

Practice Doesn't Necessarily Make Perfect: Incidence of Overuse Syndromes in Amateur Instrumentalists

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The painful playing-related complaints of instrumental musicians have recently attracted unprecedented attention.¹⁻⁴ For the purposes of the present study we define overuse syndrome as symptoms associated with activity that exceeds the biological limits of the tissue involved.³ The prevalence of overuse syndromes has been estimated to be as high as 21% in Australian music students⁵ and upwards of 50% in symphony orchestra musicians.⁶ It appears that a long-ignored or long-suppressed problem afflicting large numbers of performers has made itself known for the first time.⁷

One of us (R.J.L.) attempted to survey professional and conservatory musicians in northern Ohio in 1984 to estimate the prevalence and scope of playing-related complaints, but obtained a response rate of only 30%.⁸ We hypothesize that among the reasons for such a low response rate is the reluctance of musicians either to admit that they have had "real" problems or to risk public disclosure of these problems, despite researchers' assurances of confidentiality. Concern about confidentiality was expressed by freelance musician-patients in particular, who fear being "blacklisted" as unreliable if their problems were to become known.

It would seem to follow logically that the incidence of overuse problems also warrants attention. Unfortunately, statistics on incidence are scanty. To the best of our knowledge, no researchers have carried out longitudinal studies of groups of musicians. An unusual opportunity presented itself to us to survey a defined high-risk population for the development of overuse injuries, in a setting where we could predict a good response rate. This paper describes our results.

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A rapid increase in practice time, especially superimposed upon a baseline of relatively little routine practice, predisposes a musician to overuse injuries.

Methods

The Chamber Music Conference and Composers' Forum of the East at Bennington, Vermont has for over 30 years provided a high quality and intense chamber music experience for a selected group of instrumentalists. The Conference participants are almost all amateur enthusiasts who, we believed, substantially increased their playing time from baseline before and certainly during the Conference. Furthermore, the program includes 3½ hours of intensive coaching daily, with considerable premium placed on achieving sufficient proficiency to perform before one's peers at the week's end. Thus both playing time and what might be called intensity are increased. We believed that this made the participants a group at particular risk for the development of overuse problems, which have been associated with a sudden increase in practice time and intensity.^{2,4,8} We also believed that these players, as amateurs, would be more likely to be open and to share their problems with us than would professionals, for the above-mentioned reasons.

During the week of 10-17 August 1986, we collected responses to a questionnaire from participants of the Conference. The data presented below emerged from these questionnaires. After the Conference, we increased the yield by sending additional forms to all participants who had so far not responded. Because of our hypothesis regarding increased practice time, we excluded the Conference faculty, who perform and teach full-time during the year.

Results

Of 109 participants at the Conference during the study week, we obtained questionnaires from 79, or 73%. The players ranged in age from 24 to 79 years, with an arithmetic mean age of 47 years and a median age of 45 years. As Table 1 shows, only 2 of 79 (3%) players were professional musicians. Educators and members of the scientific and medical professions were most numerous. Of the 79 players, 70 (87%) were right-handed and 7 (11%) were left-handed

(two failed to tell us), which reflects the distribution in the general population. Sixty percent were men and 40% were women.

TABLE 1. Primary Professions of 79 Musicians

Medicine, surgery, clinical psychology and social work	16
Education (not music)	16
Science, computer industry	12
Music	7
Professional musician	2
Music education	4
Music student	1
Engineering	5
Civil service	5
Management, private sector	5
Law, accountancy	5
Journalism or professional writing	2
Student (not music)	2
Unemployed outside the home	2
Librarian	1
Architecture	1

Table 2 shows the distribution of instruments represented in our sample. Strings outnumbered other instruments, a function of the basic Conference orientation.

The vast majority (70 or 89%) of participants had participated at the Conference in past years, and for 42 (39%), this was at least their sixth year of participation.

We asked detailed questions about players' routine practice habits. Fifty-four percent of participants averaged less than one hour of practice daily during the year, and only 4% practiced 3 hours or more per day routinely. In addition, 52% spent up to 5 hours per week (and 12% spent more time than this) rehearsing chamber music; 21% did not rehearse chamber music routinely. Of our participants, 41% played regularly in orchestras, which in 18% (or 44% for this subgroup) required more than 3 hours of rehearsal weekly.

During the 4 weeks prior to the Conference, 27 (34%) either had no significant practice increase or an actual decrease in practice time. Twenty-four (30%) increased their practice time to between 1 and 2 times "normal," 13% (16%) from 2 to 3 times normal, and 11 (14%) more than triple their normal amount; four players (5%) did not state their practice time alteration.

TABLE 2. Primary Instruments

Violin	17
Viola	9
Cello	13
Bass	1
Flute	3
Clarinet	7
Oboe	5
Bassoon	3
Horn	4
Piano	7
Combination of instruments	
Violin and viola	7
Viola and piano	1
Violin and piano	1
Violin, viola, and cello	1

While at the Conference these players maintained an intense playing schedule. The average time spent playing their instruments daily was between 7 and 8 hours; the precise data comprises Table 3.

In all, 57 of 79 (or 72%) players developed some new playing-related problem(s) at the Conference. Of these 57, 39 (68%) had been in the group with a significant practice increase, and they had, on average, increased their practice time about 2½ times baseline.

TABLE 3. Average Playing Hours During Conference

Number of hours per day	Players	%
Under 4	3	4%
4 to 5	3	4%
5 to 6	7	9%
6 to 7	16	20%
7 to 8	16	20%
8 to 9	20	25%
9 to 10	9	11%
Over 10	2	3%
No answer	3	4%

Thirty-nine of 48 (81%) of those with significant practice increases developed new playing-related complaints; 17 of 27 (63%) of those without significant increases experienced problems. All 11 of the players who at least tripled their baseline practice time developed problems.

Table 4 summarizes the new problems experienced by the respondents. Naturally, the problem classification is tentative, since the categories in Table 4 derive from players' subjective complaints listed on a sheet of paper and not from examination. We regard these more in the form of chief complaints than of diagnoses. We feel, nevertheless, that the majority of complaints listed in Table 4 reflect overuse as above defined, at least to a first approximation. (The term "arthritis of the chest" is a player's, not ours).

TABLE 4. Summary of Playing-Related Problems

Overuse	
Focal pain or muscle spasm	44
Paraesthesias	5
Sore lips (wind players)	4
Fatigue, incapacitating	4
Canker sores (wind players)	3
Reinjury of old shoulder injuries	2
Snapping tendon in hand	1
Other	
"Arthritis of the chest"	1
Exacerbation of angina	1
Labial sebaceous cyst	1

We attempted to test directly the hypothesis that overuse injuries follow disproportionate practice increases by comparing the group with overuse injuries (excluding lip problems in wind players) with the other players in terms of average practice time, amount of increase in practice time from baseline, and hours of playing at the Conference. We found that, on average, (1) the two groups practiced about

the same amount baseline (1.08 hours per day as opposed to 0.98 hours); (2) the overuse group experienced a slightly higher proportionate increase in practice (2.35 times normal as opposed to 1.94 times normal); and (3) the overuse group played more hours daily at the Conference (7.38 hours as opposed to 6.43 hours). Of these three comparisons, using the student t-test, the first two were found to be statistically insignificant, while the third was found to be significant with a p value equal to .04.

Discussion

Our admittedly limited study provides further evidence supporting the hypothesis that a rapid increase in practice time, especially superimposed upon a baseline of relatively little routine practice, predisposes a musician to overuse injuries. This hardly surprised us, since it accorded with much anecdotal experience, as well as the few surveys that addressed the issue retrospectively. It is additionally consistent with studies that show an increase in similar problems in factory shift workers after returning from vacations.⁹ Until now, such confirmatory data on musicians have been lacking.

As overuse injuries become better known among the performing arts community, prevention will undoubtedly become the major concern. We believe that the lesson which teachers, performers, and physicians should draw from the experience of our respondents is that one should carefully plan one's approach to an increase in playing time. It seems that our colleagues in sports medicine learned this lesson long ago.¹⁰ A recent review on sports overuse injuries states that "in 80% of the cases we see in our clinic, the athlete has only recently taken up the sport or has markedly increased his or her training intensity within a few days to a couple of weeks prior to the onset of symptoms."¹¹

Once musicians, even part-timers or amateurs, such as our respondents, begin to think of themselves as athletes (at least to a degree), they will become more attentive to their physical limitations and the need to condition themselves accordingly. This, we feel, is the best hope for prevention of this type of overuse problem.

ACKNOWLEDGMENTS

We gratefully acknowledge the support of Beth Anderson, Administrative Director, and of the Board of Directors, faculty, and participants of the Chamber Music Conference and Composers' Forum of the East. Statistical analysis was provided generously by Sharon VanderBrug Medendorp, M.P.H.

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