**RESEARCH AREAS: SPORTS SCIENCES, SOCIAL AND BEHAVIORAL SCIENCES**

**Training history and physical health of Masters athletes in Olympic weightlifting: a cross-sectional survey of USA Masters**

**Keywords:** master athletes, aging, physical activity, sport, weightlifting, health, injury, depression, stress, lifestyle, sex differences, menopause

**Background**

Athletes, especially women, start to compete at all ages in the master age category of 35 and older. In recent years there has been a dramatic increase in the number of competitive athletes seen at national and international competitions. Training age and training habits are not well understood in this older population. It is important to study physical health outcomes, such as prevalence of injury and chronic disease, and their influence on performance decline and participation in competitions to understand how this older population navigates health issues with physical activity, and to inform sport scientists and medical health professionals.

**Aim**

The primary aim of this study is to describe demographics, training habits, and physical health (including prevalence of injury and chronic disease) in male and female master athletes in Olympic weightlifting.

A secondary aim is to study weightlifting performance at different ages by linking survey response data for competitive athletes to their actual competition results.

**Study design**

This is a cross-sectional study of USA Masters weightlifters who are current members of USA Weightlifting.

**Inclusion criteria**: Survey results from Olympic weightlifters ages 35 and older with a current USAW membership

**Exclusion criteria:** Responses with missing birth dates or gender will be removed.

**Statistical methods**

Survey responses will be checked for duplicates and internal consistency regarding age, gender, and dates.

Demographics, training variables, sport history, health, psychological, and lifestyle factors will be summarized, stratified by gender and age groups (35-44, 45-59, and 60 years and older). Cumulative incidence functions for injuries and age at menopause will be constructed.

Master athletes participating in national or international competitions will be compared in demographics, training patterns and other factors to those who compete in local competitions taking into account years of experience. Performance decline and impact of health will be studied for these competitive athletes, stratified by gender. Performance progression will be summarized as years of improvement for participants entering the sport at older ages.

Qualitative responses were sought to the questions “Do you have any additional comments about the factors affecting your weightlifting career?” and “Do you have any comments about how your weightlifting career affects parts of your life?” The comments will be categorized, agreement between two coders will be compares, and a qualitative analysis of common themes will be conducted.

**Strengths and limitations**

This study is based on voluntary participation of individuals. Diagnoses of self-reported diseases cannot be checked. Masters sports are typically dominated by educated and white. The cross-sectional design gives rise to a potential bias at the older age groups with the possibility of a relatively healthier population than non-athletes in their age cohort. It is expected that many participations started weightlifting in recent years. Women are typically underrepresented at ages older than 65.

This is the first study investigating sport history, physical activities, and health and lifestyle challenges in a large population of older adults active in the sport of weightlifting.

**References**

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2. Wright VJ, Perricelli BC. Age-related rates of decline in performance among elite senior athletes. Am J Sports Med. 2008 Mar;36(3):443–50.
3. Horton S, Dionigi RA, Gard M, Baker J, Weir P. “Don’t sit back with the geraniums, get out”: The complexity of older women’s stories of sport participation. J Amat Sport. 2018 May 15;4(1):24–51.

**Data sources**

Data will be obtained from the following sources.

MSU Qualtrics Survey to be administered to USAW members.

IWF World Championships results http://www.iwf.net/

USA National Competitions: http://www.teamusa.org/usa-weightlifting

Process for obtaining survey responses:

1. A link to the MSU Qualtrics survey will be sent to up to 10 USA Weightlifting (USAW) Master members (ages 35 and above) for feedback on the wording and choice of questions.

2. Once feedback is collected and potentially incorporated in the survey, then a link to the MSU Qualtrics survey will be emailed via USA Weightlifting (USAW) to Master members.

3. A reminder via the USAW email system will be sent after two weeks and links to the survey will be posted on common social media for Masters weightlifters (Facebook).

4. If a participant chooses to provide the USAW membership ID, then we will request via email competition performance results for the participant. These performance data are publicly available. However the link between survey data and performances is not public.

**Data management**

Data will be kept on a password protected computer. Only MSU investigators will have access to identifiable information. The anonymous survey results (without link to USAW membership data) will be shared with Dr. Holly Arrow, Department of Psychology, University of Oregon.

At the end of the study, survey data will be de-identified and made open access. The corresponding competition performances, although publicly available, will not be made available as the link to survey data could identify athletes.

**Abbreviations**

MSU – Michigan State University
IWF – International Weightlifting Federation
USAW – USA Weightlifting

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