Health Care Related Problems Among Female Sport Dancers

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Tens of thousands of people around the world from young children to older adults are currently involved in DanceSport, recognized by 81 national DanceSport federations. DanceSport competitors participate in international competitions in Latin (samba, rumba, cha-cha-cha, paso doble, and jive) and standard (English waltz, tango, Viennese waltz, slow foxtrot, and quickstep) dances. Each of these dances is performed to the prescribed music by couples demonstrating proper technique. The World DanceSport Federation (WDSF) is the world governing body for DanceSport, with the mission to regulate, administer, and develop DanceSport. It is an attractive and physically demanding sport of extreme beauty and growing popularity, so the impact of training and dancers’ health status are increasingly becoming a subject of scientific research.¹⁻⁶

A set of information on athletes’ health that is collected for research purposes represents a sensitive area of human intimacy. This set of information, aside from the unmistakable personal significance, is also extremely important for competitive success. Some authors⁷,⁸ point out that the phenomena of hiding health problems and injuries with the purpose of achieving better competitive results is characteristic for dancers. It is possible, especially in DanceSport, that dancers’ health problems are not treated properly because of consideration toward one’s dance partner or risk of missing a competition. The first step in dealing with this important problem is to become aware of the real health status of competitors in DanceSport. Previous studies that investigated health problems in dancers⁹⁻¹² were usually conducted on small subject samples and were not of global character. For example, research¹³ was conducted on 569 injured nonprofessional female dancers, aged 8 to 16, including classical ballet, modern dance, and jazz dancers. The most common injuries affected the knee, and knee injuries increased with age. Frequent pain in the knee area occurs also in ballet¹⁴ and cheerleader dancers,¹⁵ who train with multiple jumps and leaps. All of these studies have contributed to the initiative for speaking up publically about characteristic health problems of dancers, with the aim of better health care and achievement of long-term careers of exceptional dancers. Having the opportunity to compare data collected on small samples against data which can be considered global
is of significant scientific importance because in doing so, factors of impact on the injury process such as improper training procedures, training extensiveness, or years of dancing can be excluded.

A bibliographic review\textsuperscript{15} that listed 34 studies that investigated health problems in DanceSport was the first attempt at collecting global data related to elite dancers’ health. This is yet another example that elite dancers rarely speak up about their health problems so as not to jeopardize the possibility of competing. The authors of the current study made extreme efforts in popularizing the online questionnaire used in the study to encourage female dancers to voluntarily participate in this global research, hoping that the published data would help dancers around the world to better understand their health problems. DanceSport is a very popular and multi-useful recreational activity which is, in proper intensity, desirable and applicable during lifetime. As such, scientific research that can indirectly help injury prevention in dancers with the long-term aim of improving quality of life and health preservation is needed.

The purpose of this study was to: (1) identify global health care related problems among professional sport dancers and (2) identify age-specific pain experience among female DanceSport competitors by defining the proportions of pain status of 14 body regions.

**Procedures**

The sample included female DanceSport competitors who had participated in international competitions. The study involved 173 female dancers who participated in the research voluntarily and whose mean age was 24 years (range 15 to 38), mean body height was $165.7 \pm 6.49$ cm, mean body weight was $53.7 \pm 6.84$ kg, and mean body mass index (BMI) was $19.5 \pm 1.9$. For research purposes the dancers were divided into three age groups as follows: (1) juniors (J), persons aged 15 to 17 years; (2) seniors–I (S–I), persons aged between 18 and 24 years; and (3) seniors–II (S–II) persons aged 25 years and older.

The authors made special effort to explain the aims of the research to the dancers, as well as the importance of their voluntary online participation in the research. Through national federations and European dance associations and numerous contacts with dancers via e-mail and during dance tournaments, dancers were motivated to participate in the research. The questionnaire was translated into eight world languages. To enable the participation of a larger number of dancers, an online questionnaire was posted on a specialized server (SurveyMonkey, Palo Alto, CA) for collecting and analyzing data electronically on a global level. The server and the application enabled a password level of access security and automatic identification of subjects, defined by the IP address and personal information, when filling out the questionnaire from a computer. The study included female dancers from: Argentina, Australia, Austria, Belarus, Belgium, Bosnia and Herzegovina, Brazil, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Ecuador, Estonia, Finland, France, Germany, Great Britain, Hungary, Ireland, Israel, Italy, Latvia, Lithuania, Malaysia, Malta, Moldova, Netherlands, New Zealand, Poland, Portugal, Romania, Russia, Serbia, Seychelles, Singapore, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Taiwan, Turkey, Turkmenistan, Ukraine, United States of America, and Uruguay.

The survey consisted of: (1) a basic data and health care related questionnaire and (2) the Self-Estimated Functional Inability because of Pain (SEFIP) questionnaire designed for dancers.

In the basic data questionnaire, subjects were asked to complete questions through which details were collected related to their current and previous training experience and sport status, discontinuation in dance career, duration of discontinuation, cause of the discontinuation, and willingness to consult a physician when they are injured. The SEFIP questionnaire is a simple and valuable tool in defining the pain status in certain regions in dancers, approved to be of high applicability in professional ballet dancers, standard and Latin dancers, and dance students.\textsuperscript{16,17} The SEFIP is an instrument that asks the subject to assess their current pain on a 5-point scale, with 0 being no pain and 4 being pain so severe they are unable to dance. The questionnaire covers 14 body regions (neck, shoulders, elbows, wrists and hands, upper back, lower back, hips, thighs (front), thighs (back), knees, shins, calves, ankles and feet, and toes). A sum score (range 0 to 56) can be achieved where 0 represents no pain and 4 maximal pain. Everything above 0 is regarded as a positive finding.

Pearson’s $\chi^2$ test was applied for the comparison of the proportions of pain experience in the 14 body