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Extract of the panel :

« Tension / relaxation : about the posture of the harpist in Western Europe »

presented by Roxane Martin the 29 of July 2011 at

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I am a harpist with a diploma from the European Institute “Médecine des Arts” which has its research centre in Montauban (in the South West of France) and its private hospital for musicians in Paris. From May to December 2010 I conducted an epidemiological survey among harpists resident in Europe. First, I worked out an anonymous questionnaire which I gave to the harpists. At the same time I published it on web sites dedicated to the harp, in forums, specialized magazines, distributed at festivals and in harp classes. The questionnaire has been translated into English, Italian and German. Due to the way of its distribution it is difficult to determine the number of harpists who took note of the questionnaire and decide not to answer. but I collected 93 exploitable replies which show the extend of the pain suffered by harpists: **75% of the harpists** who responded say that they **experience pain**.

A multiple correspondence factor analysis (MCA) has been applied to these replies which allows to identify recurring characters by reading the Burt tables and factorial graphs.

Epidemiological survey - extend and characteristic of the pain

1. Content of the questionnaire
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Extend and characteristic of the pain

1. Content of the questionnaire:

We wanted to highlight four aspects which seem to be possible factors for pain:

The first aspect concerned the age, the duration and intensity of practising as well as the choice of the repertory. We advanced the hypothesis that the pain does not only affect professionals of more than 30 years of practice but may touch all the respondents independently from their age and duration of practice. We also have assumed that the choice or non-choice of the repertory might be a stress factor worth being investigated.

The second aspect concerned the apprenticeship settings, whether the harpist took private lessons or attended group sessions. We could assume that the quality of private lessons might be an influencing factor not to be neglected. It seemed to us that during a private lesson the instructor could more easily pay attention to the posture of his pupil and help him to correct it if necessary. In addition, we asked for the way of repertory transmission, whether it occurred on an oral basis or supported by written music. We could indeed assume that the harpist working without written music may be more receptive to his body and his sensations.

The third aspect was the posture, looking at the height of the seat and the standing position. Accordingly, we offered the choice between “chair” and “stool”. Then we asked whether the harpist plays in a standing position and, if so, to tell us the frequency of playing, offering three categories: sometimes, always and never.

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The fourth aspect concerned the instrument leaning on the harpists shoulder. We asked them to state precisely which type of harp they play, offering them a choice of six categories. However, only two categories appeared in the survey: the celtic harp and the classic harp. Then, we asked them to tell us the number of strings. In order to classify the responses, we grouped them into three classes: 22 to 29 strings, 31 to 38 and 40 to 47. Then, we asked them to specify the quality of the strings they use, allowing for six categories. However, after analysing the data, we only kept five: light gut , standard gut, light nylgut, standard nylgut and standard nylon. Finally we asked them to measure the height of their harp leaning on their shoulder, asking them to measure the height starting from the ground to the harp crook. We asked for this specific measure because we wanted to put this number in relation to the corresponding value of the sitting position. However, after analysing the data we realised that many of the harpists did not know what a “harp crook” was and gave

wrong measure. We therefore left this parameter aside and worked with the usual height of harps according to the number of strings, namely: small (24 to 43 inches), medium (44 to 63 inches) and high (64 to 74 inches).

The first page of the questionnaire was followed by a second page to be answered by those who experienced pain. We asked the following question:

“Have you already experienced pain as a consequence of playing the harp in the last twelve months?” We joined a sketch of the human body together with a table showing the areas concerned. We classified them into 5 categories: Head, arm, back, leg and the whole body.

2. Analysis of the questionnaire:

From the Burt tables we learned the following:

The population group is almost entirely **female** with 95% of which a quarter are children (52% of the respondents are between 16 and 47 years old, 22% are older than 47 years and 26% younger than 15 years). This survey shows **that 74% of the population say they experience pain** related to practising the harp and we see that the number of respondents which do experience pain grows with age: 58% of the young, 77% of the middle-aged and **86% of the seniors**. In order to test the factors responsible for the pain we tried to bring out the aggravating factors (years of practice, height of the harp, quality of strings, age, professional or hobby player, posture...

- **Harps categories :**

We found that **74%** of the people who play «celtic» harp say that they experience feel pain which is the same for those who play “classic” harp. Out of this subset **66% practice the “celtic” harp and 33% the “classic” harp**, but it turns out that three quarters of the harpists in these two subsets felt pain, whether “classic” or “celtic” amator or professional (of which 74% amators and 75% professionals).

- **Frequency of practice :**

However, the appearance of pain is well related to the frequency and duration of practice: it affects 62% of those who just play a little, 78% of those who play at least 1 hour and 82% of those playing more than 1 hour per day.

- **Age :**

We also found that **58%** of the young, **77%** of the middle-aged and **86%** of the seniors (+ 47 years old) experience pains, thus it seems that there is a link between the appearance of the pain and the age. We point out that only 19% of the seniors have few years of practice.

- **Height :**

With respect to the height of the harpist we observe that 28% of the tall persons feel pain, 22% of the small and **51% of the medium-sized persons**. The harpists measuring between 5.15 and 5.51 feet are more likely to report pain related to

playing harp. And within this subset **29% of medium-sized persons play "celtic" harp and 22% "classic" harp.**

- **Apprenticeship settings :**

We asked a question about the apprenticeship settings, whether the harpist took private lessons or attended group sessions, assuming that private lessons could allow the teacher to more easily correct problems related to posture and correct them. However, it turned out, that 73% of those attending group sessions and 75% of those following private lessons experience pain, so this aspect does not have an influence on pain.

- **Strings tension :**

Regarding playing the «celtic» or « classic» harp, it is generally believed that playing the "classic" harp is more painful because of the high string tension of the strings and the repertory. However, it turned out that 74% of the harpists playing on 40 to 47 harp strings (called "classic" pedal harp) experience pain in the same order of magnitude as those playing on harps with 34 to 38 strings (called "celtic"). Thus it seems that there is no category of harps which is more algogenic than others. If there is apparently no link between pain and the category of harps, it is often said that pain is linked to the use of standard gut strings, because they have a higher tension. However, it turns out that 74% of the harpists who use standard gut experience pain compared with 67% of those who use light nylon or nylon. The numbers of the other categories (light gut or metal) were not elevated enough to be statistically exploited. We do not mention them here but we would like to refer to personal hypotheses advanced in the following comments (chapter B.2.).

- **Sitting position :**

Of course, we have asked the harpists about their sitting position since it is often perceived as one of the reasons for pain. We could show that 70% who have a low sitting position, 71% with a high sitting position and **79% with a medium sitting position (15.6 to 20.3 inches) experience pain.**

If we take all harpists who play celtic harp and who experience pain (66%), we find that 37% have a low sitting position, 19% a high and 44% a medium sitting position.

- **Standing position :**

We asked a question about the standing position for those who play the "celtic" harp. We found that 74% of the harpists who always have a sitting position have pain. But it turned out to be difficult to evaluate by this study those who have a standing position, since there are only three harpists in this subset who experience pain, the number being too small to exploit meaningful insights.

- **Choosing the repertoire :**

Then we asked the harpists about the freedom in choosing their repertory, assuming that an imposed repertory could be a factor for stress and possibly tension and pain. However, 76% of this subset choose their repertory while 69% do not choose it, and for both cases, they say that they have pain.

- **Transmission way :**

And finally we asked about the way of repertory transmission: oral or written, and within this subset, 73% of the harpists working with written music and 80% of those working on an oral music feel pain, which is more than the average.

3. Remarks about the first part of the questionnaire:

Apparently the frequent practicing of the instrument causes the dysfunction and concerns the oldest (aged over 47 years). Even if we could think that pain is related to the amount of hours per day and the number of years of practice, we observe that three quarter of those who started practicing more recently experience pain.

We also observe that the medium-sized harpists measuring between 5.15 and 5.51 feet are more affected (83%). If we look again at these subsets we realize that 43% have a medium sitting position, 33% a high and 24% a low one. 76% of the medium sized harpists (all types of harps) have a sitting position of more that 15.6 inches.

- **The sitting position, the size of the harpist: origin of pain ?**

We find that the most popular sitting position within this subset ranges between 15.6 to 20.3 inches and that it does not vary proportionally according to the height of the harp and/or the person. Thus, it seems that the sitting position is not adjusted to the different heights, and the same position is used for harps measuring 73 to 47 inches for harpists measuring between 60 to 71 inches.

- **The stringing: origin of pain?**

The most part of the harps are stringed with standard gut which represents 49% (of which 94% "classic" harps and 27% "celtic" harps). We also find that 44% of the "celtic" harpists use nylon stings against 24% who use nylgut strings. With these findings a link between the different qualities of the strings and the pain is not visible.

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From March to April 2011 we conducted a series of electromyograms (192 results) in order to show that the quality of the stringing may produce muscular moments of different strength due to its difference in calibre and tension. But I won't present the results here. We found out that only five harpists use light gut strings and they all experience pain. We did not ask them since when they have used this stringing and whether this choice is a reason for the pain they experienced with a standard stringing. Looking at these findings we can ask ourselves whether the choice of only a few stringings corresponds to the players' demand, to the harpists' habits or to a choice of the tone colour by the harp maker?

4. Location of the pain:

Classifying the persons who experience pain by size, we find that 74% of the tall experience pain in the top of the body (back, arm, hand) and 26% have pain all over

the body. We then find that 73% of the small too, have pain in the top of the body and 27% all over the body. And finally, 83% of the medium-sized persons experience pain in the top against 17% all over the body.

5. Comments about the location of pain:

We find that almost three quarter of the persons asked, who either play « celtic » or « classic» harp, feel pain while playing, with a slight predominance among “classic” harpists. For most of them pain is located at the **upper part of the back**, followed by the **arms** with the pain culminating at the **upper spinal column of the neck** for “classic” harpists. And again, the mid-sized people complain more about feeling pain, mainly located in the upper part of the back and in the upper spinal column of the neck (65% of “classic” harpists).

The bad distribution of the muscle tone provokes an imbalance which causes pain: a deranged pelvis, untied shoulder blades, asymmetric shoulders, the rotation interns of the arm or the slope radial road of the hand. This bad distribution can be aggravated by an unsuitable sitting, too high or too low, a bad placement of the bust, often unbalanced in front of the instrument, or a bad placement of the pelvis The overload of muscular tensions in shoulders can provoke pain, just as a forward position of the head can provoke pain at the level of the cervical, while a placement of the muscle tone in the scapular belt would allow a stability and thus a bigger mobility of the whole body.

Links on web site :

Institut « Medecine des Arts » à Montauban (France) et Clinique du Musicien à Paris
www.medecine-des-arts.com

Carol Duffy - hand therapist aux USA www.asht.org (USA)

Alfredo Ortiz www.alfredo-rolando-ortiz.com (USA)

Alison Austin www.pacificharpinstitute.org (USA)

Boni Rietveld Medical Centre for dancers and Musicians in La Hague (Netherlands)
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