



## BACKGROUND

- Burns are associated with significant changes in body weight due to resuscitation volumes leading to increased weight and a hypermetabolic state and prolonged bed rest resulting in wasting of lean body mass and weight loss.
- The actual weight changes and frequency of weight measurements throughout hospitalization have not been well described across time. The purpose of this study was to describe these in more detail.

## METHODS

- Electronic medical records of 232 thermally injured patients hospitalized in Parkland Burn Center from February 2016 to September 2016 were examined.
- Patients included in this study were seen daily by a nutritionist and received tube or oral feeding as appropriate.
- Demographics, hospital length of stay, and all weight measurements were collected.

## RESULTS

- **Demographic Data:** Mean ( $\pm$ SD) age was  $33 \pm 24$  years; Median TBSA was 7% (IQR 13-3); 67.37% male; 32.63% female
- **TBSA & Length of Stay:** TBSA and length of hospitalization were positively correlated ( $r = 0.83$ ;  $p < 0.001$ ) (Figure 1)
- **Weight Trends:** Patients had a  $4.92\% \pm 1.40\%$  (mean  $\pm$  SEM) increase in weight from baseline at hospital day 7 (n=40). The mean weight changes of hospitalized patients were  $-1.57\% \pm 4.46\%$  at 30 days (n=13),  $-6.66\% \pm 4.47\%$  at 45 days (n=10),  $-13.83\% \pm 3.74\%$  at 60 days (n=7), and  $-23.93\% \pm 12.26\%$  at 130 days (n=2) (Table 1). The maximum length of stay was 205 days and this subject had a weight loss of 33.33% from baseline.
- Composite data of mean change of weight from baseline over time was plotted with an  $R^2$  value of 0.6 for both linear and third order regression (Figure 2).
- **Weight Measurements:** Patients with a length of stay between 7 to 14 days (n=49), 15 to 30 days (n=15), 31 to 60 days (n=9) and more than 60 days (n=9) had a daily weight recorded only 7.4%, 20.6%, 35.5% and 47% of their inpatient days, respectively (Table 2).

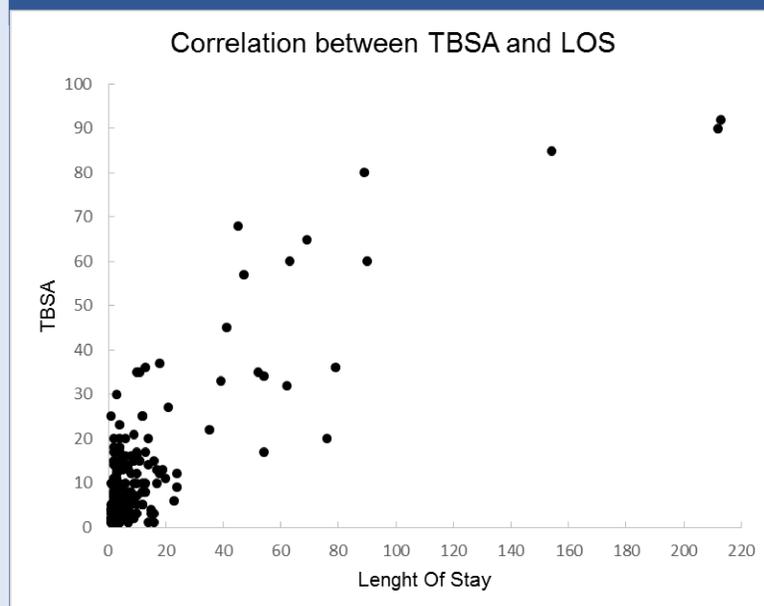
**Table 1. Change of Weight From Baseline**

Length of Stay (days)	7	30	45	60	130
n	40	13	10	7	2
Mean change of weight from baseline	4.92%	-1.57%	-6.66%	-13.83%	-23.93%
SEM	1.40%	4.46%	4.47%	3.74%	12.26%

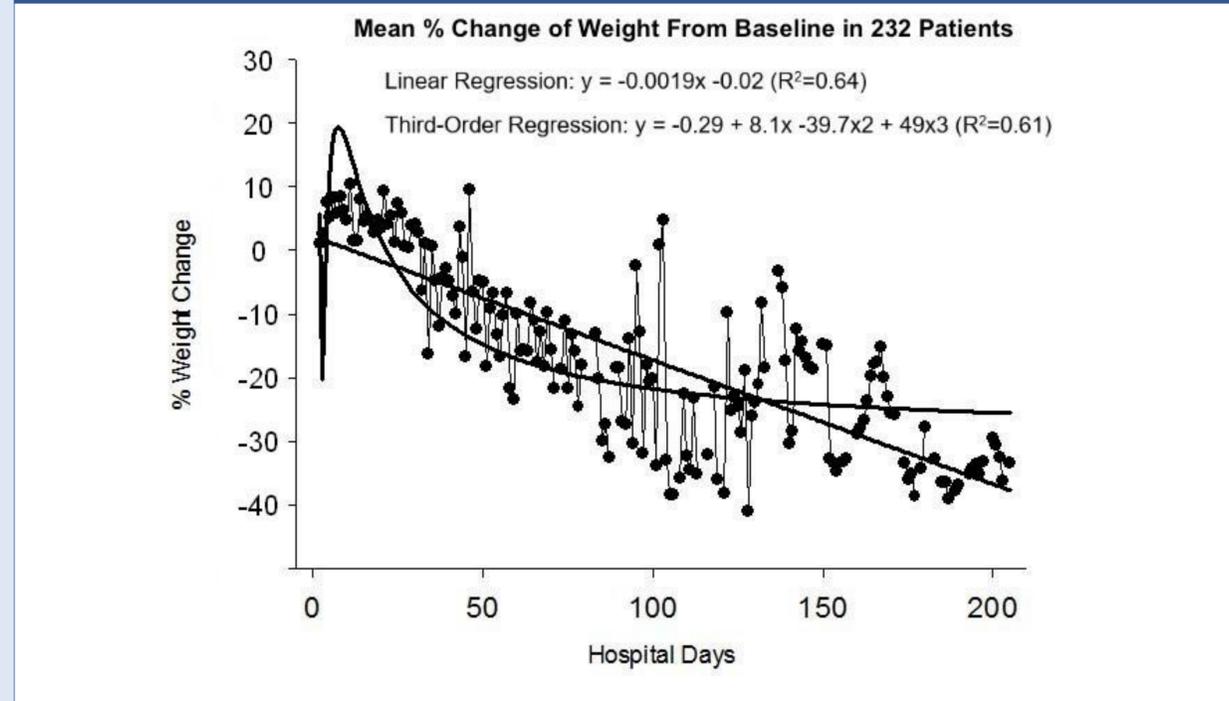
## CONCLUSIONS

- Burn patients demonstrate an increase in body weight within the first week of hospitalization likely related to resuscitation followed by a consistent decline.
- Patients with stays greater than one month have a decline in weight below their baseline and can lose as much as a third of their body mass even in the setting of nutritional support and rehabilitation efforts.
- Weight is measured more often as length of stay increases.
- Weight is often used as a marker of nutritional status, although this may not be appropriate in the setting of large fluid shifts and obesity.
- It is possible that patients might be losing muscle mass in favor of body fat.
- It is important to recognize long-term weight trends in the burn population, but further investigation is needed regarding the predictors of significant weight loss and associated outcomes.

**Figure 1. Correlation between TBSA and LOS**



**Figure 2. Regression Analysis**



**Table 2. Records Of Weight Measurements During Hospitalization**

Length of Stay (days)	7-14	15-30	31-60	>60
n	49	15	9	9
% of inpatient days in which weight was recorded	7.4%	20.6%	35.5%	47%

## REFERENCES

- Hart, D.W., Wolf, S.E., Herndon, D.N., Chinkes, D.L., Lal, S.O., Obeng, M.K., Beauford, R.B. and Mlcak, R.P., 2002. Energy expenditure and caloric balance after burn: increased feeding leads to fat rather than lean mass accretion. *Annals of surgery*, 235(1), pp.152-161
- Rodriguez, N.A., Jeschke, M.G., Williams, F.N., Kamolz, L.P. and Herndon, D.N., 2011. Nutrition in burns Galveston contributions. *Journal of Parenteral and Enteral Nutrition*, 35(6), pp.704-714