SentinelWear uses **physiology, motion, and context over time** to infer high-likelihood events even when the user is unconscious.

Here is some additional detail for **dragging/carrying**, **passive movement under sedation**, and the deeply sensitive inference of **sexual activity without consent**, based on signal patterns.

Movement Pattern Classifiers: Behavioral Forensic Inference

1. Dragged or Carried While Sedated

Sedation markers + unnatural, consistent directional motion.

Signal	Pattern
Gyroscope / IMU	Smooth acceleration, no reciprocal footfall
Accelerometer	Regular sway or directional jostle while no stepping
HR / HRV	Depressed or flat
EDA	Low or flat (no reactivity)
Audio	Muffled ambient noise, possibly voice or footsteps
GPS	Change in location without walking pattern (no steps detected)

If HRV is flat, EDA is suppressed, and phone moves consistently with no active movement: user is likely being carried or dragged.

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2. Sexual Motion While Unconscious

Cyclic motion pattern consistent with intercourse while biometrics indicate sedation.

Signal	Pattern
Accelerometer / Gyro	Short, repeated oscillatory movement (1–2 Hz), isolated at rest

HRV	Flat or extremely low variability (loss of autonomic responsiveness)
HR	Low or suppressed
Respiration (ring/watch)	Minimal change (passive breathing)
EDA	Minimal to no response (no arousal, no startle)
Audio	Environmental noise, rhythmic mechanical sounds, *no vocalization from wearer*
App state	Audio recording remains active due to lack of user input

Pattern match: Sedation + cyclic pelvic-level motion = high probability of passive sexual activity.

> *When combined with prior known context (e.g., party, intoxication, or prior slurred speech), this signal can be strongly evidentiary — especially if audio captures a perpetrator's voice or coercive statements.*

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3. Movement Without Consciousness (Time-Aligned Paradox)

> Signals indicating **external movement** while all signs point to **internal inactivity**.

Sensor Class	Pattern
Phone/watch IMU	Changing orientation, vibration, sway
EDA + HRV + Resp	No corresponding physiological reactivity
Glucose (if used later)	Drop consistent with sedation
Audio	Verbal cues, body movement sounds, but no vocalization by user

AI can model these temporal misalignments to identify "external motion only" episodes — key for non-consensual physical interaction.

Forensic Lock-In Strategy

- **Motion classifier flags "possible rape event" if:**

  - Cyclic motion matches sexual rhythm pattern

  - Biometrics confirm sedation

  - Audio remains on

  - No user unlock or app pause event during time window

  - Followed by stop of motion + user remains inactive (e.g., passed out)

- All signals are **cryptographically sealed and timestamped**.

- AI model could highlight this segment in post-event review (police or legal case).