

Occupational Hazards in Female Ballet Dancers

ADVOCATE FOR A FORGOTTEN POPULATION

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Millions of Americans participate in the performing arts. Performing artists comprise a significant population of workers who experience injuries and illnesses from years of intensive training and performing. Participants in the performing arts include approximately 200,000 professional performers and many others such as students, amateurs, apprentices, teachers, coaches, and part time performers (Ostwald, 1994). Artistic endeavors of professional performers include music, dancing, singing, and acting.

Performing artists experience injuries and illnesses from years of intensive training and performing. For example, to perfect motor skills a young violinist will have studied more than 15,000 hours, and ballet dancers start dancing as young children to develop strength and coordination to dance with grace and style (Ostwald, 1994). A survey of orchestral musicians revealed that 76% reported a medical problem serious enough to interfere with their performance. Another study revealed that 97% of dancers experienced a serious injury during a period of 8 months (Ostwald, 1994). Not only do performers suffer physical injuries, but many also suffer from "stage fright," anxiety, fear of injury, fatigue, financial insecurity, eating disorders, and alcohol and drug abuse. It is important for occupational health nurses to realize performing artists are a significant population of workers with physical and emotional illnesses.

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The purpose of this article is to discuss female ballet dancers and examine occupational hazards they experience while performing. The article defines how stress affects ballet dancers and examines the literature related to personal and economic factors causing stress in ballet dancers; common types of dance injuries; and the emotional, psychological, and physical impact injuries have on dancers. Treatment modalities and barriers to receiving treatment, dancers' motivation, coping, and recommended interventions are also discussed. The article concludes with a focus on how occupational health nurses can be advocates for these workers. Performing artists enrich lives emotionally, intellectually, and spiritually. Occupational health nurses must advocate for this often forgotten and misunderstood population of workers and help them in their battle against injury, pain, disability, and psychological distress.

LITERATURE REVIEW

Occupational Stress

Many definitions of stress and work related stress are found in the literature. According to McGrath (1970) stress is "a (perceived) substantial imbalance between demand and response capability, under conditions where failure to meet demand has important (perceived) consequences." Selye (1983) described stress as "a function of both the environment and the person; a psychosocial, as well as biologic phenomenon, linked to the perceptions of the individual; and an undesirable phenomenon."

Karasek (1990) viewed stress as arising from the type of work and control individuals have over their job compared to the amount of job demand. The model states a job with high physical demand but low worker control is associated with greater incident of injury. Karasek's model is an appropriate fit to describe the stresses of ballet dancers. The job demand of ballet dancing is increased because ballet dancing is physically and mentally demanding. For example, long hours of rehearsal

are required, often there are travel demands, performers are frequently required to perform into late night hours, and there is the fear of injury resulting in unemployment. In addition, the choreographer, ballet master, and the artistic director determine the available dance roles, selection of dancers, and required steps. The dancer may perceive little control except over the execution of the steps. Principle dancers may have more control over negotiating dance roles than members of the ballet core, but the pressures to perform are greater. The dancer must "emotionalize" the choreographer's steps, which is mentally draining. The combination of perceived lack of control and excessive physical and emotional demands make the ballet dancer vulnerable to frequent injuries.

Personal Stress

Ballet dancing requires a long training period to master techniques of turnouts, flexibility, and strength. Dancers begin classes before puberty, and the dancer must remain prepubescent in shape. Women who are not naturally thin and who have any physical defects are eliminated from professional opportunities. Dancers with the best bodies survive. The life span of a ballet career is short because dancers loose stamina as they age into their mid to late 30s (Hamilton, 1994).

Dancers must be physically strong and have a high tolerance for pain. The performing artists' instrument is their body. Competition for ballet roles is fierce and many ballet students never make it to the professional level. When dancers achieve professional status, they need to maintain their skilled quality of dancing (Hamilton, 1995).

Hamilton's study (1989) on personality, stress, and injuries in ballet dancers revealed dancers characterized as "overachievers" who experience physical stress experienced the greatest number of injuries throughout their careers. The researchers speculated these dancers have been "programmed to compete continuously with themselves." To be accepted into a professional ballet company, dancers must be perfectionists, have extraordinary dedication, limitless capacity for hard work, and the ability to persevere through almost constant pain. Therefore, the dancers' continual drive toward physical perfection can lead to chronic injuries, stress, and possibly permanent disability (Hamilton, 1989).

In an attempt to remain thin and physically competitive for major ballet roles, dancers are at risk for eating disorders. According to Holderness (1994), eating disorders in dancers result from professional pressures to remain thin and not from an addictive personality as found in the general population.

Psychological and Emotional Issues

Successful dancing requires exclusive focus of time and energy. Because of such focus and dedication from early childhood through adolescence, dancers often lack social experiences, and as a result have fewer skills for coping with stress. For example, ballet dancers who fail to meet their own goals or win acceptance from others may suffer from psychological symptoms and lack the coping skills to address their symptoms (Ostwald, 1994). Depres-

sion among dancers may occur if there is physical injury; aging; or a loss of opportunity, self esteem, or popularity. The dissimilarity between performance highs and ordinary daily life increases the possibility of acute depression or other inappropriate emotions. To protect their reputations, some dancers may attempt to conceal or deny depression or other destructive emotions (Ostwald, 1994).

Anxiety concerning auditioning and performing is common. Psychological symptoms include heightened apprehension, a dread of failure, fear of memory lapses, and fear of being disgraced (Ostwald, 1994). Physical symptoms of increased anxiety are muscle tension, respiratory distress, tremors, heart palpitation, dry mouth, and loss of sphincter control. The possibility of experiencing physical symptoms of anxiety while performing also increases apprehension.

Economic Factors

Many dancers have been goal oriented about their careers from an early age. This early intense focus on dancing at the exclusion of everything else leads to inadequacies in other life experiences. Many dancers do not own cars or property, have no experience with banks, lawyers, or accountants, and have low incomes (Greben, 1992). It is not unusual for dancers to have sacrificed their education to dance professionally without completing high school. Dancers often lack confidence to succeed in anything other than dancing. Most performing dancers do not earn a comfortable living and have no regular income and other benefits. As dancers age, they are unprepared for the transition to another career (Greben, 1992).

Common Injuries

The ongoing fear of injuries is universal among dancers. Foot injuries are the most common injuries in ballet dancers. Toe dancing results in "non-physiologic weight bearing that exaggerates the metatarsal arch and can lead to distorted posture" (Ostwald, 1994). This results in muscle imbalances leading to foot pain, fatigue, stiffness, bunions, and hammer toes. The excessive pressure in the feet and toes can cause early arthritic changes, bone spurs, narrowing of the joint spaces, and restricted motion. All of these conditions create more pain. To relieve the discomfort dancers shift the body weight, resulting in the potential for more injuries (Ostwald, 1994). According to Ostwald, "micro fractures of bones in the foot and ankle resulting from repeated impact with hard unyielding surfaces frequently go unnoticed in the early stages and fail to heal properly" (Ostwald, 1994). Other disabling injuries include muscle spasm; ligament sprain; tendonitis; nerve damage; injuries of the ankles, back, hip, or knee; and various cysts and dislocations. Dislocation of the patella is common (Ostwald, 1994).

Delayed menarche occurs in 70% of female dancers, with amenorrhea seen in 50% of adolescent and 78% of adult dancers, caused by physical and emotional stress (Liederbach, 1994; Ostwald, 1994). Hamilton (1989) reported a positive relationship between amenorrhea and stress fractures. Amenorrhea is linked to a decrease in

estrogen and a loss of bone density and is thought to result from low caloric intake, low calcium levels, strenuous exercise, and constant dieting to maintain a thin body shape (Hamilton, 1989).

Injury Treatment and Barriers to Receiving Treatment

Severe injuries may require aggressive treatments (e.g., surgery) and may end a ballet dancer's career (Ostwald, 1994). Early diagnosis of injuries is critical. Conservative management and restoring functional ability are essential with ballet dancers (Ostwald, 1994). Early treatment of foot problems includes elevation and active motion to reduce edema and stiffness. Bone fractures should be treated with rest, ice packs, bandaging, splints, and crutches to reduce weight bearing. Dancers must be encouraged to eat high calorie, nutritious meals. Clinicians treating dancers must attend to dancers' psychological difficulties and focus on prevention of injuries by emphasizing conditioning, stabilization, and muscle rebalancing (Ostwald, 1994).

Another aspect clinicians should recognize is few dancers stop dancing after they are injured. Dancers view injuries and pain as a way of life. In an attempt to decrease foot injuries and relieve discomfort, dancers perform simple interventions such as padding their ballet shoes with soft lamb's wool. Most dancers do not seek medical attention for their injuries. Physicians treat fewer than 50% of dancers' injuries (Krasnow, 1994). In Krasnow's study (1994), those dancers who did seek medical care continued dancing against their health care provider's advice. Often the dancer returns to work too early and is prone to reinjury. Financial and time constraints and misunderstanding from the medical community have been identified as reasons for this practice (Krasnow, 1994). Many dancers do not have health insurance, money for prescriptions, physical therapy treatments, and cannot afford to take time off work. In addition to this, dancers may not have enough time to travel to a health care provider because of the demands of long hours of practice. Each day dancers miss practice or rehearsal, they lose status in the extremely competitive dance world. Finally, dancers' perception of the medical field is that physicians do not understand their needs. Physicians do not understand that dancers cannot temporarily stop dancing. Dancers often question the diagnosis and treatment, and frequently physicians prescribe exercises less demanding than the dancer's regular practice. It is often difficult for dancers to find an appropriate physician who specializes in ballet dancers or sports medicine. Dancers report lack of communication with their health care providers and feel misunderstood. Consequently, when dancers are injured, often they rely on the advice from ballet teachers and other dancers (Krasnow, 1994).

An important and significant reason dancers do not seek health care is their overwhelming fear of unemployment and the end of their ballet career. When dancers are injured and take time off from dancing, they fear weight gain and a permanent loss of technique (Krasnow, 1994). When dancers are permanently injured and no longer

able to dance, they not only lose their job, but also lose friends and the familiar ballet culture. This may result in depression (Greben, 1992). Dancers often have little job security and some have no workers' compensation or unemployment benefits (Krasnow, 1994).

Dancers' Motivation and Coping

Greben (1992) reported dancing has great satisfactions, making it difficult for the dancer to stop dancing. According to Greben (1992),

The dancer has esthetic and kinesthetic pleasure from the use of the body, a sense of mastery or control in that use, and the pleasure of working with a group or company of others, as well as the gratification of a beautiful visual and musical environment.

The dancer derives satisfaction from the attention, applause of the audience, and the culture of the ballet world. These positive attractions draw and keep the ballet dancer dancing.

According to Karasek's concepts of workplace stress (1990), ballet dancers who feel "helpless" are more vulnerable to the effects of stress than those able to effectively cope. Helplessness is related to lack of control or powerlessness. Seligman (1991) described the phenomenon of helplessness as a learned state in which a person feels an inner response of defeat and powerlessness when challenged. Individuals believe they no longer have the ability to make a difference in their lives. Stressful events and a person's response to the stress are individualized—what may be stressful to one dancer may not be stressful in another. Some dancers may be distressed about performing and have "stage fright." For other dancers, this is not a concern. Many dancers report stage fright enhances the excitement of performing and do not need to be treated, but some dancers are so distressed by it they may withdraw from public performance. Some ways ballet dancers cope with stress include an adaptation of a healthy lifestyle (avoidance of tobacco and alcohol), participation in activities and interests outside of ballet, recreational activities, social support, and problem solving skills (Hamilton, 1995). Ostwald (1994) reported many performers develop personal coping strategies such as self hypnosis, relaxation exercises, or deep breathing.

Recommended Interventions

The most commonly recommended intervention is the prevention of injuries and stress through education (Cardinal, 1996; Greben, 1992; Hamilton, 1994; Koutedakis, 1997; Krasnow, 1994). Hamilton (1994) recommended educational seminars targeting hazards of dieting, the importance of using calcium supplements, psychotherapy to correct distorted thinking, and rehabilitation to correct "physical defects." An injury prevention model includes "a team of professionals" available to ballet dancers. This team consists of an orthopedist, psychologist, nutritionist, endocrinologist, physical therapist, and nurse (Hamilton, 1994).

Greben (1992) recommended treating ballet dancers holistically so they can maximize their talent and reduce feelings of self doubt. The author included similar rec-

ommendations previously mentioned but added career guidance and legal, business, and accounting education and services for dancers. Another suggestion was that ballet schools encourage or provide education through 12th grade. Dance companies should provide financial assistance to dancers to pursue educational goals outside of dancing in preparation for a career switch when dancers are no longer able to perform.

Koutedakis (1997) took a more practical approach to dancer intervention. According to Koutedakis, education is vital and it should focus on prudent health habits such as decreasing smoking and alcohol intake, maintaining optimal dietary intake, and including warm up and cool down sessions when dancing.

In contrast, Cardinal (1996) emphasized dance wellness. Although this approach discusses some practical issues, its focus includes the more general goal of enhancing the artistic aspects of dance. "The overall goals of dance wellness education are the optimal health of dancers and the enhancement of the quality of dance as an art form without medical problems of dancers" (Cardinal, 1996). This article described 10 "curricular components" of dance wellness. The components revolve around the prevention of injuries, nutrition, personal health, and psychology.

Psychological counseling must be considered as an intervention. Management of psychological issues demands sufficient time for dancers to relax, establish trust, and lower their defenses. Consultations lasting 60 to 90 minutes are more successful than the short 10 to 15 minute contact (Ostwald, 1994). The nurse must avoid extreme enthusiasm or criticism concerning the dancer's fame. These behaviors may lead the dancer to see the nurse as another parent, teacher, or fan more interested in their fame than their health problems.

Medications can also be a helpful intervention for the reduction of both depression and anxiety. However, the nurse needs to be aware of the destructive practice of self medicating with drugs and alcohol in the dancing population. If the use of psychoactive medications is necessary, they must be used with caution. The potent side effects of drowsiness, dry mouth, tremors, and insomnia may interfere with peak dance performance. Nonselective antidepressants, such as nortriptyline hydrochloride (Aventyl, Pamelor) and sertraline hydrochloride (Zoloft), have been effective in treating musicians and dancers with depression. Beta blockers such as propranolol hydrochloride (Inderal) taken in low doses of 10 to 20 mg approximately 1 hour before going on stage may help with performance anxiety (Ostwald, 1994).

The overall health needs of dancers are difficult to meet. Nurses must be specifically attuned to the health dilemmas of the dancer. Krasnow (1994) suggested ballet companies hire a health care provider who specializes in dance or sports medicine. In addition, health care providers should be educated about dancers' struggles—particularly their financial and cultural struggles and time constraints. Emphasis needs to be placed on working to make the job less stressful. Companies should provide health insurance to their dancers, along with government supported disability insurance for injured dancers.

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Occupational Health Nursing Implications

Occupational health nurses may encounter ballet dancers in their nursing practices or personal lives. With an appropriate knowledge base, nurses are in an excellent position to start programs in this unexplored area of occupational health nursing. With the information provided here, occupational health nurses can be knowledgeable about the physical and psychological illnesses of dancers and can recognize potential problems and educate dancers, coaches, and parents about important interventions. Because it would be difficult for one person to intervene with the vast range of physical, psychological, nutritional, financial, and legal difficulties of dancers, an interdisciplinary approach coordinated by the occupational health nurse is most appropriate.

Occupational health nurses can offer their expertise to local ballet companies to coordinate successful health care programs for dancers. They can target smaller ballet schools and companies to establish and coordinate an interdisciplinary team. The interdisciplinary team includes a sports or dance medicine physician, clinical psychologist, nutritionist or dietitian, physical therapist, financial planner, tax and immigration lawyer, podiatrist, and career counselor. Ideally, team members meet dancers after practice or rehearsals at the ballet company. The ideal situation is for the ballet company to reimburse the services of the interdisciplinary team or have the company or dancers' health insurance cover these expenses. If cost is problematic, team members may volunteer their services or charge the dancers a nominal fee.

In addition to coordinating the team of professionals, occupational health nurses can provide ongoing education to dancers, choreographers, ballet masters, dance teachers, and parents. The goal of an educational program is to decrease injury rates. Emphasis is on injury prevention by providing dancers, choreographers, ballet masters, dance teachers, and parents with education about why injuries occur and how they can be prevented. When the team of professionals is not available, the nurse can provide continuing education related to nutrition, prevention of eating disorders, hazards of substance abuse, physical therapy, and exercising. In addition, the nurse can educate dancers about stress prevention and coping skills, and encourage small group sessions of dancers to discuss their concerns and anxieties. It is important for the occupational health nurse to emphasize healthy lifestyle and personal health and wellness with all members of the ballet company.

The nurse is in an excellent position to manage workers' compensation, state disability claims, and

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AAOHN Journal 2000; 48(9), 430-434.

1. Personal, economical, psychological, and physical factors increase a ballet dancer's stress, which can result in a higher risk for injuries.
2. Ballet dancers experience injuries to the foot, ankle, knee, hip, or back. The constant fear of injuries is universal among dancers because injuries can lead to permanent disability and the end of their ballet career.
3. Although early treatment of injuries is critical, there are multiple barriers to receiving treatment. Some of the barriers include misunderstanding from the health care community, cost of treatment, time constraints, fear of unemployment, and dancers' viewing injuries and pain as a way of life.
4. Occupational health nurses are in an excellent position to start programs in this unexplored area of occupational health nursing. Nurses must advocate for this population of workers and help dancers in their battle against injury, pain, disability, and psychological distress.

back to work issues. The knowledgeable nurse employed by the ballet company may be able to detect an individual dancer's depression or anxiety sooner and provide early interventions. The occupational health nurse can educate physicians about treatments acceptable to the dancer and preventing unemployment and possibly the end of the dancer's career. In addition, the occupational health nurse can provide information about community resources including referrals to social agencies for financial assistance, childcare services, vocational services, emergency shelter and food, and unemployment if needed.

CONCLUSION

Many individual and organizational reasons for stress can be found in the female ballet dancer. Individual rea-

sons for stress include injuries and the fear of injuries, eating disorders, the "perfectionist overachiever personality," hormonal disorders, helplessness, and "stage fright" and depression. Some of the organizational reasons for stress include financial and job insecurities, because dancers may not always be employed and are in constant competition with other dancers. If the dancer does not cope well with stress or the ballet company does not assist the dancer with the identified interventions discussed above, increased stress, injuries, or illness may result.

Performing artists enrich lives emotionally, intellectually, and spiritually. Occupational health nurses must advocate for this often forgotten and misunderstood population of workers and help dancers in their endless battle against injury, pain, disability, and psychological distress.

The author was supported by Training Grant No. OHO/7087-22 from the Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health. The contents are solely the responsibility of the author and do not necessarily represent the official views of the National Institute for Occupational Safety and Health.

REFERENCES

- Cardinal, M.K., Hilsenrader, S.A., & Cardinal, B.J. (1996). Dance administrators' perceptions of dance wellness-related curricula in American higher education dance programs. *Medical Problems of Performing Artists*, 11(3), 83-87.
- Greben, S.E. (1992). Dealing with the stresses of aging in dancers. *Medical Problems of Performing Artists*, 7(4), 127-131.
- Hamilton, L.H., & Hamilton, W.G. (1994). Occupational stress in classical ballet: The impact in different cultures. *Medical Problems of Performing Artists*, 9(2), 35-38.
- Hamilton, L.H., Hamilton, W.G., Meltzer, J.D., Marshall, P., & Molnar, M. (1989). Personality, stress, and injuries in professional ballet dancers. *American Journal of Sports Medicine*, 17(2), 263-267.
- Hamilton, L.H., Kella, J.I., & Hamilton, W.G. (1995). Personality and occupational stress in elite performers. *Medical Problems of Performing Artists*, 10(3), 86-89.
- Holderness, C.C., Brooks-Gunn, J., & Warren, M.P. (1994). Eating disorders and substance use: A dancing vs. a nondancing population. *Medicine and Science in Sports and Exercise*, 26(3), 297-302.
- Karasik, R., & Theorell, T. (1990). *Healthy work: stress, productivity, and the reconstruction of working life*. New York: Basic Books.
- Koutedakis, Y., Pacy, P.J., Carson, R.J., & Dick, F. (1997). Health and fitness in professional dancers. *Medical Problems of Performing Artists*, 12(1), 23-27.
- Krasnow, D., Kerr, G., & Mainwaring, L. (1994). Psychology of dealing with the injured dancer. *Medical Problems of Performing Artists*, 9(1), 7-9.
- Liederbach, M., Gleim, G.W., & Nicholas, J.A. (1994). Physiologic and psychological measurements of performance stress and onset of injuries in professional ballet dancers. *Medical Problems of Performing Artists*, 9(1), 10-14.
- McGrath, J.E. (1970). A conceptual formulation for research on stress. In J.E. McGrath (Ed.), *Social and psychological factors in stress* (pp. 22-40). New York: Holt, Rinehart, & Winston.
- Ostwald, P.F., Baron, B.C., Byl, N.M., & Wilson, F.R. (1994). Performing arts medicine. *Western Journal of Medicine*, 160(1), 48-52.
- Seigman, M. (1991). *Learned optimism*. New York: Alfred A. Knopf.
- Selye, H. (1983). The stress concept: Past, present and future. In C.L. Cooper (Ed.), *Stress research issues for the eighties* (pp. 1-20). Chichester, England: Wiley.