

“Comfortability is Almost an Afterthought”: Exploring User Needs and Design Factors in Drummers’ Performance Apparel

Irma D. Villanueva and Seoha Min, California State Polytechnic University, Pomona

Keywords: design factor, drummer, musical performance, apparel needs

Introduction: Drumming, a popular activity for musical purposes, is a high-intensity physical activity that involves strenuous levels of physical demand. Multiple studies have identified drumming as an important type of physical activity that can provide multiple health benefits, as well as therapeutical and emotional effects (Ho et al., 2011; Smith et al., 2014). However, body temperature must be properly regulated while drumming to avoid prolonged heat increases which can negatively affect the body and performance. These increases can reach dangerous levels which can lead to many impairing health conditions, such as heat exhaustion and exertional heat illness, as experienced by famous drummers, Kenney Jones and Phil Taylor, during live performances (Casa et al., 2015; Kozak, 1981; Neill, 2016). Apparel can aid the body regulate these heat increases; however, no apparel has been specifically designed for drummers to alleviate these increases since their specific needs are yet to be assessed. Thus, this study aimed to identify the key physiological effects of drumming and assess the user needs of drummers to determine design factors for developing effective functional drumming apparel. In this study, design factors are defined as factors that contribute functional benefits to a product to obtain the desired performance (Min et al., 2019).

Literature Review: Drumming revolves around the classification of styles. This drumming classification is mainly driven by the different music genres known, such as jazz, pop, rock, heavy metal, punk, etc. (Curran, 1996). Although multiple drumming styles exist, two main styles are commonly practiced in the United States, jazz and rock drumming. These styles can cause varying levels of increased physical demand among drummers due to the differentiating speeds and tempos used to play each style of song (Romero et al., 2016). Due to these intense requirements and full range of associated health benefits, drumming has gained interests as an alternative means for physical activity. Approximately 2.5 million Americans have participated in some form of drumming and in 2020, an estimated 106,000 drum kit units were sold in the United States alone (NAMM, 2021). However, only a limited number of studies have focused on designing apparel for musicians to aid their overall performance. These include a correctional device for brass musicians (Sokolowski & Lang, 2017), audio wearables for performing musicians (Birringer & Danjoux, 2013), a musical conductor jacket (Sokolowski, 2020), and a dress shirt for guitarists with openings for instrument straps (Brunzetti, 2008). Yet there are no studies addressing drummers’ need of performance apparel despite the overall increased levels of physical demand.

Method: To achieve the purpose of the study, a series of research was conducted, including the 1) exploration of literature and market in relation to performance products specifically targeted towards musicians that may influence the design of drumming apparel, 2) naturalistic

observations of 23 professional drummers at nine concert events to identify the key physiological effects of drumming, as well as the common apparel used, and 3) in-depth interviews with 10 professional drummers regarding their apparel preferences and needs while performing. To explore the market, an online search using search engines Google and Google Scholar was conducted and the main functions and unique design elements and features of the products found were documented. For the observations, detailed field notes regarding the performance location, set duration, key drumming movements, body mechanisms and responses experienced, and apparel used by drummers were documented. In-depth interviews were then conducted with male drummers between the ages of 30 and 40, as peak physical performance and maturity is achieved at this age range for endurance activities (Stiefel et al., 2013), who had at least 17 years of drumming experience performing with a band. No additional data was found at the 10th interview; thus, data saturation was reached (Saunders et al., 2018). Multiple data collection methods were used to provide a more complete understanding of the phenomenon using a triangulation process due to the lack of theoretical background.

Results: 1) *Market Search.* Minimal companies were found focusing on apparel for musicians to aid their performance. Formal wear for orchestral musicians was mainly offered by these companies. Similarly, minimal musician performance products were found. The evaluated products mainly claimed enhanced mobility and cooling effects for musicians using stretchable and technical fabrics with quick-drying and moisture-wicking properties. However, the fit and overall style of these products are limiting and not suitable for drumming, resulting in an identified need for drumming apparel. 2) *Observations.* Drummers were observed at indoor (56.5%) and outdoor (43.5%) locations. The average drumming performance was 42.1 minutes and a rock drumming style (56.5%) was mainly used. Three key physiological effects were identified to occur at strenuous levels at drummers' upper body. Increased muscle movement was observed at the arms, hands, neck, shoulders, wrists, and torso. Due to the constant muscle movements, increased heat production was seen at the upper body which led to perspiration and flushing of the face. Increased perspiration was observed at the underarms, face, neck, chest, and arms but other specific areas were not visible due to the dark color apparel worn and low venue lighting. A variety of garments were worn on drummers' upper body, including t-shirts, sweaters, and vests. Due to this inconsistency, interview data was needed to further define their needs and preferences toward drumming apparel. 3) *Interviews.* Participants interviewed had an average age of 35.5 years and 23.6 years of drumming experience. The majority were of Hispanic (40%) descent and used a rock (70%) drumming style. The common drumming apparel worn reflected a minimalistic yet basic style which often included a t-shirt, jeans, and shorts. Discomfort is frequently experienced by participants due to these garments' lack of breathability, mobility, and proper fit, resulting in restricting wet garments which adhere to their body. Despite such discomfort, participants have accepted and adapted to perform with such issues because of the unavailability of drumming apparel and importance of visual appearance. Appearance while drumming on stage is perceived as a symbol of effort, care, and professionalism by participants. Furthermore, apparel aids to convey drummers' personal and band image which involves choosing visual aesthetic over comfort. Drumming apparel preferences were also identified. In a

top, these include a round collar, oversized armholes, short sleeves or sleeveless options, a loose fit at the torso to provide breathability and aid with ventilation, and an overall length slightly below the high hip for coverage while sitting and playing the drums. Dark, solid-colored materials are preferred due to their versatility for performances of all music types and multiuse when laundering is limited due to touring and traveling as soil stains will be less visible.

Conclusion: Based on this assessment, the key design factors in drumming were determined for drummers based on their needs and preferences, which include thermal balance, mobility, fit comfort, aesthetic, versatility, and ease of care. Designers can utilize these identified key design factors to effectively develop functional drumming apparel to aid drummers' performances. This study also provides a systemized method and research process which can guide future researchers and designers with the apparel assessment of other musicians' needs.

References:

- Birringer, J., & Danjoux, M. (2013). The sound of movement wearables: Performing UKIYO. *Leonardo*, 46(3), 232-240. https://doi.org/10.1162/LEON_a_00562
- Brunzetti, V. (2008). *Musician's article of clothing with strap openings for inserting and holding a musical instrument strap therein* (U.S. Patent No. 7,371,951 B1). U.S. Patent and Trademark Office.
- Casa, D. J., DeMartini, J. K., Bergeron, M. F., Csillan, D., Eicher, E. R., Lopez, R. M., Ferrara, M. S., Miller, K. C., O'Connor, F., Sawka, M. N., & Yeargin, S. W. (2015). National athletic trainers' association position statement: Exertional heat illnesses. *Journal of Athletic Training*, 50(9), 986-1000. <https://doi.org/10.4085/1062-6050-50.9.07>
- Curran, G. M. (1996). From "Swinging Hard" to "Rocking Out": Classification of style and the creation of identity in the world of drumming. *Symbolic Interaction*, 19(1), 37-60. <https://doi.org/10.1525/si.1996.19.1.37>
- Ho, P., Tsao, J. C. I., Bloch, L., & Zeltzer, L. K. (2011). The impact of group drumming on social-emotional behavior in low-income children. *Evidence-Based Complementary and Alternative Medicine*, 2011, 250708. <https://doi.org/10.1093/ecam/neaq072>
- Kozak, R. (1981, August 29). Talent talk. *Billboard*, 93(34), 37.
- Min, S., Koo, S., & Wilson, J. (2019). Exploring design factors in designing horticultural garments for older adults. *Journal of Aging and Physical Activity*, 28(3), 376-390. <https://doi.org/10.1123/japa.2018-0467>
- National Association of Music Merchants, NAMM. (2021). *2021 NAMM Global Report: Providing members with industry data to guide decision making*. <https://www.namm.org/membership/global-report>
- Neil, A. (2016). *Had me a real good time: The Faces before during and after*. Omnibus Press.
- Romero, B., Coburn, J. W., Brown, L. E., & Galpin, A. J. (2016). Metabolic demands of heavy metal drumming. *International Journal of Kinesiology & Sport Science*, 4(3), 32-36. <https://doi.org/10.7575/aiac.ijkss.v.4n.3p.32>
- Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H., & Jinks, C. (2018). Saturation in qualitative research: exploring its conceptualization and

- operationalization. *Quality & Quantity*, 52(4), 1893-1907.
<https://doi.org/10.1007/s11135-017-0574-8>
- Smith, C., Viljoen, J. T., & McGeachie, L. (2014). African drumming: A holistic approach to reducing stress and improving health?. *Journal of Cardiovascular Medicine*, 15(6), 441-446. <https://doi.org/10.2459/JCM.0000000000000046>
- Sokolowski, S. L. (2020). Fit analysis using 3D body scans and sports product design methods to develop a musical conductor's jacket. *International Textile and Apparel Association Annual Conference Proceedings*, 77(1). <https://doi.org/10.31274/itaa.11895>
- Sokolowski, S. L., & Lang, B. (2017). Designing a thoracic compression and posture correction device for brass musicians with pharyngoceles: A teaching opportunity. *International Textile and Apparel Association Annual Conference Proceedings*, 74(1).
- Stiefel, M., Knechtle, B., Rüst, C. A., Rosemann, T., & Lepers, R. (2013). The age of peak performance in Ironman triathlon: a cross-sectional and longitudinal data analysis. *Extreme Physiology & Medicine*, 2, 27. <https://doi.org/10.1186/2046-7648-2-27>