

The Myth of the Dummy Parse: Realised Average DPS and the Mathematics of Uptime in Endgame Raiding

Matt Johnson

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In high-level MMORPG raiding, particularly within The Elder Scrolls Online (ESO) trial meta, damage output is traditionally measured on a static target dummy. Players spend hours perfecting rotations on a non-threatening, perfectly debuffed target to achieve impressive peak parse numbers (e.g., 80,000–100,000+ DPS). However, a glaring discrepancy often emerges during live progression: groups composed of high-parsing “glass cannons” consistently wipe, while groups prioritising survivability, defensive buffers, and 100% uptime clear content faster and more consistently.

This paper formalises the concept of **Realised Average DPS** versus **Peak Potential DPS**, demonstrating mathematically why sacrificing a portion of raw dummy damage in favour of survivability and uptime leads to higher group output, shorter kill times, and the elimination of raid-ending death spirals.

1 The Theoretical Framework: Player-Seconds and Uptime

To quantify group performance in a live combat instance, total damage output must be evaluated through the lens of time efficiency. A raid group’s total offensive capacity is governed by **Player-Seconds**.

For a raid consisting of N Damage Dealers (DDs) over a fight duration of T seconds, the maximum available time capacity is given by:

$$\text{Total Player-Seconds Capacity} = N \times T \tag{1}$$

Whenever a DD dies or drops their rotation to cast a resurrection on a fallen teammate, active player-seconds are permanently lost. Output during these lost intervals drops to exactly 0 DPS.

Primary Variables of Uptime Penalty

- **Victim Downtime (t_{dead}):** The duration a player remains dead while waiting for a resurrection (typically 20–30 seconds in chaotic mechanics).
- **Rezzzer Downtime (t_{rez}):** The duration another DD must stop dealing damage, reposition, and cast the resurrection (typically 10–15 seconds).
- **Panic/Positioning Penalty (E_{panic}):** The percentage loss in rotational efficiency caused by players dropping out of buff range, dodging frantically, or spamming emergency self-heals when health drops into critical thresholds.

2 Comparative Mathematical Scenarios

To evaluate the real-world impact of uptime versus raw parse numbers, consider a hypothetical Veteran Trial Boss with 250 Million HP fought by a team of 8 Damage Dealers.

Theoretical Baseline (Perfect Dummy Parse)

If 8 DDs each parse 80,000 DPS on a target dummy with 100% execution, theoretical group output is 640,000 DPS, yielding an ideal kill time of 390.6 seconds (6 minutes 30 seconds). However, in live mechanics-heavy instances, 100% uptime is mathematically impossible for glass-cannon builds.

Model 1: The Glass Cannon Reality (80K Dummy Parse, 12 Deaths)

The Calculations:

- **Lost Player-Seconds from Deaths:**

$$12 \text{ deaths} \times 25\text{s} = 300 \text{ player-seconds dead}$$

- **Lost Player-Seconds from Rezzing:**

$$12 \text{ rezzes} \times 12\text{s} = 144 \text{ player-seconds rezzing}$$

- **Total Direct Lost Time:**

$$300 + 144 = 444 \text{ player-seconds}$$

- **Actual Fight Duration:** To deliver the required damage while accounting for lost time and a 10% panic penalty, the fight takes 489.5 seconds (8 minutes 10 seconds).

- **Realised Group DPS:**

$$\frac{250,000,000 \text{ HP}}{489.5 \text{ seconds}} = 510,696 \text{ Group DPS}$$

- **Realised Average DPS per DD:**

$$\frac{510,696}{8} = \mathbf{63,837 \text{ DPS}}$$

Key Takeaway: Despite parsing 80,000 DPS on the dummy, the individual realised average drops to $\sim 63.8\text{k}$ DPS—a 20.2% loss in actual performance due to death penalties and downtime.

Model 2: The “Uptime & Survival” Approach (68K Dummy Parse, 0 Deaths)

Setup: The 8 DDs trade off $\sim 15\%$ of their dummy parse by slotting a reliable self-heal (like Vigor) and pushing buffed resists to $\sim 25\text{k}$ – 30k . Their dummy parse drops from 80k down to $68,000$ DPS.

Fight Mechanics & Penalties: 0 deaths occur. When a mechanic hits or an interrupt is delayed, players survive with $15\text{--}20\%$ HP remaining, hit Vigor, and stay standing. Panic/positioning penalty (E_{panic}) is reduced to only 3% lost efficiency (clean stacking, maximum healer buff coverage, continuous rotation).

The Calculations:

- **Lost Player-Seconds from Deaths/Rezzes:** 0 seconds.
- **Actual Fight Duration:** The fight takes 473.8 seconds (7 minutes 54 seconds).
- **Realised Group DPS:**

$$\frac{250,000,000 \text{ HP}}{473.8 \text{ seconds}} = 527,680 \text{ Group DPS}$$

- **Realised Average DPS per DD:**

$$\frac{527,680}{8} = \mathbf{65,960 \text{ DPS}}$$

Key Takeaway: Even though these DDs parse $12,000$ DPS lower on paper (68k vs 80k), they kill the boss 16 seconds faster and achieve a higher realised average DPS (66.0k vs 63.8k)!

Model 3: The “Death Spiral / Cascade” Scenario (18 Deaths)

In chaotic DLC trials, a DD dying often causes the rezzer to die while standing still. Let’s model a moderate death spiral with 18 total deaths and a 12% panic penalty.

The Calculations:

- **Lost Player-Seconds from Deaths:** $18 \times 25\text{s} = 450$ player-seconds.
- **Lost Player-Seconds from Rezzing:** $18 \times 12\text{s} = 216$ player-seconds.
- **Total Direct Lost Time:** 666 player-seconds.
- **Actual Fight Duration:** 527.1 seconds (8 minutes 47 seconds).
- **Realised Group DPS:**

$$\frac{250,000,000 \text{ HP}}{527.1 \text{ seconds}} = 474,255 \text{ Group DPS}$$

- **Realised Average DPS per DD:**

$$\frac{474,255}{8} = \mathbf{59,282 \text{ DPS}}$$

Metric	Scenario 1: Glass Cannon (12 Deaths)	Scenario 2: High-Uptime / Tanky DD (0 Deaths)	Scenario 3: Death Spiral (18 Deaths)
Dummy Parse per DD	80,000 DPS	68,000 DPS (-15%)	80,000 DPS
Total Fight Deaths	12 Deaths	0 Deaths	18 Deaths
Panic / Positioning Loss (E_{panic})	10% efficiency loss	3% efficiency loss	12% efficiency loss
Lost Player-Seconds (Deaths + Rezzes)	444 player-seconds	0 player-seconds	666 player-seconds
Total Fight Duration	489.5s (8m 10s)	473.8s (7m 54s)	527.1s (8m 47s)
Realised Group DPS	510,696 Group DPS	527,680 Group DPS	474,255 Group DPS
Realised Per-DD Average	63,837 DPS	65,960 DPS	59,282 DPS
Effective DPS Retention	79.8%	97.0%	74.1%

Table 1: Comparison of live trial performance across different uptime models.

Scenario Summary Table

Key Insights from the Mathematical Models

1. **The Parse Paradox:** Scenario 2 yields a dummy parse that is 12,000 DPS lower per player on paper. Yet, because 0 player-seconds are wasted on resurrections, the team clears the boss 16 seconds faster than the glass-cannon team.
2. **Effective DPS Retention:** The high-uptime group retains 97% of its potential output in a live fight, whereas the glass-cannon group loses over 20% of its performance to downtime and emergency positioning.

3 The Mechanics of the Death Spiral

While Scenario 3 projects a theoretical kill time of 8 minutes and 47 seconds with 18 deaths, in a real trial instance this scenario almost always results in a catastrophic wipe long before the boss dies. This occurs because deaths in endgame raiding do not distribute linearly; they cluster exponentially.

Anatomy of a Raid Collapse

1. **Step 1 (The Initial Down):** A glass-cannon DD dies to incoming splash damage or an uninterrupted channel due to low resistances ($\sim 18k$) and insufficient self-healing. Group DPS immediately drops by 12.5%.
2. **Step 2 (The Multiplier Penalty):** A second DD stops dealing damage to cast a resurrection. Now, 25% of the team's total damage is missing.
3. **Step 3 (Secondary Casualties):** Standing stationary during a resurrection cast leaves the second DD defenceless. A second mechanic hit causes a double-death.
4. **Step 4 (Resource & Buff Strain):** Remaining players panic, abandon tight stacking, and lose essential healer buffs (e.g., Major/Minor Resolve, Combat Prayer). Support roles exhaust stamina/magicka pools attempting panic heals.
5. **Step 5 (Tipping Point):** With 3 or more DDs dead simultaneously, mechanic execution fails entirely (adds overwhelm the room, interrupts are missed), resulting in a complete wipe.

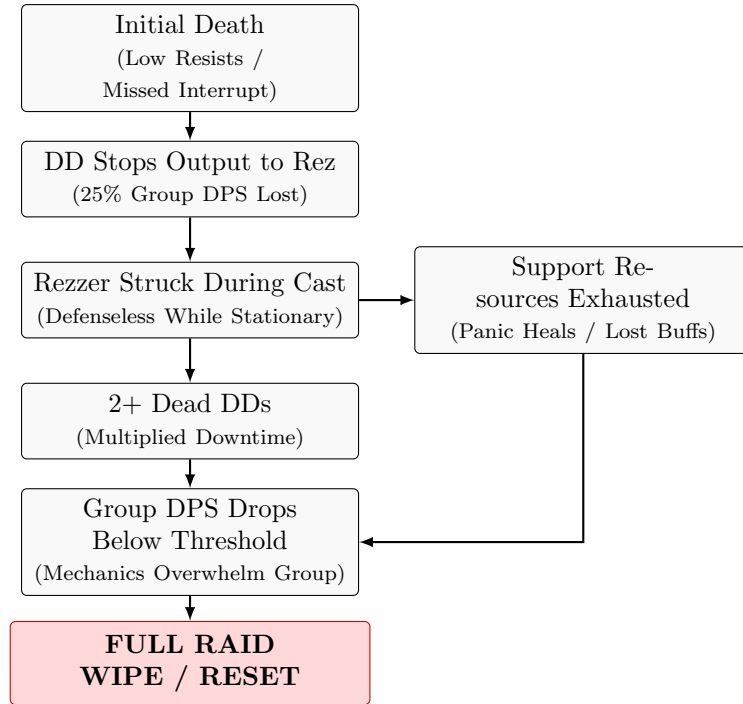


Figure 1: Flowchart illustrating the cascade of a raid death spiral.

4 Strategic Conclusions for Trial Leadership

For progression and social guilds, chasing maximum target dummy parses creates a false sense of security while introducing extreme fragility to trial runs. The practical findings for raid leads and developers are clear:

- **Uptime Exceeds Potential:** A team averaging 65k–70k DPS with 100% uptime will consistently out-perform a team averaging 85k–90k DPS on dummies if the latter experiences frequent deaths.
- **The Value of Defensive Margin:** Slotting a dedicated self-heal (e.g., Vigor) and maintaining $\sim 25\text{k}$ – 30k buffed resistances provides the necessary buffer for players to survive accidental mechanic overlaps, heal up, and maintain rotation without dying.
- **Off-Support Utility:** Incorporating specialised off-support builds (such as high-survivability DDs with invulnerability ultimates) acts as a crucial safety net to break death spirals before they cascade into full wipes.

Ultimately, in endgame raiding, survivability is the ultimate DPS buff.