**1. Initial Data Segregation**

- Parse rest JSONs separately

- Calculate baseline metrics from rest phase using 800-sample windows

- Key metrics to track:

- MNF/ARV ratio

- IMA differences

- EMD values

- Fluctuation metrics

**2. Baseline Characterization**

- Cross-session analysis of rest phases

- Establish normal variation ranges

- Identify potential drift patterns

- Define statistical thresholds for "true" idle state

**3. Calibration Assessment**

- Compare rest phase metrics between sessions

- Test hypotheses:

H1: Baseline varies significantly between sessions

H2: Drift occurs within sessions

H3: Environmental factors affect baseline

**4. Decision Criteria Development**

- Define threshold violations

- Establish minimum calibration duration

- Create trigger conditions for recalibration

**Metrics to keep track:**

* + **Percentile 80:**
    - Why It's Useful: Helps define a threshold that separates most of the data (80%) from potential outliers (spikes). This threshold can serve as a benchmark for acceptable muscle activity in the resting phase.
    - Application: Identify participants with unusually high resting muscle activity or data anomalies due to spikes.
  + **Percent Below 80th:**
    - Why It's Useful: Provides a check on the data's distribution and verifies if the majority (e.g., 80%) of the values conform to the threshold set by the percentile 80. This helps ensure that most data fits within expected bounds, especially after normalizing for variability across participants.
    - Application: Compare distributions between participants to detect deviations.
  + **Mean and Standard Deviation (mean +- std):**
    - Why They're Useful: The mean gives a central tendency for each metric, while the std quantifies variability. Together, they help determine if baseline muscle activity is consistent across individuals.
    - Application: Highlight participants with higher variability, indicating potential instability in rest sEMG.
  + **Range (max - min):**
    - Why It's Useful: Indicates the spread of the data. A large range in rest sEMG metrics could signal irregularities, including spikes or sudden jumps.
    - Application: Investigate whether a large range correlates with poor baseline stability.