

PESARO
23 NOVEMBRE 2019
GIORNATA DI STUDIO

MUSICISTI COME ATLETI

TRATTAMENTO E PREVENZIONE DELLE PATOLOGIE TRAUMATICHE
NELLA PRATICA MUSICALE

MATTINO — 9.00-13.00
Palazzo Montani Analdi
Via Passeri 12 Pesaro

SEMINARIO DI STUDIO
Un nuovo approccio per la prevenzione
e il trattamento delle patologie traumatiche
nella pratica musicale
organizzato dalla Scuola Regionale
dello Sport - CONI Marche

programma, informazioni ed iscrizioni
Intercontact Pesaro
072128773
info@intercontact.it

POMERIGGIO — 15.00-20.00
Centro di Riabilitazione e Psicomotricità Fisioclinics
Via Portini 124-126, Pesaro

WORKSHOP
Corso teorico-pratico: trattamento
e prevenzione delle patologie traumatiche
nella pratica musicale
SCM per medici e fisioterapisti: 3,6 Crediti Formativi

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MUSICISTI come ATLETI

Analogie e differenze

Piero Benelli

Medico sportivo
Medico VL Basket Pesaro
Medico Squadra Nazionale Maschile Pallavolo
Docente Università Urbino
Docente Scuola dello Sport
Direttore Sanitario Fisioclinics Pesaro

Medicine in the Performing Arts

Randall W. Dick, MS, FACSM¹; Jacqueline R. Berning, PhD, RD, CSSD²; William Dawson, MD, BS, FAAOS³; Richard D. Ginsburg, PhD⁴; Clay Miller, MD, MFA, PMR⁵; and George T. Shybut, MD⁶



Abstract

Performing artists are athletes. Like athletes, performing artists practice and/or perform most days with little off season, play through pain, "compete" in challenging environments, and risk career-threatening injury. Athletes and the Arts is a multiorganizational initiative linking the sport athlete and musician/performing artist communities. Performing artists of all ages and genres are an underserved population related to medical coverage, care, injury prevention, performance enhancement, and wellness. Sports medicine professionals are a valuable resource for filling this gap by applying existing knowledge of treating sport athletes (nutrition, injury prevention) while gaining a better understanding of performers' unique needs (hearing loss, focal dystonia) and environment. These applications can occur in the clinical setting and through developing organizational policies. By better understanding the needs of the performing arts population and applying existing concepts and knowledge, sports medicine professionals can expand their impact to a new patient base that desperately needs support.

Introduction

Performing artists are athletes. Just like sport athletes, they

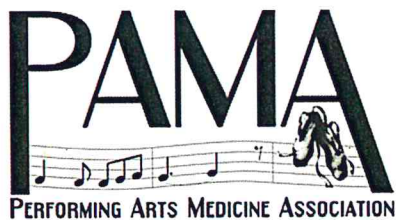
- practice or perform almost every day.
- play through pain.
- compete in challenging environments.
- experience little "off season."
- face extreme competition.
- risk the temptation of substance abuse, and
- face real risk of career-threatening injury.

get out of a slump. However the performing artist (musicians, dancers, singers, conductors, actors, marching band — all ages from child to the elderly) has few if any of these resources yet many of the same needs. In addition, performers have unique needs that often are not addressed in the sport athlete, such as hearing loss.

Athletes and the Arts is an initiative focused on linking the sport athlete and musician/performing artist communities through collaborative exchange and application of wellness, training, and performance research and education.

Comparing the work schedules of a professional performing artist and a professional baseball player highlights some of the similarities. Both perform/play in the evening (8 p.m. to 11 p.m. or later) with a schedule that may repeat for more than 150 games/performance a season. Their routine becomes habitual with disturbed eating and sleeping habits, sleeping late into the morning/early afternoon, skipping breakfast, or not eating at all.

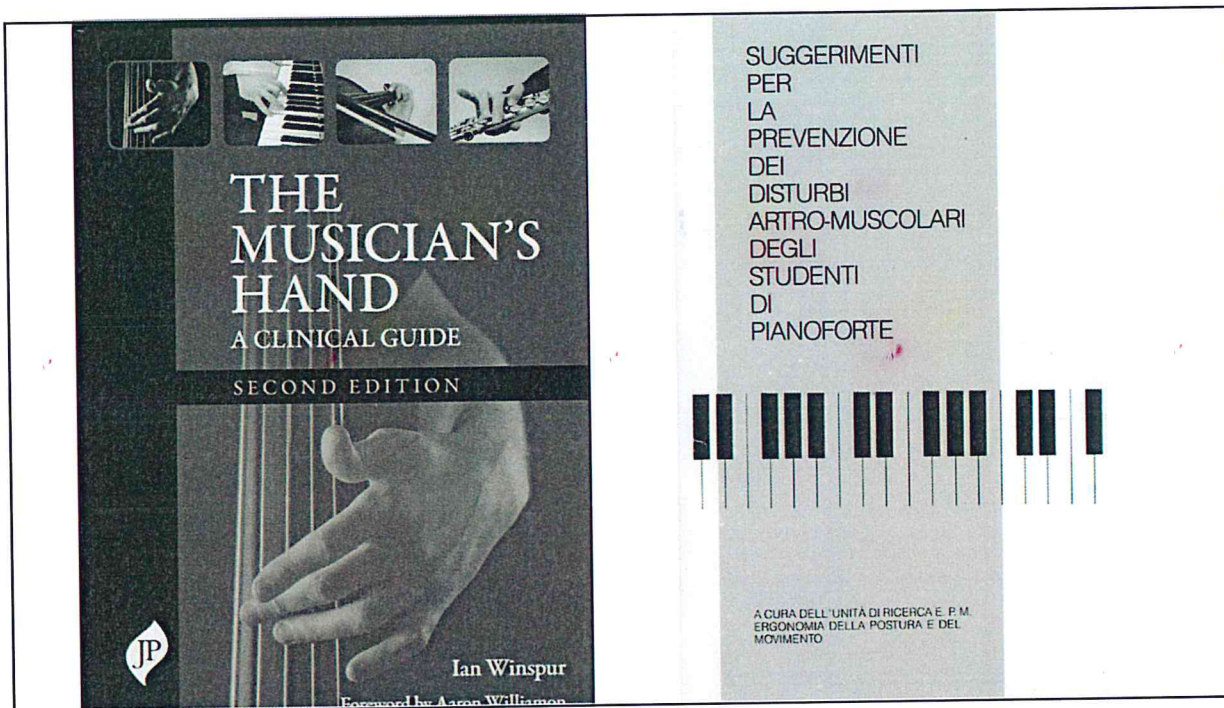
In this scenario, the professional sport athlete has access to nutrition information to help them understand what and when to eat, medical support for injury prevention and rehab, film review to modify posture and mechanics, pitch counts to reduce the risk of overuse injuries, and a sport psychologist to help



MSc & Diploma in Performing Arts Medicine

- Being run jointly with
 - University College London
 - The Ear Institute, UCL (Vocalists)
 - The Royal College of Music (Musicians)
 - Trinity Laban Conservatoire of Music and Dance (Dancers)
 - BAPAM
 - Generous start up funding from PPL







CONSERVATORIO ROSSINI



MUSICISTI...E ATLETI



<p>Conservatorio G. Rossini - Pesaro - Attività del Progetto di Istituto - Anno accademico 1998-99 - Progetto n. 104 - Intervento sulla prevenzione e la cura della patologia traumatica del musicista Seminario di informazione - Coordinatrice del progetto: prof. Giulia Berelli</p> <p>QUESTIONARIO TRAUMATOLOGICO</p> <p>Sesso M F Età _____</p> <p>Strumento _____</p> <p>Anni di attività _____</p> <p>Giornate settimanali di studio _____ Ore giornaliere di studio _____</p> <p>Effettu "Riscaldamento" prima dello studio SI (minuti _____) NO _____ Esercizi di stretching SI (quando e quanto _____) NO _____ Altre tecniche di preparazione e/o prevenzione SI (quali _____) NO _____</p> <p>Problemi patologici in relazione all'attività specifica SI NO</p> <p>Distretto anatomico interessato</p> <table border="0"> <tr><td>Mano</td><td>_____</td></tr> <tr><td>Polso</td><td>_____</td></tr> <tr><td>Gomito</td><td>_____</td></tr> <tr><td>Schiiena</td><td>_____</td></tr> <tr><td>Ginocchio</td><td>_____</td></tr> <tr><td>Caviglia</td><td>_____</td></tr> <tr><td>Spalla</td><td>_____</td></tr> <tr><td>Bacino</td><td>_____</td></tr> <tr><td>Altro</td><td>_____</td></tr> </table> <p>Tipo di patologia (diagnosi) _____</p> <p>Esami diagnostici effettuati</p> <table border="0"> <tr><td>Radiografia</td><td>_____</td></tr> <tr><td>Ecografia</td><td>_____</td></tr> <tr><td>TAC</td><td>_____</td></tr> <tr><td>RMN</td><td>_____</td></tr> <tr><td>Altro</td><td>_____</td></tr> <tr><td>Nessuno</td><td>_____</td></tr> </table> <p>Giorni (o periodo) di inattività a causa della patologia _____</p> <p>Giorni (o periodo) di diminuita attività a causa della patologia _____</p> <p>Terapie effettuate (specificare)</p> <table border="0"> <tr><td>Farmacologica</td><td>_____</td></tr> <tr><td>Fisioterapica</td><td>_____</td></tr> <tr><td>Chirurgica</td><td>_____</td></tr> <tr><td>Chinesiterapia (cs esercizi di mobilizzazione)</td><td>_____</td></tr> <tr><td>Massoterapia (massaggi)</td><td>_____</td></tr> <tr><td>Altro</td><td>_____</td></tr> <tr><td>Nessuna</td><td>_____</td></tr> </table> <p>Recidive SI NO</p> <p>Si ringrazia per la collaborazione.</p>	Mano	_____	Polso	_____	Gomito	_____	Schiiena	_____	Ginocchio	_____	Caviglia	_____	Spalla	_____	Bacino	_____	Altro	_____	Radiografia	_____	Ecografia	_____	TAC	_____	RMN	_____	Altro	_____	Nessuno	_____	Farmacologica	_____	Fisioterapica	_____	Chirurgica	_____	Chinesiterapia (cs esercizi di mobilizzazione)	_____	Massoterapia (massaggi)	_____	Altro	_____	Nessuna	_____	<p>Conservatorio Rossini - Pesaro A.A. 1998 - 99</p> <p>Ciclo di interventi su "Prevenzione e cura delle patologie articolari e muscolari dei musicisti"</p> <p>Risultati del questionario traumatologico</p> <p>Soggetti - n. 39</p> <p>Maschi - 15 / Femmine -24 Età media : a 21,02 (12 / 32)</p> <p>Anni di attività : media 8,5 (2 / 20) Giorni settimanali di studio : da 3 a 7 Ore di studio per seduta : da 1 a 8</p> <p>Patologie traumatologiche in relazione all'attività specifica : SI : 20 (51%) - NO : 19 (49%)</p> <p>Distretti interessati :</p> <p>Polso-mano n. 19 / Schiena-collo n.9 / Spalla n.8 / Gomito n.4 / Ginocchio n.2</p> <p>Periodi di inattività a causa della patologia : da 1 mese a 1 anno</p> <p>Recidive : n.7</p> <p>Tipo di patologie : tendiniti 7 / cisti 2 / rachialgie 2 / contratture 2 / ernie 1 / etc.</p> <p>Per gruppi di strumento :</p> <p> Tastiere : n. 14 - Traumatismi n. 9 (64%) 10 Polso e mano / 5 schiena / 5 Spalla e gomito</p> <p> Archi : n. 10 - Traumatismi n. 6 (60%) 6 Polso e mano / 3 Schiena / 7 Spalla e gomito / 1 Ginocchio</p> <p> Fiati : n. 15 - Traumatismi n. 3 (20%) 3 Polso e mano / 1 Schiena / 1 Ginocchio</p> <p>Effettuano riscaldamento prima dell'attività : n. 19 (49%) - da 3' a 45'</p> <p>Effettuano stretching o allungamento prima dell'attività : n. 4 (10%)</p> <p>Effettuano altre tecniche : n. 2</p>
Mano	_____																																												
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Questionario Conservatorio Rossini (1992?) – 46 risposte

- + del 60% ca. soffriva di disturbi muscoloscheletrici da sovraccarico
- l'80% ca. non faceva esercizi di riscaldamento e/o di prevenzione
- il 35% ca. si affidava a medici, eo fisioterapisti per la cura
- In generale, tutti continuavano l'attività senza modificare la routine quotidiana di studio

Sottovalutazione del problema ?



Se non suono per un giorno me ne accorgo solo io, se non suono per due giorni se ne accorge il pubblico N. Paganini (?)

“Il violinista è come un atleta se smetti di esercitarti perdi colpi”
Francesca Dego: i “Capricci” di Paganini a 23 anni



Musicisti come atleti
 come prevenire e curare le patologie, da sovraccarico funzionale collegate alla pratica strumentale

Pesaro, Conservatorio Rossini, 27/11/2015



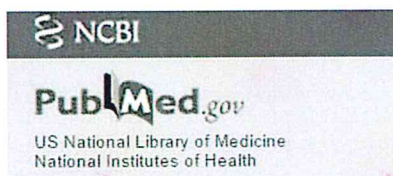
Musicisti come atleti – Analogie e differenze

- Allenamento e performance
- Preparazione fisica
- Epidemiologia e injury profile
- Discipline e ruoli / Strumenti
- Fattori di rischio
- Sovraccarico funzionale
- Gesti tecnici e posture obbligate
- Gestione del trauma
- Return to play
- Utilizzo di tutori
- Utilizzo di farmaci
- ***Tipo di approccio!***

La squadra



Differenza – Cultura e ricerca



71863 citazioni



319 citazioni



Epidemiologia

- **PRMD**

- Playng
- Related
- Musculoskeletal
- Disorders



REVIEW

The occurrence of musculoskeletal complaints among professional musicians: a systematic reviewLaura M. Kok^{1,2} · Bionka M. A. Huisstede^{1,3} · Veronique M. A. Voorn⁴ · Jan W. Schoones⁵ · Rob G. H. H. Nelissen¹Received: 13 January 2015 / Accepted: 25 September 2015 / Published online: 12 November 2015
© The Author(s) 2015. This article is published with open access at Springerlink.com**Abstract****Purpose** This study gives a systematic overview of the literature on the occurrence of musculoskeletal complaints in professional instrumental musicians.**Methods** A systematic review. Nine literature databases were searched without time limits on June 25, 2015, also the complete index of the journal Medical Problems of Performing Artists (MPPA) until June 2015 (30:2) was searched, and citation tracking and reference checking of the selected articles were performed. The search consisted of the combination of three groups of keywords: musician (e.g., musician, violin, music student, instrument player) AND musculoskeletal (e.g., musculoskeletal, tendon, shoulder, arthritis) AND epidemiology (e.g., prevalence, incidence, occurrence).**Results** The initial literature search strategy resulted in 1258 potentially relevant articles. Finally, 21 articles describing 5424 musicians were included in this review. Point prevalences of musculoskeletal complaints in professional musicians range between 9 and 68 %; 12-month prevalences range between 41 and 93 %; and lifetime

prevalences range between 62 and 93 %. Ten out of 12 studies show a higher prevalence of musculoskeletal complaints among women. Brass instrumentalists are reported to have the lowest prevalence rates of musculoskeletal complaints. The neck and shoulders are the anatomic areas most affected; the elbows are least affected. Although some information is reported concerning age, the high risk of bias in and between these studies makes it impossible to present reliable statements with respect to this.

Conclusion Musculoskeletal symptoms are highly prevalent among musicians, especially among women instrumentalists. Future research concerning the epidemiology of musculoskeletal complaints among musicians should focus on associated risk factors and follow the current guidelines to optimize scientific quality.**Keywords** Occupational · Epidemiology · Arts · Music · Musician · PRMD**Introduction**

66-78% arto superiore


- *spalla sin violinisti
- *spalla dx violoncellisti
- *piu colpiti i polistrumentisti
- *più colpito il sesso femminile
- *meno colpiti i fiati

PRMDs/non-PRMDs

The term 'PRMDs' was introduced to evaluate musculoskeletal symptoms which interfere with the ability to play the instrument (Zaza et al. 1998). Since then, many studies evaluated these playing-related symptoms instead of evaluating all musculoskeletal symptoms, thereby excluding minor symptoms (Zaza and Farewell 1997; Davies and Mangion 2002; O'Neill et al. 2001; Ackermann et al. 2012). The use of this term has an important advantage; symptoms without impact on the musician (and therefore irrelevant symptoms) are excluded. However, the comparison of musicians with non-musicians is difficult with this definition. Besides, although Zaza et al. (1998) made a clear definition of the term PRMD, studies using other descriptions of the term are published (Davies and Mangion 2002; Abreu-Ramos and Micheo 2007). The current definition of PRMD does not include a causality of the complaints (i.e., is the complaint the result of playing of the instrument, or is it the result of a trauma and influences the complaint the ability to play the instrument).

Conclusion

Musculoskeletal symptoms are highly prevalent among musicians, especially among women. In contrast to the literature on musculoskeletal complaints in the general population, evidence is scarce concerning prevalence rates in subgroups of age or occupation. Future research concerning the epidemiology of musculoskeletal complaints among musicians should focus on associated risk factors and follow the current guidelines (McCulloch et al. 2009; Elm et al. 2007) to optimize scientific quality.



Injury Report Form

M-10

Event: **2010 FIVB Men's Volleyball World Championship** Place: **Italy** Dates: **Sep 25th - Oct 10th, 2010**

Team: **ITA** Match: **ITA - FRA** Match #: **63** Date: **06.10.2010**

Team Doctor: _____ Mobile: _____ E-mail: _____

NOTE: An injury is defined as any physical complaint sustained by a player during the match or during training prior to the match.

Any injury? NO YES If YES, please complete information below

Player #	Function	Time of injury	Injury location	Type of injury	Cause of injury	Severity	Returned to game	Absence (days)
Code		Training (year)	Match (year)	Description	Description	Code	<input type="checkbox"/> Yes <input type="checkbox"/> No	
							<input type="checkbox"/> Yes <input type="checkbox"/> No	
							<input type="checkbox"/> Yes <input type="checkbox"/> No	
							<input type="checkbox"/> Yes <input type="checkbox"/> No	
							<input type="checkbox"/> Yes <input type="checkbox"/> No	
							<input type="checkbox"/> Yes <input type="checkbox"/> No	
							<input type="checkbox"/> Yes <input type="checkbox"/> No	

Definitions & Codes

Player function:

- D: Setter
- D: Diagonal
- D: Outside hitter
- C: Central player
- L: Libero

Injury location - injured body part

- 1. Head and spine
- 1. Spine (incl. eye, ear, nose)
- 2. Head
- 3. Neck/cervical spine
- 4. Thoracic spine/upper back
- 5. Cervicobrachial
- 6. Lumbar spine/lower back
- 7. Shoulder
- 8. Pelvis/acetabulum/hip

Type of injury - diagnosis:

- 1. contusion (regardless of loss of consciousness)
- 2. fracture (dislocated)
- 3. sprain/ligament
- 4. other bone fracture
- 5. dislocation, subluxation
- 6. tendon rupture
- 7. ligamentous rupture with instability
- 8. ligamentous injury without instability
- 9. sprain (sprain of joint or ligaments)
- 10. laceration of meniscus or cartilage
- 11. intramuscular rupture/tear
- 12. contusion haematoma/haemorrhage
- 13. tendinopathy/tendinitis
- 14. bursitis
- 15. bursitis/tenosynovium lesion

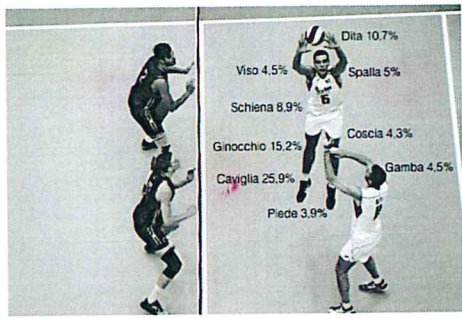
Cause of injury - diagnosis:

- 1. contact (gradual onset)
- 2. overuse (sudden onset)
- 3. non-contact trauma
- 4. recurrence of previous trauma
- 11. contact with another player
- 12. contact moving object (ball)
- 13. contact, stayput (direct leg hit, push)
- 14. violation of rules (ball play)
- 21. head of play conditions
- 22. ball environmental conditions
- 23. equipment failure
- 24. others

Severity - expected duration of absence from training or competition (in days):

- 0: 0 days
- 1: 1 day
- 2: 2 days
- 7: 1 week
- 14: 2 weeks
- 21: 3 weeks
- 28: 4 weeks
- >30: more than 4 weeks
- >160: 6 months or more
- CE: career-ending

Signature Team Doctor: _____



Infotoni N=430 R. Bann et al. BJSM 2015

Original article

Injury risk is low among world-class volleyball players: 4-year data from the FIVB Injury Surveillance System

Tose Bere,^{1,2} Jacek Krutzyk,^{1,2} Naciye Versimla,¹ Yuchiro Hamu,¹ Rauld Saut^{1,2}

Abstract

Background: Little is known about the size and pattern of injury in international volleyball competition.

Objective: To describe the size and pattern of injuries among world-class players based on data from the International Volleyball Federation (FIVB) Injury Surveillance System (ISS).

Methods: The FIVB ISS is based on prospective registration of injuries to team medical staff during all major FIVB tournaments (World Championships, World Cup, World Grand Prix, World League, Olympic Games). This paper is based on 4-year data (September 2007 to September 2010) acquired through the FIVB ISS during 12 major FIVB events (23 men and 14 women).

Results: The incidence of injury was 0.16 per player per year (95% CI 0.13-0.19) over the 4-year period. The most common injury sites were the knee (21%), ankle (17%), and lower back (15%).

Conclusions: Volleyball is a very safe sport, even at the highest level of play. Preventive measures should focus on the knee, lower back and shoulder.

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Figure 2. Injury rate (per 1000 player hours) for the most common injury locations (N=430)

Figure 3. Overhead defensive techniques are frequently used in the back court, leading to a risk of knee injuries, particularly among libero players. Photo courtesy of The International Volleyball Federation (FIVB).

Article original

Pathologies de l'appareil locomoteur du musicien : étude épidémiologique

I. Joubrel^{1*}, S. Robineau², S. Pétrilli², P. Gallien²

Tableau I. Caractéristiques des musiciens inclus dans l'étude épidémiologique.

Instrument*	Nombre de musiciens	Sexe : % hommes	Âge (moyenne ± écart-type)	% professionnels	% activités physiques**
Ensemble	141	58,1 %	33,3 ± 12,7 (18-71)	54,6 %	68,8 %
Claviers	23	22,7 %	39,4 ± 10,8 [†] (24-57)	95,4 %	54,5 %
Cordes	23	34,7 %	36,9 ± 12,8 (17-65)	82,2 %	60,8 %
Violoncelle	3	33,3 %	25,3 ± 8,9 (18-34)	66,6 %	66,6 %
Anches simples	27	84,6 %	33,3 ± 12,8 (20-71)	34,6 %	92,3 %
Anches doubles	4	50,0 %	32,2 ± 11 (18-42)	50,0 %	25,0 %
Flûtes traversières	8	12,5 %	27,2 ± 7,6 (15-39)	75,0 %	87,5 %
Petits cuivres	13	100,0 %	27,3 ± 10 (20-50)	33,3 %	53,3 %
Grands cuivres	8	100,0 %	32,7 ± 17,9 (17-71)	12,5 %	62,5 %
Guitares	9	100,0 %	35 ± 14,3 (18-52)	66,6 %	66,6 %
Percussions	13	91,6 %	25,3 ± 5,9 (20-41)	33,3 %	53,3 %
Accordeons	4	50,0 %	32 ± 8,9 (19-54)	50,0 %	25,0 %
Chanteurs	3	0	33,8 ± 5,1 (28-43)	100,0 %	66,6 %

* Claviers : piano, orgue, clavier. Cordes : violon, alto. Anches simples : clarinette, saxophone, saxhorn. Anches doubles : hautbois, basson, cor Anglais, trompette. Petits cuivres : trompette, clairon. Grands cuivres : trombone, tuba. Percussions : cymbaillon, bongos, tambour.
** Activités physiques : sports et loisirs (marche, sport occasionnel).

Tableau IV. Topographie des douleurs en fonction de l'instrument joué.

Instrument	Membre supérieur				Rachis		
	Épaule	Coude	Main/poignet	Total du rachis	Cervical	Dorsal	Lombaire
Ensemble	29,7 %	23,4 %	52,5 %	60,9 %	35,3 %	41,8 %	25,5 %
Claviers	0,36 %	2,7 %	68,8 %	72,7 %	72,7 %	0,41 %	0,32 %
Cordes	52,1 %	17,4 %	56 %	73,9 %	60,8 %	47,8 %	26,0 %
Violoncelles	33,3 %	33,3 %	0	66,6 %	0	66,6 %	66,6 %
Anches simples	11,1 %	11,1 %	44 %	40,7 %	11,1 %	22,2 %	18,5 %
Anches doubles	0	0	50 %	0	0	0	0
Flûtes traversières	37,5 %	12,5 %	75 %	62,5 %	50,0 %	25,0 %	37,5 %
Petits cuivres	5,3 %	16,6 %	25 %	33,3 %	0	33,3 %	0
Grands cuivres	12,5 %	12,5 %	37,5 %	50,0 %	12,5 %	37,5 %	25,0 %
Guitares	44,4 %	22,2 %	66,6 %	66,6 %	44,4 %	44,4 %	11,1 %
Percussions	38,4 %	77,0 %	69,2 %	100,0 %	53,8 %	92,3 %	38,4 %
Accordeons	25,0 %	25,0 %	50 %	75,0 %	25,0 %	50,0 %	50,0 %
Chanteurs	0	0	0	33,3 %	33,3 %	0	0

Seuil de significativité $p < 0,05$.

Tableau V. Répartition des pathologies des musiciens selon la littérature.

Étude	Nombre de musiciens	Syndrome de surmenage	Syndromes canaux	Dystonies de fonction	Autres
Étude personnelle	141	58,1 %	17 %	5,6 %	
Caldron [4]	250 non vents	48 %	13 %	18 %	15 %
Hochberg [15]	100 (75 pianistes)	51 %	15 %	27 %	7 %
Knishkovy [20]	52	41 %	36 %	8 %	
Charness [5]	200	29 %	48 %	16 %	
Hoppman [17]	179	62 %	18 %	10 %	
Manchester [28]	144	66 %	8 %		16 %
Wederman [23]	672	64 %	22,5 %	7 %	

Prevalence of Playing-related Musculoskeletal Disorders in String Players: A Systematic Review

Frederico Barreto Kochem, PT, MSc, and Julio Guilherme Silva, PT, PhD

Results: Of 1910 retrieved articles, 34 cross-sectional studies were selected for methodological assessment. However, only 8 studies reached satisfactory methodological quality scores. The prevalence rate of PRMD was alarmingly high, ranging from 64.1% to 90%. Women and older musicians were more affected in comparison to other instrumentalists. There seems to be a predominance of symptoms in the left upper limb in violinists and violists, whereas cellists and bassists report injuries in the right upper limb.

PRMD - 64-90%

Practical Applications

- String players are workers who are subject to development of playing-related musculoskeletal disorders.
- The prevalence of these disorders is high among musicians.
- There is a lack of high-methodological-quality studies about performing arts medicine.

Playing-related musculoskeletal disorders in musicians: a systematic review of incidence and prevalence

Christine Zaza, PhD

Abstract

Background: Work-related musculoskeletal disorders cause pain, disability and loss of employment for many workers, including musicians. Although performing arts medicine is a growing field, the health problems of musicians remain under-recognized and under-researched. Therefore, the author undertook a systematic review of published information on the incidence and prevalence of playing-related musculoskeletal disorders (PRMDs) in classical musicians.

Compared with sports medicine and occupational medicine, the recent advances in performing arts medicine may be less familiar to primary care physicians and other health care professionals. Musicians' clinics typically provide an analysis of posture and technique. Performing arts medicine organizations, such as the Canadian Network for Health in the Arts, foster research and the dissemination of information, and several symposia on the health problems of performing artists are held each year. Health care professionals' awareness of the nature and extent of musicians' health problems, as well as their awareness of treatment and information resources, has important clinical implications.



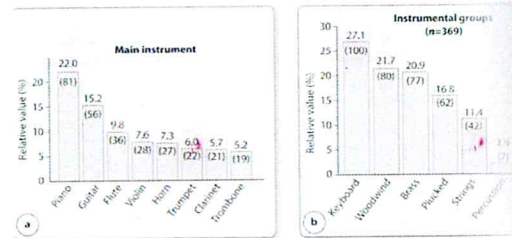
*Evidence
Études*

Dr. Zaza is a National Cancer Institute of Canada Research Fellow at the Department of Oncology, University of Western Ontario, London, Ont.

Presented in part at the

Most common physical disorders in musical instruments or activities.

Instrument Type/ Musical Activity	Common Disorders
Keyboards (9)	Hand/forearm muscle strain, RT > LT
Upper strings (violin, viola) (36,37)	Hand/forearm muscle strain, LT > RT
Lower strings (cello, bass) (36,37)	Hand and spinal muscular strains
Guitars (27)	Hand/forearm muscle strain, LT > RT
Clarinet, oboe, flute (21,54)	Thumb strain from supporting instrument
Bassoon (22)	LT thumb strain and basal joint arthritis
Brasses (17,54)	Embouchure problems including dystonia
Percussion (55)	Wrist strain, shoulder disorders
Drum corps (7)	Multiple issues ranging from heat illness to stress fractures
Conductors	Shoulder disorders



Injury profile (della disciplina e del ruolo // della strumento)



Unique Aspects of Swimming

- ~ 100 million Americans, of all ages, swim
- Non-contact, Non-WB sport
- 90% of propulsion from the UE
- Competitive swimmers:
 - 10-12 months per year
 - 5-7 days a week (two-a-days)
 - 8,000- 20,000 yards/day
 - Little or no recovery periods

16,000 shoulder revolutions per day
1 million strokes annually per shoulder

VSM



Distonia focale dei musicisti



Dystonia



(from Greek, $\delta\iota\sigma$ + $\tau\omicron\nu\omicron\sigma$, "abnormal tone")

" a syndrome of sustained muscle contractions frequently causing twisting and repetitive movements or abnormal postures"

- Ad Hoc Committee, Dystonia Medical Research Foundation, 1984

PAPER

Secondary motor disturbances in 101 patients with musician's dystonia

Jaume Rosset-Llobet, Víctor Candia, Silvia Fàbregas, William Ray, Álvaro Pascual-Leone

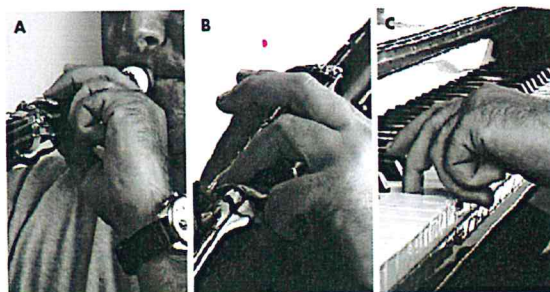


Figure 2 A professional musician with concomitant tendency to flexion in the ring and little finger while playing (A) his first instrument, the tiple (a Catalonian double reed instrument), (B) the clarinet and (C) the piano. Also note the similarity of symptoms between the patient displayed in this figure and the patient in Fig 1. Informed consent was obtained for publication of this figure.

musicians who played more than one instrument, 25 (62.5%) fingers and the type of symptoms (flexion, extension, tension,

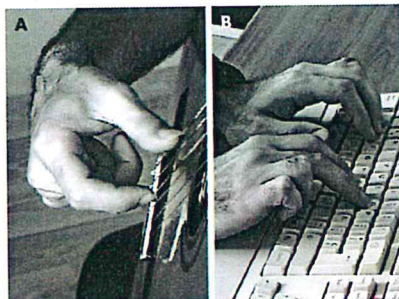


Figure 1 A guitarist showing uncontrolled finger flexion of the middle, ring and little finger while playing the guitar. The ring and the little finger in particular flex uncontrolled (A). One year after the appearance of the first movement abnormalities, similar symptoms appeared during type writing (B). Informed consent was obtained for publication of this figure.

Table 2 Number of musicians per instrumental family and their association with the three different forms of musician's cramp: simple, complex and progressive

Instrumental family	Cramp form			Total
	Simple	Complex	Progressive	
Plucked strings	23	9	16	48
Keyboard	7	4	12	23
Wood winds	6	2	3	11
Brass	8	1	0	9
Strings	3	2	3	8
Percussion	0	2	0	2
Total	47	20	34	101

Pianista / Organista /Clavicembalista (Tastiere)

- Rachialgie
- Patologie articolari e tendiniti dita, polso, gomito, spalla (arto superiore)
- Gonalgie



A systematic review of prevalence and risk factors associated with playing-related musculoskeletal disorders in pianists

Peter Heazle, Andrea Hlabeckowski and Joan McMecken

Background: Playing-related musculoskeletal disorders (PRMDS) are a recognized problem amongst instrumental musicians. Although previous research is present in data regarding prevalence of PRMDS, there is poor understanding of pathogenesis, risk factors associated with PRMDS.

Aim: To synthesise published literature on the prevalence of and risk factors associated with PRMDS in pianists.

Methods: Thorough literature searches were conducted. Eligible studies were those investigating prevalence of or risk factors associated with PRMDS in pianists, using an appropriate methodology according to a hierarchy of evidence. Information regarding study prevalence, operational definition of PRMDS, risk factors investigated, measures of prevalence and outcomes were extracted and summarised (combined for all eligible papers where an already known quality score).

Results: The literature search identified 892 citations. 129 (14%) papers were included in a hierarchy of evidence. 12 were eligible for inclusion using a quality assessment tool. Common musculoskeletal locations included upper limb/wrist/hand, forearm, shoulder, neck, and cervical spine. Prevalence rates for PRMDS in pianists varied widely (0-81%). Four authors investigated multiple risk factors and factors, however, no authors combined a clear operational definition of PRMDS with statistically validated risk factors. There was no consensus between authors regarding risk factors.

Conclusions: Current evidence does not provide sufficient information regarding prevalence of and risk factors associated with PRMDS in pianists. Future studies should provide an operational definition of PRMDS, use valid, reliable measurement tools, adopt a prospective cohort study design and perform appropriate statistical tests.

Key words: Literature review, musculoskeletal epidemiology, musculoskeletal injury, prevalence, risk factors.

Violinista /Violista

- Rachialgie diffuse (Cervicalgie, dorsalgie, lombalgie etc.)
- Tendiniti dita mano, polso, gomito
- Patologie di spalla
- Disturbi all'articolazione temporo-mandibolare



Review Article

MUSCULOSKELETAL DISORDERS IN PROFESSIONAL VIOLINISTS AND VIOLISTS. SYSTEMATIC REVIEW

GERALDO FABIANO DE SOUZA MORAES¹, ADRIANA PUPINI ANTUNES¹

CONCLUSION

The neck, shoulder and temporomandibular joint are the most commonly affected areas due to prolonged flexion of the head and shoulder required to hold the violin. The elbow and fingers are also common sites of disorders. It is necessary to warn musicians of the initial symptoms, and how they can prevent the disorder from worsening. As prevention is the best strategy, incorrect postures, incorrect

methods and considerable discrepancy between the size of the musician and violin should be avoided, and if they already exist, corrected. Maintenance of the instrument and appropriate use of furniture should not be ignored. Most studies do not mention the specific categories of musical instruments. Few specific studies about musculoskeletal disorders in violinists and violists were found, which makes it necessary to carry out more studies related to this population.

Review Article

Clinics in Orthopedic Surgery 2013;2:155-160 • <http://dx.doi.org/10.4052/cios.2013.5.3.155>

Musicians' Medicine: Musculoskeletal Problems in String Players

Han-Sung Lee, Ho Youn Park, MD, Jun O Yoon, MD, Jin Sam Kim, MD, Jae Myeung Chun, MD, Iman W. Amin, MD*, Won-Joon Cho, MD, In-Ho Jeon, MD

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There is increasing attention to medical problems of musicians. Many studies find a high prevalence of work-related musculoskeletal disorders in musicians, ranging from 73.4% to 87.7%, and string players have the highest prevalence of musculoskeletal problems. This paper examines the various positions and movements of the upper extremities in string players: 1) basic postures for holding instruments, 2) movements of left upper extremity: fingering, forearm posture, high position and vibrato, 3) movements of right upper extremity: bowing, bow angles, pizzicato and other bowing techniques. These isotonic and isometric movements can lead to musculoskeletal problems in musicians. We reviewed orthopedic disorders that are specific to string players: overuse syndrome, muscle-tendon syndrome, focal dystonia, hypermobility syndrome, and compressive neuropathy. Symptoms, interrelationships with musical performances, diagnosis and treatment of these problems were then discussed.

Keywords: Upper extremities, String players, Musculoskeletal problems



Fig. 1. Basic posture of the violinist's left upper extremity. (A) An anterior view of the basic posture of the violinist's left hand and wrist. (B) The left forearm has to be as vertical as possible to increase the dispersion of the sound.



Fig. 2. When the players make high tones, they place their fingertips on the fingerboard near the bridge by controlling their elbow and forearm, which is called high position. (A) A photograph drawing the left elbow and wrist are hyperflexed. (B) A photograph showing the forearm is extremely supinated.



Fig. 3. When players bow the strings located on the left side of the player, the elevation and rotation of the shoulder is determined. (A) An anterior view of the right upper extremity. (B) A lateral view of the right upper extremity.

Chitarrista e strumenti a pizzico

- Tendiniti e patologie della mano
- Sindromi neurologiche da compressione
- Lombalgie



Annals of the Rheumatic Diseases, 1981, 40, 161-163

Traumatic synovitis in a classical guitarist: a study of joint laxity

H. A. BIRD AND V. WRIGHT

From the Rheumatism Research Unit, University Department of Medicine, General Infirmary at Leeds, and Royal Bath Hospital, Harrogate



Fig. 1 The position of the left hand adopted by the patient in playing the classical guitar. The traumatic synovitis of the wrist joint is clearly visible. The right hand is not subjected to this degree of stretching.

Case Report

Multiple Trigger Fingers in a Musician: A Case Report

Masoud Yavari MD¹, Seyed Esmail Hassanpour MD¹, Seyed Mehdi Mosavizadeh MD¹

Abstract:

Trigger finger is a common disease which particularly occurs in middle-aged women. We present a rare case of a male musician with six trigger fingers (five in the left hand and one in the right hand). Mostly these fingers had been used for playing the guitar.

The patient had previously been treated with local steroid injections in his fingers, however no response was seen. Therefore, we performed a surgical procedure. Four weeks after surgery, the patient could play the guitar without discomfort in his hands.



Figure 1. He cannot extend involved fingers due to pain and entrapment of flexor tendons at A1 pulley

Strumenti a fiato

- Patologie di spalla
- Rachialgie
- Disturbi articolazione temporo-mandibolare



International Journal of Occupational Medicine and Environmental Health 2016;29(1):69-76
<http://dx.doi.org/10.1515/ijom-2016-0024>

PREVALENCE OF TEMPOROMANDIBULAR DISORDERS AMONG JUNIOR HIGH SCHOOL STUDENTS WHO PLAY WIND INSTRUMENTS

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 Hyogo College of Medicine, Hyogo, Japan
 Department of Dentistry and Oral Surgery

Abstract

Objective: This study investigated whether playing wind instruments has adverse effects on musculoskeletal functions among junior high school students who play in music clubs. **Material and Methods:** The study included 210 junior high school students (35 boys, 175 girls) belonging to 1 of 4 different school clubs that practiced playing wind instruments more than 6 days/week. The mean age of the participants was 14 years. The study was performed using a questionnaire survey and an electromyographic examination of jaw and cervical muscle activities during playing wind instruments. **Results:** The prevalence of temporomandibular disorders (TMD) among the children playing woodwind (WW) or brass wind (BW) instruments was higher than in those playing non-wind (NW) instruments. Long duration of playing WW with a reed mouthpiece or BW with a small mouthpiece was suggested to affect the incidence of TMD, which was more marked in girls than in boys, irrespective of height or weight. Muscle activity in the masseter muscle during playing an instrument was significantly higher in the BW with a small mouthpiece group than in the NW group ($p < 0.05$). In cervical muscles, muscle activity of both the sternocleidomastoid and trapezius muscles was higher during playing BW than in the case of other instruments, and activity in the sternocleidomastoid muscle was significantly higher in the BW with a small mouthpiece group than in the case of other instrument groups ($p < 0.05$). **Conclusions:** Playing wind instruments may have adverse effects on musculoskeletal functions among junior high school students playing in music clubs as compared with playing NW instruments. The prevalence of TMD among the students playing wind instruments was higher than in those playing other instruments. Long duration of playing those instruments affects musculoskeletal function, and this effect is more marked in girls than in boys, irrespective of height or weight.

	Archi Violino-Viola	Archi Violoncello- Contrabasso	Strumenti a fiato	Percussioni	Arpa	Chitarra	Piano- Tastiere
Arto Superiore (Spalla- Gomito- Polso-Mano)	X	X	X	X	X	X	X
Arto inferiore (Coxalgia)							X
Rachide (Cervicalgia -Lombalgia)	X	X	X	X	X	X	X
Neuropatie (Sindromi da compressione e nervosa)	X		X	X		X	X
Distonia Focale	X					X	X
ATM	X		X				

Fattori di rischio

AMERICAN JOURNAL OF INDUSTRIAL MEDICINE 32:292-300 (1997)

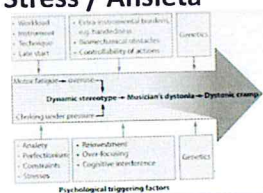
Musicians' Playing-Related Musculoskeletal Disorders: An Examination of Risk Factors

Several studies have shown that playing-related musculoskeletal disorders (PRMDs) present a significant health problem for musicians. To examine physiological, psychological, and behavioral risk factors of musicians' PRMDs, data for a case-control analysis were collected from classically-trained professional and university student musicians in the Canadian province of Ontario in 1994. Two hundred and eighty-one subjects completed a self-report questionnaire and hypermobility and hand-span measurements. Cases were identified according to an operational PRMD definition developed by musicians and health care professionals in a qualitative study. Logistic regression was used to compare data from 44 prevalent PRMD cases who had no previous history of a PRMD, and 90 controls who had never experienced a PRMD. Data from all subjects were analyzed to examine the role of a prior PRMD on the risk of a current PRMD. This study suggests that females and string players were at a higher PRMD risk. A number of other individual characteristics were also important determinants of the development of a PRMD. Warming up before and taking breaks during practice sessions protected the subject from a PRMD. Given the high proportion of musicians who experience PRMDs, prevention programs are warranted. *Am. J. Ind. Med.* 32:292-300, 1997. © 1997 Wiley-Liss, Inc.

KEY WORDS: epidemiology; musculoskeletal system; music; occupational health; case-control study



- Carico meccanico e tecnico
- Quantità di allenamento e di attività
- Sollecitazioni continue (sedute quotidiane)
- Peso e caratteristiche degli strumenti
- Posture forzate
- Asimmetria dei movimenti
- Gesti tecnici obbligati
- Età / Genere (femminile)
- Stress / Ansietà



Scand J Med Sci Sports 2013; 23: 607-613
doi: 10.1111/j.1600-0838.2011.01430.x

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Training volume and body composition as risk factors for developing jumper's knee among young elite volleyball players

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week. We did not detect any significant differences between the groups in body composition at the time of inclusion or in the change of body composition during the study period. Conclusion, male gender, a high volume of volleyball training and match exposure were risk factors for developing jumper's knee.

Advance Access publication on 26 January 2011 doi:10.1093/occres

Correlation between risk factors and musculoskeletal disorders among classical musicians

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Background Musculoskeletal disorders in humans may originate from biomechanical, environmental, psychosocial and personal risk factors encountered in the working environment. These disorders in musicians are designated as playing related musculoskeletal disorders (PRMD).

Aims To investigate the correlation between biomechanical, environmental, psychosocial and personal risk factors and potential incidence of PRMD arising in professional classical musicians.

Methods Fifty-nine orchestral classical musicians were observed. They also filled out questionnaires providing information regarding musculoskeletal symptoms, psychosocial factors and demography.

Results Clinical observation using the Rapid Upper Limb Assessment (RULA) showed significantly higher scores in string musicians compared with woodwind and brass players (right RULA score $F = 4.77$, $P < 0.05$; left RULA score, $F = 3.90$, $P < 0.05$). A multivariate regression model showed statistical significance for five of the six dependent variables regarding prevalence of painful joints, severity of musculoskeletal symptoms and functional limitation. The regression analysis revealed that biomechanical risk factors, perceived physical environment risk factors, instrument weight and average playing hours per week, were the main predictors of PRMD.

Conclusions The biomechanical risk factors that predict PRMD are mainly associated with the upper limbs. A high association between PRMD and clinical observation emphasizes the need for further investigation of these risk factors and to study possible implementations in order to define 'prevention strategies' for musical routines and patterns, as used by classical musicians.

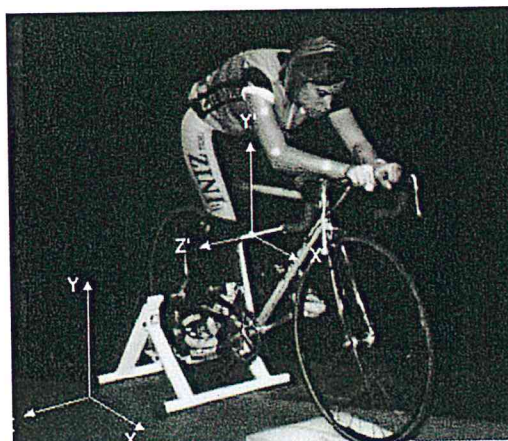
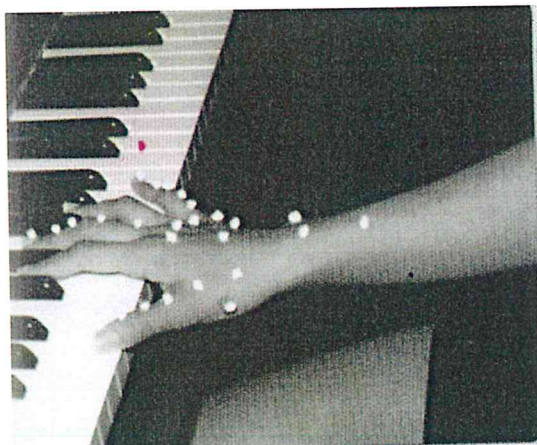
Table 1. Descriptive statistics regarding the occupational history and observation results of orchestral classical musicians

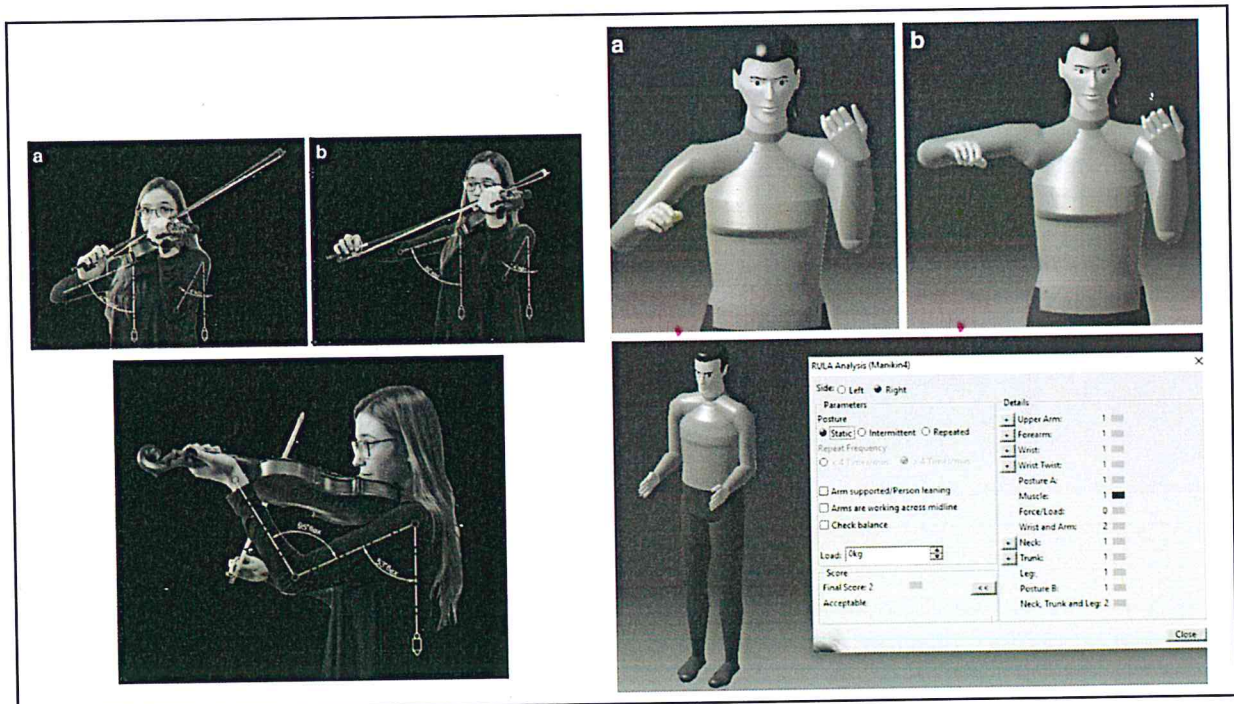
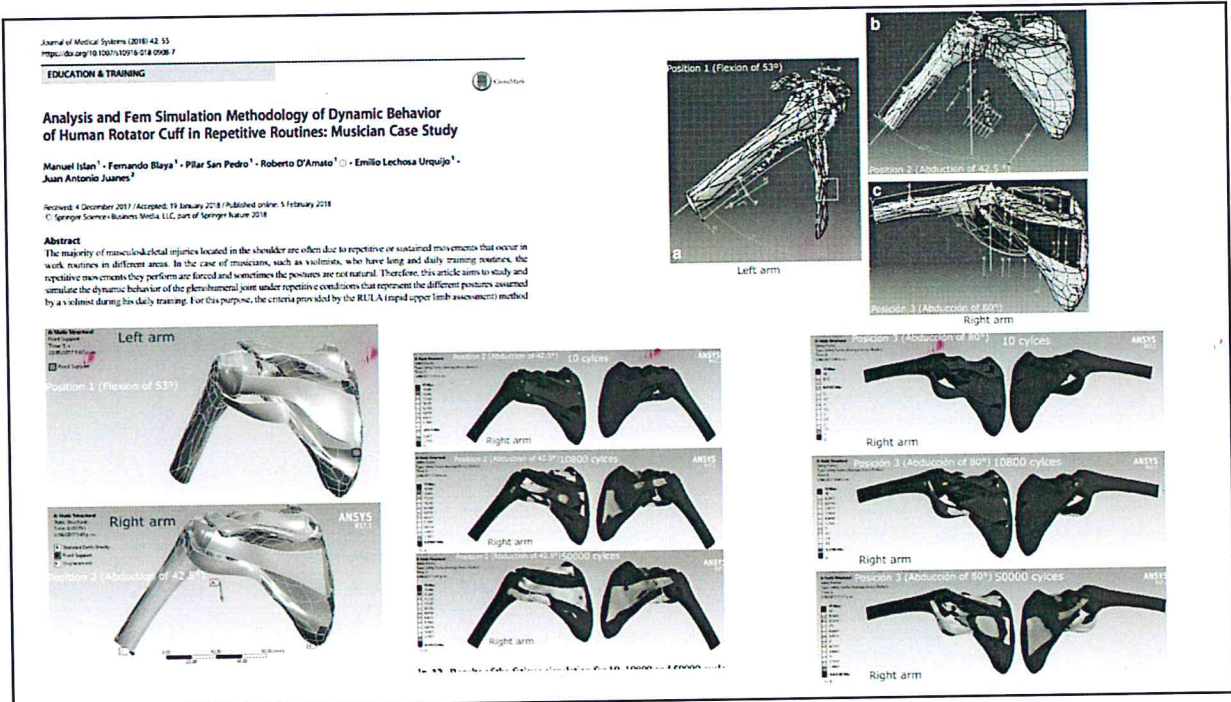
Variable	X	SD	Range
Number of years in the profession (n = 59)	23.1	11.9	15-65
Number of weekly playing hours in the orchestra (n = 59)	18.6	6	6-32
Number of daily playing hours besides the orchestra (n = 59)	2	1.2	0-6
Total of playing hours per day (n = 59)	4.9	2.5	2-18
Weight of musical instrument (n = 59)			
String instruments (n = 39)	3.4	5.4	1-30
Wind instruments (n = 20)	1.9	1.0	1-4
Number of minutes for warm up prior to playing (n = 27)	10.5	3.6	3-15
Number of continuous playing hours without interval (n = 59)	1.3	5.0	1-3
Period of interval in minutes (n = 42)	15.1	5.7	5-30
RULA of upper right limb (n = 59)			
String instrument	5.6	1.1	3-7
Wind instrument	3.5	0.7	3-7
All musicians	4.9	1.4	3-7
RULA of upper left limb (n = 59)			
String instrument	5.4	1.2	3-7
Wind instrument	3.6	0.8	3-7
All musicians	4.8	1.4	3-7

Key points

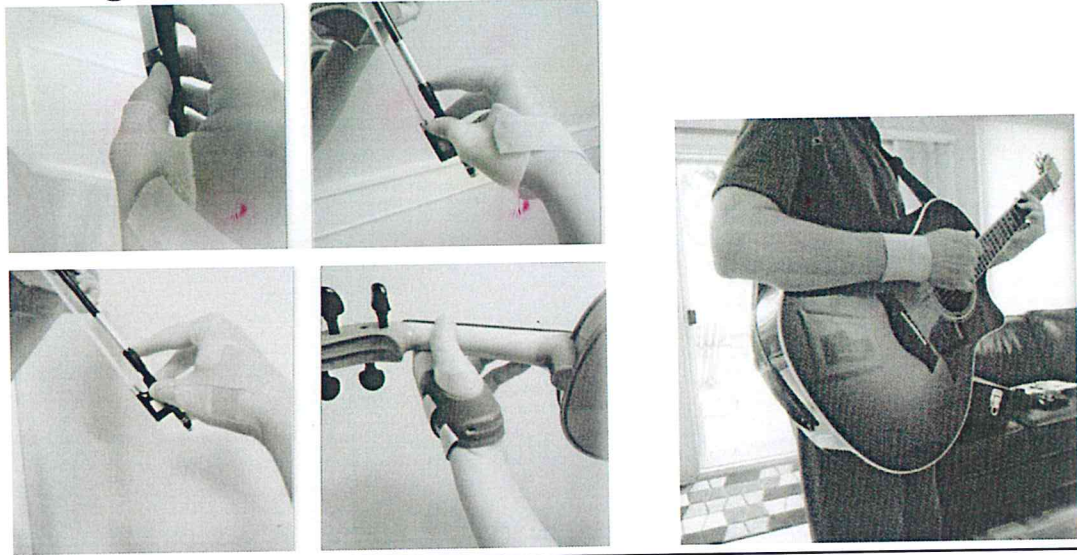
- Playing related musculoskeletal disorders are a significant health problem associated mainly with the upper extremities within a sample of orchestral string and wind musicians from three orchestras.
- The biomechanical risk factors (assessed by the Rapid Upper Limb Assessment tool for estimating extreme body positions, repetitive movements and load bearing) and the perceived physical environment were the two strongest statistical predictors for playing related musculoskeletal disorder among orchestral classical musicians.
- There is a need for orchestral clinicians to investigate the risk factors and to implement preventive measures for musical routines and patterns as used by orchestral classical musicians.

Valutazioni

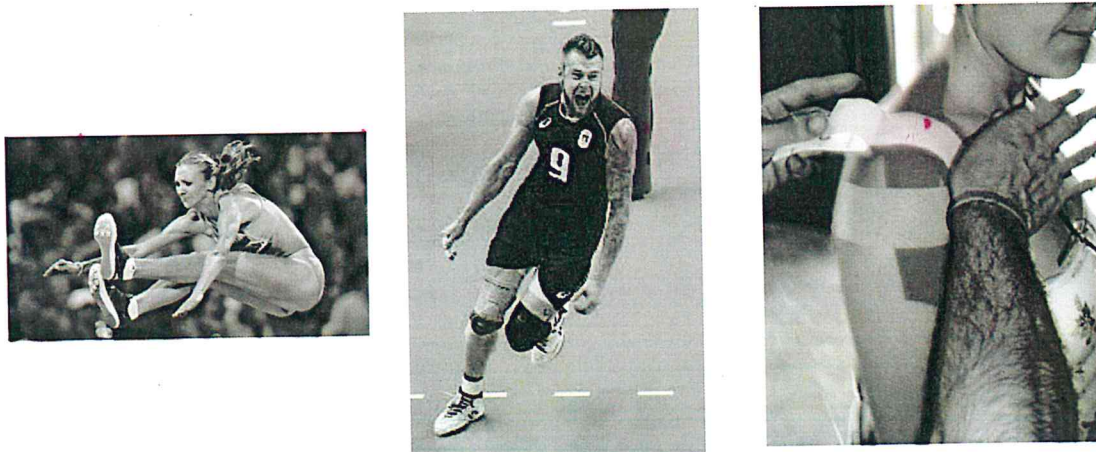




Analogie - Utilizzo di tutori e supporti



Analogie – Utilizzo di tutori e supporti



Allenamento e performance

Table 11.2 Good practice habits

FATIGUE RECOGNITION

- Take the first sign of an injury seriously but it is usually not necessary to completely stop playing.

FREQUENT BREAKS WHEN PRACTISING

- Practice only as long as you can maintain concentration, stop at feeling discomfort or fatigue.
- Take a 2-5 minute micro-break every 30 minutes (e.g. water, breathing or stretch break).
- Take frequent micro-breaks for a long periods with one hand off the instrument.

WARM UP TO PRACTISING

- Warm up areas from the instrument such as shoulders to a short 10-15 min. rhythm to playing.
- Warm up all the instrument with easy music, concentrate on slow practice.
- End every practice and practice long (one hour) with a "take the thumb or fore up" (see below).

COOL DOWN

- Cool down at and away from the instrument.
- Stretch and doing prescribed areas of the body may be necessary.

MAINTAIN PLAYING IN GOOD POSTURE

- Adjust seat and music location for optimal posture.
- Keep wrists and hands in their neutral position as much as possible.
- Good posture on stage (communication, confidence and presence).

TECHNICAL ABILITIES

- A technical problem may have a mental solution (e.g. ensure playing or listening).
- External fatigue, an inadequate strategy is trying to technically.
- Wrist and forearm can be protected with muscle massage and gravity without excessive tension.

INSTRUMENT SUPPORTS

- Seek out ergonomics, have a specialist understand their needs, individualised thumb, ring or wrist instrument, grips, pedals & other playing aids or effects on instrument cases are available.

MENTAL TRAINING

- Some technical practice some prior to a performance and increase mental training.
- Score read away from the instrument.
- Use visualization to read and see your performance.

FITNESS/RELAXATION

- Choose fitness activities that you enjoy, have a medical check of injury and help to alleviate your particular muscle imbalances professional advice may be required.
- Allow yourself some relaxation time.

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PROGRAMMA ALLENAMENTO BASE

ATTIVITÀ DI BASE - ESERCIZI:
5 minuti di riscaldamento iniziale di 10 minuti di lavoro
a 1 minuto di riposo. Arrivando per 7 volte.

Return to play

Table 9.1 Duration of post-operative recovery of 130 professional musicians following surgery: time to return to playing (Butler and Winspur 2009)

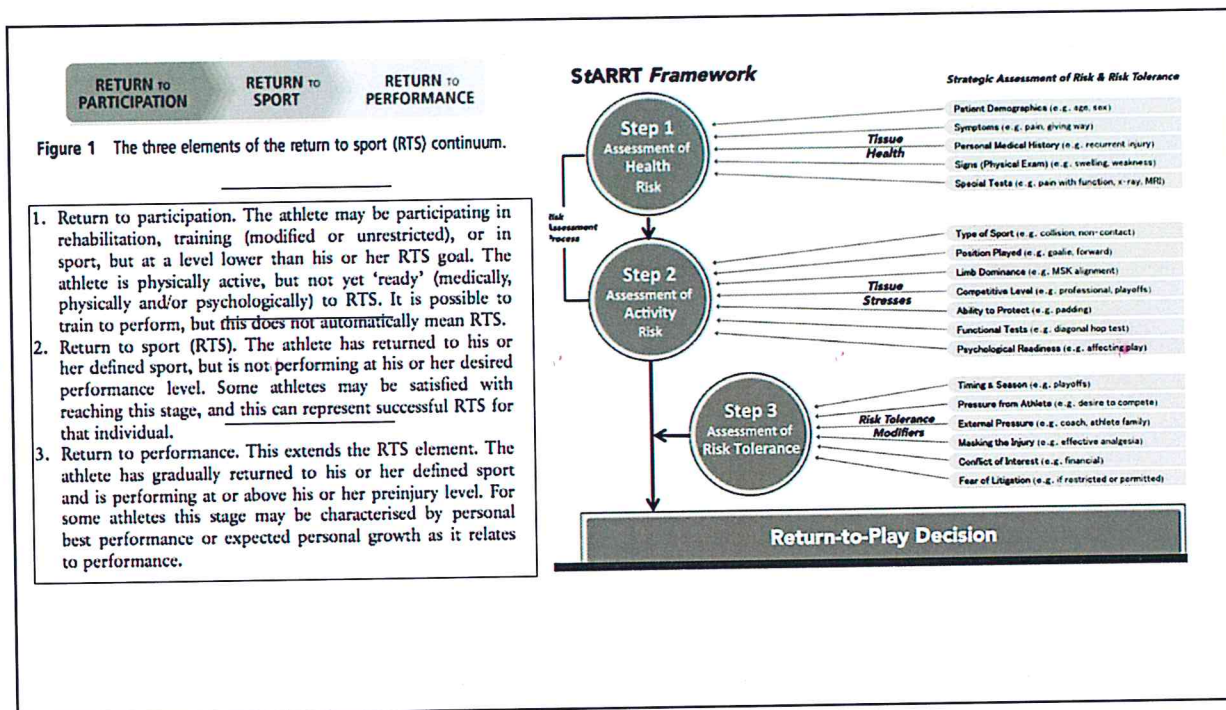
Medical condition	No.	Weeks off the instrument	Weeks to full performance
Trauma/post-traumatic	35	5.2	12.7
Arthrodesis	3	3	13.0
Arthroplasty (thumb)	3	4.5	13.0
Carpal tunnel decompression	28	1.8	4.6
Cubital tunnel decompression	12	1	11.6
Radial nerve decompression	1	1	12
Removal of vascular lesion	1	16	60
Dupuytren's release	2	1.2	5.8
Swelling/ganglion	17	1.6	4.6
De Quervain's release	2	2	3.5
Trigger finger release	1	2	5
Tennis elbow release	3	1	2.4
Failures	0	0	0

Table 11.1: Return to play schedule. Practice daily in accordance with the schedule. Record the date you finish working at one level and move on to the next one*

Level	Practice sessions per day	Minutes of playing OR activities to do	Date completed:
1	Two sessions – shadow playing	3-5 minutes Score read away from the instrument	
2	Two sessions – on instrument	3-5 minutes Consider instrument modifications	
3	Two sessions	5-10 minutes Design a warm up exercise regime	
4	Two sessions	12-15 minutes Do musical research	
5	Three sessions	10-15 minutes Listen to recordings	
6	Three sessions	20 minutes Evaluate recurring technical difficulties	
7	Three sessions	20 minutes Performance visualisation	
8	Four sessions	20 minutes	
9	Four sessions	30 minutes	
10	Three sessions	45 minutes	
11	Three sessions	60 minutes	
12	Two sessions	90 minutes	
13	Two sessions	120 minutes	

* Start with technically easy music.
 * Try to progress two levels per week, as possible.
 * Take frequent "knock" breaks with one hand off the instrument – 20 secs every 10-20 minutes at the higher levels of playing (e.g. dangle one arm when possible).
 * Drop back a level or two if pain is elicited, but try not to completely stop playing.
 * Gradually progress repertoire difficulty (e.g. gradually add fast, loud, and demanding technique).
 * A 3- to 5-minute break is encouraged every 30 minutes at the higher levels of playing (micro-breaks).
 * Learn difficult passages in the middle of the practice session (when warmed up but not fatigued).
 * End practice session on a high note, such as favorite music or an encore piece.

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Posture e strumenti

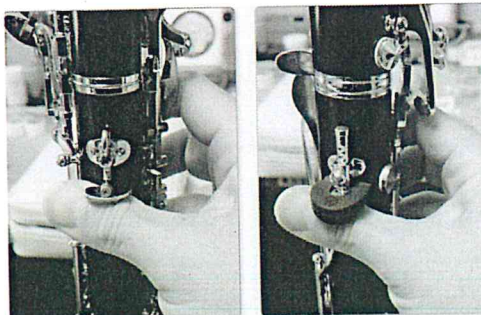
REVIEW ARTICLE

Musculoskeletal and Neuromuscular Conditions of Instrumental Musicians

Fadi Joseph Bejjani, MD, PhD, Glenn M. Kaye, MD, Melody Benham, BS

ERGONOMIC AND BIOMECHANIC CONSIDERATIONS

The authors believe that further advances in this exciting new field will result primarily from studying the occupational biomechanics and ergonomic aspects of the professional musician.



Back straight
Arms hang relaxed from the shoulder
Elbows slightly higher than keys
Sit on the front half of the bench
Feet on the floor

Freedom of movement in the shoulder blades
The rachidian curves are straight
Body-weight supported by the ischiatic protuberances and the lower limbs

The right position for armrest
The ideal height for optimum support
The shape of your spine
The depth and width of seat you require

Wrong Posture
10. Arms at 90 degrees
9. Lower neck
8. Round hand
7. Lower back above the hand
6. Loose shoulders
5. Elbows slightly above the bench
4. Handed back
3. Sit on the front half of the bench
2. Knees higher than hips
1. Feet flat on the ground

Right posture
10. Arms at 90 degrees
9. Lower neck
8. Round hand
7. Lower back above the hand
6. Loose shoulders
5. Elbows slightly above the bench
4. Handed back
3. Sit on the front half of the bench
2. Knees higher than hips
1. Feet flat on the ground

The longer the upper arm, the higher the seat should be

The longer the lower arm, the lower the seat should be

Theoretical but not practical positions. — Posiciones teóricas, pero no prácticas.

Fig. 12

Fig. 13

Fig. 14

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Fig. 95

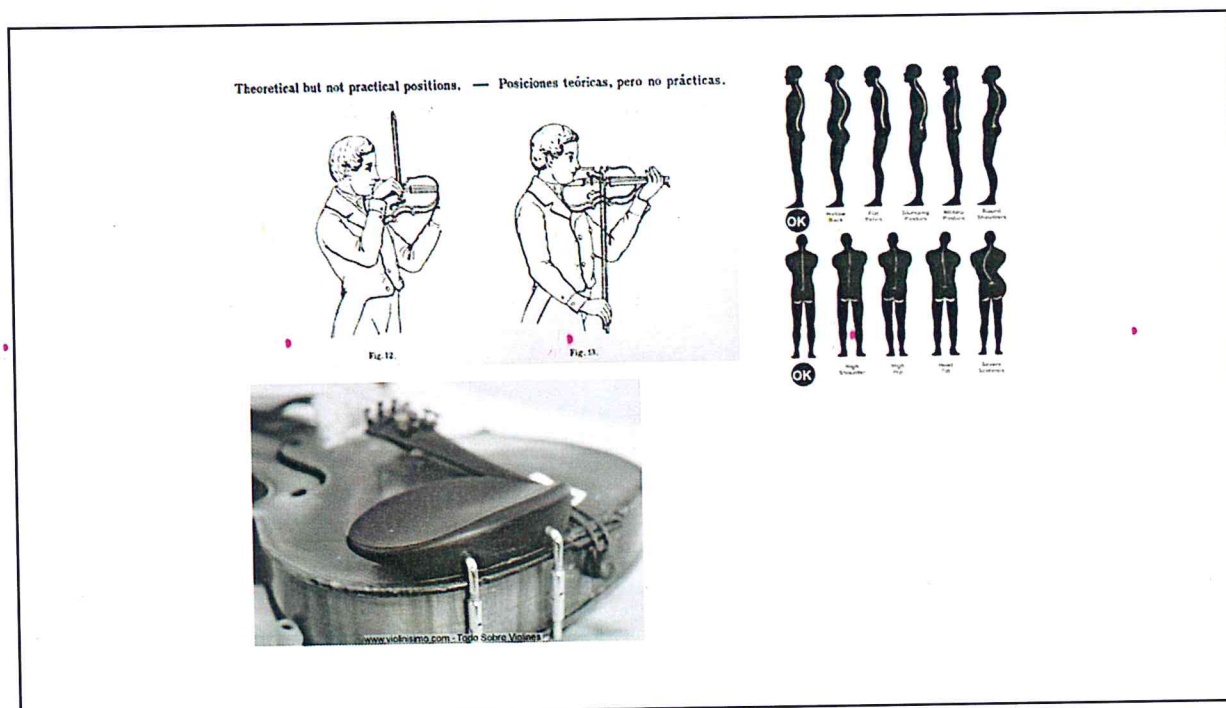
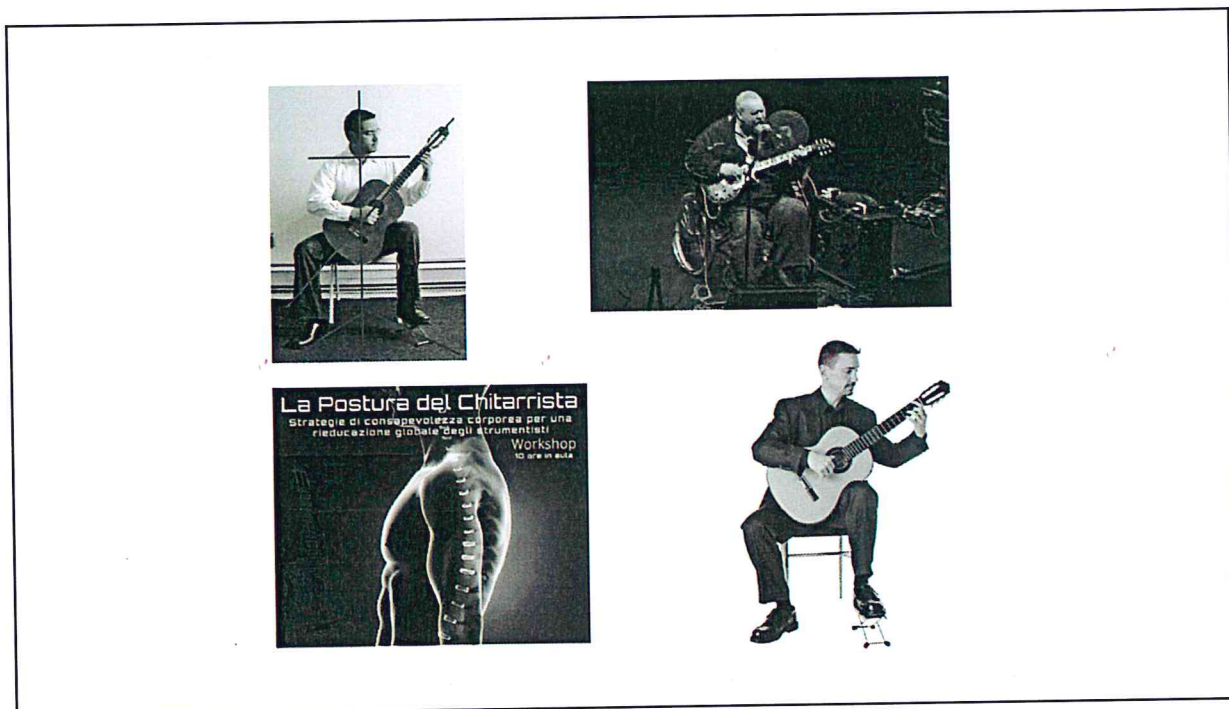
Fig. 96

Fig. 97

Fig. 98

Fig. 99

Fig. 100



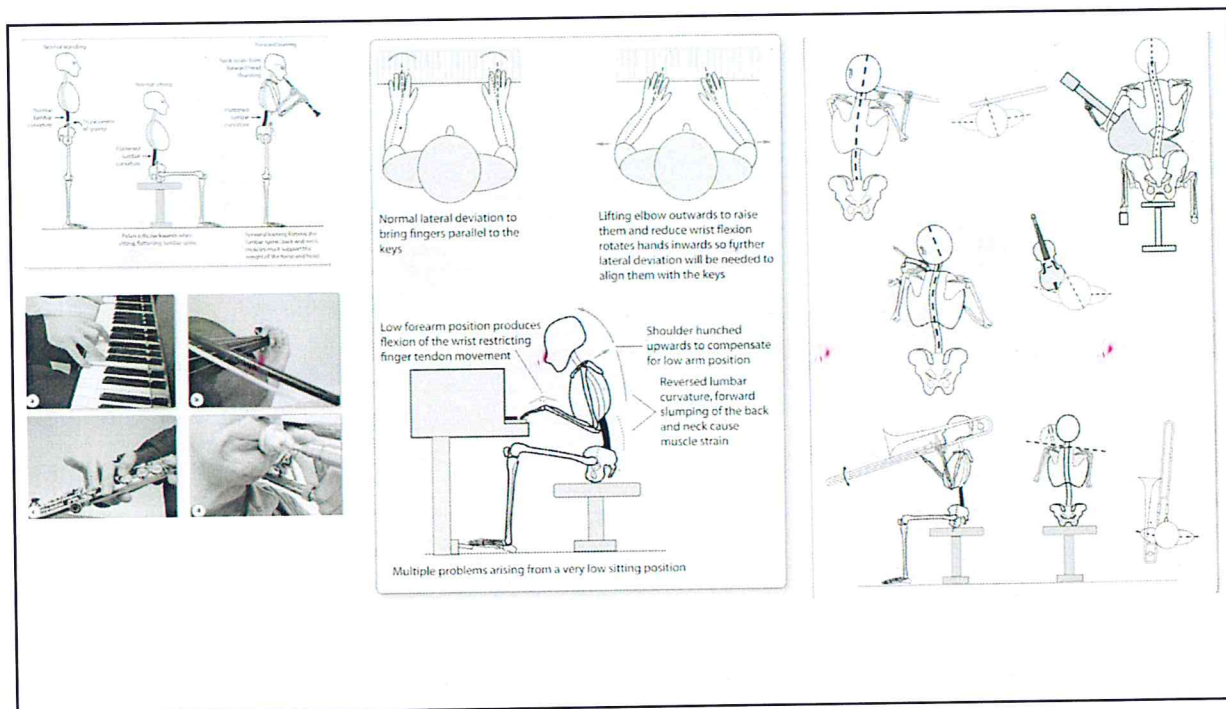
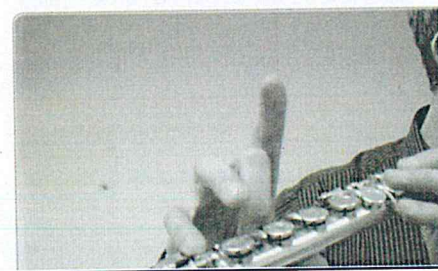
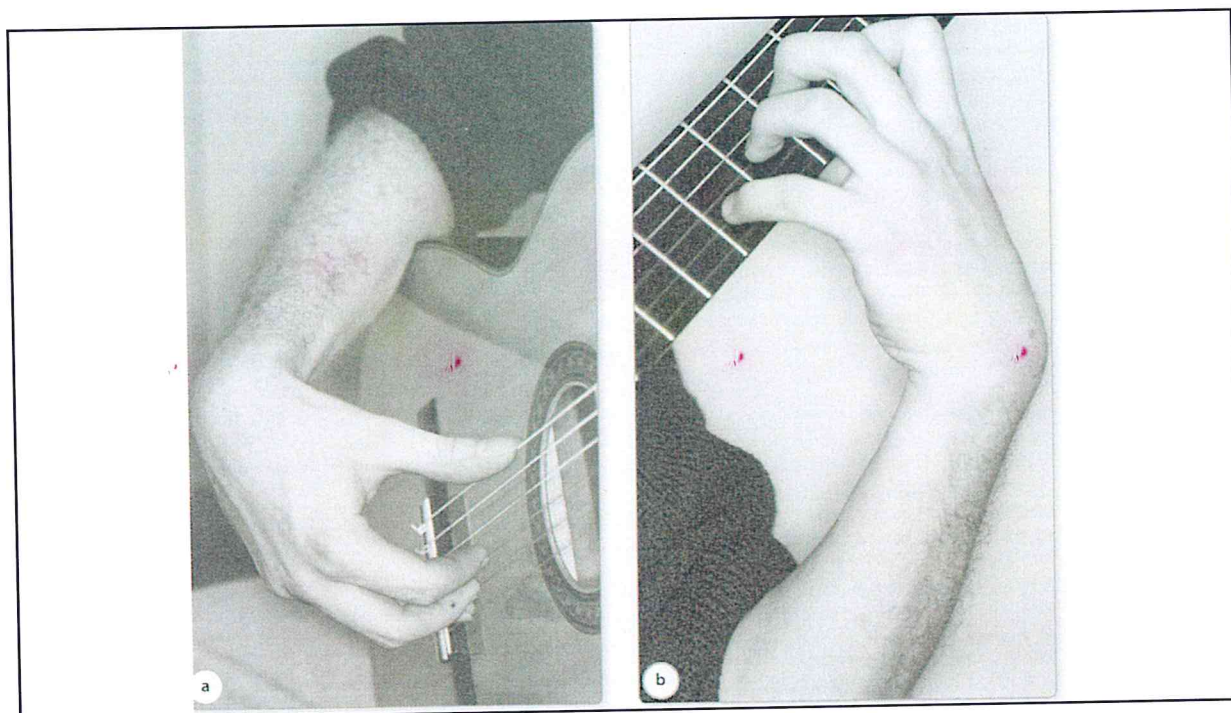


Figure 12.6 The ideal examining room with space, some sound-proofing and a full-sized piano.



Figure 12.7 Involuntary flexion of ring and middle fingers and compensatory extension of the little finger in a pianist





Farmaci e Doping





Conclusioni

- E' auspicabile codificare linee-guida e raccomandazioni specifiche per la prevenzione, la gestione e la cura delle patologie da sovraccarico dei musicisti
- Fondamentale è l'aspetto educativo
- Le patologie da sovraccarico non vanno sottovalutate ma gestite con un'adeguata prevenzione e con trattamenti mirati
- Un aspetto fondamentale è costituito dalla costruzione e codificazione di programmi e protocolli preventivi e riabilitativi mirati

Obiettivi



- Riduzione e prevenzione delle patologia da sovraccarico funzionale
- Miglioramento della performance
- Tutela della salute

Prospettive (per una cultura della prevenzione)

- Sviluppo di ricerche e studi scientifici applicativi
- Educazione e formazione
- Utilizzo appropriato del corpo e dello strumento
- Programmi e protocolli di prevenzione codificati e validati
- Riduzione ragionata e razionale del tempo di pratica/allenamento
- Sviluppo di una cultura della prevenzione

11+



PARTE 2 FORZA - PLIOMETRIA - EQUILIBRIO - 10 MINUTI

LIVELLO 1			LIVELLO 2		
<p>7 PANCA STATICO</p> <p>Descrizione di partenza: In posizione di partenza si appoggia il busto all'angolo del banco e si afferra il manubrio con le mani a larghezza delle spalle. Si solleva il manubrio fino a che il braccio è esteso e si abbassa lentamente. Ripetere per 10-15 volte.</p>	<p>8 PANCA LATERALE STATICO</p> <p>Descrizione di partenza: In posizione di partenza si appoggia il busto all'angolo del banco e si afferra il manubrio con le mani a larghezza delle spalle. Si solleva il manubrio fino a che il braccio è esteso e si abbassa lentamente. Ripetere per 10-15 volte.</p>	<p>9 ISCHIODURALI LIVELLO BASE</p> <p>Descrizione di partenza: In posizione di partenza si appoggia il busto all'angolo del banco e si afferra il manubrio con le mani a larghezza delle spalle. Si solleva il manubrio fino a che il braccio è esteso e si abbassa lentamente. Ripetere per 10-15 volte.</p>	<p>10 PANCA GAMBE ALTERNATE</p> <p>Descrizione di partenza: In posizione di partenza si appoggia il busto all'angolo del banco e si afferra il manubrio con le mani a larghezza delle spalle. Si solleva il manubrio fino a che il braccio è esteso e si abbassa lentamente. Ripetere per 10-15 volte.</p>	<p>11 PANCA LATERALE ALZARE E ABBASSARE LE ANCHE</p> <p>Descrizione di partenza: In posizione di partenza si appoggia il busto all'angolo del banco e si afferra il manubrio con le mani a larghezza delle spalle. Si solleva il manubrio fino a che il braccio è esteso e si abbassa lentamente. Ripetere per 10-15 volte.</p>	<p>12 PANCA LATERALE CON SOLLEVAMENTO DELLA GAMBA</p> <p>Descrizione di partenza: In posizione di partenza si appoggia il busto all'angolo del banco e si afferra il manubrio con le mani a larghezza delle spalle. Si solleva il manubrio fino a che il braccio è esteso e si abbassa lentamente. Ripetere per 10-15 volte.</p>
<p>13 SU UNA GAMBA TENERE LA PALLA</p> <p>Descrizione di partenza: In posizione di partenza si appoggia il busto all'angolo del banco e si afferra il manubrio con le mani a larghezza delle spalle. Si solleva il manubrio fino a che il braccio è esteso e si abbassa lentamente. Ripetere per 10-15 volte.</p>	<p>14 SU UNA GAMBA LANCARE LA PALLA AL COMPAGNO</p> <p>Descrizione di partenza: In posizione di partenza si appoggia il busto all'angolo del banco e si afferra il manubrio con le mani a larghezza delle spalle. Si solleva il manubrio fino a che il braccio è esteso e si abbassa lentamente. Ripetere per 10-15 volte.</p>	<p>15 SU UNA GAMBA METTERE ALLA PROVA IL COMPAGNO</p> <p>Descrizione di partenza: In posizione di partenza si appoggia il busto all'angolo del banco e si afferra il manubrio con le mani a larghezza delle spalle. Si solleva il manubrio fino a che il braccio è esteso e si abbassa lentamente. Ripetere per 10-15 volte.</p>			
<p>16 SQUAT SULLE PUNTE DEI PIEDI</p> <p>Descrizione di partenza: In posizione di partenza si appoggia il busto all'angolo del banco e si afferra il manubrio con le mani a larghezza delle spalle. Si solleva il manubrio fino a che il braccio è esteso e si abbassa lentamente. Ripetere per 10-15 volte.</p>	<p>17 SQUAT AFFONDI</p> <p>Descrizione di partenza: In posizione di partenza si appoggia il busto all'angolo del banco e si afferra il manubrio con le mani a larghezza delle spalle. Si solleva il manubrio fino a che il braccio è esteso e si abbassa lentamente. Ripetere per 10-15 volte.</p>	<p>18 SQUAT PIEGAMENTI SU UNA GAMBA</p> <p>Descrizione di partenza: In posizione di partenza si appoggia il busto all'angolo del banco e si afferra il manubrio con le mani a larghezza delle spalle. Si solleva il manubrio fino a che il braccio è esteso e si abbassa lentamente. Ripetere per 10-15 volte.</p>			
<p>19 SALTII VERTICALI</p> <p>Descrizione di partenza: In posizione di partenza si appoggia il busto all'angolo del banco e si afferra il manubrio con le mani a larghezza delle spalle. Si solleva il manubrio fino a che il braccio è esteso e si abbassa lentamente. Ripetere per 10-15 volte.</p>	<p>20 SALTII LATERALI</p> <p>Descrizione di partenza: In posizione di partenza si appoggia il busto all'angolo del banco e si afferra il manubrio con le mani a larghezza delle spalle. Si solleva il manubrio fino a che il braccio è esteso e si abbassa lentamente. Ripetere per 10-15 volte.</p>	<p>21 SALTII SALTII IN QUADRATO</p> <p>Descrizione di partenza: In posizione di partenza si appoggia il busto all'angolo del banco e si afferra il manubrio con le mani a larghezza delle spalle. Si solleva il manubrio fino a che il braccio è esteso e si abbassa lentamente. Ripetere per 10-15 volte.</p>			

ORIGINAL CONTRIBUTION Open Access


The prevention of musculoskeletal injuries in volleyball: the systematic development of an intervention and its feasibility

Vincent Gautierborge^{1,2,3,4,5}, Marjé van Sluis¹, Evert Verhagen^{1,4,5,7} and Johannes Zverev⁶





← Fase 1 - Week 1


Films van deze week offline beschikbaar




Opwarmen




Bekkencontrole, lig...




Half squats



Lunge, voorwaarts



Reiken aan het net



Rek actief aan het...

32

Perché non per i musicisti?

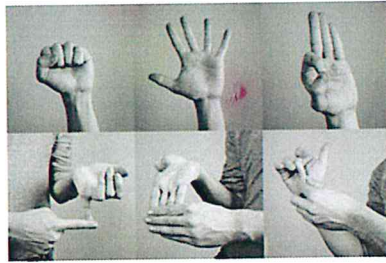
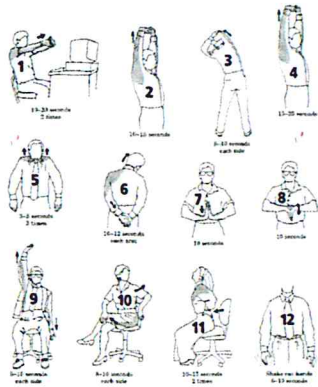


Fig 1 Basic posture of the violinist's left hand on the neck. (A) An anterior view of the hand; (B) the left hand resting on the neck of the violin, illustrating the dispersion of the hand.



Fig 2 When the players make high notes, they push their fingers on the keyboard over the bridge by extending their elbow and forearm, which is called 'high position'. (A) Photograph showing the left elbow and wrist are hyperextended. (B) Photograph showing the forearm is extended upwards.

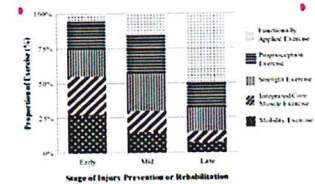
Original article

Development of a specific exercise programme for professional orchestral musicians

Cliffon Chan,¹ Tim Driscoll,² Bronwen Ackermann¹

Stage	1	2	3	4
Phase 1	Phase 1: Initial assessment and baseline data collection.	Phase 2: Introduction of basic ergonomic principles and posture correction exercises.	Phase 3: Implementation of specific exercises targeting common injury sites (neck, shoulder, wrist, hand).	Phase 4: Integration of the exercise programme into the musician's daily practice routine.
Phase 2	Phase 1: Initial assessment and baseline data collection.	Phase 2: Introduction of basic ergonomic principles and posture correction exercises.	Phase 3: Implementation of specific exercises targeting common injury sites (neck, shoulder, wrist, hand).	Phase 4: Integration of the exercise programme into the musician's daily practice routine.
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Phase 4	Phase 1: Initial assessment and baseline data collection.	Phase 2: Introduction of basic ergonomic principles and posture correction exercises.	Phase 3: Implementation of specific exercises targeting common injury sites (neck, shoulder, wrist, hand).	Phase 4: Integration of the exercise programme into the musician's daily practice routine.

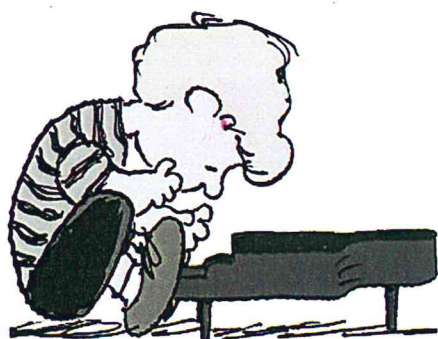
Figure 2 Adaptation of common elements in early, mid and end stages of injury prevention/rehabilitation exercise programme.





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GRAZIE !



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