# Gender Differences in Weight Loss and Readmissions with Acute Heart Failure Admissions

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## Background

- Acute heart failure (AHF) patients admitted to the hospital are generally volume overloaded, and improve with diuresis.
- There are varying phenotypes of AHF, most clearly distinguished by ejection fraction (EF). However, an often overlooked distinction may be made based on gender.
- It is known that female patients with AHF tend to be older, less ischemic, and are more likely to have preserved EF
- Treatment responses between men and women, including readmission rates are not well established, with variable findings
- **Purpose:** To understand gender differences in AHF treatment efficacy and 30-day all cause readmissions in a local, real-world setting

## Methods

- Retrospective study of 685 patients admitted *for* or *with* heart failure, undergoing diuresis from December 2017 to May 2018 and March 2020 to August 2020 at using the AHF registry at The Christ Hospital, Cincinnati, OH
- The exclusion criteria consisted of patients who:
  1) died during the hospitalization
  2) were treated with dialysis
  3) underwent surgery of any kind during the hospitalization
  4) left hospital against medical advice
- We collected admission and discharge laboratory data, weight change, net input/output, and 30-day all-cause readmission rates, stratified by gender

## Results

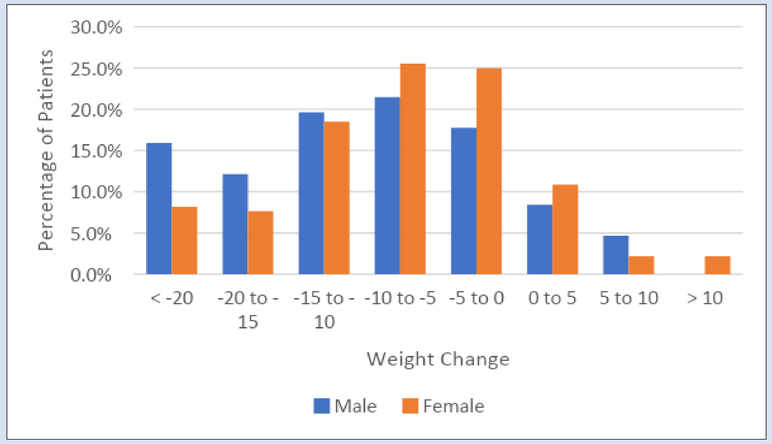


Figure 1 (above): Negative values indicate weight loss while positive values indicate weight gain. The percent of patients was calculated by dividing the number of patients per weight change category by the total number of patients overall.

| **Table 1.** Demographics and Clinical Characteristics | **Male** | **Female** |
|---|---|---|
| **Avg Age (years)** | 69.9 | 73.4 |
| **Avg Height (inches)** | 69.9 | 63.6 |
| **Avg Weight (lbs)** | 224.1 | 193.9 |
| **% EF ≥ 50%** | 29.9% | 58.4% |
| **Avg systolic BP (mmHg)** | 128.2 | 131.8 |
| **Avg Admit BUN (mg/dl)** | 31.3 | 29.0 |
| **Avg Admit Creatinine (mg/dl)** | 1.9 | 1.3 |
| **Avg Δ BUN (mg/dl)** | 4.46 | 5.03 |
| **Avg Δ Creatinine (mg/dl)** | -0.01 | -0.03 |
| **Avg Weight Loss (lbs)** | 11.44 | 8.60 |
| **% of body weight lost** | 5.1 | 4.4 |
| **Avg Net Volume lost (ml)** | 7427.51 | 6474.53 |
| **Avg BMI** | 31.66 | 33.25 |
| **Readmission Rate** | 22.9% | 27.0% |

## Results (Continued)

- Demographic characteristics of men vs. women are consistent with existing data (age, EF, blood pressure, BMI).
- Men, despite worse baseline renal function, tended to lose more weight in absolute and relative values than women.
- Distribution of weight changes from admission to discharge are shown in the graph, showing a shift to the right (less weight loss) for women.
- Female patients appear to be readmitted more frequently within 30 days of discharge than males.

## Conclusions

- In both absolute and relative terms, women lost less weight during the hospitalization than men.
- The higher 30-day all-cause readmission rate for women appears to be accompanied by less vigorous diuresis and weight loss. Whether there is a causal relationship remains to be studied.

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