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Gluteal muscle size and quality in professional ballet dancers compared to non-dancing athletesR. Cowan^a, S. Mayes^b, J. Cook^a, A. Semciw^a, L. Plass^c, T. Pizzari^a^a*La Trobe University, Australia*^b*The Australian Ballet, Australia*^c*University of Chicago Medicine, United States of America*

Background: Professional ballet dancers load their hips in extreme ranges of motion and commonly report hip pain. Evaluating gluteal muscle size and quality may help guide exercise programs. Objectives of this study were to compare gluteal muscle size and quality (fatty infiltration) in ballet dancers compared to athletes; and to investigate the relationship between gluteal muscle size and quality, and reports of hip-related pain.

Methods: In this case-control study, professional ballet dancers (current and retired, $n=49$, mean age 35 years, range 19-63) and age and sex-matched non-dancing athletes (current and retired, $n=49$) underwent magnetic resonance imaging of both hips. Athletes played tennis, basketball or netball. Muscle cross-sectional areas (CSA) were obtained at standardised landmarks for gluteus maximus (GMax) and gluteus medius (GMed). Full muscle volume was calculated for gluteus minimus (GMin). Fatty infiltration was rated at standardised landmarks for all gluteal muscles (including anterior and posterior segments for GMed and GMin) using the Goutallier classification system. Muscle size was compared between groups using linear mixed models. Fatty infiltration was compared using a mixed model binary logistic regression. Hip-related pain (subjective reports yes/no at the time of data collection), participation status, limb side and sex were included as covariates.

Results: Ballet dancers had significantly larger GMax (upper $p<0.01$, middle $p<0.01$, lower $p=0.01$) and GMed (level of anterior inferior iliac spine $p<0.01$, greater sciatic foramen $p<0.01$) CSA and larger GMin volume ($p<0.01$), compared to athletes when normalised to weight (Kg). There was no difference in fatty infiltration ratings between dancers and athletes. There was no relationship between gluteal muscle size and subjective reports of hip-related pain. Retired dancers and athletes reporting hip-related pain were more likely to have fatty infiltration in GMax lower ($p=0.04$) than those without hip-related pain.

Discussion/Conclusion: Gluteal muscles are larger in ballet dancers compared to age and sex-matched athletes. Ballet dancers might specifically load gluteal muscles compared to athletes and this may be due to the externally rotated hip position unique to ballet. Dancers and athletes have comparable muscle quality. Hip-related pain was related to GMax lower muscle quality but not muscle size.

Impact/Application to the field:

- Professional ballet dancers have larger gluteus maximus and gluteus medius cross-sectional area, and gluteus minimus muscle volume compared with age and sex-matched athletes when normalised to weight (in kilograms).
- Professional ballet dancers and athletes have comparable gluteal muscle quality.

Conflict of interest: None declared.

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What's the point? A qualitative descriptive study exploring the perspectives of elite athletes on self-reported dataM. Coventry^a, A. Timler^b, A. Mosler^c, K. Russell^a, M. Travers^a, M. Murphy^{a,d}^a*National School of Nursing, Midwifery, Health Science and Physiotherapy, The University of Notre Dame Australia, Australia*^b*Institute for Health Research, The University of Notre Dame Australia, Australia*^c*La Trobe Sport and Exercise Medicine Research Centre, La Trobe University, Australia*^d*Nutrition and Health Innovation Research Institute, School of Medical and Health Sciences, Edith Cowan University, Australia*

Introduction: Athlete-reported information is one of the many forms of data collected in a high performance environment aimed to help monitor athlete response to training load. Collected data can include pain, fatigue, recovery, menstrual data, psychological factors or general health data. These data are typically used to reach performance goals, preventing injury/ illness, and at times for research purposes. However, very little is published on the perspectives of the athletes self-reporting this information. Our study aimed to explore the athlete's perception on the usefulness and burden of self-reporting data collection in elite, Australian sport.

Methods: We employed a qualitative descriptive method to explore the perceptions and experiences of elite athletes on self-reported data collection. Australian athletes were recruited provided they were competing at a national or international level, and had regularly entered data into a national software platform, called the Athlete Management System (AMS), in the previous 12 months. Athletes were purposively and snowball sampled between January to April 2022, until saturation was reached. Semi-structured interviews were conducted with athletes, and transcribed using DeScript. NVivo version 12 was used for data storage and management of the transcribed interviews. Thematic analysis was used to determine key themes.

Results: Thirteen elite, Australian athletes (46% female) were included in our study. Eleven were competing in individual sports and two were team sport athletes. A number of key themes were identified. Athletes were not aware of the rationale for self-reporting data, who had access to, or monitored their data, or what their data was being used for. Athletes were skeptical the information was being monitored sufficiently to prevent injuries and if it was being monitored at all. In general, they perceived self-reporting as a burden, and reported less accurately if they perceived their data to be of little importance.

Discussion: Our research demonstrated that athletes have little knowledge of how their data is stored, used and managed. These findings are particularly concerning considering that many athletes reporting in the AMS are under the age of 18 years. Athletes were less likely to report regularly and accurately if they believed their data was not being monitored or used by high-performance staff to inform training. This increased the athlete's perceived burden of reporting data. Educating athletes on the purpose of collecting these data and giving regular feedback on what the data is being used for may address a number of the themes identified.

Impact and application to the field: Our research findings have clear implications to the collection and use of self-reported data in elite, Australian athletes. Athlete education may be essential to explain the benefits of accurate self-reported data collection and improve the transparency on who has access to data. Research using self-reported data from elite athletes should include the potential lack of validity of the data as a limitation. These approaches have the potential to improve the accuracy and benefits of self-reported data collection in elite athletes.

Conflicts of interest: The authors declare no competing interests of relevance to the submission of this abstract.