Health Patterns of Clarinetists: An Epidemiologic Survey and its Impact on Educators, Performers, and Student-Musicians

Kensley Behel, BM, MM
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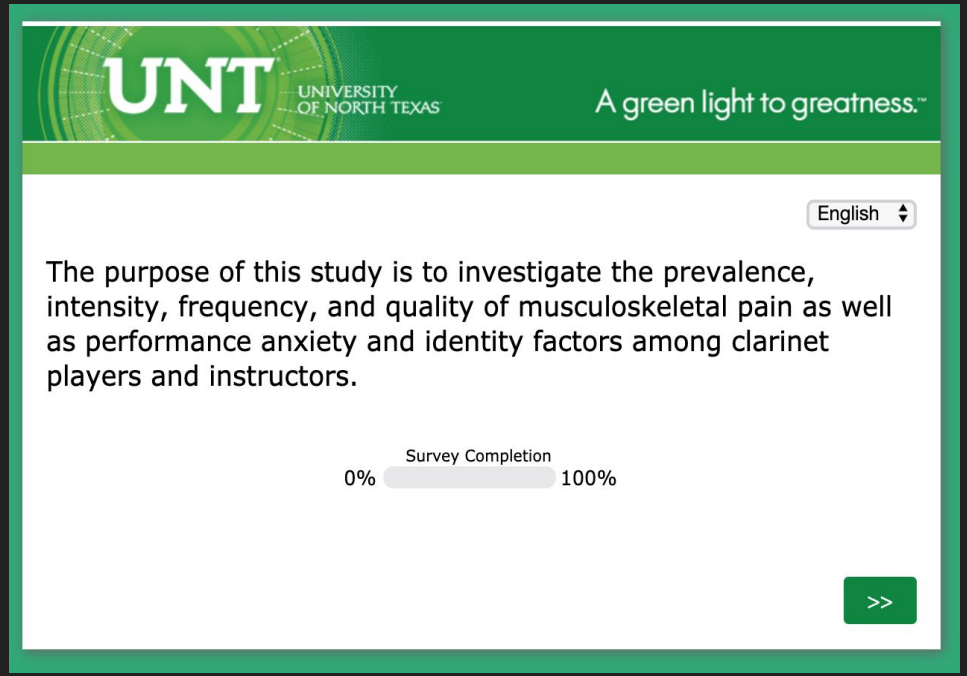
Introduction

I. History of Epidemiology (Study of Populations)
II. UNT Clarinetists' Health Survey
III. Implications for Performers, Educators, and Student-Musicians



DISCLAIMER:

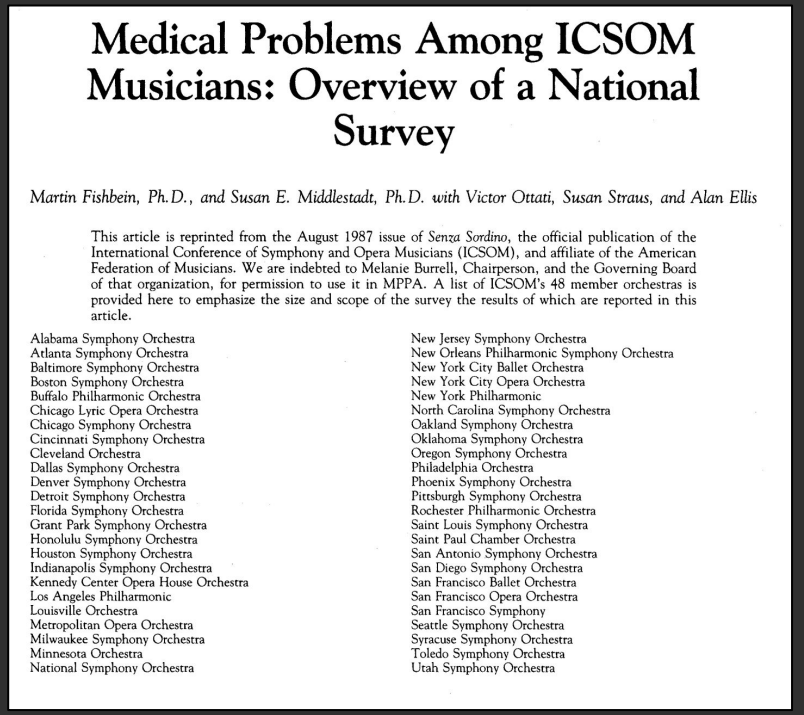
This presentation is not medical advice.
If you or your students are experiencing pain, please seek help from a medical professional.

Occupational Medicine

Bernardino Ramazzini

International Conference of Symphony and Opera Musicians

Martin Fishbein



Medical Problems Among ICSOM Musicians: Overview of a National Survey

Martin Fishbein, Ph.D., and Susan E. Middlestadt, Ph.D. with Victor Ottati, Susan Straus, and Alan Ellis

This article is reprinted from the August 1987 issue of *Senza Sordino*, the official publication of the International Conference of Symphony and Opera Musicians (ICSOM), and affiliate of the American Federation of Musicians. We are indebted to Melanie Burrell, Chairperson, and the Governing Board of that organization, for permission to use it in MPPA. A list of ICSOM's 48 member orchestras is provided here to emphasize the size and scope of the survey the results of which are reported in this article.

Alabama Symphony Orchestra
Atlanta Symphony Orchestra
Baltimore Symphony Orchestra
Boston Symphony Orchestra
Buffalo Philharmonic Orchestra
Chicago Lyric Opera Orchestra
Chicago Symphony Orchestra
Cincinnati Symphony Orchestra
Cleveland Orchestra
Dallas Symphony Orchestra
Denver Symphony Orchestra
Detroit Symphony Orchestra
Florida Symphony Orchestra
Grant Park Symphony Orchestra
Honolulu Symphony Orchestra
Houston Symphony Orchestra
Indianapolis Symphony Orchestra
Kennedy Center Opera House Orchestra
Los Angeles Philharmonic
Louisville Orchestra
Metropolitan Opera Orchestra
Milwaukee Symphony Orchestra
Minnesota Orchestra
National Symphony Orchestra
New Jersey Symphony Orchestra
New Orleans Philharmonic Symphony Orchestra
New York City Ballet Orchestra
New York City Opera Orchestra
New York Philharmonic
North Carolina Symphony Orchestra
Oakland Symphony Orchestra
Oklahoma Symphony Orchestra
Oregon Symphony Orchestra
Philadelphia Orchestra
Phoenix Symphony Orchestra
Pittsburgh Symphony Orchestra
Rochester Philharmonic Orchestra
Saint Louis Symphony Orchestra
Saint Paul Chamber Orchestra
San Antonio Symphony Orchestra
San Diego Symphony Orchestra
San Francisco Ballet Orchestra
San Francisco Opera Orchestra
San Francisco Symphony
Seattle Symphony Orchestra
Syracuse Symphony Orchestra
Toledo Symphony Orchestra
Utah Symphony Orchestra

Clarinet Epidemiology

Thrasher and Chesky

Medical Problems of Clarinetists:

Results from the U.N.T. Musician Health Survey

by Michael Thrasher and Kris S. Chesky

because the unique and varied demands associated with each instrument type cannot be accounted for. Fry (1988) highlight-

netists by examining the data collected through the UNT–MHS.

UNT Clarinetists' Health Survey

UNT Clarinetists' Health Survey

Specific Aims:

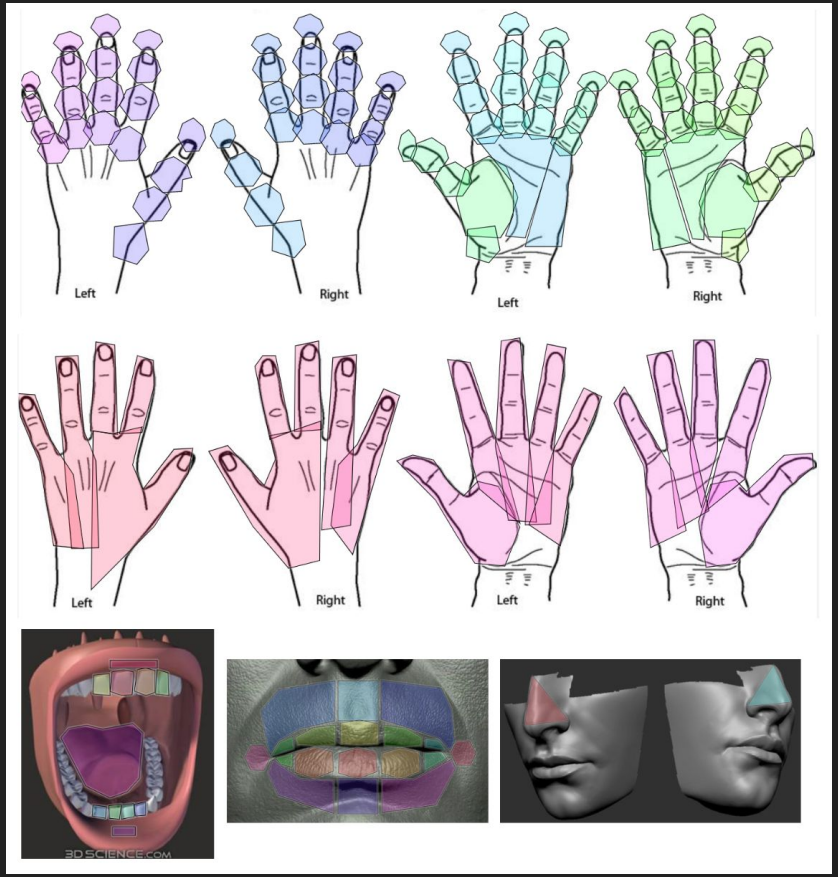
1. **Describe clarinetists as a population.**
    a. medical problems, lifestyle activities, practice & performance habits, etc.
2. **Analyze and compare clarinet-related musculoskeletal pain through site-specific body maps.**
3. **Articulate and discuss the role of collegiate clarinet faculty in addressing health concerns related to learning and performing the clarinet.**

UNT Clarinetists Health Survey

Method:

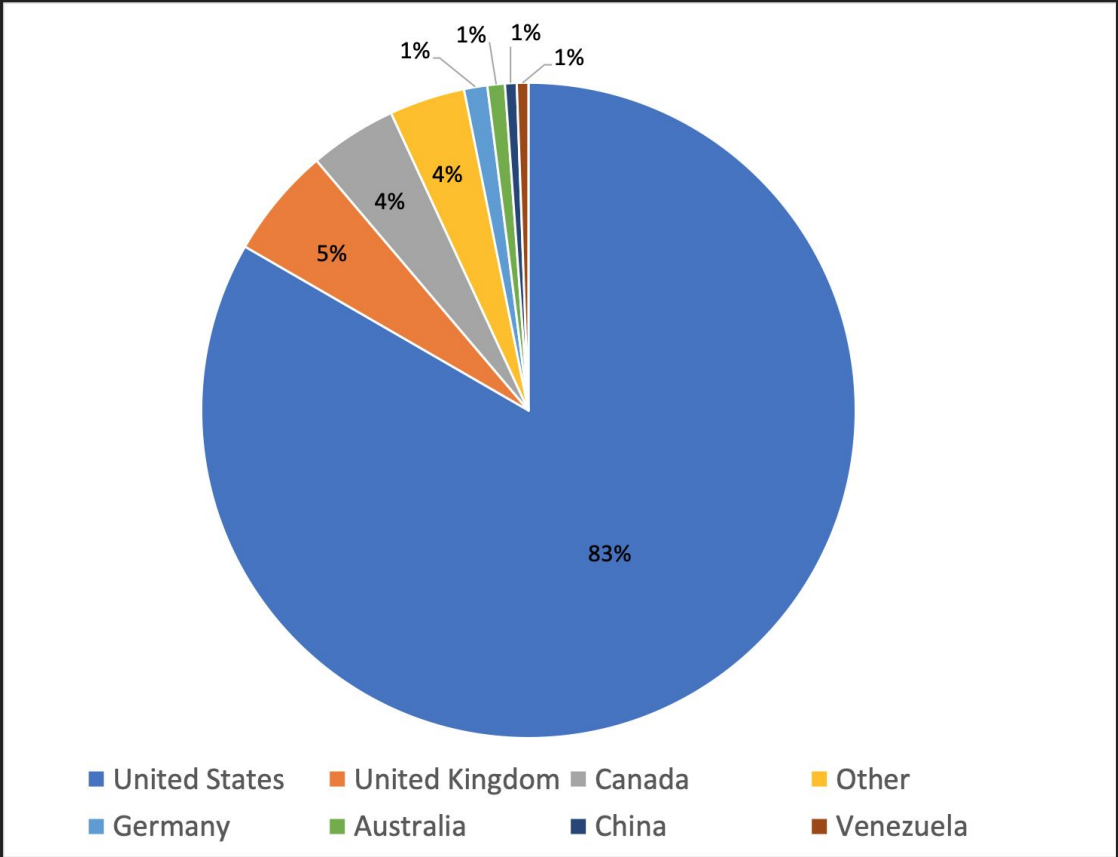
1. Survey Design
2. IRB Approval
3. Subject Recruitment via NASM Schools of Music and Social Media

Interactive Body Maps



1. Demographics of Survey Respondents

Countries Represented in Survey Results



Demographics

Variables	Male	Female	Total
Sex (N)	131	219	350
Age (mean)	35	33	34

Demographics

Engagement (mean)	Male	Female	Total
Playing clarinet (yrs.)	22.5	20.9	21.5
Formal study clarinet (yrs.)	11.3	9.8	10.4
Playing Clarinet (hrs. per week)			
E-flat	1.1	0.8	0.9
B-flat/A	18.8	15.8	16.8
Alto	0.8	0.1	0.1
Bass	1.4	1.1	1.2
Contrabass	0.1	0.1	0.1

Practice and Performance Information

Variables	Male	Female	Significance
Practice Sessions			
Number Per Day (mean)	1.7	1.4	p = 0.00**
Number Per Week (mean)	9.4	7.5	p = 0.01**
Length of Session (mins.) (mean)	66.5	67.2	p = 0.86
Number of Breaks (mean)	1.3	1.3	p = 0.74
Time Spent Playing Music (all instruments) Each Week (hrs.) (mean)	19.0	15.9	p = .034**
Number of Performances in the Past Year (mean)	30.4	22.3	p = .015**

2. Clarinet-Related Musculoskeletal Problems in the Past Year

Ranked by Prevalence

Musculoskeletal Site	Prevalence		Frequency		Intensity		Influence	
	Rank	n (%)	Rank	Mean ± SD	Rank	Mean ± SD	Rank	Mean ± SD
Inside Bottom Lip	1	120 (34.3)	4	53.40 ± 28.6	1	46.8 ± 27.6	1	45.0 ± 33.5
Right Thumb MP Joint (Dorsal)	2	98 (28.0)	22	42.06 ± 28.2	17	33.7 ± 24.7	12	29.6 ± 27.9
Right Thumb IP Joint (Dorsal)	3	92 (26.3)	13	45.5 ± 29	15	35.0 ± 25.3	10	30.0 ± 30.1
Right Thumb Radial Nerve (Dorsal)	4	81 (23.1)	2	55.6 ± 29.8	3	44.1 ± 26.8	3	39.2 ± 34.4
Right Neck Back	5	80 (22.9)	9	47.1 ± 28.6	9	39.1 ± 25.1	22	23.7 ± 28.5
Right Forearm Front	6	79 (22.6)	23	39.9 ± 27.5	24	30.8 ± 25.3	16	26.7 ± 27.2
Left Neck Back	7	74 (21.1)	10	47 ± 28	10	38.9 ± 26.3	19	24.0 ± 28.5
Right Thenar	8	73 (20.9)	5	50.7 ± 34	11	38.5 ± 28.9	9	31.3 ± 28.7
Right Wrist Front	9	66 (18.9)	21	42.2 ±30.4	19	33.2 ± 26.4	14	28.7 ± 27.8
Right Upper Back	10	66 (18.9)	6	50.1 ±26.5	7	39.7 ± 22.1	25	21.8 ± 24.3
Right Thumb Median Nerve (Palmer)	11	66 (18.9)	3	54.6 ±28.6	2	46.3 ± 27.1	2	41.8 ± 32.2
Center Bottom Lip (Vermilion)	12	62 (17.7)	15	44.7 ± 28.3	27	27.8 ± 23.5	13	29.5 ± 26.3
Left Upper Back	13	61 (17.4)	12	46 ± 27.5	12	37.8 ± 24.8	24	22.7 ± 26.8
Right Forearm Back	14	53 (15.1)	27	33.2 ± 24.7	25	30.3 ± 21.8	21	23.9 ± 26.0
Right Thumb CMC Joint (Dorsal)	15	51 (14.6)	17	43.1 ± 27.5	16	34.1 ± 24.7	8	33.5 ± 27.6
Right Wrist Back	16	49 (14.0)	25	39.1 ± 29.7	21	31.9 ± 28.5	17	26.6 ± 30.1
Center Cutaneous Lower Lip	17	48 (13.7)	20	42.4 ± 28.5	20	32.4 ± 23.1	11	29.9 ± 27.0
Right Shoulder Back	18	47 (13.4)	8	48.5 ± 30.4	8	39.3 ± 27.1	23	23.5 ± 27.3
Left Shoulder Back	19	42 (12.0)	11	46.9 ± 29.9	6	39.8 ± 28.1	18	24.5 ± 28.6
Left Outside Lips Corner	20	42 (12.0)	19	42.5 ± 29	22	31.9 ± 26.1	6	35.2 ± 32.0
Right Thumb MP Joint (Palmer)	21	41 (11.7)	7	49.5 ± 34.6	4	42.0 ± 30.6	5	35.5 ± 31.4
Right Outside Lips Corner	22	41 (11.7)	18	42.9 ± 29.8	23	31.7 ± 26.0	4	36.3 ± 31.6
Right Lower Back	23	38 (10.9)	16	43.9 ± 27.3	14	37.0 ± 25.4	20	24.0 ± 27.8
Lower Left Central Incisor	24	38 (10.9)	26	37.6 ± 28.9	26	29.2 ± 23.9	15	27.8 ± 28.9
Left Lower Back	25	37 (10.6)	14	45.3 ± 29	13	37.4 ± 26.9	26	20.9 ± 25.4
Right Neck Front	26	36 (10.3)	24	39.5 ± 34	18	33.6 ± 27.7	27	16.7 ± 25.9
Right Thumb IP Joint (Palmer)	27	35 (11.0)	1	56.8 ± 33.4	5	41.8 ± 31.8	7	35.0 ± 35.2

Ranked by Influence

Musculoskeletal Site	Prevalence		Frequency		Intensity		Influence	
	Rank	n (%)	Rank	Mean ± SD	Rank	Mean ± SD	Rank	Mean ± SD
Inside Bottom Lip	1	120 (34.3)	4	53.40 ± 28.6	1	46.8 ± 27.6	1	45.0 ± 33.5
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Right Thumb IP Joint (Palmer)	27	35 (11.0)	1	56.8 ± 33.4	5	41.8 ± 31.8	7	35.0 ± 35.2
Right Thumb CMC Joint (Dorsal)	15	51 (14.6)	17	43.1 ± 27.5	16	34.1 ± 24.7	8	33.5 ± 27.6
Right Thenar	8	73 (20.9)	5	50.7 ± 34	11	38.5 ± 28.9	9	31.3 ± 28.7
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Left Lower Back	25	37 (10.6)	14	45.3 ± 29	13	37.4 ± 26.9	26	20.9 ± 25.4
Right Neck Front	26	36 (10.3)	24	39.5 ± 34	18	33.6 ± 27.7	27	16.7 ± 25.9

Lip and Embouchure

Right Thumb and Wrist

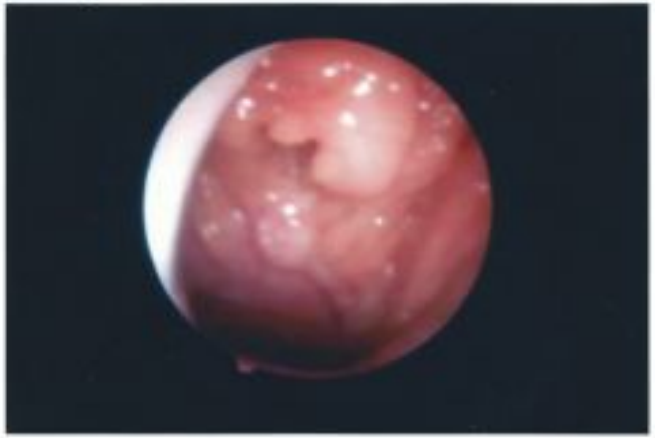
Musculoskeletal Problems - Male vs. Female

Female (n=219)		
Pain-Site	***count***	***n%***
Inside Bottom Lip	76	34.90%
Right Thumb Interphalangeal (IP) Joint (Dorsal)	68	31.10%
Right Thumb Metacarpophalangeal (MP) Joint (Dorsal)	62	28.30%
Right Thumb Radial Nerve (Dorsal)	58	26.50%
Right Thenar	55	25.10%

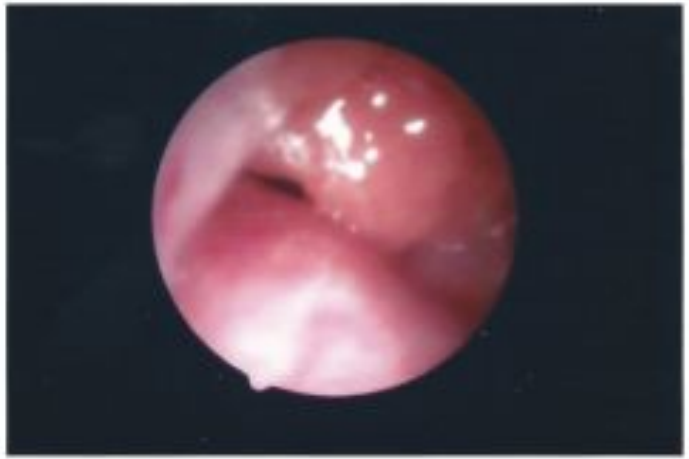
Male (n=131)		
Pain-Site	***count***	***n%***
Inside Bottom Lip	43	32.80%
Right Thumb Metacarpophalangeal (MP) Joint (Dorsal)	36	27.50%
Right Wrist Front	27	20.60%
Right Neck Back	26	19.80%
Left Neck Back	26	19.80%

VPI / SVPI

Stills



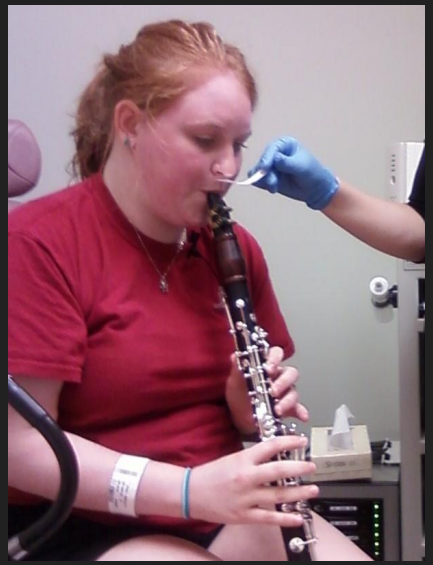
4:04:16 (50.1) – Velopharyneal Port left side. Note tissue irregularity on PPW at midline

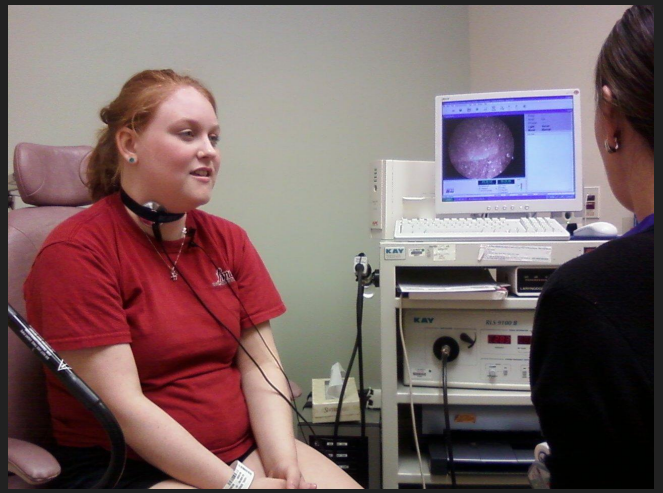


16:00:11 (53:1) – Velopharyngeal Port left side during clarinet play air leakage right and left of PPW projection

PPW = Posterior Pharyngeal Wall

3. Role of Collegiate Clarinet Faculty

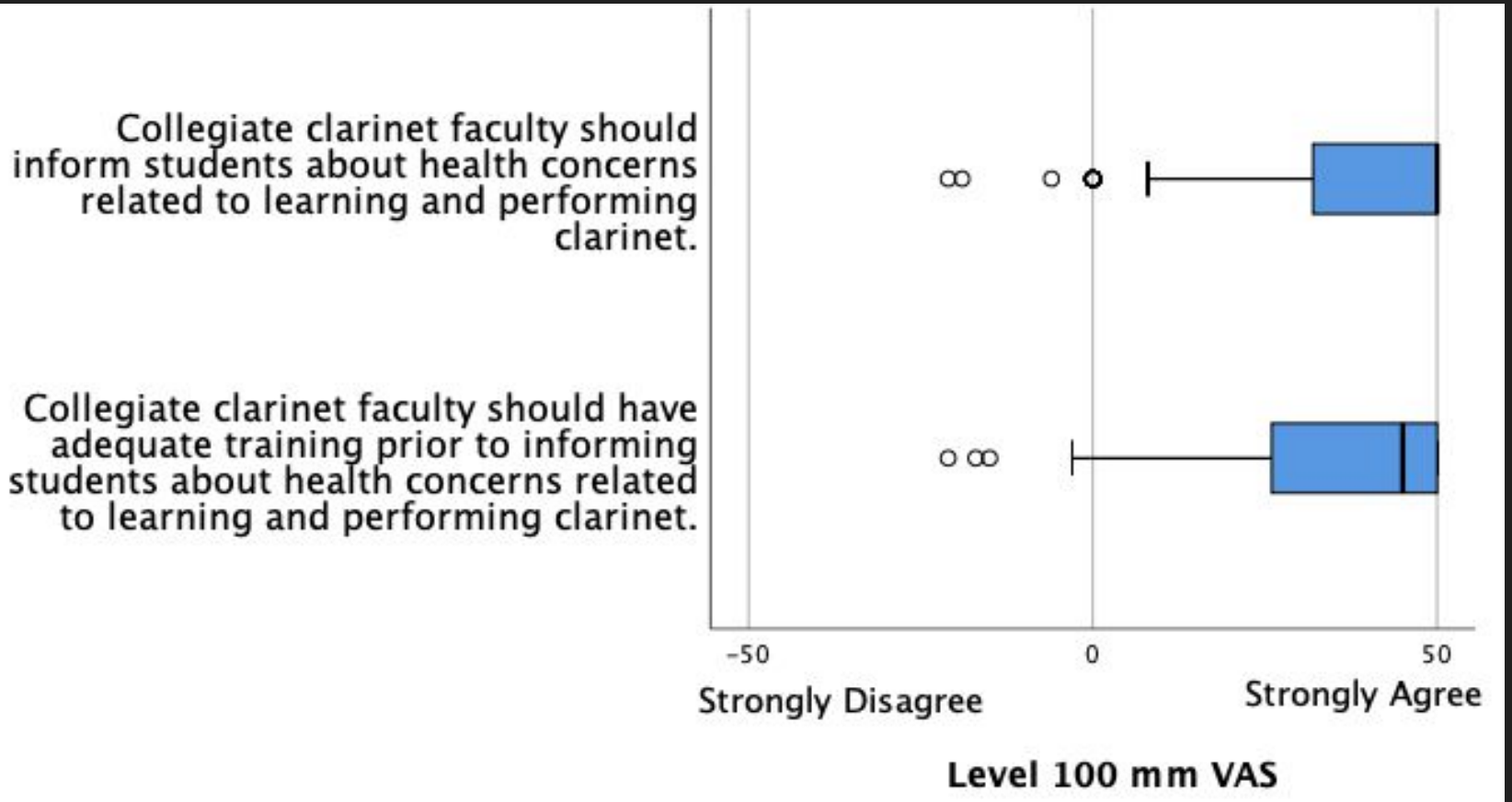




National Association of Schools of Music (2018)

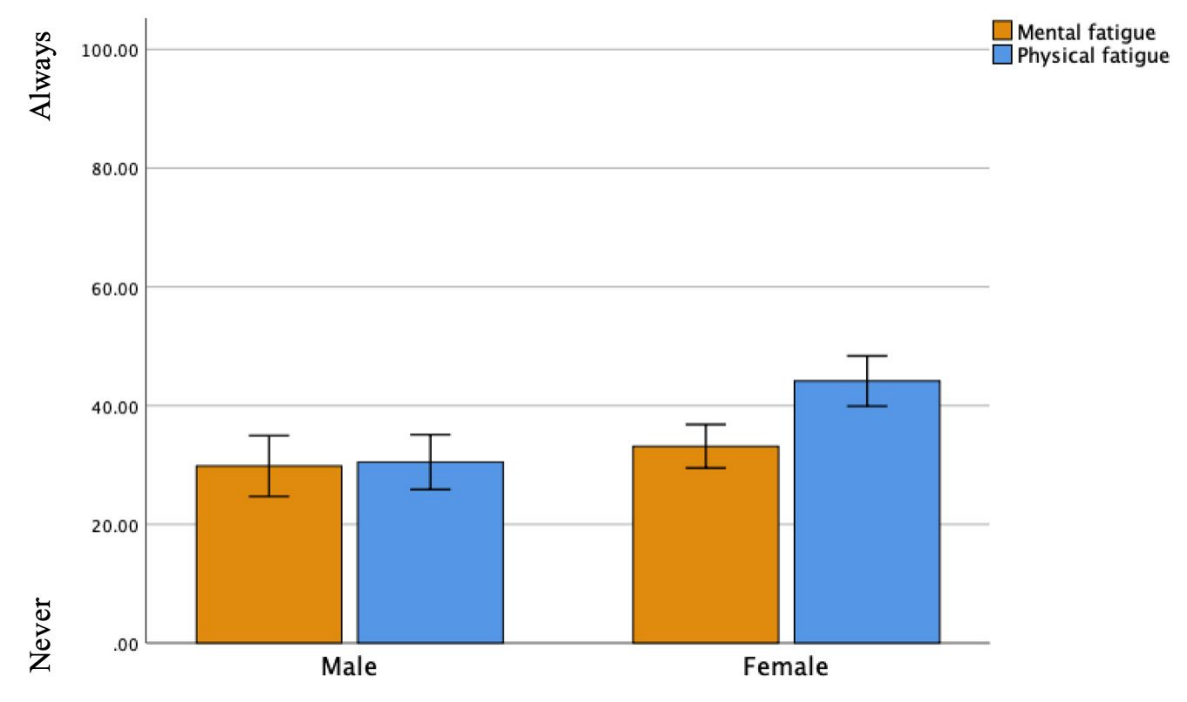
Students enrolled in music unit programs and faculty and staff with employment status in the music unit must be provided basic information about the maintenance of health and safety within the contexts of practice, performance, teaching, and listening.

For music majors and music faculty and staff, general topics include, but are not limited to, basic information regarding the maintenance of hearing, vocal, and musculoskeletal health and injury prevention.


Collegiate clarinet faculty should inform students about health concerns related to learning and performing clarinet.
Collegiate clarinet faculty should have adequate training prior to informing students about health concerns related to learning and performing clarinet.
-50
0
50
Strongly Disagree
Strongly Agree
Level 100 mm VAS

Implications for Educators, Performers, and Student-Musicians

“Indicate how often you stopped practicing clarinet due to fatigue.”



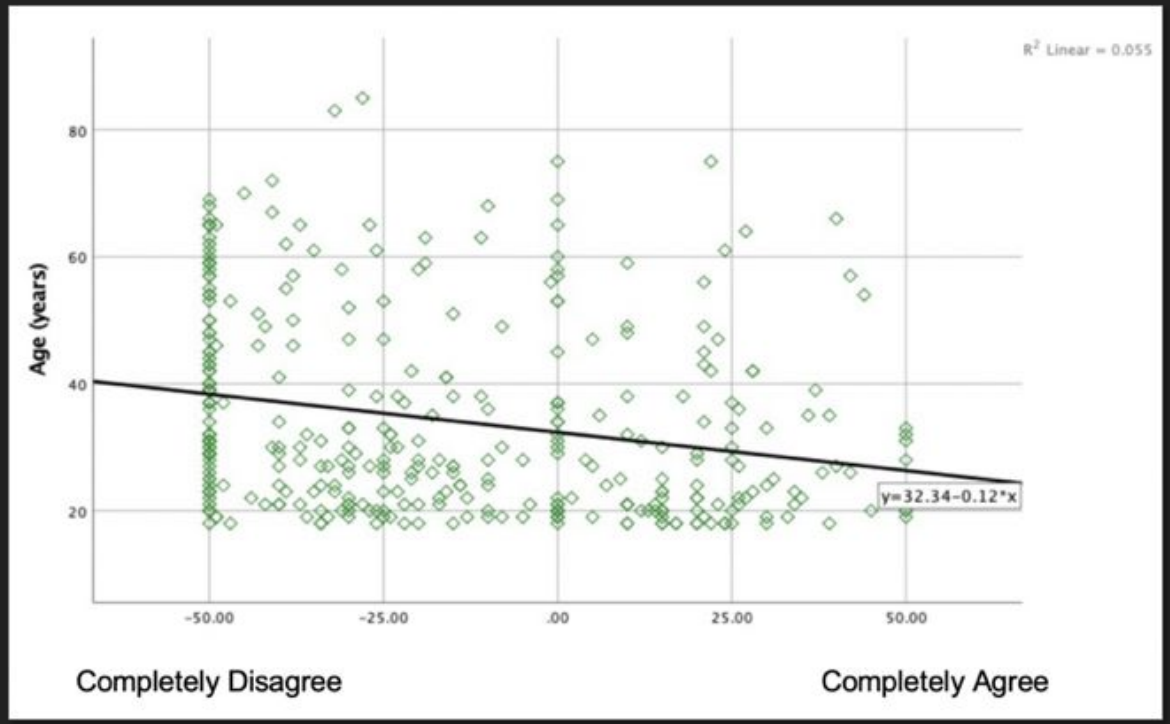
Musculoskeletal Problem Areas

Musculoskeletal Site	Prevalence		Frequency		Intensity		Influence	
	Rank	n (%)	Rank	Mean ± SD	Rank	Mean ± SD	Rank	Mean ± SD
Inside Bottom Lip	1	120 (34.3)	4	53.40 ± 28.6	1	46.8 ± 27.6	1	45.0 ± 33.5
Right Thumb Median Nerve (Palmer)	11	66 (18.9)	3	54.6 ±28.6	2	46.3 ± 27.1	2	41.8 ± 32.2
Right Thumb Radial Nerve (Dorsal)	4	81 (23.1)	2	55.6 ± 29.8	3	44.1 ± 26.8	3	39.2 ± 34.4
Right Outside Lips Corner	22	41 (11.7)	18	42.9 ± 29.8	23	31.7 ± 26.0	4	36.3 ± 31.6
Right Thumb MP Joint (Palmer)	21	41 (11.7)	7	49.5 ± 34.6	4	42.0 ± 30.6	5	35.5 ± 31.4

Inside Bottom Lip & Right Wrist

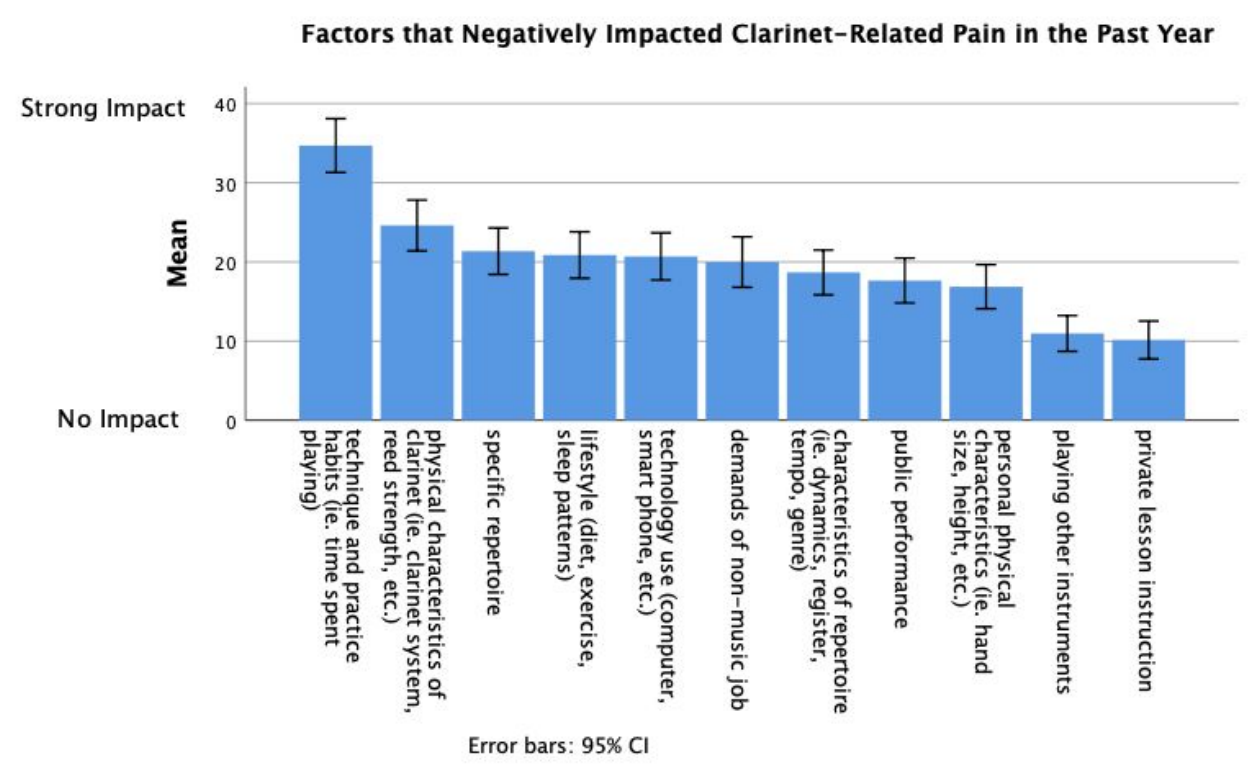
Only **35%** of Clarinetists Have Sought Medical Care Regarding Clarinet-Related Musculoskeletal Pain.

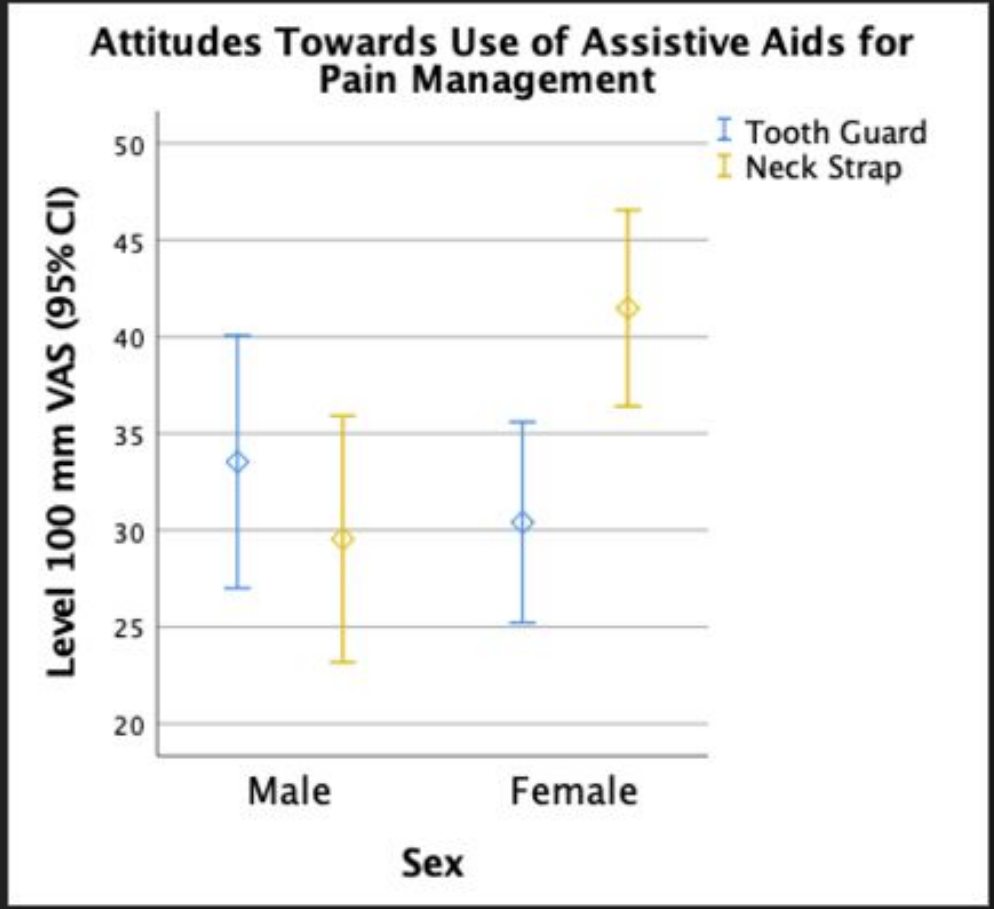
Level of Agreement with “No Pain, No Gain”



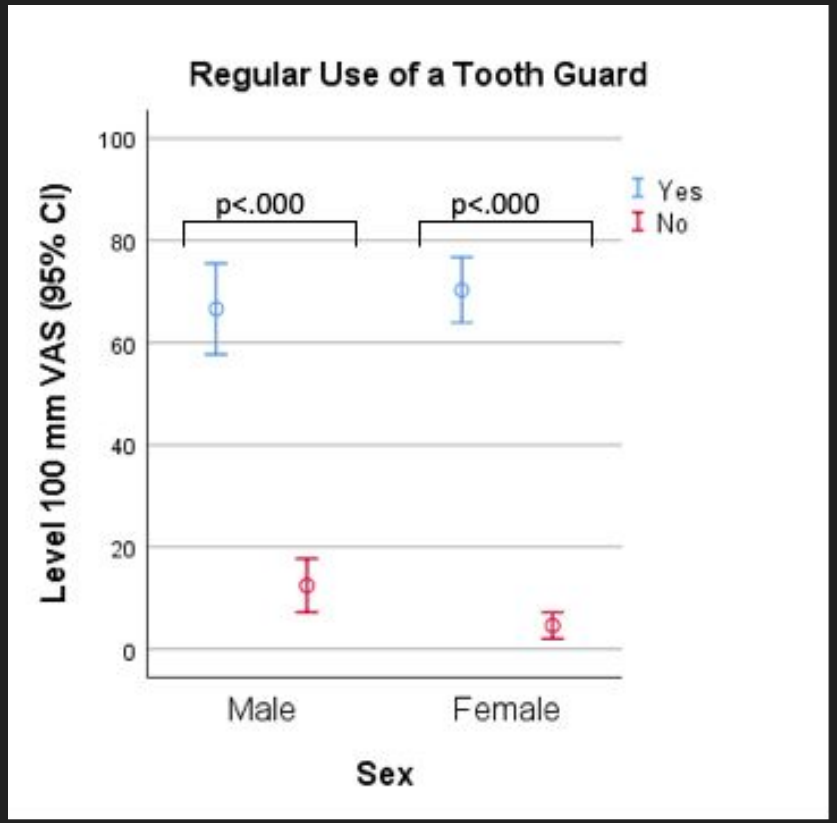
Diagnosis	Percent of Respondents
Tendonitis	11.2%
Carpal Tunnel Syndrome	9.1%
TMJ	8.2%
Overuse Syndrome	7.7%
Arthritis	6.0%
SVPI/VPI	2.2%

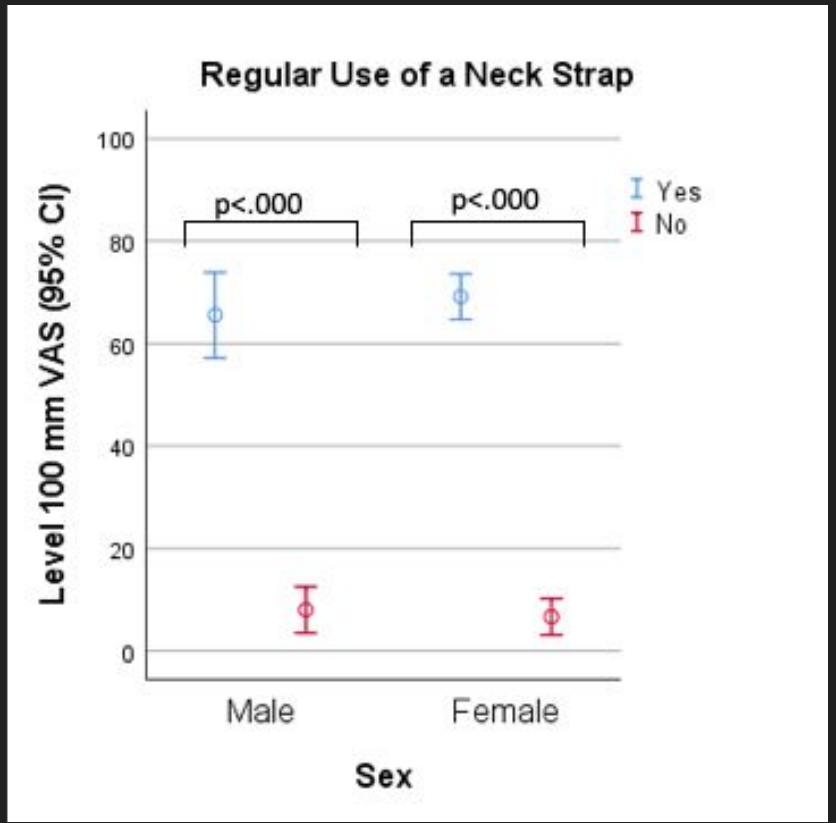
Factors that Negatively Impact Clarinet-Related Pain




Attitudes Towards Use of Assistive Aids for Pain Management
Tooth Guard
Neck Strap
Level 100 mm VAS (95% CI)
50
45
40
35
30
25
20
Male
Female
Sex

Level of Perceived Effectiveness



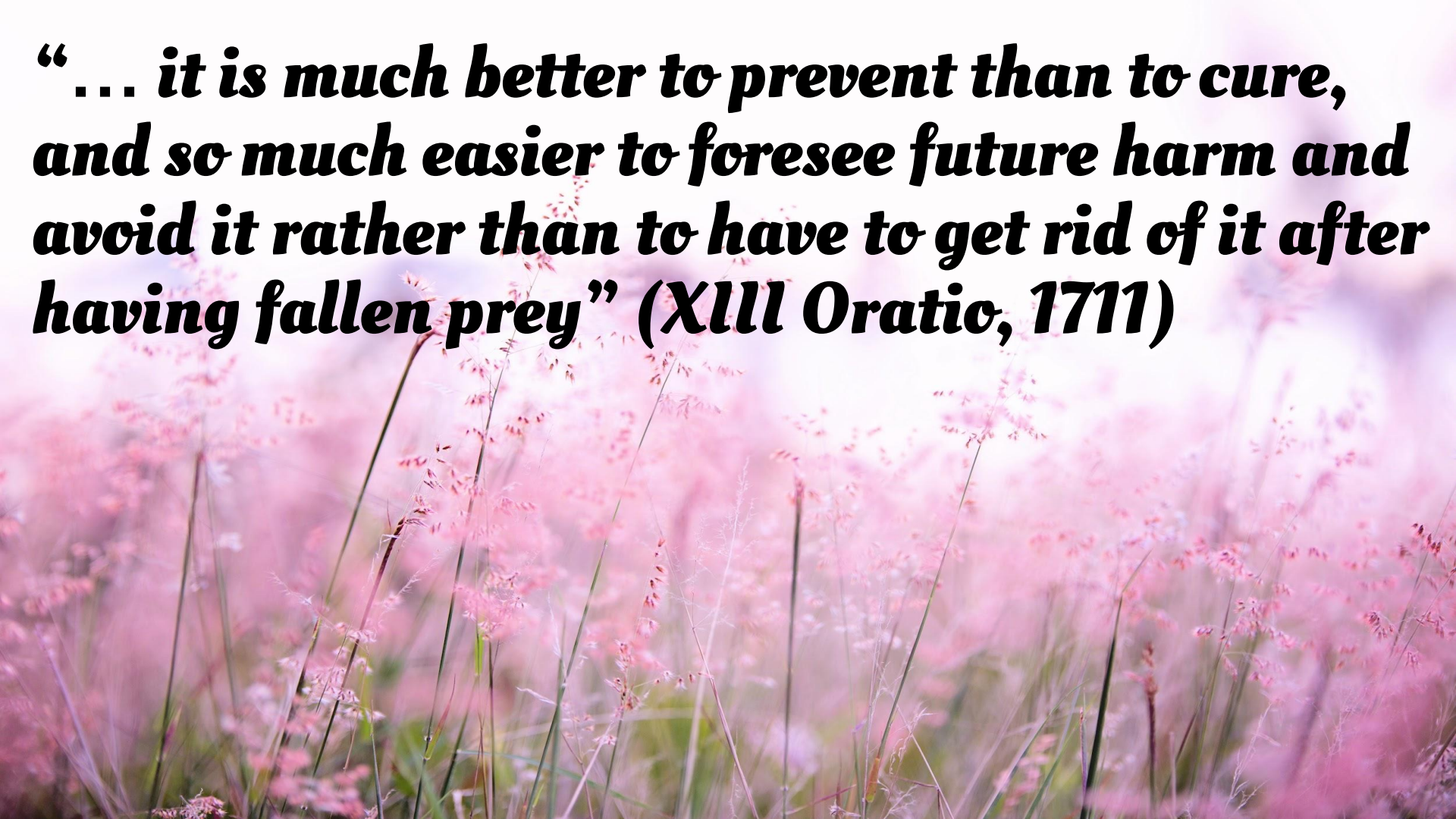


Impact of Lifestyle on Clarinet-Related Pain

McGill Pain Adjectives Describing Quality of Pain

Inside Bottom Lip

Right Thumb Radial Nerve (Dorsal)



“… it is much better to prevent than to cure, and so much easier to foresee future harm and avoid it rather than to have to get rid of it after having fallen prey” (XIII Oratio, 1711)

Acknowledgements

Our colleagues Texas Center for Performing Arts Health for their effort on this project.

Dr. Jonathan Starkweather for his assistance with data analytics.

Sean Perrin from Clarineat and James Zimmerman from Clarinet Jobs for aiding in our dissemination efforts on their respective social media pages.

All of the clarinetists who made time to take our survey.

THANK YOU!

Questions? Feel free to contact us at...

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