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Extreme sports are defined as recreational activities (e.g. base jumping, mountain biking) that involve unconventional rules, techniques, and a level of risk that may include death (Brymer & Schweitzer, 2012; Puchan, 2004). Extreme sports participation has become increasingly popular for Millennials over the past two decades due in part to the use of fear as a vehicle of personal growth (Ellmer & Rynne, 2016). Despite increases in Millennial participation, Kamal et al., (2010) indicated gender differences in participation when comparing levels of health risk and participation.

In developing the Sensation Seeking Theory (SST) to describe adventurous activity participation, Zuckerman (1969) investigated the extent an individual pursued highly intense and stimulating activities to satisfy requisite biological needs. According to SST, individuals have an optimal level of sensation seeking influenced by the nervous system that predisposes a person to seek out highly stimulating activities. Therefore, people possessing higher levels of sensation seeking pursue activities that stimulate the nervous system.

Recent Virtual Reality (VR) research demonstrated that VR technology is beneficial to performance training (Bideau et al., 2010), education (Farra et al., 2018), and psychological therapy (Freeman et al., 2018). In this vein, the adoption of VR technology by extreme sports may provide a number of benefits. Therefore, the purpose of the study is to examine the impact of VR technology on intention to participate in extreme sports, stress reduction, and perception toward fear therapy according to gender and risk level of sports.

To meet the aim, 2 (male / female) by 2 (high risk sports / low risk sports) between-group factorial design MANOVA was used. Risk level (high / low) of sports was manipulated through the variables of heights and speed. Specifically, high risk sports are activities that involve higher degrees of height and speed (e.g. sky diving, mountain biking), conversely, low risk sports are activities categorized by lower degrees of height and speed (e.g., canoeing, sailing). To conduct the experiment, a total of 88 (Male: 47 / Female: 41) college students were recruited at a large Midwest public University in the United States. Participants were randomly assigned into a high or low risk experimental group and asked to participate in two 20 minute VR games. After participating in the VR games, participants were instructed to complete a questionnaire. The questionnaire items were adopted and modified from previous studies (Abelson & Curtis, 1989; Kiremitci, Demiray, Gencer, & Aycan, 2014; Oliver & Bartsch, 2011; Simsek, 2017). Results of the study revealed that there was a statistically significant difference of gender and risk level of sports on intention to participate in extreme sports (M = 5.37, SD = 1.57), stress reduction (M = 5.09, SD = 1.43), and perception toward fear therapy (M = 5.09, SD = 1.24), F(9, 200) = 2.28, p < .05; Wilks' Λ = .79, partial η² = .08.

Extreme Sports participation through VR technology presents an opportunity for sport marketers and practitioners by offering low risk participation to a larger population. In addition, VR extreme sports can be utilized as a therapeutic modality to safely expose people who have phobias to things such as speed or heights.