

Exploring Pant Fit Differences Between Cisgender Men and Transmasculine People

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Introduction. Transgender people face challenges finding properly fitting clothing. The usage of testosterone as a part of gender-affirming care leads to physical changes in the body. These changes include increased lean mass, reduced fat mass, and clitoral enlargement (Irwing, 2017). Klaver et al. (2018) found that transgender men lost most body fat in the leg region and gynoid region, but not in the android region. According to Reilly et al (2019), available clothing does not satisfy transgender people at the functional and aesthetic levels. The prevalence of gender dysphoria related to body image among transgender people calls for further study of how transgender people interact with clothing (Becker et al., 2018). Reilly et al. (2019) highlighted how pants designed for cisgender men have crotch, waist, and hip lines that do not accommodate transmasculine people. Teti et al. (2019) emphasized how fit at the hip can cause distress among transmasculine people. To address the above issues, this present research sought to identify lower body areas where cisgender men and transmasculine people may have anthropometric differences and compare the fit experiences of transmasculine people and cisgender men with a pair of test pants.

Method. Upon receiving IRB approval, participants, who were 18 years old or older, either transmasculine (i.e., assigned female at birth), transgender men, and non-binary masculine identifying people who have begun the transition, or cisgender men, were recruited through convenience sampling. Participants donned their own tight undergarments and were scanned in a Humanetics Vitus 3D body scanner in the standard A-pose. Anthroscan software was used to generate anthropometric measurements. To identify pant fit differences, participants then donned a pair of test pants, which were straight-fit woven non-stretch pants of various sizes from Amazon Essentials. Participants were then scanned in the 3D body scanner in the same pose.

Transmasculine and cisgender male participants were paired based on their pant size and body height. To compare pant fit, circumference differences between the body and pants (i.e., ease) were measured at the waist, hip, thigh, knee, calf, and ankle levels using Petrova and Ashdown's (2008) method. In addition to the objective measurements, participants also rated their fit perceptions at the same levels on a 5-point Likert-type scale from "1: Terrible Fit" to "3: Acceptable Fit" to "5: Perfect Fit", and how they would improve the fit on a 5-point Likert-type scale, from "1: Much Tighter" to "3: No Change" to "5: Much Looser". Shapiro-Wilks tests were conducted to determine normality. For objective measurements, paired t-tests were conducted, while for fit perception ratings, descriptive statistics were performed in R 4.33.

Results. Six participants (three transmasculine and three cisgender men) participated in the study. Four of them were size 30 while two were size 32. For anthropometric measurements, statistically significant differences were observed between the transmasculine and cisgender groups in front crotch length ($\Delta M=2.7$ in, $SD=1.0$, $t=4.63$, $p=0.044$), but not in back crotch length ($\Delta M=1.11$ in, $SD=0.66$). Although high hip girth ($\Delta M=2.12$ in, $SD=2.17$), buttock girth ($\Delta M=1.07$ in, $SD=1.67$), and hip girth ($\Delta M=1.86$ in, $SD=1.52$) were all higher for cisgender participants, the differences were not statistically significant. Additionally, no statistically

significant differences were found in thigh, knee, calf, and ankle girths. For ease measurements, statistically significant differences were found in ease at the hip level ($\Delta M = -0.99$ in, $SD = 0.28$, $t = -6.36$, $p = 0.025$). At the waist level, cisgender men all had more ease than their transmasculine counterparts ($\Delta M = 0.57$ in, $SD = 0.638$), but the difference was not statistically significant. No statistically significant differences in ease were found at the thigh, knee, calf, and ankle levels.

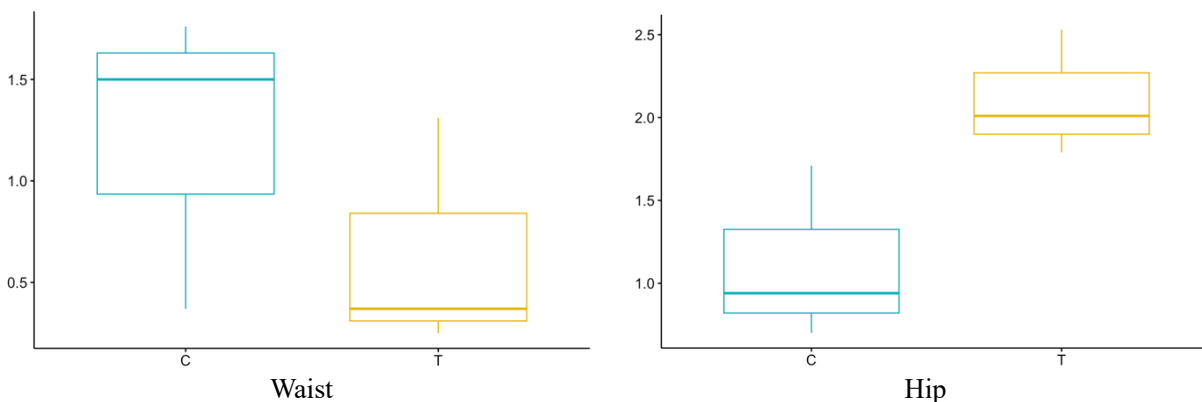


Figure 1. Observed Test Pant Ease Differences

Cisgender participants rated the test pant fit higher than transmasculine participants did at all levels except for the knee level. All cisgender participants rated test pant fit at the hip perfect ($M = 5$, $SD = 0$), while the mean rating for transmasculine participants was 2.67 ($SD = 2.08$), where 3 represents an acceptable fit. Here, transmasculine participants indicated they would prefer a tighter fit ($M = 2.67$, $SD = 1.53$). Similarly, all cisgender participants rated fit at the thigh perfect ($M = 5$, $SD = 0$), while the mean rating for transmasculine participants was 2 ($SD = 1$). Here, transmasculine participants indicated they would prefer a tighter fit ($M = 2.67$, $SD = 1.16$). At the knee level, fit ratings were mixed among both cisgender and transmasculine participants, but there was no mean difference in ratings as both groups wanted a tighter fit. At the calf level, cisgender participants rated their test pants above average ($M = 3.7$, $SD = 0.58$), but transmasculine participants rated the pants below average ($M = 2.7$, $SD = 0.58$). At the ankle level, cisgender participants rated fit higher than transmasculine participants as well ($\Delta M = 1.33$, $SD = 0.58$) with both groups looking for a tighter fit. There were no statistically significant differences and mixed improvement feedback. Overall, cisgender participants rated fit better than transmasculine participants ($\Delta M = 1.33$, $SD = 0.58$).

Discussion and Conclusion. Results from the anthropometric measurements and wear trials demonstrated a need to improve pants design for transmasculine people. Statistically significant anthropometric differences in front crotch length suggest that the front crotch on pants could be reduced to accommodate transmasculine wearers. However, transmasculine participants did not indicate any strong preferences for improving patterns. Statistically significant differences in hip ease also indicated that pants were looser for transmasculine wearers at the hip level and should be adjusted. This is further corroborated by transmasculine participants' desire for a slightly tighter fit at the hip. Transmasculine participants also indicated they would prefer a tighter fit at the thigh, although there were no significant differences in both thigh ease or thigh girth between cisgender and transmasculine participants. Overall, transmasculine participants were less

satisfied with pant fit than their cisgender counterparts. Due to the exploratory nature of this study, the sample size was limited. Nonetheless, findings demonstrated areas of pant design that need improvement to accommodate transmasculine people and create more gender-inclusive pant design.

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