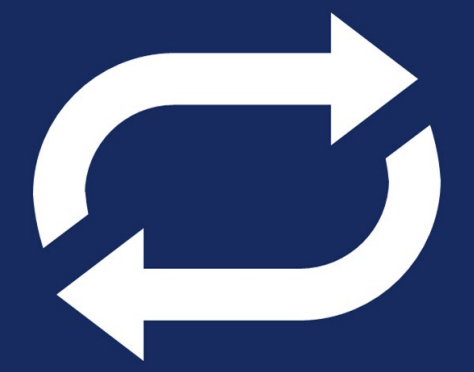


# RECOGNITION OF ACUTE DECOMPENSATION

A Novel Approach Using Continuous Monitoring of Peripheral Edema In Heart Failure Patients Allows Recognition of Acute Decompensation Early In The Window Of Intervention

D Kessler, BodiGuide Inc



## BACKGROUND

### Heart Failure Management

A continuous reliable quantitative measure of **peripheral edema** would provide fluid status that is essential to management of worsening heart failure.

## HYPOTHESIS

### Recognition of Decompensation

Continuous accurate measurement of **ankle circumference** can detect decompensation early in the window of intervention.

## RESULTS

### Normal Patterns, Compensated Events, & Decompensation Trends

## METHODS

### Continuous Monitoring of Ankle Circumference



#### Feasibility Study

- 6 Male, 6 Female
- 6 HF, 6 Healthy Normal
- Duration 1 – 6+ months

#### Anklet Worn Continuously

- Circumference measured every 10 min
- Cumulative Orientation collected every 10 min
- Measurement Accuracy: 1 mm
- Light tension (less than interstitial fluid pressure)
- Comfortable, Waterproof, 4-month battery life

## Conclusion

### Quantification of fluid status provides early recognition of decompensation.

Ability to detect and interpret ankle swelling patterns provides the opportunity to improve self-care, optimize therapeutic effectiveness, and **respond early in the window of intervention to prevent heart failure hospitalizations.**

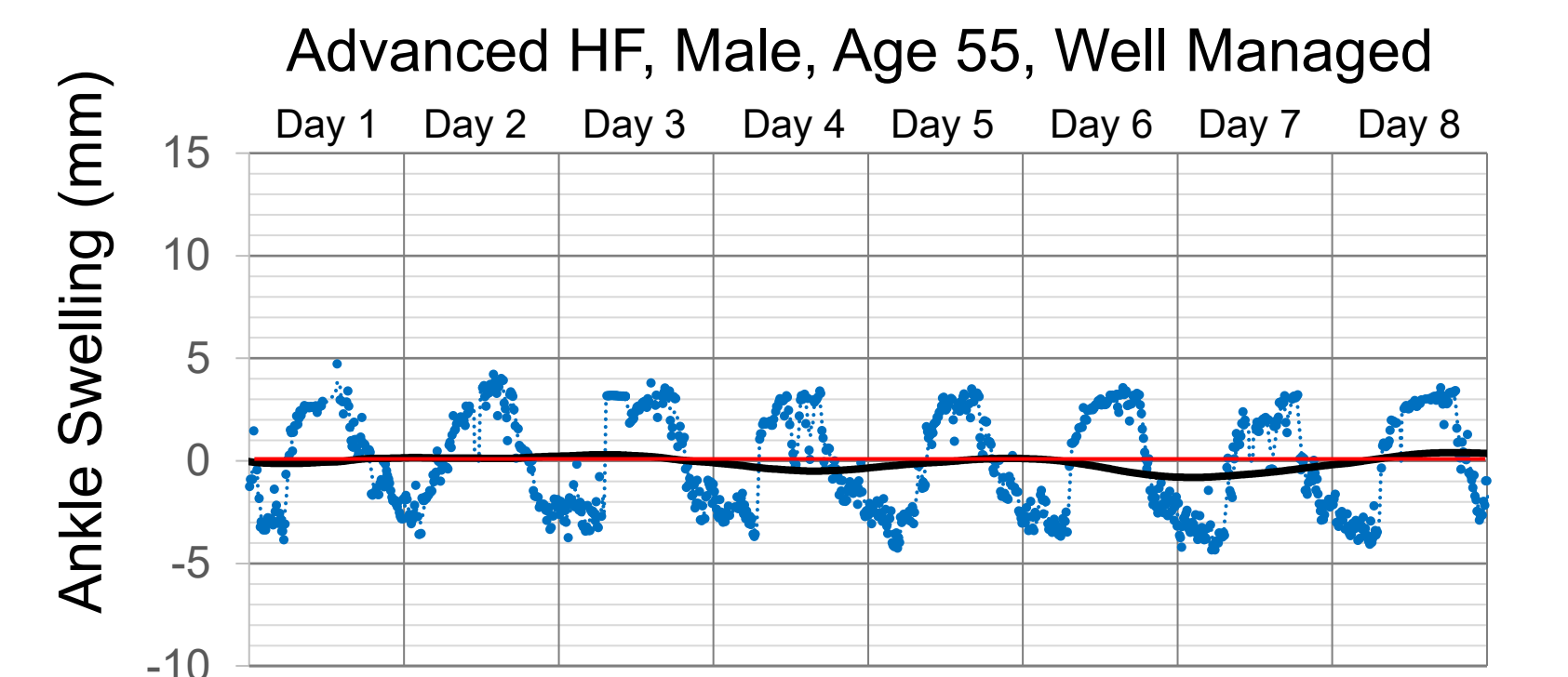


Figure 1. Normal Baseline

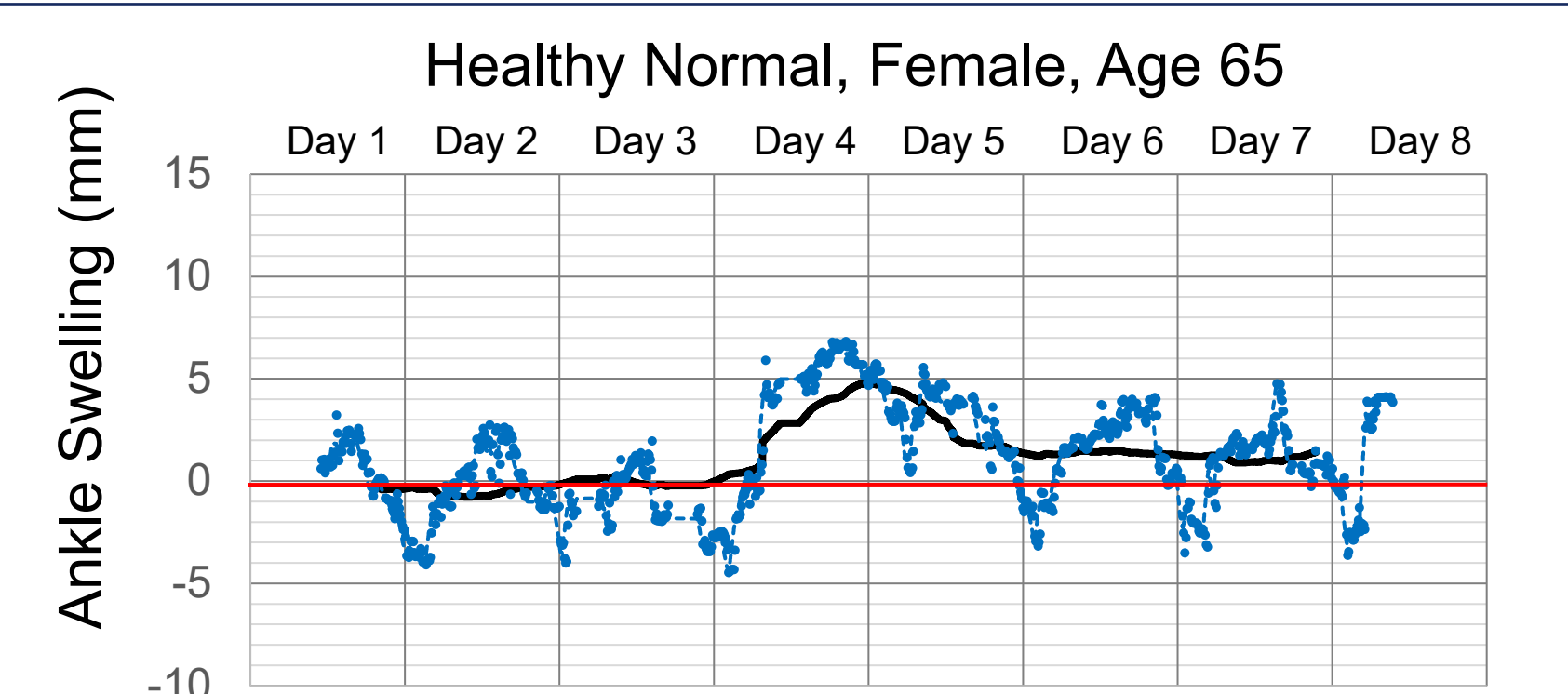


Figure 2. Ham Sandwich Event

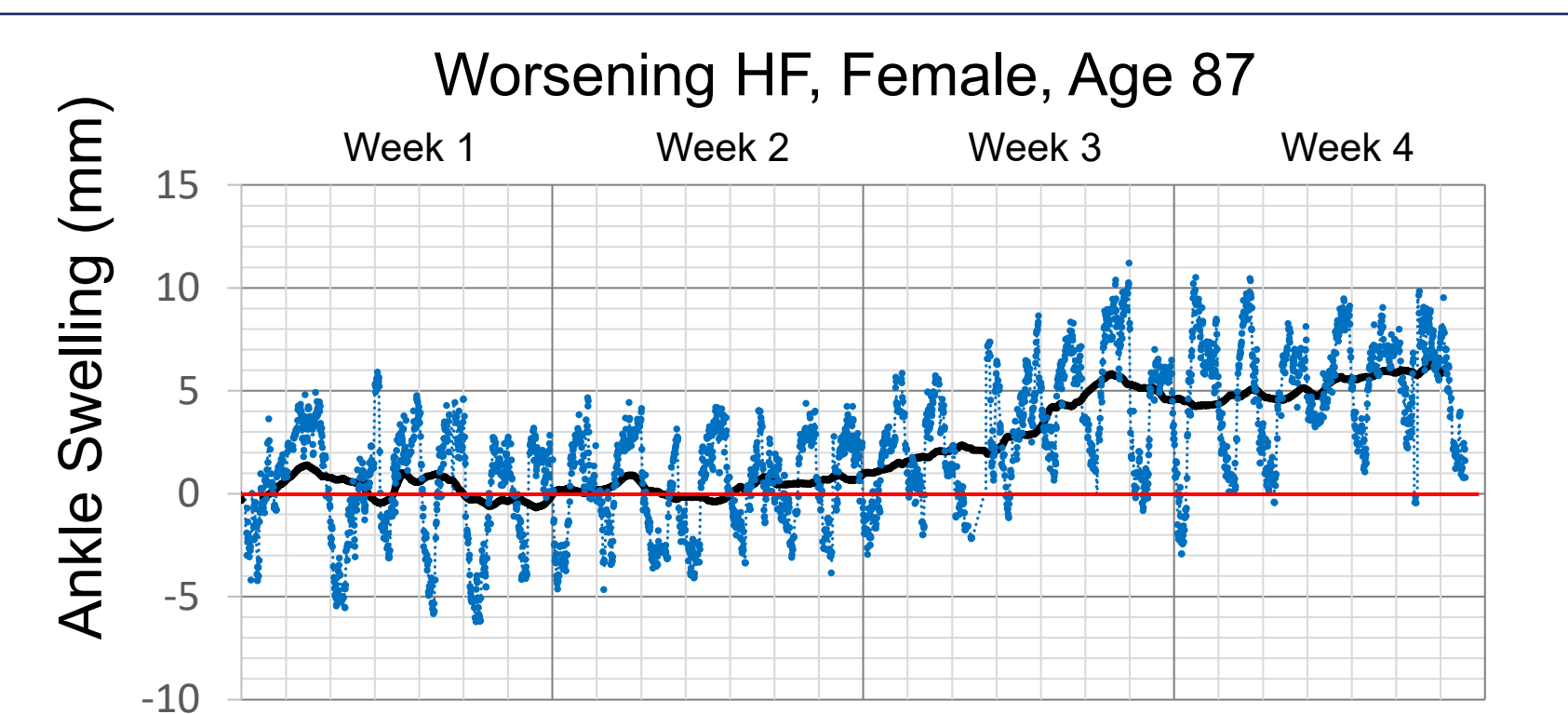


Figure 3. Trending Decompensation

Continuous monitoring of ankle circumference using the established criteria for accurate and reliable measurements<sup>1</sup> yielded the following results:

- The **Daily Swelling Pattern** (DSP) is correlated with limb orientation.
- Well-managed heart failure subjects present a DSP and **Normal Baseline** substantially equivalent to healthy normal subjects. Figure 1
- Fluid retention presents as deviations from the normal baseline.
- **Compensated Event** (such as salty meal) Figure 2
- **Decompensation Trend** Figure 3