



Athlete Vulnerability

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Athlete Vulnerability

- In anti-doping, no formal (theoretical) definition exists. Athlete vulnerability refers to the **individual, social, and structural factors increase an athlete's susceptibility to intentional doping or unintentional ADRV**, including pressures, knowledge gaps, developmental stage, support deficits, and contextual risks such as supplement contamination or coercive environments.
- Psychology and behavioural sciences: vulnerability is the **underlying susceptibility to harm or illness**, while risk is the probability of that harm occurring.
- Vulnerability as a safeguarding concept (Schneider et al., 2025)
 - Inherent vulnerability (shared by all humans)
 - Situational vulnerability (arising from context, e.g., minors, coercive environments)
 - Pathogenic vulnerability (created by harmful systems, including punitive anti-doping processes)



Working definition of Athlete Vulnerability (AV) in the TALE project

- AV is *emergent*, not inherent
- AV is a *dynamic, situational state* arising from the interaction between athletes and the sport/anti-doping system.
- It reflects *exposure to risks of harm* (physical, psychological, reputational, or procedural) defined by their likelihood and severity.
- Vulnerability is *not an inherent trait* of athletes but emerges from contextual conditions such as organisational practices, power imbalances, and environmental pressures.
- Athletes are *not equally vulnerable*.
- Responsibility for mitigating vulnerability is shared, but *asymmetrical*.

TALE position: While athletes can take steps to reduce their own risk exposure, the primary responsibility for mitigating vulnerability lies with the system, which must provide safeguards, supports, and structural protections. Athlete resilience may buffer vulnerability but should never substitute for systemic measures designed to prevent harm.

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Harms

Harm means any *negative impact*, cost, or loss an athlete experiences (emotionally, socially, professionally, financially, physically, or through how systems treat them) *linked to anti-doping processes and contexts*.

H-nodes capture where the impact shows up (the outcomes), not who is “at risk”

In anti-doping context, athletes are vulnerable *to the system*.

H1: Psychological harm

distress, anxiety, depression, fear, rumination

H2: Procedural harm

injustice, lack of voice/clarity/timeliness, abandonment, distrust produced by processes

H3: Career disruption

selection/participation disruption, opportunity loss, progression interruption

H4: Financial hardship

income/funding/sponsorship loss; added costs (legal, medical)

H5: Identity loss/erosion

athlete identity erosion, meaning/self-worth disruption

H6: Reputational harm

stigma, suspicion, labelling, credibility loss

H7: Relational harm

relationship strain, exclusion, isolation

H8: Physical health burden / somatic distress

fatigue, somatic distress, injury/illness burden linked to stress/consequences (G3/G4 only)

H9: Performance harm

training/performance disruption

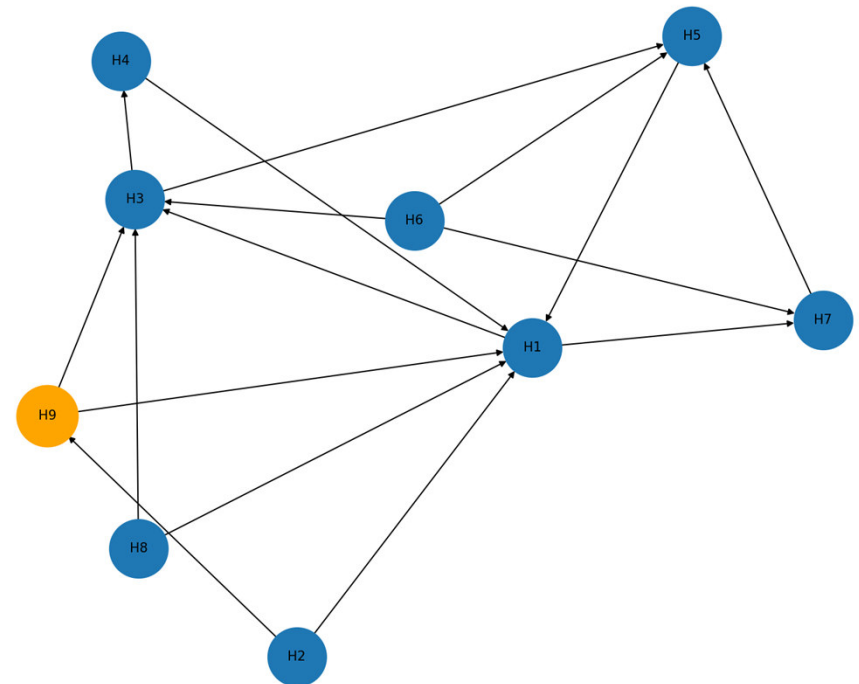
System insights (update after Day 1)

→ The most connected harm remains **H1: Psychological distress**, now further reinforced through performance-related pathways (e.g., H9 → H1).

→ The **Strongly Connected Components (SCC) {H1, H3, H4, H5, H7}** continues to indicate a plausible “harm spiral”: *psychological distress* ↔ *career disruption* ↔ *financial hardship* ↔ *identity erosion* ↔ *relational harm*, with multiple routes feeding back to psychological distress. **H9 (Performance harm)** feeds into this spiral via **H9 → H1** and **H9 → H3**, strengthening entry into the core cycle.

→ SCC harms form a mutually reinforcing region of the map: you can start at any one of those harms and eventually get back to it (or reach the others) through directed links. That structure is typical of feedback (loops) where harms can **cascade and compound over time**.

→ **Procedural harm (H2) is an upstream amplifier**, now with an additional pathway: beyond its direct link to psychological harm (**H2 → H1**), it also propagates via **H2 → H9 (Performance harm)**. This introduces a clear mechanism whereby **process burdens, restrictions, or delays disrupt training/performance, which then cascade into psychological and career harms** and onward into the spiral.



Signature pathways: most salient harms

“**Signature pathways**” show the most common and most informative cause-and-effect chains in the TALE Fuzzy Cognitive Map (FCM) that link anti-doping experiences and system features to different types of harm.

Why we use pathways (not just single links)?

- In real life, impacts rarely happen in a single step.
- A policy, practice, or context factor often works through one or two mechanisms (e.g., stress, stigma, trust, support) before it shows up as harm (psychological, procedural, relational, career, etc.).
- These pathway snapshots help us see how harms accumulate and where change might make the biggest difference.

Context:

- Pathways generated from the FCM as we set based on the TALE results. Modified FCM will generate new, and potentially different, narratives.
- Some pathways are cross-cutting (apply across all athlete groups) while others are group-specific.
- Pathways are limited to shortest-path distance ≤ 3 (direct links, or via one or two intermediate nodes). This keeps the pathways meaningful and interpretable, capturing the main mediated mechanisms without distracting with distant, weaker, or harder-to-justify chains.



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