationalisation** you actually use, and the **bridge assumption** — how confident are you it holds?
4. Check for a **jingle** (one word, two things?) or a **jangle** (two words, one thing?).
5. Write one **challenging observation**: what would you see *only if your idea were wrong?*

References

Enoka, R. M., & Duchateau, J. (2016). Translating fatigue to human performance. *Medicine & Science in Sports & Exercise, 48*(11), 2228–2238.
Impellizzeri, F. M., Marcora, S. M., & Coutts, A. J. (2019). Internal and external training load: 15 years on. *International Journal of Sports Physiology and Performance, 14*(2), 270–273.
Kelley, T. L. (1927). *Interpretation of Educational Measurements* ("jangle" fallacy); Thorndike, E. L. (1904) ("jingle" fallacy).