

## Decremental Analysis of Plus-size Women: Bodice Drafting and Grading Implications

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Keywords: 3D body scanning, pattern drafting, body shapes, bodices

Fitting issues continue to be a complaint among plus-size consumers of ready-to-wear apparel. Fitting issues can be attributed in part to a one-size-fits-all approach to pattern drafting and grading (Alexander, Pisut, & Ivanescu, 2012; Gribbin, 2014). Additional problems with the fit of plus-size clothing arise from the traditional grading practices utilized by the apparel industry (Schofield & LaBat, 2005). These grading practices are based on various assumptions—especially the use of a simplified grading system wherein both the front and back of a bodice grow at the same rate (Schofield & LaBat, 2005). Therefore, the purpose of the multi-year, funded study was to: determine the efficacy of a current pattern drafting method and grading rules for plus-size women.

### Methods and Procedures

To investigate the purpose statement plus-size women were recruited to participate in a longitudinal research study. The women had their weight and height taken and received a baseline 3D body scan which recorded 172 body measurements. After losing 10 pounds participants were asked to return for a second, follow-up body scan. The 10 pounds was meant to be an approximation of one apparel size and would allow for investigation of the necessary grade rules.

Next, the researchers examined the scanner measurements in order to begin bodice block drafting. The pattern drafting method authored by Connie Amaden-Crawford (2013) was chosen as one of the researchers had previous success using this method to draft plus-size patterns and recommended its use. The front and back bodices for each participant's scan 1 and scan 2 (following 10 pounds of weight loss) were then compared.

### Results and Discussion

Recruitment of subjects for the study was very difficult as the women had to commit to coming for multiple scans and also had to lose weight. Thus, only eight women had usable scan pairs. Additionally, drafting the bodices from the provided scanner measurements proved problematic. The proprietary software for the departmental scanner does not automatically extract some key measures such as, side seam and center front bodice length. To derive the needed measurements the researchers used mathematical formulas based on landmarks provided by the scanner.

The researchers met multiple times prior to drafting the final versions of the bodices. Once the patterns were drafted bodices from drafted from scan 1 and 2 measurements were compared for grading implications. A major issue with the drafting system was the standardized location and size of the bust dart. Amaden-Crawford (2013) recommended that plus-size drafts begin the first dart leg 3.5" from the CF line along the waist. On all participants this measure

caused the bust dart to tilt inward toward CF, due to a smaller measurement between the apexes. Additionally, three participants experienced unexpected drops in apex location after losing 10 pounds. Possible explanations for this include: different bras worn during the two separate body scans, and weight loss resulted in ill fitting bra.

The participants lost weight in various locations. Of the eight participant pairs, two participants decreased mostly in the back. The other six lost the majority of their upper body weight off the front. No participants lost weight evenly off the front and back as is commonly assumed in simplified grading practices, wherein the front and back bodice decrease by the same amount.

### Conclusion

The preliminary results of this study indicate that the assumed standard ease and dart placements suggested in the drafting system was not suitable for drafting plus-size bodices. It is possible that new ease calculations and dart placement locations need to be incorporated into current block drafting systems to appropriately address the various body shapes and sizes of plus-size women. Future research should investigate the differences in ease and dart placement locations between standard sizes and plus sizes.

Grading implications were also found with this research. The participants did not lose weight symmetrically, most lost all the weight off the front or back of their bodies. This implies that the typical method of grading, especially in plus-size apparel, is not appropriate for fitting consumers. Complex grading systems should be developed and tested using body scanning.

Scanning implications also can be found. Three participants experienced drops in their apexes after weight loss possibly due to wearing a different or ill-fitting bra for scan 2. Future research should control for the garments worn by participants in longitudinal research. Other participants had unexpected changes in measures like across chest- marchers should be further investigated as a tool to help locate the proper locations of key measures on plus-size bodies.

### References

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