

Survey of injuries among West End performers

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Abstract

Objectives—To obtain more information about injuries of West End performers.

Methods—A retrospective survey of 269 performers appearing in 20 West End productions (12 dramas and eight musicals).

Results—In current productions, 46% of all performers sustained at least one injury for an average of 0.87 injuries per performer. Lower extremity injuries were the most common for dancers (52.2% of injuries) and actors (43.2%) with neck and back injuries the second most common. Sprains and strains were the most common diagnoses. 61% of performers thought that their injuries were preventable. Most performers consulted non-physician healthcare providers. Factors significantly influencing the risk of injuries for performers include female sex, a history of previous injuries, missed performances due to previous injuries, more physically demanding roles, and performing on raked (angled) stages.

Conclusion—West End performers commonly sustain injuries. Although primary prevention of most theatrical injuries is not possible, modification of raked stages may reduce the incidence. This study may be helpful to the growing number of healthcare providers who practice performing arts medicine and may stimulate additional concern and research in the medical and theatrical communities about the performance injuries of professionals, amateurs, and theatrical students worldwide.

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Keywords: injuries; dancers; actors

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For the audience, West End productions can offer insightful and witty dialogue, inspiring and enthralling music, and seemingly effortless, dazzling dancing by some of the world's outstanding performers. Behind the glamour and glitz, however, is a highly stressful workplace where the performers can sustain a variety of occupational injuries. After our recent study on the prevalence and risk factors for theatrical injuries in 23 Broadway companies,¹ we performed a similar survey of West End companies.

Methods

SAMPLING

The study was performed with the cooperation of the staff and members of the British Actors' Equity Association who selected 20 West End theatrical productions in London chosen for a mixture of dramas and musicals for the survey

(table 1). The productions are 12 dramas and eight musicals. The deputy of each company distributed the survey to all cast members on various dates in February 1996. An attached letter from the Association introduced and endorsed the survey. The respondent could either mail in their anonymously completed questionnaire to the Association or give it to the deputy to send in. The number of respondents was 269 out of 379 total cast members (71%).

SOURCES OF ERROR AND BIAS

Retrospective surveys of injury, including this one, present potential problems with the accuracy of the respondents' recollections. As their occupations are at risk, professional performers may be especially likely to remember their injuries.¹ Additionally, the assurance of anonymity may also have encouraged candor in the responses. The injury rate may be slightly higher than described as disabled performers were not included in the survey. About five to 10 performers a year in all West End productions are disabled from injuries and not able to complete their contracts.

The overall response rate of 71%, with the response rates of the cast members in various productions ranging from 44.4% to 100%, is another potential source of bias. However, the degree to which the productions had a response rate above or below the mean for the sample was not significantly related to the number of injuries sustained in their current production ($F_{(1,19)}=0.43$, $p=0.52$) or to whether they sustained an injury in their current production ($F_{(1,19)}=0.25$, $p=0.63$). Likewise, having a 100% response rate versus a less than perfect response rate was unrelated to the number of injuries ($F_{(1,19)}=1.9$, $p=0.19$) or whether the performer sustained an injury ($F_{(1,19)}=0.11$, $p=0.75$). These findings suggest that the non-respondents may be similar to the respondents.

STATISTICAL ANALYSIS AND VARIABLE SELECTION

The survey questionnaire (appendix) consisted of self reported items designed to provide information about theatrical injuries and possible risk factors. The questionnaire was based on our Broadway survey¹ with input from an official of the British Actors' Equity Association (Hilary Strange, Senior West End Theatre Organiser). In the covering letter from the British Actors' Equity Association, injury was defined as follows: "Injury constitutes any theatre-related injury resulting in physical damage to the person. Please report any injuries you have sustained even those not resulting in missed performances."

For the initial risk factor analysis, unconditional logistic regression was used to generate

Table 1 Productions surveyed and demographics of West End performers

Production	Questionnaires returned (%)	Respondents (n)	Mean weeks in production	Mean physical demands*	Mean injuries / performer	Injured during production (%)	Size of rake† (%) slope)	Choreography in show**
Oliver	78	29	22.4	2.69	0.83	57	9	3
Mousetrap	54	07	24.1	2.00	0.14	14	0	0
Buddy	67	16	76.6	3.19	0.94	44	0	0
Fame	63	20	27.7	2.80	0.65	35	0	3
Blood brothers	86	12	91.9	3.27	1.33	83	8	2
Les miserables	69	22	75.6	3.50	1.80	77	4	1
Only the lonely	53	08	37.4	2.63	0.13	13	0	0
Phantom of the opera	67	24	83.9	2.63	0.75	50	0	1
Communicating doors	80	08	24.6	3.38	0.63	38	0	0
Dead funny	44	04	14.0	2.25	0.00	0	0	0
The hot house	70	07	10.3	1.67	0.00	0	3	0
Jolson	53	16	15.0	2.38	0.75	50	4	0
Indian ink	67	12	34.4	1.67	0.00	0	4	0
An inspector calls	71	05	23.6	3.40	0.00	0	10	0
The master builder	55	06	17.0	1.67	0.00	0	5	0
Mack and mabel	100	27	11.2	3.07	0.56	44	0	3
Starlight express	100	21	153.4	4.40	2.95	81	10	3
The wind in the willows	70	14	7.4	3.43	0.57	57	0	0
The women in black	100	05	174.5	2.20	0.00	0	0	0
Tommy Steele	63	05	33.6	3.80	0.80	80	0	3
Total	71.0	269	49.4	2.93	0.87	46	3	1.4

*Mean physical demands is a self rating that ranged from 1 (least) to 5 (most).

†These data were provided by the British Actors' Equity Association. Choreography in show ranged from 0 (none) to 3 (heavy).

odds ratios (ORs) for predictor variables, adjusted for the following covariates: number of weeks with the current production; number of performances with the current production; and number of minutes on stage each performance. Continuous predictors (height, age, etc), were categorised by quartiles of their distributions. The outcome for all analyses was whether the respondent indicated that they had been injured over the course of their current production.

As recommended when developing multi-variable logistic regression models through stepwise procedures,² all variables that predicted injury with even moderate probability of significance ($p<0.25$) were further tested with a criterion for inclusion in the final model being more restrictive ($p<0.15$). These selected models were further expanded by the forced inclusion of the three covariates implemented in the earlier risk factor analysis.

Results

CHARACTERISTICS OF THE STUDY POPULATION

Tables 1 and 2 present the demographic characteristics of the performers. The performers sustained 2.4 injuries per 1000 performances and 2.1 injuries per 1000 hours performing on stage during their current production. For

dancers and actors, respectively, 18.5% and 43.1% of injuries resulted in at least one missed performance. For the three most recent injuries, 60.8% of all performers thought that their injuries were preventable.

RISK FACTORS FOR INJURY

The initial risk factor analysis identified various risk factors that significantly influence the risk of injury for performers (table 3): the performers' sex; age; age when they began instruction; duration as professional; previously injured; previously missed performing due to injury; physical demands of the role; and amount of choreography in the show.

As actors and dancers may have different patterns of risk factors,¹ a series of pairwise interactions with the type of performer and each predictor were modelled after the initial models (table 3). Of these moderating effects tested, the following were significant ($p<0.05$): sex, age, height, body mass, duration as professional, previously injured, previously missed performing due to injury, currently smoker, and performed on a raked (angled) stage. Male sex (OR (95% confidence interval (95% CI)) 0.5 (0.3 to 0.9) and 0.5 (0.1 to 2.6) in actors and dancers, respectively), older age (OR (95% CI) 0.3 (0.1 to 0.6) and 1.8 (0.4 to 7.8) in

Table 2 Demographics of West End performers surveyed

	Women (n=102)		Men (n=167)	
	Dancers (n=37)	Actors (n=65)	Dancers (n=21)	Actors (n=146)
Age (y)	25.8 (5.4)	33.1 (9.5)	25.0 (5.4)	38.2 (13.8)
Age began instruction (y)	6.5 (3.1)	12.9 (5.7)	10.8 (5.9)	17.0 (6.2)
Duration as professional (y)	8.4 (5.9)	12.8 (9.2)	8.5 (5.6)	16.0 (2.8)
Height (m)	1.64 (0.07)	1.63 (0.06)	1.79 (0.09)	1.77 (0.06)
Weight (kg)	53.3 (4.4)	57.1 (8.5)	72.3 (5.3)	76.6 (11.3)
Body mass index (kg/m ²)	19.9 (1.5)	21.6 (3.3)	22.8 (2.4)	24.2 (3.5)
Injuries as performer (n)	5.7 (6.7)	3.9 (4.5)	11.2 (14.9)	4.0 (5.8)
Injuries in current production (n)	1.2 (1.5)	0.8 (1.0)	1.7 (1.6)	0.7 (1.3)
Time missed owing to all injuries (performances)	38.1 (85.0)	13.6 (35.3)	47.3 (56.7)	16.9 (39.4)
Time missed owing to current production injuries (performances)	8.2 (26.1)	0.9 (2.3)	12.8 (32.8)	3.0 (10.8)
Warms up before performing (%)	67	55	65	63
Currently exercising (%)	68	48	63	52
Currently in dance or acting classes (%)	48	35	43	17
Smokes cigarettes (%)	22	23	19	28

Table 3 Analysis of risk factors for injury in the current production (n=269)

	Adjusted OR	(95% CI)
Demographic variables:		
Dancer	2.4*	(1.3 to 4.5)
Male	0.5*	(0.3 to 0.9)
Age:		
Older	0.4*	(0.2 to 0.8)
Younger	1.9*	(1.1 to 3.3)
Height:		
Taller	1.0	(0.6 to 1.6)
Shorter	1.1	(0.6 to 1.8)
Weight:		
Greater	0.8	(0.5 to 1.4)
Lesser	1.4	(0.8 to 2.6)
Body mass:		
Greater	0.8	(0.5 to 1.5)
Lesser	1.1	(0.7 to 1.9)
Career variables:		
Age began instruction:		
Later	1.0	(0.5 to 1.7)
Earlier	2.3*	(1.3 to 4.0)
Duration as professional:		
Longer	0.5*	(0.3 to 0.9)
Shorter	1.6	(0.9 to 2.9)
Previously injured	5.0*	(2.7 to 9.1)
Previously missed performing due to injury	2.1*	(1.3 to 3.6)
Training or preparation variables:		
Currently exercising	1.6	(1.0 to 2.6)
Currently in dance or acting classes	1.3	(0.7 to 2.3)
Warms up before performing	1.9*	(1.1 to 3.1)
Currently smokes	1.1	(0.6 to 1.9)
Production feature variables:		
Physical demands of their role:		
≥3	3.1*	(1.7 to 5.6)
≤2	0.2*	(0.1 to 0.5)
Amount of choreography in show:		
≥2	2.1*	(1.2 to 3.5)
≤1	0.2*	(0.1 to 0.4)
Performed on a raked stage	1.6	(1.0 to 2.7)

Results were calculated with single predictor logistic models with control for the number of performances with that production, weeks with that production, and minutes on stage per show. Of the total sample, 124 were injured during their current production. The continuous risk factors were coded into two additional binary variables reflecting the two extreme quartiles of risk factor distributions in reference to the sex specific norm of each type of performer.

Physical demands ranged from 1 (least) to 5 (most). Amount of choreography ranged from 0 (none) to 3 (heavy).

*p<0.05 Wald statistics.

actors and dancers, respectively), and a longer duration as professional (OR (95% CI) 0.4 (0.2 to 0.9) and 1.2 (0.2 to 5.8) in actors and dancers, respectively), were significant protective factors only in the actor subpopulation. The following were significant risk factors only in actors: previously injured (OR (95% CI) 4.4 (2.3 to 8.8) and 3.8 (0.8 to 17.5) in actors and dancers, respectively), previously missing performance due to injury (OR (95% CI) 1.8 (1.0 to 3.4) and 1.9 (0.5 to 6.5) in actors and dancers, respectively), and performed on a raked stage (OR (95% CI) 1.8 (1.0 to 3.2) and 2.0 (0.4 to 10.2) in actors and dancers, respectively).

Table 4 Multivariate analysis of risk factors for injury in the current production (n=269)

Variables	Adjusted OR	(95% CI)
Male	0.5*	(0.2 to 1.0)
Older age	0.5	(0.2 to 1.0)
Began instruction earlier	2.0	(1.0 to 3.2)
Shorter duration as professional	1.8	(0.9 to 3.7)
Previously injured	4.9*	(2.4 to 10.0)
Warms up before performing	1.7	(0.9 to 3.1)
Most (>3) physically demanding role	2.6*	(1.3 to 5.4)
Least (<2) physically demanding role	0.3*	(0.1 to 0.9)
Highest (>2) amount of choreography in show	0.4	(0.2 to 1.0)
Least (<1) amount of choreography in show	0.3	(0.1 to 0.7)
Performed on a raked stage	1.6	(0.9 to 3.0)

Results from the final unconditional logistic regression model with covariates that included number of performances with that production, weeks with that production, minutes on stage each show, and all other variables presented in this table.

*p<0.05 Wald statistics.

Table 4 presents the unconditional logistic regression multivariate model derived from the stepwise regression procedures used. This final model includes 11 predictors and three additional covariates (-2 log likelihood = 274.6; χ^2 (df=14)=102.0, p<0.0001). The overall correct classification as injured or not injured was 74.0% (75.2% of those who reported not being injured and 72.6% of those who reported having one or more injuries).

Performers with high physical demands of the role had an additional 4.5 injuries per 10 000 performances, accounting for 61.5% of the injuries to this group and 18.8% of the injuries to all performers surveyed. An additional 4.3 injuries per 10 000 performances can be attributed to performing on raked stages, representing 37.5% of the injuries to those performers who perform on a raked stage and 18.0% of the injuries to all performers surveyed.

INJURIES

Table 5 lists the number and sites of injuries from the current and previous productions for the dancers and actors. Previous productions include all earlier professional and amateur productions. In current productions, lower extremity injuries (mostly of the knee and ankle) were the most common for dancers (52.2%) and actors (43.2%) with neck and back injuries the second most common type for all performers. There were many other sites of injuries including the larynx or vocal cord strain as detailed. The relative percentages of sites of injury from earlier productions were similar to those from current productions.

HEALTHCARE PROVIDERS AND DIAGNOSES

Table 6 provides the types of healthcare professionals seen and diagnoses given for the injuries as reported by the performers. Medical attention was sought for 92% of the injuries to dancers and 73% of the injuries to actors. Most dancers and actors saw non-physicians, most commonly physiotherapists, masseurs, chiropractors, and acupuncturists. Ear, nose, and throat physicians were seen by 4.9% of actors for voice or larynx injuries. Sprains and strains were the most common diagnoses for the injuries of all performers.

Discussion

This is the first epidemiological survey of injuries to West End performers. Forty six per cent of all performers sustained at least one injury or an average of 0.87 injuries per performer for the current productions. The frequency, site, and type of injuries of actors and dancers are similar to those of Broadway performers.^{1,3} The injuries of dancers are also consistent with earlier studies of professional ballet dancers in the United States⁴ and professional dancers of classical ballet and modern dance in the United Kingdom.⁵ As in the Broadway survey,¹ 60.8% of all West End performers thought that their injuries were preventable. Most Broadway¹ and West End performers saw non-physicians for their injuries. Although there is widespread use of non-physician providers

Table 5 Sites of reported injuries

	Dancers (n=58) n (%)	Actors (n=211) n (%)
During this production: [*]		
Lower extremity injuries:		
Hip	65 (17.4)	132 (16.2)
Groin	34 (52.3)	57 (43.2)
Thigh	0 (0.0)	1 (0.8)
Knee	3 (4.6)	3 (2.3)
Shin	3 (4.6)	3 (2.3)
Calf	11 (16.9)	26 (19.7)
Ankle	1 (1.5)	5 (3.8)
Foot or toe	0 (1.5)	1 (0.8)
Neck and back injuries:		
Neck	12 (18.5)	10 (7.6)
Lower back	22 (33.9)	28 (21.2)
Mid (upper) back	7 (10.8)	4 (3.0)
Other injuries:		
Head	3 (4.6)	9 (37.9)
Larynx (vocal cords)	1 (1.5)	15 (11.4)
Shoulder	2 (3.1)	5 (3.8)
Arm	1 (1.5)	5 (3.8)
Hand or finger	2 (3.1)	8 (6.1)
Rib cage	0 (0.0)	5 (3.8)
Multiple (sites)	(1.5)	5 (3.8)
Other	1 (1.5)	4 (3.0)
Before production: [*]	367 (82.6)	681 (83.8)
Lower extremity	170 (46.3)	257 (37.7)
Neck and back	90 (24.5)	151 (22.2)
Other injuries	107 (39.2)	273 (40.1)
Total number of injuries for current and past productions	432	813

*These aggregated results were based on the entire history of injuries.

among the general population in the United States⁶, this is not the case in the United Kingdom. Performers may wish to obtain rapidly available physical treatments.

Several variables influence the likelihood of injury for performers. In both the West End and Broadway,¹ performers with the highest level of physical demands are at increased risk of injury by a factor of about 3. In this survey, dancers in productions with greater amounts of choreography were 2.1 times more likely to sustain injuries. A history of previous injuries and previously missed performances due to injury also significantly increased the risk of injuries for actors in the current production. As in the Broadway survey, women performers are more likely to sustain injuries than men.

Although the explanation is not known, wearing high heeled shoes may contribute.

A raked stage is a stage that is angled down toward the audience to improve the view. The percentage of the slope in the productions surveyed ranged from 3% to 10%. Raked stages can lead to increased injuries because of the performers' accommodating shift backwards in their centre of gravity.⁷ In the current study, performing on a raked stage was a significant risk factor for injury in actors only whereas on Broadway, performing on a raked stage was a significant risk factor for dancers but not actors. These findings may be explained by the presence of more actors and fewer dancers in the current study compared with the Broadway survey leading to differences in the power to detect significant relations.

This investigation may be useful for the growing number of physicians and other health professionals who are involved in performing arts medicine.⁸ Primary prevention is another application as one of the significant risk factors, raked stages, can be modified. With the findings from our Broadway survey, the 1996 production contract of the Actors' Equity Association of the United States has recommended a maximum slope of no more than 7.5% and instituted a physiotherapy programme (Kenneth Greenwood of Actors' Equity Association, personal communication). Also, this West End survey was influential in the West End production contract to be completed on 12 January 1998 (Hilary Strange of the British Actors' Equity Association, personal communication). In a new clause, if a performer is required to work on a steeply raked stage, the employer will provide a "rake specialist" (usually a physiotherapist) to show performers how to work safely on a raked surface with an exercise programme and will provide continuous supervision and support. This study may also be helpful for the planning of

Table 6 Healthcare providers seen and reported healthcare provider diagnosis for injuries during the current production

	Responses indicating injuries to dancers n (%)	Responses indicating injuries to actors n (%)	
Healthcare providers seen:			
Physiotherapist	48 (56.5)	Physiotherapist	52 (31.7)
Masseur	8 (9.4)	General practitioner	28 (17.1)
General practitioner	6 (7.1)	Ear, nose, and throat	8 (4.9)
Osteopath	4 (4.7)	Masseur	7 (4.3)
Chiropractor	4 (4.7)	Orthopaedist	5 (3.1)
Acupuncturist	3 (3.5)	Osteopath	5 (3.1)
Podiatrist	2 (2.4)	Chiropractor	4 (2.4)
Ear, nose, and throat	1 (1.2)	Acupuncturist	2 (1.2)
Other	2 (2.4)	Podiatrist	2 (1.2)
None seen	7 (8.2)	Other	6 (3.7)
Total	85 (100.0)	None seen	45 (27.4)
		Total	164 (100.0)
Reported healthcare provider diagnosis:			
Sprain or strain	19 (38.8)	Sprain or strain	41 (51.9)
Pinched nerve	6 (12.2)	Inflammation	10 (12.7)
Dislocation	4 (8.2)	Pinched nerve	5 (6.3)
Inflammation (chronic)	3 (6.1)	Stress fracture	4 (5.1)
Snap or tear	2 (4.1)	Contusion	3 (3.8)
Contusion	1 (2.0)	Acute fracture	2 (2.5)
Other	14 (28.6)	Dislocation	2 (2.5)
No diagnosis	1 (2.0)	Snap or tear	1 (1.2)
Total	49 (100.0)	Puncture or cut	1 (1.2)
		Other	8 (10.1)
		No diagnosis	2 (2.5)
		Total	79 (100.0)

healthcare provider needs by theatrical unions and production companies⁴ as well as for the evaluation and prevention of injuries to theatrical students and non-professionals worldwide.

We greatly appreciate the assistance and cooperation of the members and staff (Hilary Strange, Senior West End Theatre Organiser and Peter Finch, Assistant General Secretary) of the British Actors' Equity Association.

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Appendix: Survey questionnaire

SURVEY OF WEST END PERFORMERS		SURVEY OF WEST END PERFORMERS																																									
PART 1: YOUR BACKGROUND		PART 2: ACTIVITIES & TRAINING																																									
<p>7. Are you a regular cigarette smoker?</p> <p><input type="radio"/> Yes <input type="radio"/> No</p>		<p>11. Over the whole show on average, how would you rate the physical demands of your role?</p> <p>LEAST DEMANDING</p> <table border="1"> <tr> <td>(1)</td> <td>(2)</td> <td>(3)</td> <td>(4)</td> <td>(5)</td> </tr> </table> <p>MOST DEMANDING</p> <table border="1"> <tr> <td>(1)</td> <td>(2)</td> <td>(3)</td> <td>(4)</td> <td>(5)</td> </tr> </table>		(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)																														
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(1)	(2)	(3)	(4)	(5)																																							
<p>8a. Are you involved in an exercise or weight training regimen (activities)?</p> <p><input type="radio"/> Yes <input type="radio"/> No (Skip to question 10)</p>		<p>b. How often do you participate in the following activities as part of your exercise regimen? PLEASE MARK FOR ALL ACTIVITIES.</p> <p>Once per week 1-3 times per week 4 or more times per week</p> <p>None or less per week per week per week</p> <table border="1"> <tr> <td>Weight training</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Running</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Swimming</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Football</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Tennis/Squash</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Cricket</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Rowing</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Cycling</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Aerobics</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Other (please specify):</td> <td>0</td> <td>0</td> <td>0</td> </tr> </table>		Weight training	0	0	0	Running	0	0	0	Swimming	0	0	0	Football	0	0	0	Tennis/Squash	0	0	0	Cricket	0	0	0	Rowing	0	0	0	Cycling	0	0	0	Aerobics	0	0	0	Other (please specify):	0	0	0
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<p>1. What type of performer are you in your current production? If you have dancing and acting roles, please mark the one that describes your major activity.</p> <p><input type="radio"/> Dancer <input type="radio"/> Actor (including singing)</p>		<p>12. How long have you been involved in this production? Please report both total weeks and total number of performances.</p> <p>WEEKS</p> <table border="1"> <tr> <td>1-3</td> <td>4+</td> </tr> </table> <p>PERFORMANCES</p> <table border="1"> <tr> <td>1-3</td> <td>4+</td> </tr> </table>		1-3	4+	1-3	4+																																				
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<p>2. What is your date of birth and current age?</p> <p>Date of birth Current Age</p> <p>MONTH DAY YEAR</p> <table border="1"> <tr> <td>1-12</td> <td>1-31</td> <td>1-99</td> </tr> </table>		1-12	1-31	1-99	<p>13. On average, roughly how many minutes do you perform on stage?</p> <table border="1"> <tr> <td>1-10</td> <td>11-20</td> <td>21-30</td> <td>31-40</td> <td>41+</td> </tr> </table>		1-10	11-20	21-30	31-40	41+																																
1-12	1-31	1-99																																									
1-10	11-20	21-30	31-40	41+																																							
<p>3. What is your gender?</p> <p><input type="radio"/> Female <input type="radio"/> Male</p>		<p>14a. How many dance numbers are you in?</p> <p>Please mark "0" if you were in none.</p> <p><input type="radio"/> 0 (Number of dance numbers)</p>																																									
<p>4. What is your height and weight?</p> <p>Height [inches] Weight [stones]</p>		<p>14b. Are you being required to do something you are not trained to do in these dance numbers?</p> <p><input type="radio"/> Yes <input type="radio"/> No</p> <p><input type="radio"/> I am not in any dance numbers</p>																																									
<p>5. At what age did you begin dancing, acting, or other performance related instruction, and for how long have you been a professional performer?</p> <p>AGE BEGAN INSTRUCTION</p> <table border="1"> <tr> <td>1-12</td> </tr> </table>		1-12	<p>15. How many times per week (0-9) have you been going to classes during this production? (NOTE: This question pertains to only dance related classes for dancers, and only acting or voice related classes for actors.)</p> <p><input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6 <input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9</p>																																								
1-12																																											
<p>6. How many performing related injuries have you sustained as a professional and as an amateur (before you began receiving any monetary compensation for performing)?</p> <p>TOTAL AS AN AMATEUR</p> <table border="1"> <tr> <td>1-12</td> </tr> </table>		1-12	<p>16. What type of shoes do you wear in the performance?</p> <p><input type="radio"/> High heel <input type="radio"/> Platforms</p> <p><input type="radio"/> Ballet slippers <input type="radio"/> Boots</p> <p><input type="radio"/> Tap shoes <input type="radio"/> Street shoes</p> <p><input type="radio"/> Jazz/other dance shoes</p> <p><input type="radio"/> No shoes</p> <p><input type="radio"/> Other (please specify _____)</p>																																								
1-12																																											
<p>7. Are you primarily a dancer you would mark: <input type="radio"/> Dancer <input type="radio"/> Actor</p> <p>If you were born in the month of December, you would mark in the box underneath: MONTH</p> <table border="1"> <tr> <td>1-12</td> </tr> </table>		1-12	<p>a. Location of Injury One?</p> <p><input type="radio"/> Head <input type="radio"/> Mid section/rib</p> <p><input type="radio"/> Vocal chords <input type="radio"/> Hip/tail bone</p> <p><input type="radio"/> Neck <input type="radio"/> Groin</p> <p><input type="radio"/> Shoulder <input type="radio"/> Upper leg/thigh</p> <p><input type="radio"/> Arm <input type="radio"/> Knee</p> <p><input type="radio"/> Wrist <input type="radio"/> Shin</p> <p><input type="radio"/> Elbow <input type="radio"/> Calf</p> <p><input type="radio"/> Hand <input type="radio"/> Ankle</p> <p><input type="radio"/> Finger(s) <input type="radio"/> Foot</p> <p><input type="radio"/> Upper/mid back <input type="radio"/> Toes</p> <p><input type="radio"/> Lower back <input type="radio"/> Other (please specify _____)</p>																																								
1-12																																											
		<p>b. At what point in your current production did the injury occur, and about how many total performances did you miss due to this injury?</p> <p>WEEKS IN THE PRODUCTION</p> <p>WHEN THE INJURY OCCURRED</p> <table border="1"> <tr> <td>1-12</td> </tr> </table>		1-12																																							
1-12																																											
<p>8b. Are you involved in an exercise or weight training regimen (activities)?</p> <p><input type="radio"/> Yes <input type="radio"/> No (Skip to question 21)</p>		<p>17. How many injuries have you sustained over the course of THIS PRODUCTION and how many performances have they caused you to miss?</p> <p><input type="radio"/> None (skip to question 21)</p> <p><input type="radio"/> One injury</p> <p><input type="radio"/> Two injuries</p> <p><input type="radio"/> Three injuries</p> <p><input type="radio"/> Four injuries</p> <p><input type="radio"/> Five injuries</p> <p><input type="radio"/> Six or more</p>																																									

SURVEY OF WEST END PERFORMERS**SURVEY OF WEST END PERFORMERS**

c. How did the injury occur?

- Rehearsal Performance
 Slow onset Classes
 Other (please specify _____)

d. In how many shows did you perform while experiencing significant pain due to this injury? Please mark '0' if you did not perform in pain.

e. Do you currently have any symptoms from this injury?

 Yes No

f. How long did you experience any symptoms due to this injury?

- 0 day or less 10 days to 4 weeks
 0 2-4 days 0 4 weeks to 3 months
 0 5-10 days 0 greater than 3 months

g. Specifically, what type(s) of health care provider(s) did you consult about this injury? PLEASE MARK ALL THAT APPLY.

- None Podiatrist
 Physiotherapist Orthopedist
 General practitioner Neurologist
 Masseur ENT (throat
 Chiropractor specialist
 Acupuncturist
 Other: _____

h. If you consulted with a doctor or other health care provider, what was the primary diagnosis of this injury?

- Ignoring your own pain
 Excessive pressures from yourself to excel
 Ignoring your own physical fatigue
 Other (please specify _____)
- *****End of Injury One Information
*(if you do not have a second injury in your current production skip to question 2)******

j. If you had surgery because of this injury, what type of surgery was it?

- No surgery was performed
 Surgery was performed (please specify the kinds) of surgery(s) _____)

k. Did management provide treatment free of charge for this injury, and if so what? PLEASE MARK ALL THAT APPLY.

- No services provided
 Complimentary doctor
 Complimentary masseur
 Other: _____

l. Are you pursuing a claim for compensation for this injury through Equity?

 Yes No

m. If this injury could have been prevented, which of the following may have contributed to the occurrence of this injury? PLEASE MARK ALL THAT APPLY.

- The injury could not have been prevented
 Poor floors
 Rake of stage
 Prevaleance of fog/stage smoke
 Other features of the set or stage
 Excessive demands from choreographer or director to have the overall performance shine
 Excessive physical demands required of the role you perform
 Features of the show's choreography or directing
 Pressures from other performers
 Your having an inadequate warm-up
 Your personal training habits/physical conditioning
 Other personal or lifestyle factors (examples: if your diet, sleep, stress, smoking, etc. may have contributed)

n. If you consulted with a doctor or other health care provider, what was the primary diagnosis of this injury?

- No provider was seen
 No diagnosis was made
 Strain/sprain
 Dislocation
 Stress fracture
 Acute fracture
 Other (please specify _____)
- o. If you had surgery because of this injury, what type of surgery was it?
- No surgery was performed
 Standard X-ray
 MRI
 Stress film of ankle or knee

CAT scan
 Standard X-ray
 MRI
 Stress film of ankle or knee
- p. Did management provide treatment free of charge for this injury and if so what? PLEASE MARK ALL THAT APPLY.
- No services provided
 Complimentary doctor
 Complimentary physiotherapist
 Complimentary masseur
 Other complimentary health care provider (please specify _____)
- q. If you currently have any symptoms from this injury?

Yes No

r. How long did you experience any symptoms due to this injury?

0 day or less 10 days to 4 weeks
 0 2-4 days 0 4 weeks to 3 months
 0 5-10 days 0 greater than 3 months
- s. If you had surgery because of this injury, what type of surgery was it?

No surgery was performed
 Standard X-ray
 MRI
 Stress film of ankle or knee

CAT scan
 Standard X-ray
 MRI
 Stress film of ankle or knee

t. Did management provide treatment free of charge for this injury and if so what? PLEASE MARK ALL THAT APPLY.

No services provided
 Complimentary doctor
 Complimentary physiotherapist
 Complimentary masseur
 Other complimentary health care provider (please specify _____)

u. If you currently have any symptoms from this injury?

Yes No

v. How long did you experience any symptoms due to this injury?

0 day or less 10 days to 4 weeks
 0 2-4 days 0 4 weeks to 3 months
 0 5-10 days 0 greater than 3 months

SURVEY OF WEST END PERFORMERS	
<p>1. Are you pursuing a claim for compensation for this injury through Equity?</p> <p><input type="radio"/> Yes <input type="radio"/> No</p> <p>m. If this injury could have been prevented, which of the following may have contributed to the occurrence of this injury? PLEASE MARK ALL THAT APPLY.</p> <p>The injury could not have been prevented <input type="checkbox"/> Poor floors <input type="checkbox"/> Rate of stage <input type="checkbox"/> Prevalence of fog/stage smoke <input type="checkbox"/> Other features of the set or stage <input type="checkbox"/> Excessive demands from choreographer or director to have the overall performance shine <input type="checkbox"/> Excessive physical demands required of the role you perform <input type="checkbox"/> Features of your show's choreography or directing <input type="checkbox"/> Pressures from other performers <input type="checkbox"/> Your having an inadequate warm-up <input type="checkbox"/> Your personal training habits/physical conditioning <input type="checkbox"/> Other personal or lifestyle factors (examples include diet, sleep, stress, smoking) <input type="checkbox"/> Excessive pressures from yourself to excel <input type="checkbox"/> Ignoring your own pain <input type="checkbox"/> Ignoring your own physical fatigue <input type="checkbox"/> Other (please specify _____)</p>	
<p>c. How did the injury occur?</p> <p><input type="checkbox"/> Rehearsal <input type="checkbox"/> Performance <input type="checkbox"/> Slow onset <input type="checkbox"/> Classes <input type="checkbox"/> Other (please specify _____)</p> <p>d. In how many shows did you perform while experiencing significant pain due to this injury? Please mark "0" you if did not perform in pain.</p> <p><input type="checkbox"/> _____</p> <p>e. Due you currently have any symptoms from this injury?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>f. How long did you experience any symptoms due to this injury?</p> <p><input type="checkbox"/> 0 day or less <input type="checkbox"/> 0 10 days to 4 weeks <input type="checkbox"/> 0 2-4 days <input type="checkbox"/> 0 4 weeks to 3 months <input type="checkbox"/> 0 5-10 days <input type="checkbox"/> 0 greater than 3 months</p> <p>g. Specifically, what type(s) of health care provider(s) did you consult about this injury? PLEASE MARK ALL THAT APPLY.</p> <p><input type="checkbox"/> None <input type="checkbox"/> Pediatrician <input type="checkbox"/> Orthopedist <input type="checkbox"/> Neurologist <input type="checkbox"/> General practitioner <input type="checkbox"/> Masseur <input type="checkbox"/> ENT (throat) <input type="checkbox"/> Chiropractor <input type="checkbox"/> Acupuncturist <input type="checkbox"/> Other: _____</p> <p>h. If you consulted with a doctor or other health care provider, what was the primary diagnosis of this injury?</p> <p><input type="checkbox"/> No provider was seen <input type="checkbox"/> No diagnosis was made <input type="checkbox"/> Strain/sprain <input type="checkbox"/> Dislocation <input type="checkbox"/> Stress fracture <input type="checkbox"/> Acute fracture <input type="checkbox"/> Chronic inflammation</p> <p>i. What specific tests were used to diagnose the injury? PLEASE MARK ALL THE TESTS THAT WERE USED.</p> <p><input type="checkbox"/> No provider was seen <input type="checkbox"/> No tests were used <input type="checkbox"/> Standard X-ray <input type="checkbox"/> MRI <input type="checkbox"/> Stress film of ankle or knee <input type="checkbox"/> Other (please specify _____)</p> <p>j. If you had surgery because of this injury, what type of surgery was it?</p> <p><input type="checkbox"/> No surgery was performed <input type="checkbox"/> Surgery was performed (please specify the kind(s) of surgery(s) _____)</p>	
<p>k. Did management provide treatment free of charge for this injury and if so what? PLEASE MARK ALL THAT APPLY.</p> <p><input type="checkbox"/> No services provided <input type="checkbox"/> Complimentary doctor <input type="checkbox"/> Complimentary physiotherapist <input type="checkbox"/> Complimentary masseur <input type="checkbox"/> Other complimentary health care provider (please specify _____)</p> <p>l. Are you pursuing a claim for compensation for this injury through Equity?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>m. If this injury could have been prevented, which of the following may have contributed to the occurrence of this injury? PLEASE MARK ALL THAT APPLY.</p> <p>n. Did management provide treatment free of charge for this injury and if so what? PLEASE MARK ALL THAT APPLY.</p> <p>o. Indicate how many injuries you have sustained in the following locations. Please mark a "0" if you have not been injured in that location.</p> <p><input type="checkbox"/> Head <input type="checkbox"/> Mid section/rib <input type="checkbox"/> Vocal chords/Larynx <input type="checkbox"/> Hip/fail bone <input type="checkbox"/> Groin <input type="checkbox"/> Upper leg/high <input type="checkbox"/> Shoulder <input type="checkbox"/> Knee <input type="checkbox"/> Arm <input type="checkbox"/> Shin <input type="checkbox"/> Wrist <input type="checkbox"/> Calf <input type="checkbox"/> Elbow <input type="checkbox"/> Ankle <input type="checkbox"/> Hand <input type="checkbox"/> Foot <input type="checkbox"/> Fingers(s) <input type="checkbox"/> Toe(s) <input type="checkbox"/> Upper/mid back <input type="checkbox"/> Lower back <input type="checkbox"/> Other (please specify _____)</p> <p>o. Indicate about how many WEEKS IN TOTAL you have missed performing due to injury in the following locations? Please mark "0" if you have not missed any performances due to injury in those locations.</p> <p>LOWER LEG... SPINE OR BACK... OTHER LOCATION...</p> <p>p. Indicate about how many WEEKS IN TOTAL you have missed performing due to injury in the following locations? Please mark "0" if you have not missed any performances due to injury in those locations.</p> <p>LOWER LEG... SPINE OR BACK... OTHER LOCATION...</p> <p>q. How frequently have you observed that the following features may contribute to the injury of theatrical performers?</p> <p><input type="checkbox"/> Never <input type="checkbox"/> Seldom <input type="checkbox"/> Occasionally <input type="checkbox"/> Frequently</p> <p>r. Rake of stage <input type="checkbox"/> Steps/Access <input type="checkbox"/> Traps <input type="checkbox"/> 0 <input type="checkbox"/> 0 <input type="checkbox"/> 0 <input type="checkbox"/> Stairs <input type="checkbox"/> 0 <input type="checkbox"/> 0 <input type="checkbox"/> 0 <input type="checkbox"/> 0 <input type="checkbox"/> 0 <input type="checkbox"/> 0</p> <p>s. Relative darkness <input type="checkbox"/> of set <input type="checkbox"/> 0 <input type="checkbox"/> 0 <input type="checkbox"/> 0</p> <p>t. Props or stage features <input type="checkbox"/> 0 <input type="checkbox"/> 0 <input type="checkbox"/> 0</p> <p>u. Inappropriately designed shoes <input type="checkbox"/> Fog/stage smoke <input type="checkbox"/> 0 <input type="checkbox"/> 0 <input type="checkbox"/> 0</p> <p>v. Cumbersome costumes <input type="checkbox"/> Other: _____ <input type="checkbox"/> 0 <input type="checkbox"/> 0 <input type="checkbox"/> 0</p> <p>w. RELATED EXPERIENCES AND THOUGHTS ABOUT INJURIES</p> <p>x. The following items pertain to all performing-related injuries you may have sustained BEFORE YOUR CURRENT PRODUCTION.</p> <p>y. Of the total injuries have you sustained, about how many resulted in you missing at least one performance, and how many in surgery?</p> <p>z. RESULTED IN MISSED PERFORMANCE(S) SURGERY <input type="checkbox"/> _____</p>	

SURVEY OF WEST END PERFORMERS

23. Do you feel that making a claim for compensation with Equity may be detrimental or "bad" to PERFORMERS' careers?

() Not bad to their careers
 () Possibly bad to their careers
 () Definitely bad to their careers

24. Do you believe that warm-up before a performance is generally necessary?

() Yes () No

25. How often do you believe the following conditions MAY CONTRIBUTE TO PERFORMERS' INJURIES:

- a. Features of show choreography or direction that place performers at risk? 0 Never 0 Seldom 0 Occasionally 0 Frequently 0 Frequently
- b. Insufficient sleep? 0 Never 0 Seldom 0 Occasionally 0 Frequently 0 Frequently
- c. Cigarette smoking? 0 Never 0 Seldom 0 Occasionally 0 Frequently 0 Frequently
- d. Having roles that push performers to their physical limits? 0 Never 0 Seldom 0 Occasionally 0 Frequently 0 Frequently
- e. Inadequate warm-up? 0 Never 0 Seldom 0 Occasionally 0 Frequently 0 Frequently
- f. Performers' ignoring physical fatigue? 0 Never 0 Seldom 0 Occasionally 0 Frequently 0 Frequently
- g. Insufficient physical conditioning? 0 Never 0 Seldom 0 Occasionally 0 Frequently 0 Frequently
- h. Performers' ignoring their own pain? 0 Never 0 Seldom 0 Occasionally 0 Frequently 0 Frequently
- i. Stress from a performer's personal life? 0 Never 0 Seldom 0 Occasionally 0 Frequently 0 Frequently
- j. Excessive pressure on performer by him/herself to excel? 0 Never 0 Seldom 0 Occasionally 0 Frequently 0 Frequently
- k. Pressures by other performers? 0 Never 0 Seldom 0 Occasionally 0 Frequently 0 Frequently
- l. Poor nutrition or diet? 0 Never 0 Seldom 0 Occasionally 0 Frequently 0 Frequently
- m. Alcohol or drug consumption? 0 Never 0 Seldom 0 Occasionally 0 Frequently 0 Frequently
- n. Excessive demands by director/choreographer to have the overall performance shine? 0 Never 0 Seldom 0 Occasionally 0 Frequently 0 Frequently

26. Please estimate the chance that the following problems will be faced (within the next 12 months) by a performer comparable to yourself in experience, physical conditioning and expertise?

Percent chance(%) 0 10 20 30 40 50 60 70 80 90 100

She/he will be injured during training or exercising. 0 0 0 0 0 0 0 0 0 0 0

She/he will sustain an injury that was caused by the mistakes of another person involved in the show.

She/he will be severely injured from her/his own mistakes.

She/he will miss 10 or more performances due to injury.

She/he will be injured due to faulty props or equipment.

She/he will have an injury that requires surgery.

She/he will push her/himself to the physical limits and sustain an injury.

27. How sure or confident are you that YOU PERSONALLY CAN PREVENT the following situations from occurring in the next 12 months.

extremely unsure

Having an injury due to the deterioration of your technique or physical conditioning.

Having an injury due to your not taking precautions when you are fatigued.

Having an injury due to your own lack of concentration or caution.

Having an injury become more serious because of your not seeking therapy or consultation.

Having an injury because of you having an inadequate warm-up or stretch.

Having an injury because you pushed yourself beyond your physical limits.

SURVEY OF WEST END PERFORMERS

28. Please indicate how much you agree with each of the following items.

- | | strongly disagree | disagree | neutral | agree | strongly agree |
|--|-------------------|----------|---------|-------|----------------|
| a. I have excellent muscle tone. | (1) | (2) | (3) | (4) | (5) |
| b. If something can go wrong for me, it will. | (1) | (2) | (3) | (4) | (5) |
| c. There are lots of ways around any problem. | (1) | (2) | (3) | (4) | (5) |
| d. I'm always optimistic about my future. | (1) | (2) | (3) | (4) | (5) |
| e. Even when others get discouraged, I know that I can find to save the problem. | (1) | (2) | (3) | (4) | (5) |
| f. I have excellent reflexes. | (1) | (2) | (3) | (4) | (5) |
| g. I rarely complain about good things happening to me. | (1) | (2) | (3) | (4) | (5) |
| h. My physique is rather strong. | (1) | (2) | (3) | (4) | (5) |
| i. Overall, I expect more good things to happen to me than bad. | (1) | (2) | (3) | (4) | (5) |
| j. I can think of many ways to get the things in life that are most important to me. | (1) | (2) | (3) | (4) | (5) |
| k. I hardly ever expect things to go my way. | (1) | (2) | (3) | (4) | (5) |
| l. I can think of many ways to get out of a jam or "trunk". | (1) | (2) | (3) | (4) | (5) |
| m. In uncertain times, I usually expect the best. | (1) | (2) | (3) | (4) | (5) |
| n. I have a strong grip. | (1) | (2) | (3) | (4) | (5) |

29. Approximate the likelihood that the following will happen to YOU within the next 12 months?

- | | Percent chance(%) | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|--|-------------------|---|----|----|----|----|----|----|----|----|----|-----|
| You will miss 10 or more performances due to injury. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| You will be injured due to faulty props or equipment. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| You will push yourself to your physical limits and sustain an injury. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| You will be injured during training or exercising. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| You will sustain an injury that was caused by the mistakes of another person involved in the show. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| You will have an injury that requires surgery. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| You will be severely injured from your own mistakes. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

END OF SURVEY
 Please make sure all the appropriate pages of the survey were completed. We would appreciate your writing additional comments and questions here, or attach a separate page to the survey.

Thank you very much for your participation!

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 at Houston Medical School and Baylor College of Medicine.

and

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