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Published in:

Journal of physical fitness, medicine and treatment in sport

Publication date:

2021

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DOI: [10.19080/JPFMTS.2021.09.555761](https://doi.org/10.19080/JPFMTS.2021.09.555761)

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Citation for published version (APA):

Lewis, V., & Cameron, L. (2021). A review of breast issues facing female horse riders. *Journal of physical fitness, medicine and treatment in sport*, 9(3). [https://doi.org/DOI: 10.19080/JPFMTS.2021.09.555761](https://doi.org/10.19080/JPFMTS.2021.09.555761)



Mini Review

Volume 9 Issue 3 - September 2021
DOI: 10.19080/JPFMTS.2021.09.555761

J Phy Fit Treatment & Sports

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A Review of Breast Issues Facing Female Horse Riders



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Submission: July 07, 2021; **Published:** July 28, 2021

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Abstract

Most horse riders (equestrians) are female (73.5%), but little is known about their experience as equestrians, barriers to participation and physical challenges faced. In non-equestrian sports, one of the most often reported barriers to physical activity is the female breast. In these sports the breast has been found to be a barrier to physical activity due to embarrassment and exercise induced pain [1] associated with excessive breast movement. Equestrians experience upper-body movement patterns in response to large vertical excursions of the horse particularly in the 'leaping' gaits such as trot and canter where there is a movement of suspension between the stance phases of the equine gait [2]. The aim of the rider is to absorb these forces whilst maintaining the ideal position maintaining a straight line 'ear-shoulder-hip-heel', yet how this affects breast movement and potentially pain in riders was unknown. Breast movement and pain experienced in other sporting activities is significantly reduced using appropriate and well-fitting sports bras [3] but the experiences of the female equestrian and their sports bra usage were unknown.

Keywords: Horse riders; Sports bras; Sitting trot; Race wood

Abbreviations: EIBP: Exercise Induced Breast Pain; ROM: Range of Movement

Introduction

A sample of female horse riders (n=1324) who were over 18 years old, completed a 6-part 32 question on-line survey (Google® Forms) resulting in 1265 usable responses [4]. Breast pain was reported by 40% of respondents, increasing linearly with reported cup size. The most pain inducing gait of the horse was reported as "sitting trot", agreeing with anecdotal accounts, and 21% reported that this exercise induced breast pain (EIBP) negatively impacted their horse-riding performance. Larger breasted respondents ($\geq D$ cup) reported a greater frequency of EIBP and subsequent loss of performance. Although sports bra usage was reported, this was relatively low: 27% - small breasted respondents ($\leq C$ cup), 33% large breasted respondents, and multiple bra issues were reported such as "rubbing/chaffing, shoulder straps digging into skin, upper body pain, poor posture and underwire digs into skin" reported by 59% of respondents possibly contributing to the low usage of sports bras reported. Within the same survey, respondents reported any barriers they experienced to horse riding and their experience of bra related issues. A minimum of one breast related barrier to participation was reported by 25% of respondents [5] and larger breasted riders were significantly less satisfied with their bras. The requirement for improvements in bra design including better support, style and fit to help reduce

breast health issues was highlighted by seventy percent of riders. These results suggest that more research was required to establish the type of breast movement that female riders experience and how a range of breast support impacts this movement, EIBP and horse-riding performance.

Riding is an early start, late maturation sport and age does not appear to be a limiting factor to participation, with riders often seen competing even at Olympics level into their sixties [6]. In a study [7] surveying riders over the age of 35 years old (n=2185 participants) results showed that 81% of females suffer from breast pain at some point, with 55% reported it to be discomforting, 37% mild, 3% distressing, 3% horrible and 2% said that it was excruciating. Participants with breast pain showed that they are 3 times (O.R.) more likely to also suffer from back pain than those without breast pain. Of the riders suffering from pain 71% of the riders that had breast pain in the last two years have considered the use of a sports bra to overcome breast pain with 23% using pain medication and 11% considering breast surgery however only 3% have had the surgery done. A total of 70% of riders currently wear a sports bra to help with breast pain with 25% taking pain medication to control it.

An initial study was completed with a small sample of female horse riders to investigate the movement of the female breast during horse riding [8]. Twelve female riders (UK bra size 32DD and 34D) completed 1 minute of walk, trot (sitting) and canter on a Race wood simulator. These trials were filmed in three breast support conditions: (a) no bra, (b) daily bra and (c) sports bra to calculate relative vertical breast displacement (RVBD). Participants then rated their exercise induced breast pain (EIBP) after each support condition and gait on a 10cm Visual Analogue Scale. Mean (\pm SD) unsupported RVBD (mm) was highest during trot (sitting) (45 ± 12) and was significantly reduced in a sports bra compared to a daily bra. A significant reduction in EIBP was reported in a sports bra compared to the daily bra during canter and trot. A larger study repeated this methodology with more participants ($n=38$), additionally measuring rider position according to the methodology set out by Kang et al. [9]. With this larger sample, results for RVBD and EIBP were concurrent with [8] with significant reductions in breast movement and pain with increased breast support provided by a sports bra. Rider position during these trials was also significantly impacted by increased breast support, with rider torso deviating less around the vertical and range of movement (ROM) of the shoulder-elbow-wrist also being reduced suggesting that appropriate breast support may improve riding position in female equestrians [5]. These results suggest that there is a need to develop specific equestrian bras and educate riders on breast support. Breast pain caused by inappropriate breast support may affect horse-rider interaction in more ways than just position and warrants further investigation [10-12].

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DOI: [10.19080/JPFMTS.2021.09.555761](https://doi.org/10.19080/JPFMTS.2021.09.555761)

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