



UNIVERSITETET I AGDER

## **Painful Practice**

A study of the prevention and treatment of strain injuries  
in the world of a violinist

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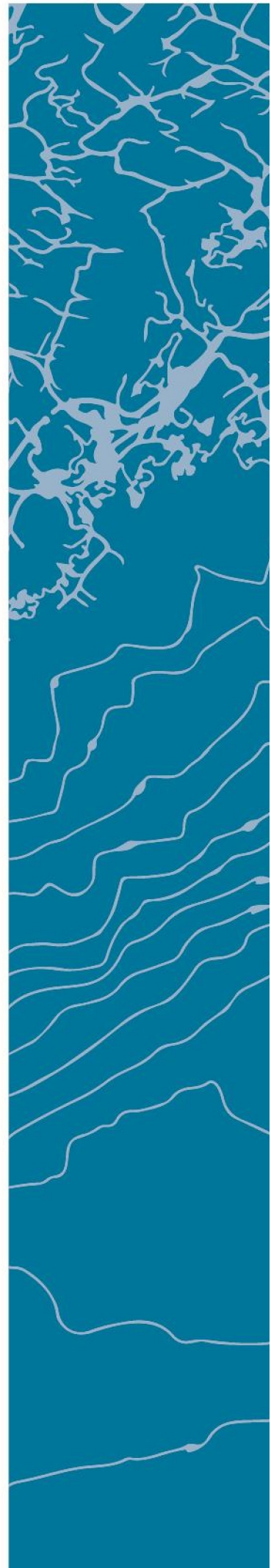
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## **ABSTRACT**

Strain injuries are a common problem among violinists. The aim of this study was to collect information about different treatment methods, and whether or not they worked. Through two surveys and a personal, empirical approach, it became clear that there was no true answer to this, as most methods received both positive and negative responses. However, the results did indicate a slight distinction between the methods, as some turned out to be better at preventing and some better at treating strain injuries. The methods brought into this thesis are chiropractic, physiotherapy, osteopathy, doctor/medication and Alexander Technique.

## **SAMMENDRAG**

Belastningsskader er et vanlig problem blant fiolinister. Denne studiens mål var å samle informasjon om ulike behandlingsmetoder, samt om de virket eller ikke. Gjennom to spørreundersøkelser og en personlig, empirisk tilnærming, kom det frem at det ikke var kun ett korrekt svar. De fleste metodene fikk både positiv og negativ respons. Likevel viste resultatene en liten forskjell mellom metodene, da noen viste seg å være bedre til å forebygge og noen bedre til å behandle belastningsskader. Metodene som diskuteres i denne masteroppgaven er kiropraktikk, fysioterapi, osteopati, lege/medisin og Alexanderteknikk.

## **Keywords**

Strain injuries, violin, practice, prevention, treatment, Alexander Technique, chiropractic, physiotherapy, osteopathy, medication

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# 1. INTRODUCTION

Being a violinist can be both inspiring and joyful. It is a job that can consist of almost anything, from teaching, through great orchestra performances, to playing solo concerts all over the world. It is an occupation that appeals to many. However, playing the violin puts a lot of strain on the body and is not necessarily a healthy profession. The posture is awkward at best, and the static work often results in sore muscles and joints. Because of this, most violinists are aware that their work will cause pain, and believe that this is something they should get used to. But is this really true? Must all violinists live with pain, or are there ways to treat and prevent strain injuries even while practising for hours each day?

## 1.1. Background and motivation

In 2013, Norwegian violinist and conductor Stephan Barratt-Due wrote a newspaper chronicle for the Norwegian paper *Aftenposten*, complaining about the lack of young talent development in Norway. At one point, he states that a Norwegian pianist or string-player wanting to become an international musician must have practised approximately 7 500 hours before the age of 18 (Barratt-Due, 2013). In Norway, children may go to “Kulturskolen”, or the Culture School, to learn performing arts. The minimum age varies from school to school and from programme to programme. The minimum age for violinists seems to be four to seven years. To reach Barratt-Due’s goal of 7 500 hours of practice before the age of 18, a six-year-old must have practised 625 hours a year. This equals 12 hours per week, or a little more than an hour and a half per day.

However, I do not think there are many Norwegian children who spend one and a half hour practising the violin each day. Norwegian children are encouraged to play and have fun, and they are free to choose spare time activities themselves. In my experience, this reduces the amount of practice, as there are many other interests to pursue as well. In addition to this, I think quite a few children show their first interest in musical instruments later than the minimum age. I myself started playing at the age of nine. A nine-year-old must have practised just over two hours per day to reach the 7 500 hours goal.

This amount of practice is of course not spread out equally. In Norwegian schools, children usually start off with a small amount of practice and increase the amount little by little as they

get older. When studying the violin at a university, it is common to practise several hours a day. Some practise as much as ten hours a day, some a lot less and some even more. This amount can be linked to how much practice and experience the violinist has beforehand. However, increasing the amount of practice, from one hour a day to two, or from five to ten, is always a big challenge for the body. It must be done gradually, just like in any branch of athletics. This is something not all musicians realise, and it is something that is not always taught.

During my years as a musician, I have heard one sentence repeated more times than I can count: “Yes it hurts, but you are supposed to hurt when you are a musician.” And after believing that for a long time, I have come to realise that you are not! You are not supposed to be in agony during or after practice, and you are not supposed to get used to chronic pain.

Work-related pains and injuries are highly disputed topics with many definitions and opinions. When reading medical journals from the late 80’s and early 90’s, it may seem that the most common opinion is that such injuries are simply a matter of hysteria or “wishful” thinking to be let off work. However, for musicians all over the world, this sort of pain is real enough. I began asking myself: Are there ways to avoid these in a situation where the musician practises for hours every day? Can we find methods, physically or psychologically, to prevent the injuries and still leave room for useful and time-consuming practice? And can we treat the problems effectively when we are already in pain?

There are several treatment methods out there, and some are better known than others. In my experience, physiotherapy is the first method to come to mind whenever someone talks about strain injuries. Other methods are less known and rarely recommended as the first choice. This may be simply because the majority of the patients try the treatment they have heard of before, and thus recommend this to the next person. In symphony orchestras, physiotherapists and chiropractors are sometimes employed because of the high rate of strain injuries. An example is a newspaper article from 2005, stating that Stavanger Symphony Orchestra has started focusing on physiotherapy and exercise for the musicians in the orchestra, reducing the amount of sick leave by 36% (Otterdal & Hadland, 2005). Hence, about 80 musicians are introduced to physiotherapy. While this is very good, there may exist other, lesser-known treatment methods that are just as useful or even better.

As a student aspiring to become a teacher, one of my greatest concerns is explaining how to practise correctly. I often find myself pondering the same question when it comes to my own practice. It is so important to work efficiently and at the same time avoid strain leading to pain. In my experience, such pain is quite common. Still, I have rarely heard teachers explain how to practise safely at an early stage, and physicians and chiropractors have told me the only way to get rid of it is to stop practicing. I am not satisfied with that answer.

When choosing the subject of this thesis, I struggled with painful practice myself. I was certain I wanted to research something that could help me work to become a better musician without pain. I also wanted to research something I could pass on to younger students. I realised that they will all be faced with strain and difficulties in the practice room, and I wanted to find methods to heal injuries and make practicing both easier to do and easier to explain. As earlier theories on the subject differed, I elected to base my thesis on empirical research, using myself as the main research tool. I also conducted surveys, gathering other violinists' opinions and experiences.

## **1.2. The Disputed Term**

The writing process started with a search for a correct terminology to use throughout the thesis. Although injuries from strain and high workloads have many names, it seemed that the most common was *repetitive strain injuries* (RSI). However, the term RSI is not agreed upon. Professor Peter Brooks (St. Vincent's Hospital, Australia) wrote a BMJ editorial in 1993, named *Repetitive Strain Injury*, with the subtitle *Does not exist as a separate medical condition*. Here, he states that the term RSI has become an emotive term, and that it is patently incorrect:

*“The term implies a repetitive injury (as opposed simply to repetitive motion) and damage to tissues, which has never been shown in this condition. Alternative terms, such as occupational overuse syndrome, also promote social iatrogenesis because, in the context of workers' compensation laws, any diagnosis that includes the term ‘occupational’ is likely to encourage a worker to claim for disability compensation.”*  
(Brooks, 1993, p. 1298)



Brooks was criticised for his article by several readers, who published letters to the editor (LTEs) in the next edition of BMJ. The writers of the LTEs express concern that Brooks misleads his audience. Anthony Seaton from the University of Aberdeen writes:

*“The subtitle of Peter Brooks’s editorial on repetitive strain injury (“Does not exist as a separate medical condition”), if not the editorial itself, risks seriously misleading the medical profession to the detriment of people doing manual work. The subtitle will reinforce the prejudices of those doctors who believe that all people who attribute their ill health to their work are malingerers or potential litigants.”*

(Seaton, 1994, p. 269)

Arnold Mann, another writer of an LTE to Brooks, states that Brooks’ article is one-sided and non-confirmed. He concludes:

*“The only factor that all patients have in common, whether they be typists, steel workers, or self employed musicians, is long periods of uninterrupted muscle contraction. That is why the muscles most affected in typists are the extensors of the wrist, which “fix” the wrist during typing, not the finger flexors. Hence isometric contraction myopathy might be a better name for the condition. It is certainly an improvement on the meaningless term ‘regional pain syndrome’.”*

(Mann, 1994, p. 269)

The term itself might indeed be a big part of the problem when it comes to the discussions about credibility of such injuries. Dr Philip S. Helliwell (University of Leeds) and Dr William J. Taylor (University of Otago) collected some of the many names of strain injuries in their article *Repetitive Strain Injuries* (2004). The article mentions the *occupational overuse syndrome*, the *repetitive strain disorder*, the *cumulative trauma disorder* and the *non-specific work-related upper limb disorder*. (Helliwell & Taylor, 2004, p. 438). The words “non-specific” seem to be made quite clear in numerous articles, and most simply add to the confusion.

In 1995 H. N. Diwaker and J. Stothard (Middlesbrough General Hospital) wrote an article about the use of the term RSI in court, after researching what doctors meant by several of the

medical terms related to RSI. They state the need for a new term, as the diagnostic criteria for industrial conditions and the doctors' understanding of the terms varied greatly:

*“As half of the doctors providing reports believe that 'repetitive strain injury' is not a genuine disease entity and the other half do, court cases will continue. The dilemma appears to be that completely different meanings are ascribed to the same term. Therefore, the term 'repetitive strain injury' should no longer be used.*

(Diwaker & Stothard, 1995, p. 97)

Despite differing opinions about the term, musicians today do suffer from injuries related to their work. To avoid some misunderstandings and misinterpretations due to the term itself, I have chosen to remove the word “repetitive” from the term. I will rather use the more general term *strain injury*. This implies that there has occurred an injury because of strain put on the tissue, be it joints, bursae, ligaments, muscles or tendons, due to a workload higher than what the tissue was able to cope with, rather than that it is a repetitive injury or only an injury due to repetition. I will avoid using other terms, but keep in mind that there are several ways to describe this kind of injury.

### **1.3. Research Question**

The subject of strain injuries is interesting because so many musicians are troubled with it. Both professional and amateur musicians experience pain, all in varying degrees, depending on the amount of practice. Students struggle with injuries before exams or big projects; young children feel pain as they adjust to the awkward pose of holding a violin correctly. This, of course, does not apply to everyone. Some musicians go their entire lives without pain or difficulties related to their instrument, but strain injuries are common enough to be known and feared by all.

As a teacher, I think it is important to be able to explain a little of what is happening to the pupil's body when they practise. Pain caused by doing what one loves raises both questions and worries. My wish is to find methods to prevent future violinists, such as my own pupils, from experiencing pain while playing. I also wish to collect information and make it available and easy to access for musicians who struggle with strain injuries, so that more people will know what to do when they feel pain or fatigue while playing.

The question of how to prevent and treat strain injuries is relevant for many instrument groups and many different strain injuries. To focus the research in this thesis, I have limited it to my own main instrument, the violin, and will leave other instrument groups untouched. I also choose a general perspective on strain injuries, knowing that the term itself does not consider the background of the injured person; this could be old people, young people, athletes, disabled, craftsmen, etc. – all of whom react differently to strain.

This thesis takes on a general approach to the problem, focusing on amateurs, students and professionals, all playing the violin. It will explore the different strain injuries that occur while playing the violin, and also some of the methods of treatment that are used or should be used. The goal is to create a collection of information and a description in terms that cannot be misunderstood. Therefore the research question for this thesis is:

**How can strain injuries be treated while still practicing the violin?**

## 2. THEORY

*“The goal of qualitative research is to make sure the theory fits the data and not vice versa.”*

(Taylor, Bogdan & DeVault, 2016, p. 9)

As the basis of this thesis took form, it was important to find out what had already been written about the topic, and what information was available. Through books and Internet search engines like Google Scholar and Oria, I discovered several interesting articles about strain injuries both in general and connected to music. These findings proved that there had been conducted a lot of research on the topic already, but it also confirmed that there is a lack of knowledge when it comes to preventing and treating the injuries. For this project, the theory was indeed fitted to the research. As the thesis progressed, some hypotheses were abandoned while new ones were included.

### 2.1. Small muscle’s athletes

Music performance demands skilled motor behaviour, and the training for this often starts at a very early age, when the adaptability of the central nervous system is at its highest. In an article named *Apollo’s curse: neurological causes of motor impairments in musicians*, the authors write:

*“Most musicians work at the upper limit of their sensory-motor capabilities and strive to push their limits even further ahead in order to be faster, louder and more expressive. [...] As musicians say, ‘there is always a colleague, who plays this piece faster, louder and more beautiful.’ This is in part also true for sports, but in music, fine motor skills predominate. Therefore, musicians are frequently denoted colloquially as ‘small muscle’s athletes’.”*

(Altenmüller, Ioannou & Lee, 2015, p. 91)

In addition to this, the societal pressure and expectancies concerning the quality of music performances have grown over the last centuries. There is so much available music, and also higher standards when it comes to the appreciation of music. This augments anxiety, tension and competition among musicians, and it makes their lives more stressful. Severe

performance anxiety is not unknown among even outstanding soloists. Nevertheless, making music is also linked to positive emotions, like joy and satisfaction. These positive emotions may lead to a sort of addictive behaviour, causing younger musicians to over-practice while ignoring their bodily limits. Both of these extremes may cause strain injuries.

(Altenmüller et. al., 2015, p. 91)

## 2.2. Psychology for musicians

In the book *Psychology for Musicians*, Percy C. Buck states that you should never use other muscles than the ones necessary for the task at hand. He writes that musicians are often told to “relax” without knowing exactly what that means. Maybe one even believes one is thoroughly relaxed while it is not so, or maybe one is able to relax while doing nothing but unable to do the same while performing a task. Relaxing while practicing an instrument is not a matter of putting the instrument down and relaxing the whole body, but rather to relax the muscle groups that do not need to work. (Buck, 1961, p. 34).

Buck believes that instrumentalists rarely notice how tense the “unnecessary” muscles are, and gives an example: Ask another person to hold one arm shoulder high, and to let it fall when you tell them to “relax”. Often, you will notice that the arm falls and stays parallel to the body without moving. This means that the arm did not fall by itself. The muscles designed to keep the arm in the air kept working, or other muscles pulled the arm down. If all muscles had relaxed, the arm would have fallen down and to some degree swung back and forth. This proves that one may think the muscles are relaxed when they are not, and that we often



Figure 2-1, bending of the elbow joint

experience “hidden” tension while relaxing. (Buck, 1961, p. 34) This is very important for a musician, and will be further explored in the chapters of Alexander Technique, 2.6.

The muscles in the body have only one function: to contract. According to author Percy C. Buck, the muscles around joints can be in three different states: contracted, relaxed, or in balance. Contracted means that all the muscles in a muscle group are tense, like when you make a fist. Relaxed is the opposite – all muscles let go, like

when you shake your arm to loosen up. Balanced means that one of the muscles contracts while another relaxes, like when you bend an arm. As shown in **Figure 2-1**, the arm can bend from around 180° to around 15°. When the muscles on the inside of the arm contract and become tense, the ones on the outside must let go and relax. This makes the muscle work dynamically and healthily. (Buck, 1961, pp. 33-34) This too will be explored later, in Chapter 4.4.

Another example in Buck's book is to ask someone to shake their hand so fingers and wrist are loose and free. Then, at your word, have them make a fist. Buck argues that many will do this correctly, but at the same time stop the shaking. The order was only going to the fingers, but the wrist caught it as well. However, it should be an easy task to keep shaking the hand while making a fist (Buck, 1961, p. 35). Although he is correct, this may be a matter of understanding. One believes that the fist should be strong and still, for instance ready to strike something, and thus the shaking ceases. Still, in its true nature, this experiment is a good one. The student may realize how much the brain has to do with relaxing the muscles, and how important it is to know which muscles are allowed to relax in given situations.

The examples above suggest the problem of unnecessary muscle-use, and it is an important aspect in the task of relieving strain and tension. If the redundant muscle-groups are loose and relaxed, many problems may be solved. (Buck, 1961, pp. 33-34).

### **2.3. It's all in your head**

The strain and tension in our body is often connected to our state of mind. Stress, fear, happiness, sadness; everything we feel can have an impact on our body. The term *psychosomatic* describes physical reactions caused by mental or emotional factors. It can be a disorder, where imagined or psyche-related symptoms appear for no obvious physical reason. It can also be a simple physical reaction to an emotion or thought. Suzanne O'Sullivan describes this in a self-written extract from her book *It's all in your head*:

*“Tears and blushing are examples of this, but they are normal responses that do not represent illness. It is only when psychosomatic symptoms go beyond the ordinary and impair our ability to function that illness results. Modern society likes the idea that we can think ourselves better. When we are unwell, we tell ourselves that if we adopt a positive mental attitude, we will have a better chance of recovery. I am sure that is*

*correct. But society has not fully woken up to the frequency with which people do the opposite – unconsciously think themselves ill.”*

(O’Sullivan, 2015)

Unconsciously thinking oneself ill may well be connected to stress and nervousness, which creates tension in the body. Thinking about stress, or maybe stressing because of the added tension in the body only makes matters worse. Adopting a positive, calm attitude when nervous may therefore help the body to relax and avoid strain.

#### **2.4. Referred pain**

Pain in a limb caused by a problem elsewhere in the body is common, but maybe unknown. A headache may be caused by an overworked muscle in the neck, and so can pain in an arm. In the Norwegian book *Gitarmetodikk* (Guitar Methodology), prof. Per Kjetil Farstad describes how pain can spread to other parts of the body than the root itself. This is what we call *referred pain*. The nerve cells in the spinal cord connect to the whole body, and have access to peripheral areas of the body through nerve threads. If the right nerve cells are stimulated or irritated, they will communicate to their area of reference. In this case, treating the painful area is of no help. One must find the area of the original problem to be able to treat it properly. (Farstad, 1992, p. 87)

#### **2.5. Doctors and medication**

Medical treatment of a strain injury may include rest, splinting, corrective exercises, ice and heat therapy, instrument and schedule modification, and referrals to a specialist or therapist, depending on the severity of the injury. If no conservative methods work, there are more serious treatment options, such as injections and surgery. In an article published by the Florida State University, author Jacqueline Kaye McIlwain describes common injuries among college clarinetists, and how to deal with them. Although the clarinet is not similar to the violin, I believe that her description of general injury treatment applies to violinists as well. She writes:

*“Rest is considered to be the most important component to a treatment plan. [...] Regardless of the severity of a person’s injury, playing and performing should be immediately decreased and gradually increased with short practice periods and many breaks. [...] Medication including anti-inflammatory drugs and steroids are often*

*prescribed to relieve inflammation or pain. Some over-the-counter medications, such as aspirin and ibuprofen, provide relief for both, but there are also prescriptions that focus on one or the other.”*

(McIlwain, 2010)

As McIlwain states, rest is a very important aspect of injury healing. However, many violinists, mainly students and professionals, have important deadlines. A high amount of practice is almost always required, and a decrease in workload may be near to impossible to achieve. Because of this, other measures may be necessary. McIlwain also describes NSAIDs (Non-Specific Anti-Inflammatory Drugs) as a relief of inflammation or pain. If the troubled area is well rested, NSAIDs may help the healing process. If one on the other hand is unable to decrease the practicing, this is a way to get through the deadlines without too much pain, although continuing to stress the injured area while using pain-killing drugs might only make matters worse.

Ice and heat therapy is also an important aspect of treatment that is used by many and often recommended by all sorts of therapists. McIlwain writes:

*“Ice therapy is often effective to ease pain and inflammation. Placing cold packs or ice on the effected area reduces the blood flow and numbs the nerve endings, causing the pain and inflammation to be reduced. Application time should correspond with the depth of the injury [...]. To obtain all of its benefits, it is important to feel a burning sensation and slight pain followed by stiffness and numbness before removing the ice pack.”*

(McIlwain, 2010)

On heat therapy, McIlwain states that it increases blood flow, relaxes the tissues, decreases joint stiffness, relieves muscle spasm and reduces pain. Hot pads or electric heat pads should be used approximately 15 to 20 minutes, but it is advisable to check the pads every five minutes to prevent burns. Heat therapy should not be used on swollen areas, open wounds, skin injuries or immediately following an injury. (McIlwain, 2010).



Heat and ice is a common treatment of soreness and pain, used by many with or without a doctor's or a therapist's advice. It is not dangerous to apply heat or ice on an injury, as long as one is careful to avoid burns or frostbite. Both can be avoided by checking the treated area often, and by keeping a cloth between the ice/heat pack and the skin to reduce the effect. (McIlwain, 2010).

If none of these treatments work, the injury must advisably be treated by a therapist or specialist. There are numerous treatment methods available, all addressing the problem a little differently. Below, some of these are studied closer.

## **2.6. Alexander Technique**

The Alexander Technique was founded by the Australian actor Frederick Matthias Alexander, late in the 1800's. The technique is often taught individually, from teacher to student. Its main principles are based on correcting wrong posture patterns in the student, and prevent muscle tension. (Woodham & Peters, 1997, p. 86). Through the Alexander Technique one gains a better posture, allowing the body to work more naturally, effectively and relaxed. Teachers claim that all people, regardless of age and society, gain better health, increased emotional wellness and a resistance to stress, through the Alexander Technique. (Bruset & Polezynski, 1994, p. 20).

During lessons, Alexander Technique teachers will correct your posture. On the first lesson, the student may be asked to lay down, with the knees lifted and the head resting on a few books. From this position, the teacher will adjust the student's posture. The goal is for the student to learn how the correct posture feels, and the reason for lying down is that the body will be relaxed and the teacher's adjustments will have an optimal effect. (Woodham & Peters, 1997, p. 87).

Self-treatment is also possible, after learning the principles of the Alexander Technique. Simple exercises can be performed for 10-15 minutes each day, but is in no way limited to this. The technique applies to any situation; one simply needs to remember to use it. In the beginning it is usually difficult to erase bad habits and create better ones, but regular training will make a good posture feel more natural. Many people discover that small troubles like headaches or back pains gradually disappear when regaining a natural posture. (Woodham & Peters, 1997, p. 87).

## **2.7. Osteopathy**

Osteopathy was founded in 1892, by dr. Andrew Taylor Still who believed that all illness was related to the frame of the body: the muscles and the skeleton. He based osteopathy on the belief that the body's organs are protected by the muscle- and skeleton system, and if this system is balanced the body's tissue and circulation will function optimally. (Woodham & Peters, 1997, p. 76). An osteopath treats bones, joints, connective tissue, muscles and organs, based on the idea that they influence each other. Osteopathic techniques can be anything from mild mobilizing of the joints and muscles, to manipulation and deep massage. (Langer, 2004, p. 108).

By focusing on the entire bodily system, osteopaths are able to find problems that cause referred pain (Chapter 2.4). For instance, pains in the back may be caused by problems with the kidneys or abdomen, a herniated disc may influence the body's control of the bladder, and so on. By manipulating the bodily structure, the osteopath may heal the entire individual. In this process, the muscles play an important role. Psychological or physiological stress may cause the muscles to contract unwillingly, wasting energy. Contracted muscles will also stop important circulations. By making the muscles relax, the osteopath wishes to allow the body to heal itself. This also applies to the nervous system, as the osteopath may manipulate the nerves through muscles, joints, tendons and tissue. (Bøstrand & Larsen, 1996, p. 45).

## **2.8. Physiotherapy**

The term physiotherapy was not used until the middle of the 1900's, but it was practiced long before that. In the Nordic countries, physiotherapy is rooted in Sweden and the beginning of the 1800's, where Per Henrik Ling founded a gymnastic system of exercises, based on mathematical and anatomic rules. He split this system into four directions: pedagogical gymnastics, military gymnastics, medical gymnastics and esthetical gymnastics. The medical gymnastics evolved into several kinds of exercises and massages, and Ling split it into active and passive exercise. During the 1800's, medical gymnasts and masseurs/masseuses were educated through courses and schools. In 1952, the Nordic terms masseur/masseuse and medical gymnast were exchanged with the word *physiotherapist*, due to the founding of the World Confederation for Physiotherapists (today: World Confederation for Physical Therapy) in Copenhagen in 1951. It consisted of 11 members, including Denmark, Sweden, Norway and the USA. (Lund, Bjørnlund & Sjöberg, 2010, pp. 23-27).

A physiotherapeutic examination may include an ultrasound scanning of the muscles, showing when the contraction is correct and when it is wrong. Other than that, the examination is largely based on communication with the patient. (Lund, Bjørnlund & Sjöberg, 2010, p. 220). Physiotherapy treatment consists of several aspects of exercise, massage and stimulation. Exercise has always been a core aspect of physiotherapy. There are numerous exercise principles and treatment techniques. As the foundation of optimal functioning is sufficient fitness, muscle strength and motor control, the physiotherapist's job is to choose expedient exercise to promote these. (Lund, Bjørnlund & Sjöberg, 2010, pp. 281-282).

The second important aspect of physiotherapy is massage, as it has been from the beginning. To perform a correct massage treatment, it is necessary to study the tissue and its changes thoroughly in order to be able to give a tissue diagnosis. Only then can the physiotherapist perform a targeted treatment. A massage is useful in many ways. If the therapist uses calm, rhythmical and slow movements, the massage may both relax the body and relieve pain. If the goal on the other hand is to stimulate the tissue, the rhythm may be irregular and the tempo quicker. Massage may also work on an emotional level. The touch of sensitive hands may express care for the patient; soothing, comforting and life affirming. (Lund, Bjørnlund & Sjöberg, 2010, pp. 287, 290).

A third aspect of physiotherapy is electrical stimulation. As a method of treatment, this has been used all the way back to the year 600 B.C. Today physiotherapists use it for numerous treatments, including muscle facilitation, strength training and treatment of pain and injuries. (Lund, Bjørnlund & Sjöberg, 2010, p. 337).

## **2.9. Chiropractic**

Where osteopaths concentrate on soft tissue treatment to relax muscles and mobilize joints, chiropractors focus more on manipulating the joints. (Woodham & Peters, 1997, p. 77). Chiropractic was founded in 1895, when David Daniel Palmer cured a man who had been deaf for 17 years after a fall. Palmer found a lump in the man's neck, and pressed hard on it. Momentarily, the patient's hearing returned. Two years later, Palmer founded the first school of chiropractic. (Bjartnes, 1995, p.69).

Chiropractic is based on the nervous system, especially related to the spine. As the brain is dependent on information and feedback from all parts of the body through the nerves, any

disturbance can hinder the brain in giving optimal impulses to the muscles and joints. The chiropractor's job is to recover and keep optimal movement in the spine. As the spine's 24 vertebrae must allow correct movements, disturbances may cause pain. At the same time, the interaction between nervous system, joints and muscles is disturbed. To recover this interaction, the most central method of chiropractic treatment is to manipulate the spine. However, other techniques are used as well. Both intensity and method may vary, depending on the patient. (Woodham & Peters, 1997, pp. 70-71).

### **2.10. The difference and similarities between them**

A chiropractor uses x-rays on a regular basis, to diagnose injuries. They usually concentrate on the spine, manipulating the back and neck. Osteopaths work with the entire body, only sometimes using x-rays for a diagnosis. Osteopaths also use more tissue-based techniques than chiropractors. They both, however, take referred pain (Chapter 2.4) into consideration, although with a difference in approach. Physiotherapists differ from both chiropractors and osteopaths, because they often treat patients with electrical or mechanical equipment, although, as stated above, massage has been a big part of physiotherapy since the start. (Facer & McIntosh, 1996, p. 45).

### **3. METHODOLOGY**

This thesis focuses on a qualitative and empirical method. The material is a collection of earlier works about strain injuries, and also personal experience, logging, a questionnaire and a web-based survey.

#### **3.1. Empirical research and the qualitative method**

This thesis is largely based on my own and other subjects' experiences. It is a study driven by data collection rather than studying earlier theories, focusing on respondents' opinions of the different treatments they have received. This makes the thesis more personal, taking each experience into account. However, experiences collected in this way may be partial or wrong. Respondents may answer incorrectly or I myself may experience something in a completely different way than someone else. I therefore brought in some theories relevant to my study as well.

While a quantitative method is based on numbers, ideal for creating statistics and overviews, I decided early on that the best way to collect data for this particular thesis was to conduct a qualitative method. Strain injuries are individual, depending on numerous aspects both in body, mind and workload. The varying degrees of pain may be difficult to determine, and clinical testing does not always discover the reasons for milder pain or soreness. All these variables make it difficult to gather information from the quantitative method's numbers alone. One needs to get closer to each individual. Therefore, the small questionnaire and the bigger survey in this thesis are both based on comments, rather than simple yes/no answers. Since I suffer from strain injuries myself, I have used myself as a subject, testing the treatment methods described in this thesis and logging my experiences.

As the topic of strain injuries is quite large, it was necessary to limit the amount of information. In a qualitative method "*the researcher studies people in the context of their past and the situation in which they find themselves.*" (Taylor, Bogdan & DeVault, 2016, p.9). Although this is an important point, I have chosen not to focus on the subjects' *full* background. While I do take into account whether the respondent is a student, an amateur or a professional, and that they are all violinists, I decided not to look at personal details like exercise, illness, age, type of body, etc. My superficial division of subjects gives some insight

as to the amount of practice that is required and how many concerts they are expected to perform.

The qualitative method has several advantages when it comes to detailed information. It allows the researcher to get closer to the subjects and see the results in a context. In this thesis, this was of high importance. The perhaps greatest disadvantage of this method is that one is limited to using fewer respondents than one would use in a quantitative method. On the other hand, as the way of playing the violin is the same and orchestras work in similar ways all over the world, much of the information gathered from a smaller amount of Norwegian violinists is certain to apply to other violinists as well. I chose to stretch the qualitative method a little, allowing for nearly 50 respondents while still valuing their individual comments.

### **3.2. Collecting data through lessons and logging**

To get a closer look on the different treatment methods in the thesis, I decided to try them for myself. I took lessons in Alexander Technique and went to an osteopath and a physiotherapist for treatment. To see clearly if they worked or not, I split them up. The first half of 2016, I took lessons in Alexander Technique. The second half of the year, an osteopath treated me. During the first half of 2017, I went to a physiotherapist. As I had been treated by a chiropractor earlier, I used my experience from that as well, writing the logs from memory.

By carefully logging my experiences, and also receiving my medical journals from the different treatments, I was able to analyse and compare their methods. Using myself as a research tool in this manner has one great bias – my experience is mine alone. Hence, it was necessary to use other subjects, and maintaining a systematic approach to the recording and interpretation of the results. For the lessons in Alexander Technique, I brought three other students and conducted a small questionnaire. When collecting wider information about strain injuries, I created a survey that included all the treatment methods I wanted to research.

### **3.3. Collecting data through surveys**

To gain a broader view on the different treatment methods and the prevalence of strain injuries, it was necessary to include a group of subjects. In this project I conducted two qualitative, self-completed surveys, one with a very small group of respondents and one with a larger group.

### **3.3.1. The selection of subjects**

For the small questionnaire, I asked fellow violin students for volunteers to join me for Alexander Technique lessons and to participate in the study. The teacher, associate professor Randi Bjerge-Sköld wanted a small group, and so I was careful not to ask too many at once. Three students were interested in joining, making it a group of four including me. All four of us struggled or had struggled with strain injuries.

For the large survey, I wanted a broader range of violinists, from different musical environments. I decided on three main groups of violinists: amateur, student and professional. To reach the three groups I wanted, I decided to spread the survey through different platforms. I shared it with the violin students at the University of Agder, through a link on Facebook. This proved to be effective, as many students responded promptly. After that, I sent the link in an email to the violinists in Agder Symphony Orchestra, an amateur orchestra based in Kristiansand. Finally, I sent the same email to the administration of the professional Kristiansand Symphony Orchestra, and it was shared with all the violinists there.

The only criterion for responding to the survey was playing the violin. Although the survey was qualitative, I wanted a broad range of respondents. I was pleased to discover that quite a few people from all the groups wanted to answer, and the respondents were open and thorough in the comment sections. The survey received near 50 responses in total. Although this is a large number for a qualitative method, the majority of the respondents used the option for detailed comments, allowing further interpretation and in-depth comparison.

In total, I ended up with 42 completed responses. An additional five of the individual responses were incomplete and skipped questions two through seven, although they all answered the first one. This first question of the survey (Do you play the violin as an amateur, a student or a professional?) was meant to show the selection of subjects. As shown in **Figure 3-1**, there was not an equal distribution of respondents. Nevertheless, there were enough of each group to give interpretable results.

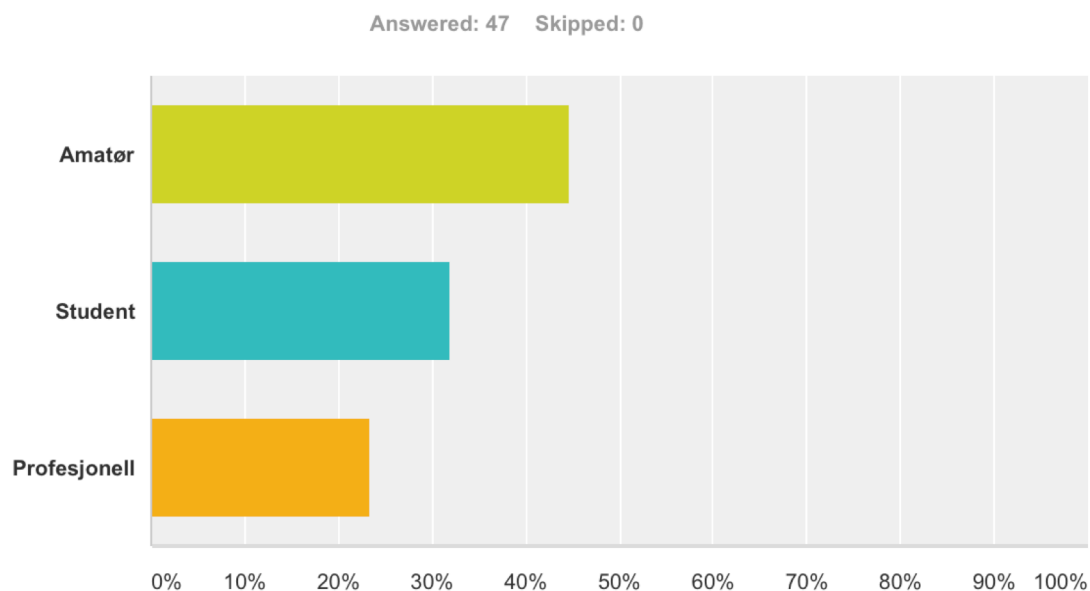


Figure 3-1, survey results, question 1: *Do you play the violin as an amateur, a student or a professional?*

Because of the five incomplete responses, this diagram shows a slightly larger group of subjects than what is presented in other diagrams. The incomplete responses consisted of three amateurs and two professionals.

In both surveys I chose not to focus on the respondents' backgrounds. As mentioned earlier, I avoided questions about health, age, body type, etc. This also resulted in fewer questions, making the surveys shorter and more efficient. I chose not to ask the respondents about their gender, although many researchers claim that women are more prone to strain injuries than men. This was mainly to limit the information, as the thesis will be too short to delve into such detail. It is however, an interesting topic for another study.

### 3.3.2. The Alexander Technique questionnaire

The smallest survey consisted of six questions, and was sent to the three volunteer students who had participated in the lessons. The questions were given in writing, and the informants sent their answers to me when done. As I wanted to log the subjects' full experience of the lessons, I decided to ask about expectations, background, experience and result. I also thought it useful to know if the respondents would be interested in pursuing the Alexander Technique further, as this would describe their experience and opinion more thoroughly. The questions were these:



1. What were your expectations about the Alexander Technique before the lessons?
2. Did you have any strain injuries or pain problems beforehand?
3. How did you experience the lessons? (Useful/not useful? Interesting/not interesting? Etc.) Feel free to explain!
4. Have you used the technique actively after learning about it?
5. Would you be interested in learning more about the technique and practise it further?
6. Is this a technique you would pass on to your own or others' students as a way of preventing strain injuries?

Only two out of three subjects answered the questions, so the response was not complete. As this survey's result was not based on numbers, but rather on the comments made by the respondents, this did not change the results. The information became more limited, but no less valuable. The results are described in Chapter 4.3 and discussed in Chapter 5.

### **3.3.3. The web-based survey**

To collect data from a larger group of violinists, I decided to conduct a broader, web-based survey, through the survey designer SurveyMonkey. There are great advantages to using a web-based survey. It is cheap, as there is no need for postal expenses. Some websites for survey design, like SurveyMonkey ([www.surveymonkey.com](http://www.surveymonkey.com)), are free up to a point. For instance, the free SurveyMonkey membership allows no more than ten questions on a questionnaire. This limitation was not a problem, as the survey used for this thesis only needed seven questions to include the information I deemed useful. I wanted the survey to be quite short and easy to answer. Since I had asked for detailed comments on almost all questions, I decided that fewer questions would allow the respondents to take more time to answer each one.

A web-based survey is easy to access and share, and it reaches a great many people. The results are easily gathered and sorted, and through SurveyMonkey also analysed. One may protect the questions and results with a password to limit the access, maintaining the privacy of the respondents. Another advantage is the possibility for showing dialogues with information regarding the questions, allowing the designer to explain difficult questions. Using this can avoid incorrect responses.

A great disadvantage to the web-based survey, or any written survey, is that there is no way to know if the respondent is being honest. It is easy to submit a dishonest or wrongful answer. Whether the response is anonymous or not, the written answers are impossible to verify. During an oral interview the interviewer is able to ask follow-up questions or interpret the respondent's body language, but in a written survey the respondents are not checked in any way. In addition to this, it is difficult to make sure that no one responds more than once. Any respondent can submit several answers to disturb the result.

The web-based survey of this thesis included questions about personal strain injuries, treatment and whether or not treatment had worked. All questions had multiple choice answers, and most also asked for deeper comments. I created the survey in Norwegian, to reach Norwegian performers without adding a linguistic difficulty, and thus to make it easier for everyone to answer thoroughly. As a result, all the comments written during the survey are also in Norwegian. I will translate them whenever I cite or discuss them. The Norwegian versions are included in the appendices 6, 7 and 8. The questions were these:

1. Do you play the violin as an amateur, a student or a professional?
2. Have you experienced strain injuries related to playing the violin?
3. Do you receive or have you received treatment for strain injuries related to playing the violin?
4. What kind of treatment did you receive?
5. What method of treatment was best for you, and why?
6. Have you switched from one method of treatment to another?
7. Have you tried Alexander Technique as a method of treatment and/or prevention of strain injuries?

Because of my decision to split the subjects into three groups, the first question placed each respondent as an amateur, a student or a professional. On question four, I had listed the different methods of treatment I had decided to study closer: Chiropractic, physiotherapy, osteopathy and doctor/medication. I chose to put the Alexander Technique on the bottom as its own question, as I found this to be a method that differed from the others. Most questions of the survey had a "not relevant" option, as the questions were also given to the informants who answered no on the second question. For them, the following questions were irrelevant.

The question also had an “other” option, allowing the respondents to describe what other kind of treatment they had received.

### **3.4. Ethics**

Both surveys were reported to and acknowledged by the Norwegian Data Protection Official for Research (see appendix 1). It was important to me to collect data concerning injuries and treatment, but I did not ask for any personal information that could reveal the identity of the respondent. As injuries and health problems may be a vulnerable and difficult topic, I wanted the questions in the survey to be general and easy to answer. Personal information, like gender, age, nationality, previous illnesses or psychological aspects, was not necessary to complete my research, and with my limited time and space I was unable to take such details into account. Therefore, no personal information was required. Nevertheless, as the web-based survey was conducted on the Internet, there was a possibility of collecting personal IP addresses. The survey and the responses were deleted after the project was completed.

The small Alexander Technique survey included no personal questions or questions that could reveal the identity of the respondent. The questions were solely about strain injuries and the effects of the Alexander Technique. As the subjects sent their response directly to me, their names were on the response. The responses were therefore moved to an empty document and made anonymous. The originals were deleted after the project was completed.

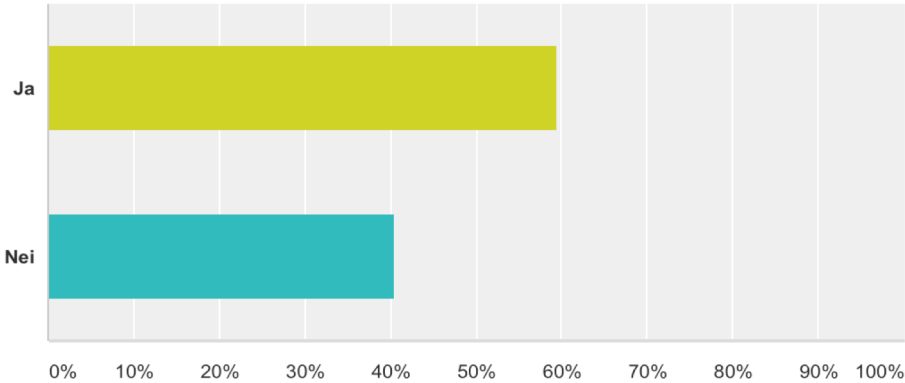
Participation was voluntary, and all participants were informed about the survey before answering, orally or in writing.

## 4. EMPIRICAL RESEARCH

This chapter is based on the information gathered through personal research and logging, and the results from the two surveys. All logs, questions and results, cited or not, are found in the appendices. In this chapter, all results from the research will be explained in detail. The first section will describe some general results from the largest survey, and each section thereafter will cover one method of treatment. The results will be discussed in Chapter 5.

### 4.1. General results from the web-based survey

After actively testing and researching different treatment methods, I went on to studying a larger group of subjects to prove or disprove my experiences. I created a web-based survey of seven questions and sent it to violin amateurs, students and professionals. The focus of the survey was the strain injuries the respondents had experienced, and a comparison of the treatments they had received. I had a surprisingly large number of volunteer respondents, where more than half had experienced strain injuries. Hence, I was able to study the treatment methods thoroughly.

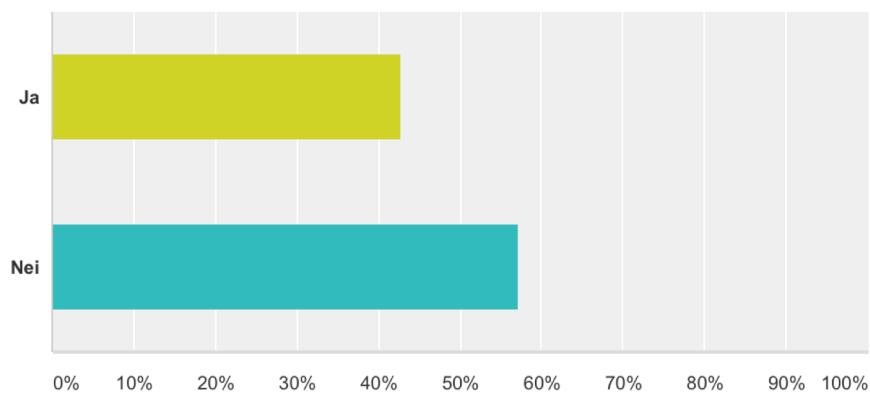


Answer Choices	Responses
Ja	59.52% 25
Nei	40.48% 17
Total	42

Figure 4-1, Survey results, question 2: *Have you experienced strain injuries related to playing the violin?*

The first injury-related question of the survey was whether or not the informants had suffered from strain injuries connected to the violin (see Figure 4-1). 42 subjects responded to the question and close to 60% of the respondents claimed that they had suffered from strain injuries. As the question had an “if yes, please comment” option, I received several indications as to what sorts of injuries the informants had suffered. A total of 15 respondents had had pain in the shoulder and neck area. Others mentioned arms, wrists or back. A complete view of the comments is shown in Appendix 7.

Question three of the survey (Do you receive or have you received treatment for strain injuries related to playing the violin?) revealed that of the 25 respondents who had experienced strain injuries, 18 had received treatment (see Figure 4-2). However, there were some who had treated the injury on their own, without help from physicians or therapists. Three of the respondents who answered “no” to the question, wrote in the comments that they only had to stop playing or take care to relax, and thus needed no further treatment. These were all amateur violinists.



Answer Choices	Responses
Ja	42.86% 18
Nei	57.14% 24
Total	42

Figure 4-2, survey results, question 3: *Do you receive or have you received treatment for strain injuries related to playing the violin?*

One of the comments was:

*“Normally it helps to calm down the practicing, and possibly having someone give me a good and deep massage. No need for more treatment than this when I don’t play any more than I do.”*

(Survey respondent no. 11, question 3)

Another respondent wrote:

*“[I] Haven’t played so much that it’s given me trouble. [...] I’m also very physically active and use that to prevent injury.”*

(Survey respondent no. 4, question 3)

Some student respondents commented that they used physical exercises and no treatment, but they never mentioned the possibility of stopping or slowing down their practice. In total, four of the respondents mentioned physical exercise. Of the professional respondents, three commented that they had never experienced strain injuries. The rest had both experienced it and received treatment.

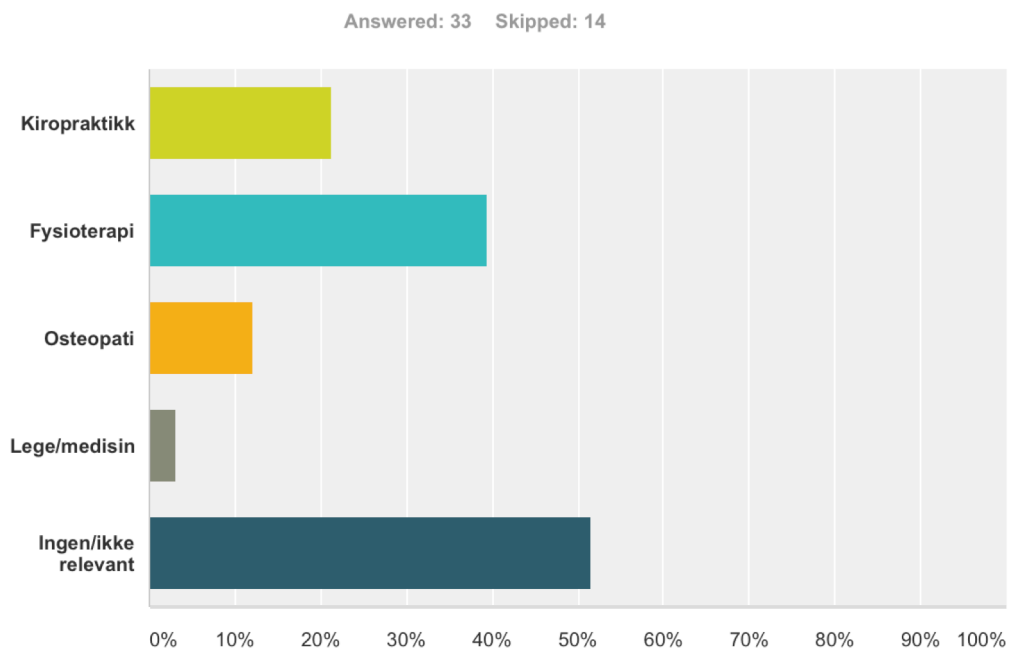


Figure 4-3, survey results, question 4: *What kind of treatment did you receive?*

Question four asked what kind of treatment the respondent had received. As seen in **Figure 4-3**, the most popular method of treatment by far was physiotherapy (alternatives translated from the top: chiropractic, physiotherapy, osteopathy, doctor/medicine, none/not relevant). There was an “other” option as well, and among the treatment methods listed in the comments section were massage, naprapathy, acupuncture, muscle therapy and psychomotor therapy. Alexander Technique was also mentioned.

After this came some interesting findings, shown in **Figure 4-4**. The respondents were asked to choose the treatment method that worked best and explain why in the comments section. Many respondents felt that other methods had worked better than the ones studied in the thesis, or that none or more than one had worked. These commented in the “other” section. Among the listed treatment methods, it became clear that physiotherapy was the one to work for most, while osteopathy was clearly the least popular, receiving zero comments.

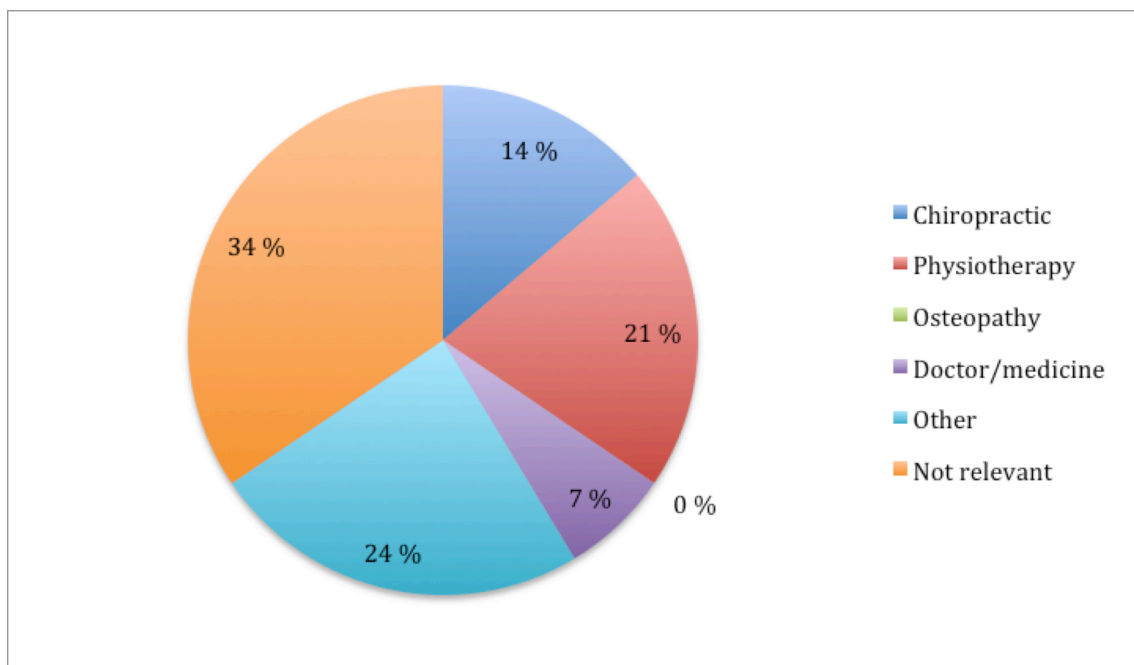


Figure 4-4, survey results, question 5: *What method of treatment was best for you, and why?*

In the comments section, the respondents were asked to explain why they chose what they did. Not all respondents had tried more than one treatment, and some of the comments were simply that the subject had never tried another treatment method and therefore could not say what was better or worse than something else. Out of the respondents who *had* tried more than one method, it seemed there was no true answer. Two of them replied, “*The different*

*treatment methods are good for different injuries or strains*” (Survey respondent no. 44, question 5) and *“Everything worked at some point.”* (Survey respondent no. 6, question 5). However, one of the respondents also commented *“Nothing worked. Just had to learn how to play differently, less, and to take a lot of time off from playing.”* (Survey respondent no. 45, question 5).

Question number six of the survey asked whether or not the respondents had switched from one treatment method to another. This did not bring forth much detailed information about why, but it did receive some comments as to what the respondents had switched to and from. Also, the responses to question five became very useful in the context of the responses for question six. One respondent had switched from chiropractic to physiotherapy. Two had switched from physiotherapy to chiropractic. Another had switched from physiotherapy to acupuncture.

One of the respondents who switched from physiotherapy to chiropractic made this comment on question five: *“Chiropractic was the last thing I tried, and it was what killed the inflammation once and for all. At least until now!”* (Survey respondent no. 2, question 5). The respondent that had switched the other way around, from chiropractic to physiotherapy, wrote, *“[Physiotherapy] works best over time, because of exercise programme after ended treatment.”* (Survey respondent no. 15, question 5). The respondent that switched to acupuncture was cited in the paragraph about question five, and claimed that nothing had worked (Survey respondent no. 45, question 5).

Below, I have taken a closer look on the response to each individual treatment method, along with the results from my own research.

#### **4.2. Doctors/medication – the least popular solution**

Before I started looking for treatment for my injury, I went to a doctor. This was mostly to find out what was wrong, but also to see if he could help or refer me to someone who could. The doctor’s appointment was very disappointing. He questioned me shortly and put pressure on different spots on my arms. When none of it hurt he concluded that it was not broken, named it an inflammation of the tendons and did not understand why I had come. I explained my troubles with practicing, and he gave me a prescription for Voltaren, an NSAID (non-



specific anti-inflammatory drug). It took some of the pain away, but nothing had changed when I finished the pills. The pain came back and the arm had in no way healed.

After this I tried Voltarol, a prescription-free variant of Voltaren. This also took away some of the pain, but had otherwise no effect. With the pain gone, the only thing that happened was that I did not notice when I had strained the arm too much, and continued working after I should have stopped. This only made matters worse.

In the web-based survey, doctor/medication received few responses all over. There was also a slight error in the results, as only one subject responded that they had tried doctor/medication as a treatment on question 4, while two respondents listed it as the best treatment on question 5. The two respondents who chose doctor/medication as the best treatment alternative also commented what they had tried. One had been given painkillers and the other cortisone. The respondent who mentioned cortisone wrote: "*Cortisone worked for a short time.*" (Survey respondent no. 43, question 5). Apparently it did not heal the injury completely, or the tissue was still not ready to work.

Both respondents represented in the comments were professional violinists, and they had both tried other treatments as well. The one who had received painkillers also set physiotherapy as the best method of treatment, agreeing with the majority, along with the medication alternative. This may indicate that a combination of physiotherapy and painkillers worked. The informant who mentioned cortisone had chosen no other alternative on the question, but had also tried physiotherapy. From that, I gather that the physiotherapy treatment tried by this respondent did not work.

### **4.3. Alexander Technique – preventing injury by relaxing muscles**

Early on, I contacted associate professor Randi Bjerger-Skjöld, teacher of vocals and Alexander Technique at the University of Agder. I had one meeting with her alone, where we talked about the physiological aspect of Alexander Technique. We touched upon the subjects of muscles and tension – the purpose of relaxing muscles, as explained in Chapter 2.2 – and also the importance of breathing. After this meeting, I felt I had gained a lot of useful knowledge, and I was eager to learn more.

For the next lesson, I invited three violin students from the university to join me. This was the first Alexander Technique group lesson. The four of us either suffered or had suffered from different kinds of strain injuries, all related to playing the violin. Like the previous lesson, this one was highly theoretical. We delved deeper into the subject of muscle tension, breathing and the impact this has on the rest of the body. After no more than one hour, I felt I had a better understanding of what my body does under pressure and what it should do. In my log from the lesson, I wrote:

*“According to Bjerger-Sköld, breathing correctly is the basis of Alexander Technique. It affects the entire body, and is necessary to bring fresh oxygen to the muscles and rinse out the lactic acid. The most optimal sort of breath is a yawn. During a yawn the soft palate moves upward, the posterior pharyngeal wall moves back, and the larynx moves down. This opens the throat. Further down, the diaphragm moves downward. This also happens to the pelvic floor. We all tried it during the lesson, yawning or breathing as if we yawned. It was interesting to concentrate on the muscles instead of simply ‘breathing with the stomach’ or something like that.*

*Bjerger-Sköld continued by saying that when one is nervous or tense, the opposite thing happens. In a nervous state, the body automatically shrinks, pulling the limbs close to protect the softer part of the body and the important nerve centre solar plexus. This impedes the intake of oxygen, and stops the muscles from stretching out and relaxing.”*  
(Personal log, appendix 2)

I gradually gained some consciousness of the tension in my own body. Bjerger-Sköld focused quite a lot on the muscles and how they work, describing the most important muscles in the torso without delving deeply into the subject. She was the one who first set words to the fact that the muscles in truth are able to do only one thing, contract, and the importance of letting them relax when they are not needed. All this, I later read in Percy C. Buck’s book, *Psychology for Musicians* (see Chapter 2.2).

The second group lesson was an active, practical lesson. Bjerger-Sköld performed different relaxation techniques on us, one by one, to truly show us the importance of relaxing. This was done to me while lying down, and to the other students while sitting.

*“After lengthening my spine, Bjerger-Sköld took one of my arms and told me to relax each muscle as she slowly straightened the arm. It was very difficult, and she refused to move my arm before she felt the muscle relaxed. After what seemed like a long time, she had straightened the arm completely, and it was thoroughly relaxed. She did the same with the other arm. After this, she moved on to my legs, doing the same thing. It felt really strange, but I came to realise how tense my body was!”*

(Personal log, appendix 2)

As she performed the same relaxing exercises on the other students, we really noticed the difference. The visualisation and discovery surprised us very much, and while logging the experience, I wrote *“This was visually very informative, because after she had worked with one arm, we noticed how the shoulder became visibly lower than the other!”* (Personal log, appendix 2)

As we came to know our own bodies, the tension in our muscles and the contraction of the spine, Bjerger-Sköld taught us exercises to relieve the tension. In a stressed situation, for instance before a concert, or any sort of performance, it is easy to forget to relax. It is even harder to notice that one is *not* relaxed. One way to relax the important muscles in the torso, like the diaphragm, is to transfer the tension to something else, for instance the hands. This is more palpable than some unseen muscle inside us.

*“One way of relaxing is to transfer the tension to the hands. Make fists, tighten them, and let go. Put the fists in front of your hips and do the same. Now, feel the tension move from the hands and into the torso. When you release the tension in the fists, also release the tension in the torso.”*

(Personal log, appendix 2)

When it comes to the shortening of the spine, Bjerger-Sköld had another exercise.

*“[...] we were told to feel the floor under our feet, and really focus on that. Then, when the whole foot is in contact with the floor, pull the head upward. Imagine someone pulling your hair, or that you are hanging from a string.”*

(Personal log, appendix 2)

After learning about the Alexander Technique, I have come to realise that this technique is just as much an exercise of the mind as an exercise of the body. As written in Chapter 2.3, the strain and tension in our body is often connected to our state of mind. Everything we feel, whether it is stress, anger, happiness or fear, can have an impact on our body. Cited in Chapter 2.3, Suzanne O'Sullivan suggests the possibility to think oneself better or worse, by adopting a positive or negative attitude. Looking at the techniques used in the Alexander Technique, this might very well be possible.

The questionnaire I conducted among the three other students who had come to the lessons was mostly to see if my understanding of the technique also applied to their experience. Two of the three students answered, and their answers were much like what I felt after the lessons. On my first question (What were your expectations about the Alexander Technique before the lesson?), they had a slight difference in the approach to the subject. One expected to learn techniques as of how to get rid of pains and cope with future pain problems. The other expected rather to become aware of the body's movements and how to do it efficiently and correctly, thus using the technique to prevent injuries. I myself had hoped for pain relief, but I expected more of a preventive approach. In the responses to question two (Did you have any strain injuries or pain problems beforehand?), it turned out that we had all suffered from pain connected to playing the violin; I had my arm, and the two students had trouble with their shoulders. One also mentioned the neck.

On question three of the questionnaire (How did you experience the lessons?), the students both agreed: The lessons were useful and interesting, and helped us to understand our own bodies. Question four (Have you used the technique actively after learning about it?) was the same: they both agreed that the techniques learned during the lessons were useful at later points. One answered that she had tried to utilize the techniques while practising, and also when she was nervous. The other stated that the Alexander Technique really changed things for her.

On the final questions (Would you be interested in learning more about the technique and practice it further? Is this a technique you would pass on to your own or others' students as a

way of preventing strain injuries?), they also agreed. Using the Alexander Technique actively proved to be difficult after so few lessons, but they both showed great interest in learning more. They were also very clear that other students, also their own, should learn of these techniques.

In my web-based survey, the question about Alexander Technique showed a surprisingly low amount of respondents who had experience with the technique. The question was “*Have you tried Alexander Technique as a method of treatment and/or prevention of strain injuries?*” In Figure 4-5 we can see that only about 15%, meaning six out of 39 respondents, answered yes. In the comments were divided opinions, where

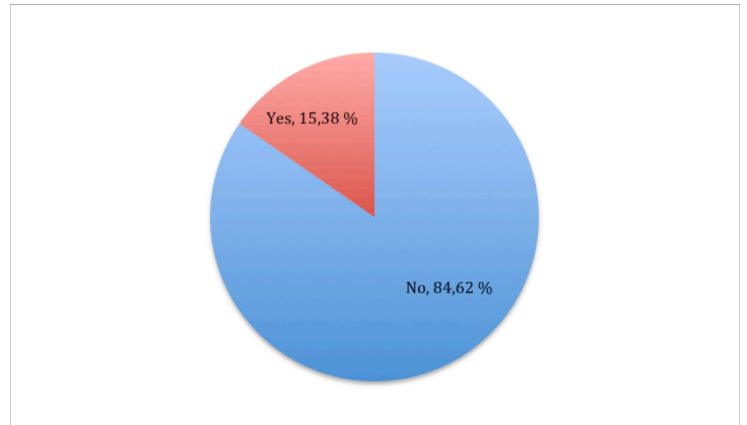


Figure 4-5, survey results, question 7: *Have you tried Alexander Technique as a method of treatment and/or prevention of strain injuries?*

one claimed it did not work at all, while another claimed it was something everyone should know. This comment corresponded with the response to the small questionnaire, and read:

*“I think Alexander Technique is something all musicians should care more or less about. [It] Can prevent injuries. When one achieves freedom in the movements it is also positive for sound and technical problems. It should be a part of the education.”*  
(Survey respondent no. 43, question 7).

As a method of strain injury treatment, my experience was that the Alexander Technique did not help much when it came to relieving the pain that was already there. This view was also represented in a comment on the survey, where the respondent simply wrote, “*It did not help*” (Survey respondent no. 12, question 7). Nevertheless, it is clear that many of those who have tried Alexander Technique, collected through both surveys, feel that it is useful and important as prevention or at least to give the musician a better practice experience.

#### **4.4. Osteopathy – effective but unknown**

The reason I went to an osteopath was a recommendation from a violist in an amateur orchestra. Before that, I knew very little about osteopathy, like many other instrumentalists. I

went to osteopath Robert Veelo thrice in September 2016, and once in January 2017. In September, the strain injury in my left arm was quite bad, but to my great surprise, three treatments were all it took before my arm was as good as new.

When I came to the osteopath for the first time, he asked many questions, and I filled out a form with background information. After that, he tested the muscles' stiffness by putting pressure on several points of my upper body. He then began treatment.

*“He massaged some points, and mobilized the joints by flexing and turning them. He also used a massage scraper, known as a gua sha, to massage the muscles in the left arm. This was meant to loosen the fibres around the muscle and give it a freer flow of blood and oxygen.”*

(Personal log, appendix 3)

The treatment was effective, and after only an hour I felt a difference. Veelo had loosened my muscles and joints, and I was able to move more freely. My wrist and fingers in particular, were more agile. After this first treatment I wrote:

*“The greatest difference was the fact that my grip on the fingerboard was suddenly broader. I had to work a little harder to find the correct intonation, as my fingers, especially the pinky finger, in general moved too far from each other and made the intonation too high.”*

(Personal log, appendix 3)

The second time, Veelo focused on my left arm, as we both felt that that was the most strained part of my body, based on my explanation and his testing. He continued the work from earlier, mobilizing my joints and massaging the muscles with the gua sha scraper. He focused more on the elbow, and gave me an exercise to mobilize the joint myself.

*“He gave me homework, to mobilize the elbow myself. I should place my hand on a desk or table, bending the elbow, and then move and straighten out the elbow joint while controlling the movement with my other hand. This would in some way “lubricate” the joint and let it move more correctly.*

*Another problem with my forearm was that according to Veelo, the bones meeting in the elbow joint moved incorrectly when moving the forearm around. In some way, the bone moved out of the joint instead of simply turning around inside the joint. Veelo worked with this, turning the arm while putting pressure on the joint to force the bone to move correctly.”*

(Personal log, appendix 3)

After this second treatment, my left arm again felt much better. Playing the violin was easier, as my fingers felt stronger and more agile. It was easier to hold a correct hand position over time. The third treatment was a repetition of the second. I had had some trouble doing the elbow exercise correctly, so we worked on that again. When I played the violin after this treatment the pain and stiffness were gone.

This recovery by osteopathy was by far the quickest, most efficient recovery of them all. After three weeks, I felt no pain or soreness, and my joints were more flexible and free. I played a little less than usual for a month or two, to work up my strength. However, after about three months, the stiffness returned. I went back to Veelo and had a fourth treatment. This time, one treatment was enough to feel well again. Veelo did the same as earlier, mobilizing the joints and massaging the muscles with the gua sha scraper. He also advised me to buy my own scraper, for home use.

In the survey, osteopathy was not particularly popular. On question four (What kind of treatment did you receive?), four out of 33 informants replied that they had tried osteopathy, but none made further comments. This can be seen in **Figure 4-3**. On question five, asking which treatment worked best, osteopathy received 0%, as seen earlier in **Figure 4-4**, also shown below in **Figure 4-6** (translation of alternatives: chiropractic, physiotherapy, osteopathy, doctor/medication, other, not relevant).

Answered: 24 Skipped: 23

Answer Choices		Responses	
Kiropraktikk	Responses	16.67%	4
Fysioterapi	Responses	25.00%	6
Osteopati	Responses	0.00%	0
Lege/medisin	Responses	8.33%	2
Annet (spesifiser)	Responses	29.17%	7
Ikke relevant	Responses	41.67%	10

Figure 4-6, survey responses, question 5, *What treatment worked best for you, and why?*

#### 4.5. Physiotherapy – the most popular treatment

As it seemed physiotherapy is the most common treatment, and also the one that had worked for most (see **Figure 4-6** above), I became curious about its effectiveness. When my pain and stiffness came back two months after the last osteopathy treatment, I decided to try physiotherapy. This time, the pain was much worse than earlier. I had spent more time practicing and writing, pushing ahead despite pains. I went to physiotherapist Christina Sandvand Omfjord in March 2017.

Like the osteopath, she began by asking questions and discussing my troubles and my general health. After I had described my problem, she tested my body by having me lift my arms in different ways. Then, I lay on a bench while she pushed or pulled my forearms, and I was told to push or pull against her at the same time. In the log, there is written: *“After testing my arms, Omfjord concluded that I did not have a developed inflammation or any other diagnosis, but more likely stiffness in my muscles due to overuse.”* (Personal log, appendix 4)

As she could not detect a specific injury, she massaged my forearms and the sides of my back, loosening the muscles and increasing the blood flow. The back massage was very painful and left my arms numb. Omfjord recommended strength exercises, and a couple more treatments with her. The strength exercise I was told to do at home was simple, using a bottle of water as weight. This worked well, but after the first treatment my arms were quite sore, and I also realised I did not have the strength to do the advised amount of repetitions.

After a few days I came back for a new treatment, and this time Omfjord repeated the massage both of my back and arms. The back massage was more painful on the right side than



on the left, as opposed to the previous time when it was more painful on the left. She still recommended exercise, wanting to give me a warm up programme for practicing. This would consist of physical exercises. I had tried to exercise with the bottle, and was told to continue doing this.

The third time, Omfjord designed my warm up programme. The exercises are included in the log, appendix 4. After going through the exercises one by one, she did a new test of my arms. She still could not find a proper diagnosis, but as she found several painful and sore places, she guessed the pain came from strained muscles that had not yet developed an inflammation. She repeated the massage as usual, finding the places in my forearms that I had described as painful. For the first time during physiotherapy treatment, the forearm massage was very painful at times.

As usual, I felt soreness in my arms after the massage. We waited for more than a week before meeting for a new appointment, and the pain had become worse in the meantime. I had played more, but I had also focused on doing the warm up and the strength exercises. Omfjord massaged my arms, and the massage was also more painful than usual.

*“She finally decided that receiving treatment like this regularly would not help in the long run as I continue to play. Therefore, she recommends that I start exercising regularly, training strength and fitness to make my body able to handle the workload of playing the violin.”*

(Personal log, appendix 4)

Omfjord recommended putting ice on the most painful places once every day, and to wear a bandage or brace constructed for tennis elbows whenever possible, as the pain seemed to be coming from the upper part of my forearm. I could also massage my forearms by rolling them over a bottle.

After this appointment, I bought the sort of brace she had recommended, and also tried my best to use ice and bandages whenever I could. I did the warm up programme every day before practicing, making sure I was warm and relaxed when I started playing. I had some

concerts and group rehearsals, and I also practiced more than usual at home. After a little less than two weeks, Omfjord contacted me by SMS, to ask if I needed any more treatment.

*“I had noticed that using the phone had become a little more painful (close to the base of the thumb), but that the pain while playing was not considerably worse. Omfjord decided not to treat me any further, but recommended that I contact a personal trainer to create a rehabilitating exercise programme, and also continuing to do the small exercises at home.”*

(Personal log, appendix 4)

I agreed to stop the treatment, and did my best to keep doing the exercises at home. The pain was not gone and the injury was not healed, but I did notice that it was easier and less painful to practice the violin when my body was warmed up and prepared.

In the web-based survey physiotherapy was mentioned by many respondents, and as seen earlier, it scored a higher percentage on both question four (What kind of treatment did you receive?) and five (What method of treatment was best for you, and why?). On question five, physiotherapy received 25% of the responses (see **Figure 4-4** and **Figure 4-6**). The method was praised for its long-term value: *“Works best in the long run, because of exercise after ended treatment.”* (Survey respondent no. 15, question 5). One informant also commented that a physiotherapist had given the *“best diagnosis.”* (Survey respondent no. 44, question 5).

#### **4.6. Chiropractic – did the job, slowly**

For this study I did not have time to go to a chiropractor, but I have experience with the method from earlier. At the age of seventeen, I struggled with the same problems as I did during this study. I ended up going to chiropractor Tor Djuve almost every week for more than a year. He worked a lot with my spine and neck, always bringing forth a joint cavitation and cracking. This definitely loosened up some stiff areas, both in the neck and shoulders.

I was given a few exercises, using rubber bands to strengthen my upper-body. I was also told that icing the painful areas might help. Djuve also massaged my arms, finding muscle knots in my forearms. He used a lot of force, both when massaging and manipulating the neck and spine, and when massaging my arms. I had slight bruises more than once. This helped me get rid of the pain, although slowly. After a year of the same treatment, my arms were free of pain

and my body was less stiff all over. I continued practicing, entered the university and worked harder. For years, there was no pain.

However, when I started the treatment, and also during the treatment, I was an amateur musician, practicing no more than I had to. This might mean an hour or two in a day, but not daily. When I started my bachelor's degree my work doubled, and when the pain came back I had started practicing more than five hours a day.

In the web-based survey, chiropractic received positive responses. As seen earlier, in **Figure 4-3**, it was the second most tried method of treatment. On question five (What method of treatment was best for you, and why?), one respondent claimed *“This was what made me better”* (Survey respondent 31, question 5). Another had been taught exercises, commenting, *“[I] received exercises that worked well in combination with chiropractor”* (Survey respondent 47, question 5). However, one of the respondents also wrote that chiropractic *“Loosens up the muscles, but does not help in the long run unless you take care and exercise.”* (Survey respondent no. 38, question 5). The first comment was made by an amateur, while the last one was made by a student.

#### **4.7. Summary**

Through both surveys, it seems that shoulder pain is one of the most common strain injuries among violinists. In the small questionnaire on Alexander Technique, both respondents answered that they had had trouble in the shoulder area. In the big, web-based survey, 15 respondents mentioned their shoulders as a problematic area in the comments of question 2 (Have you experienced strain injuries related to playing the violin?).

Physiotherapy and chiropractic are clearly the best-known treatments, and also the ones who worked for most respondents. Many had tried several other treatments, and the results varied greatly.

## **5. DISCUSSION**

When researching strain injuries among violinists what hit me in particular was that nearly 60% of the respondents to my survey had suffered from injuries related to the instrument. More than half of the nearly 50 random violinists did have trouble with painful playing. I also discovered that most of the respondents had tried, in some way, to treat the injury. Although some had simply stopped playing for a while, needing rest, many had tried various treatments.

The ones who chose rest were always amateurs. I suspect that this derives from them being able to leave the instrument for days or weeks and playing again when the pain subsided, as opposed to a professional musician with a deadline to keep. Also, if the injury has not yet become serious, rest may be all that is needed for it to heal. An amateur musician could be able to take care of the injury right away, while a student or a professional musician may have to wait until after a performance or any important deadline. This might be one of the reasons that some students and professionals responded that no treatment worked, while amateurs stated that it had been sufficient to rest. The violinists working towards deadlines may have allowed the injuries to go too far before treating them, resulting in a slower recovery.

Students and professional musicians, and some amateurs as well, had all chosen to treat their strain injuries. Again, I suspect that this is because of the bigger amount of pressure and deadlines among those who play for a living, as opposed to amateur and hobby violinists. The results of the treatments varied greatly. I had hoped to find more indications towards which treatment was better, but in general it seemed that it was indeed a matter of personal preference. While some had experienced pain relief through one treatment, others had not been helped at all. Nevertheless, there seemed to be a slight rule as to what worked best as a treatment and what worked best to prevent further injury.

### **5.1. The methods**

Through the theory on each method I discovered that there are several ways to treat injuries within each field – not all therapists work the same way. Although therapists in certain fields have specific training, they may judge the injury differently or choose a unique method of treatment within their field. A physiotherapist, for instance, may choose to use massage and simple hands-on treatment, but the physiotherapist may also choose to use electric or

mechanical tools in the same treatment. This means that even if one treatment did or did not work, it might have given other results if performed differently or by a different therapist, or if this therapist had judged the injury in another way.

Of the methods studied in this thesis, all of them proved to be useful at some point. There were differences and similarities, some were praised in the surveys and some were not, but in the end all of them had aspects that could help violinists play without pain. Some treatment methods were obviously better known than others. While this indeed was an indication as to what violinists knew about and maybe recommended for each other, it also resulted in a clear distribution of answers towards the well-known methods, while there were less information to be gathered when it came to the lesser-known methods. As physiotherapy and chiropractic were the most popular, they received both positive and negative comments, and several indications as to how well they worked. Osteopathy and doctors/medication, on the other hand, received very few responses all over.

Nor was Alexander Technique one of the most popular treatment methods, although it received quite a few comments on the survey. As I had a dedicated questionnaire about Alexander Technique as well as a question in the web-based survey, I managed to collect more varied information and specific comments on this treatment method than on some of the others.

### **5.1.1. Chiropractic**

Chiropractic was the second most popular treatment in the survey, after physiotherapy. Out of the 18 respondents who replied that they had received treatment, seven listed that they had tried chiropractic. Four of these felt that chiropractic was the best treatment of them all, but there were some comments stating that chiropractic did not help in the long run, indicating that the pain came back after ended treatment.

In my own experience, chiropractic treated the strain injury already from the beginning, and in the end it healed it completely. My treatment consisted mainly of manipulation of the neck and back area. This greatly relieved my upper-body of its tension. My forearms were also treated with rough massage, putting pressure on the muscle knots and increasing the blood-flow. The treatment was quite painful, but it definitely helped in the long run. I was given a

few exercises, but after the treatment ended I became inconsistent and forgot about them. Continuing to exercise might have kept my body well even longer.

Each singular treatment did some good in and of itself, making my upper-body feel looser and more relaxed after every treatment. Nevertheless, the road to recovery was very long. I received treatment for more than a year, before finally being able to practise pain-free. Such a long time of pain and treatment could be a big problem when it comes to professional musicians. Being unable to work is of course problematic, and many violinists have deadlines to keep and often also a reputation to maintain as a freelancer. Not being able to accept freelance job offers may make it harder to get offers at a later time. Still, not all violinists are freelance, and some can apply for normal sick leave. In that case, there might be time to go through a long-term treatment while taking other precautions like rest.

The speed of the recovery may also depend on the injury, the patient and the therapist, as no bodies react in the exact same way. After I had recovered from my own injury I continued to practise, and my body stayed pain-free for a long time. This shows that the treatment worked very well, both having a healing and a further preventive effect. Perhaps the extensive treatment, repeated for more than a year, was the reason the body was able to handle the workload for so long after the treatment ended. Maybe a shorter treatment would have had a shorter effect. Another point to make is that the chiropractic treatment was tried at another time than the rest of the treatment methods discussed in this thesis. I was younger, playing the violin only as a hobby, not practicing more than an hour, maybe two, a day. When I started my master's programme and the workload went up to around five hours a day, the pain came back to stay.

Combined with the results of the survey, I would say chiropractic is a treatment that shows results when it comes to healing injuries, but that it seems chiropractic itself is not enough to prevent further injury. Although there are examples of long-term healing, the injuries treated with chiropractic have a tendency to come back, even if it takes a while.

### **5.1.2. Osteopathy**

Osteopathy was clearly the most unknown treatment method of the ones studied in this thesis, apart from the one I chose to call doctor/medication. I was not familiar with the osteopathic treatment myself, and did not plan to study the treatment at all until a fellow musician

recommended it. I did not know what to expect, having no knowledge about osteopathy. In the web-based survey, it seemed I was not the only one. No more than four of the nearly 50 respondents had tried osteopathy, and none listed it as the best. It was never mentioned in the comments; hence it received neither praise nor criticism. This makes it difficult to discuss and conclude, as I have no more data on the treatment's effects than my own experience.

I myself was very impressed with the results of the treatment, experiencing pain-relief almost at once. I was treated with some massage, but the osteopath spent the majority of the time mobilizing my wrists and elbows by moving them in all directions and exploring the limits of their mobility. The treatment was relaxing and mostly pain-free. It worked quickly, and my pain was completely gone after only a few treatments. I noticed a better mobility in the joints, and my upper-body felt more relaxed. After ending the treatment I did not feel pain for months. When the pain did come back, I assume it was because of the heavy workload of my violin studies and a lack of preventive exercises. I was given one exercise to mobilize my elbow, but none to build strength or other preventive measures.

Osteopathy was definitely the most effective method for me when it came to treatment. It did not, however, prevent further injury completely. I could have kept going to an osteopath on a regular basis, but that would make me dependent on an expensive treatment, never allowing the body to find ways to work without pain. This means that osteopathy worked very well when the injury was already there, and lasted for quite some time. Unfortunately it did not prevent further injury, and had to be repeated. The fact that so few subjects had tried osteopathy makes it difficult to conclude on a general basis, but I would personally recommend it as a treatment.

### **5.1.3. Alexander Technique**

The Alexander Technique turned out to be more of a study than an actual treatment. It was taught rather than exercised, and it gave the student a new understanding of both the body and several techniques of relaxation and stress-relief. The participating students and I all felt that we learned much about how the body works, how the respiratory system influences the rest of the body, and what to do when nerves create tension in the body. It was educational and inspiring, and I would definitely recommend the Alexander Technique as a preventive education, fit for any student of the instrument, at any age. It seems to me that even a child,

maybe especially a child, learning to play the violin should have the basic knowledge about Alexander Technique, to avoid strain injuries in the future.

Being conscious as to when the muscles relax and when they do not is an important step on the road to healing oneself and preventing strain. As a musician, one deals with stress and emotions all the time. The pressure of concerts, performances and deadlines can be crushing. This has a great impact on the body and also applies during practice. In this matter, the Alexander Technique is perfect. It describes the need for relaxation and consciousness, and opens the mind to new ways of using the body. At the same time, it allows the student of the technique to discover exercises and ideas when it comes to relieving stress and letting the muscles work correctly. Therefore, it is a great way of preventing strain and strain injuries. (Chapter 2.6).

The downside of the Alexander Technique was that it did not heal injuries that were already there. In my personal experience and also commented in the survey, the Alexander Technique did not work as a treatment. I learned a lot about what to do to avoid injuries, and I also learned to relax muscles that were tense and painful, but the injury was not healed or made better. Maybe if I had given it more time, I could have allowed the body to eventually heal itself, but as long as playing the violin keeps putting strain on the body, I think the pain would stay, if not increase while using the Alexander Technique.

As with osteopathy, the Alexander Technique was not well known among the subjects of this thesis, which makes it difficult to conclude whether it is effective or not. However, almost everyone who responded that they had tried it had a positive view on the technique as an education and as a preventive method. In the small questionnaire, both answering students were very content with the lessons, finding them both interesting and useful. Perhaps this is simply a matter of getting to know the technique for the right reasons, using it to prevent rather than treat injuries.

#### **5.1.4. Physiotherapy**

Physiotherapy was the treatment method tried by most respondents. 13 out of 18 treatment-receiving respondents had tried physiotherapy as a strain injury treatment, leaving only five that had never tried it. Physiotherapy also received the most positive responses of the studied treatments, with six respondents stating that it was the treatment that had worked best. Of



course there were negative responses as well, as some had not been healed by physiotherapy at all. With six subjects naming it the best, there were still seven that did not see physiotherapy as the best treatment.

The amount of response to this particular treatment method probably derives from the fact that it is one of the best-known methods, not only in the musical environment, but also among people in general. In my experience, the first treatment method that comes to mind when discussing strain injuries is physiotherapy. It seems that physiotherapists are often connected to universities or orchestras, in addition to being known among common people, even those who has never been treated for strain injuries. Physiotherapy is something most people have heard of, as opposed to for instance Alexander Technique, which I myself had never heard of before I became a musician.

As physiotherapy was the treatment method most people had tried, it was not a surprise that it was also the one most people were satisfied with. Physiotherapy was praised for its long-term function because of the exercise, and also for being the one to diagnose and treat in the best way. For me, it did not heal the injury that was already there. As I did not experience any mechanical or electrical treatment, I cannot comment on its use. Neither was it a question on the survey. The survey responses do not indicate what methods within the field of physiotherapy the respondents have experienced. Therefore, it must be said that such tools may or may not make the physiotherapy more effective, although it is not proven in this thesis.

Whether or not physiotherapy is able to treat injuries probably depends on the injury itself and other aspects of the patient, just like the other treatment methods. To me it was more of a preventive method, given the exercise programmes. The warm-up programme and strength exercises did not heal the painful areas of my body. Nevertheless, I noticed that it took more time before the pain got bad whenever I did the warm-up before playing. Exercise and warm-up may very well prevent further injury, by making the body ready for the workload and giving the tissue a better base. Despite this, I am worried about starting exercise and strength building without having healed the injury from before. I would prefer to heal properly before exercising.

### **5.1.5. Doctor/medication**

Doctors and medication received very little response on the survey. I myself experienced a doctor who did not know what advice to give me, except to take painkillers and carry on. This seems against its purpose to me. I took the painkillers to be able to play as much as I needed to, leaving me with a worse, more painful injury when I stopped taking the medicine. I tried both prescription medicine and NSAIDs. It offered a temporary pain-relief, no more.

In the survey, one person responded that they had tried doctors and medication as a treatment, but two responded that it had been the one to work best. While this suggests that the data of the survey is not necessarily perfectly correct, this treatment method still appears to be the least tried method. Neither is it very popular; in the comments it is not praised. One of the survey respondents state that cortisone worked for a short while, but other than that there are few positive responses. There are no responses indicating that it actually works as a treatment.

As I myself have not tried cortisone, and only one respondent mentioned this, it is difficult to conclude anything about such medication. Two respondents out of 47 is a small number, but their comments reveal that the medication was not a proper treatment in the long run. As this is my experience as well, I think medication may be a way to keep the violinist going for a while more, but not a good way to treat or prevent strain injuries.

However, medicine may include more than painkillers. Simple medical treatment often recommended by doctors, like heat and ice therapy, rest, etc., can also be recommended by therapists as an addition to the treatment. When dealing with minor injuries, this may be all that is needed to treat them. With minor injuries, NSAIDs and medical advice may also do the job, allowing the body to heal itself as they reduce inflammation. Although if an injury is severe, I do not believe this sort of treatment would be enough. Removing the pain does not remove the injury.

## **5.2. A holistic approach**

Despite its flaws, medication, like other treatment methods in this thesis, may work very well in a combination with others. Perhaps the best way to treat strain injuries is to take a holistic approach, combining several treatments. As the responses to my surveys show, there is no evidence that one treatment is obviously better than the others. There are respondents who have been healed by several treatment methods, and there are respondents who have not been

healed at all. On the other hand, there are indications as to what may prevent and what may treat, and therefore a combination of treatments can be necessary.

A disadvantage of the holistic approach is the fact that if or when the injury is healed, it is impossible to know whether it was because of one or both of the treatment methods. Another disadvantage of the holistic approach is that different therapists may work in different ways, and going to two separate therapists in separate fields may confuse the patient as to what exercises one should do, and when and if one should do them at all. Such confusion may even be harmful. If one therapist manipulates or mobilizes parts of the body, the muscles or joints in the area may not be ready for exercises or treatment advised by another therapist. For both these reasons, I would suggest not trying two treatment methods at the same time. Instead I would for instance first go to a therapist to heal the injury, and then go to another therapist to prevent further injuries.

Medical treatment seemed to work little on its own, but in combination with any of the other treatment methods, it might be very useful. For instance, ice and heat therapy was recommended both by the physiotherapist and the chiropractor. Ice and heat may work in a combination with any treatment, being done at home in between treatments. For me, it gave no clear result, as I used it in combination with treatments all along, but it may have helped in the healing process. Physicians also recommend rest as the first step on the road to recovery. This is also recommended in combination with other treatments. As I have mentioned earlier, the main problem with several of the treatments studied in this thesis, may have been that I never took the time to rest while being treated. I continued practicing and performing, wanting the treatment to work without any help on my side.

In my case, osteopathy was the method that worked best as a treatment, along with chiropractic, although the injury came back both times. Physiotherapy have healed patients in my survey, but I would rather suggest going to an osteopath or a chiropractor to heal the injury, and then consult a physiotherapist about further exercise and injury prevention. As Alexander Technique seems to be a preventive method, giving the user insight when it comes to both bodily functions and stress, it is in my opinion one method that should be used by everyone. As stated earlier, it does not seem to heal injuries that are already there, but

combined with any other treatment it may help the patient to recover more effectively and prevent further trouble.

## 6. CONCLUSION

The aim of this study was to collect information about different treatment methods, and whether or not they worked. Through two surveys and a personal, empirical approach, it became clear that there was no true answer to this, as most methods received both positive and negative responses. When looking at the three groups of violinists – amateurs, students and professionals – it is evident that only the amateur violinists felt that rest and self-care was enough to get rid of strain injuries. Students and professionals agreed that treatment was necessary, and far from all had found treatment that worked. However, the results of this study did indicate that some treatments might work in different ways, creating two groups: preventive methods and treating methods.

If one is looking to prevent injuries, this thesis shows that the Alexander Technique and its knowledge about breath and relaxation is definitely the first step. This knowledge leads to a better relationship between the body and the instrument, and may save the performer much stress and strain. The Alexander Technique was not proven to heal strain injuries, but it was praised for its preventive effect both when it came to stress and injuries.

When the injury is there and prevention is too late, chiropractic and osteopathy seem to be the most effective treatment methods. While the respondents to the survey showed very little knowledge about osteopathy, the author's own conclusion is that it was the most helpful treatment of them all. Not being able to check this opinion with the respondents was a disappointment, but perhaps osteopathy should be recommended to violinists as a treatment method, given the efficiency of the treatment. Chiropractic received more positive responses, and was also among the treatments that healed strain injuries in the author's experience.

Physiotherapy's goal of correct exercise and building strength is a great way of preventing strain. For some respondents physiotherapy had also healed strain injuries, but in the author's experience it did not work. Because of this and the therapy's ability to work with the body and strengthening the correct muscles, the conclusion of this thesis is to sort it after its preventive nature. When the injury is healed, going to a physiotherapist to learn strength exercises created especially for the muscles needed for playing the violin, is recommended.

Medication was perhaps the treatment that was least appreciated throughout this study. NSAIDs, rest and ice and heat therapy do not heal strain injuries on their own. Nevertheless, they may be used as pain-relief in pressed situations, and also in a combination with other treatments, since therapists often recommend them as an addition to treatment. In general, a holistic approach may indeed be the best way to both treat and prevent further injuries, as long as one does not go to different therapists at the same time. Using one treatment to heal and another to prevent seems to be the best answer.

## **7. FUTURE WORK**

In a later study, it may be interesting to consider several facts that were not taken into account in this thesis. The most important factors to be considered at a later point may be the subject's age, health, occupation, strength, etc. This would shed some light onto why the strain injury occurred or why it did not. Here it could also prove interesting to check the assertion that women are more prone to strain injuries than men. A gender-based study might reveal different results than what is gained from a gender-neutral research.

The question of exercise is also important. As discussed above, exercise may play a big role in the prevention of strain injuries, preparing the muscles to endure a heavier workload. A study of the body itself while playing the violin could prove to be useful, giving the researcher a greater understanding of how the body physically reacts to stress and nervousness, and also how different relaxation techniques, like the ones found in the Alexander Technique, may ease the tension in the body.

Finally, this thesis was limited to researching a few treatment methods, while only mentioning others. Future studies might benefit from taking other treatment methods into account, considering methods like naprapathy, acupuncture, muscle therapy, etc. This would create a broader picture, allowing the researcher to search for more differences and similarities, thus gaining a broader view of the existing treatment methods. A wider range of subjects could also reveal different results.

In addition to researching a wider range of treatment methods, it could also be useful for a different study to go deeper into each method. While the methods in this study were simply alternatives in a multiple-choice survey, it could be interesting to dedicate a survey exclusively to one treatment. This would gather more opinions and allow the researcher to delve into more detail.

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# APPENDICES

## Appendix 1: Norwegian Data Protection Official for Research



Lisa Bonnár

Institutt for klassisk musikk og musikkpedagogikk Universitetet i Agder

4630 KRISTIANSAND S

Vår dato: 07.04.2017 Vår ref: 53347 / 3 / ASF

Deres dato: Deres ref:

### TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 28.02.2017.

Meldingen gjelder prosjektet:

53347 *Smertefull øving - en studie av forebygging og behandling av belastningsskader hos fiolinister*

*Behandlingsansvarlig* *Universitetet i Agder, ved institusjonens øverste leder*

*Daglig ansvarlig* *Lisa Bonnár*

*Student* *Kristiane Valborgland*

Personvernombudet har vurdert prosjektet, og finner at behandlingen av personopplysninger vil være regulert av § 7-27 i personopplysningsforskriften. Personvernombudet tilrår at prosjektet gjennomføres.

Personvernombudets tilråding forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, ombudets kommentarer samt personopplysningsloven og helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, [http://www.nsd.uib.no/personvernombud/meld\\_prosjekt/meld\\_endringer.html](http://www.nsd.uib.no/personvernombud/meld_prosjekt/meld_endringer.html). Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, <http://pvo.nsd.no/prosjekt>.

Personvernombudet vil ved prosjektets avslutning, 08.05.2017, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

Kjersti Haugstvedt

Kontaktperson: Amalie Statland Fantoft tlf: 55 58 36 41

Amalie Statland Fantoft

*Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.*

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## **Appendix 2: Log, Alexander Technique**

### **Log 1**

#### *First lesson with Randi Bjerge-Sköld*

This first lesson was a meeting with the associate professor, to plan and discuss further meetings, but also to learn some basics about the Alexander Technique. I was alone, and we went shortly into the physiological aspect of Alexander Technique. Bjerge-Sköld talked about muscles and tension – the importance of relaxing and so on – and about the importance of breathing.

The meeting was very interesting, and I certainly want to learn more about the Alexander Technique. Randi Bjerge-Sköld and I have talked about inviting other students to the lessons as well; so next time will be a group lesson.

### **Log 2**

#### *Second lesson with Randi Bjerge-Sköld, now as a group*

This second lesson started with introducing the Alexander Technique to the new students. We were now four women, all studying the violin. The lesson was very theoretical, going deeper into the subject of muscle tension from my first lesson alone. Randi Bjerge-Sköld lectured about breathing and the impact it has on the rest of the body. She also described the important muscles in the torso, and handed us some drawings of the diaphragm and the muscles around it.

According to Bjerge-Sköld, breathing correctly is the basis of Alexander Technique. It affects the entire body, and is necessary to bring fresh oxygen to the muscles and rinse out the lactic acid. The most optimal sort of breath is a yawn. During a yawn the soft palate moves upward, the posterior pharyngeal wall moves back, and the larynx moves down. This opens the throat. Further down, the diaphragm moves downward. This also happens to the pelvic floor. We all tried it during the lesson, yawning or breathing as if we yawned. It was interesting to concentrate on the muscles instead of simply ‘breathing with the stomach’ or something like that.

Bjerge-Sköld continued by saying that when one is nervous or tense, the opposite thing happens. In a nervous state, the body automatically shrinks, pulling the limbs close to protect

the softer part of the body and the important nerve centre solar plexus. This impedes the intake of oxygen, and stops the muscles from stretching out and relaxing.

When performing or getting ready to perform, the musician might not realise the amount tension in the body before performing. The contractions are so small no one would see them from the outside. Still, tension like this gets worse every time it happens, unless one knows how to stop it and relax. One needs to know about the different muscles at work in the body, and how they react when nervous. Especially, one needs to know what to do about the tension that is there. A performing musician should know how to breathe deeply and effectively, while keeping the diaphragm low and giving room for the lungs to expand.

Straightening the spine is another important aspect. When the body is nervous and tense, the spine contracts. This causes pressure on the vertebrae and may in the long run cause prolapse and bad postures.

After the lesson I really felt that I had a better understanding of my body and my muscles. I found tension in my own muscles, and began to realize what my body actually does under pressure. Bjerger-Sköld also made me understand that the muscles' job is to contract. When they don't work, they are relaxed. This is important for the blood flow and the transportation of oxygen.

### **Log 3**

#### *Second group-lesson with Randi Bjerger-Sköld*

This lesson, as opposed to the earlier two, was based more on actions than theory. This was great, as Bjerger-Sköld started working with our own muscles, really making us feel our own tension and how to use the Technique to get rid of it. First, she wanted to show the process on the entire body. I was told to lie on a table with my knees up, feet standing on the table. She put a thick book beneath my head. Bjerger-Sköld then used her hands to stretch my neck and spine. She lengthened my body by pulling my upper-body and hips away from each other. This should relieve the spine of contraction. Such contraction is bad, because it gives us a more hunched posture, and it tires the spine. Now, my back felt longer than ever.

After lengthening my spine, Bjerger-Sköld took one of my arms and told me to relax each muscle as she slowly straightened the arm. It was very difficult, and she refused to move my

arm before she felt the muscle relaxed. After what seemed like a long time, she had straightened the arm completely, and it was thoroughly relaxed. She did the same with the other arm. After this, she moved on to my legs, doing the same thing. It felt really strange, but I came to realise how tense my body was! All this relaxation felt entirely different from what I am used to.

My knees still pointed upward, and to keep them doing that I needed to use some muscles. However, Bjerger-Sköld told me that I used too many muscles for the job. I should keep pointing, but try to relax as much as possible. When my mind was set on pointing the knees upward they automatically did so, even when I started relaxing my thighs and calves. I discovered how much I could let go and still keep my legs in the correct position. My muscles had worked way too hard for such a simple task! This was a big discovery for me, and also for the other students in the room. Learning to relax the unneeded muscles was maybe the greatest lessons we learned today. While playing the violin, this is extremely important!

Bjerger-Sköld did the same relaxation exercises on the other students' torsos, but she did it while they were sitting instead of lying down. This was visually very informative, because after she had worked with one arm, we noticed how the shoulder became visibly lower than the other! The posture changed and looked straight but relaxed.

Relaxing is not easy in a stressed situation, but Bjerger-Sköld talked about creating images and performing relaxing exercises while under pressure. For instance, it is common to tighten the body around the diaphragm and the solar plexus. This can be counteracted, but one must have good techniques. One way of relaxing is to transfer the tension to the hands. Make fists, tighten them, and let go. Put the fists in front of your hips and do the same. Now, feel the tension move from the hands and into the torso. When you release the tension in the fists, also release the tension in the torso. Another way of relaxing the diaphragm and the area around it is to simply imagining a picture that will open the space around it, for instance a sun shining outward.

To straighten the spine and relieve the tension there, we were told to feel the floor under our feet, and really focus on that. Then, when the whole foot is in contact with the floor, pull the head upward. Imagine someone pulling your hair, or that you are hanging from a string. This will let you automatically stretch the back.

## **Appendix 3: Log, osteopathy**

### **Log 1**

*First time with osteopath Robert Veelo, 2016-09-06*

When I went to the osteopath, the pain in my left arm was moderate. In my right arm it was less. This was becoming a problem when playing the violin, but it wasn't bad except for that. I filled out a form and answered many questions about my health, exercise level, daily routines and studies.

Veelo tested the muscles and the stiffness of my upper body, but concentrated on my arms. He worked a little with mobilizing the right wrist, but focused on the left elbow and wrist. He massaged some points, and mobilized the joints by flexing and turning them. He also used a massage scraper, known as a gua sha, to massage the muscles in the left arm. This was meant to loosen the fibres around the muscle and give it a freer flow of blood and oxygen.

After the treatment, I felt at once that my wrist was a little more agile. It felt freer, and easier to move. The treatment had not necessarily removed the pain, but it had at least made movement less strained. Writing on a keyboard was a little less painful, and so was playing the violin. The greatest difference was the fact that my grip on the fingerboard was suddenly broader. I had to work a little harder to find the correct intonation, as my fingers, especially the little finger, in general moved too far from each other and made the intonation too high. This was a great plus, as my fingers have often felt too stiff to reach broader grips.

### **Log 2**

*Second time with osteopath Robert Veelo, 2016-09-14*

This time, my wrists felt less stiff when I came to the treatment, but I still had problems when playing the violin. Veelo only worked on the left arm this time, and continued mobilizing the wrist. He turned the wrist around, stretching the tendons in the forearm, and also loosening up the wrist joint. He did some of the same with my elbow, as he felt parts of the joint were less free than others. He gave me homework, to mobilize the elbow myself. I should place my hand on a desk or table, bending the elbow, and then move and straighten out the elbow joint while controlling the movement with my other hand. This would in some way "lubricate" the joint and let it move more correctly.



Another problem with my forearm was that according to Veelo, the bones meeting in the joint moved incorrectly when moving the forearm around. In some way, the bone moved out of the joint instead of simply turning around inside the joint. Veelo worked with this, turning the arm while putting pressure on the joint to force the bone to move correctly.

Veelo also continued massaging the muscles in my forearm with the gua sha scrapers.

After this second treatment, I felt even better than last time. There was less pain and less stiffness. When playing the violin, I noticed that my little finger was not only able to move further away from the other fingers, it was also stronger and more natural in a correct “round” position on the fingerboard. Combined with a little less practicing, my arms feel much better.

### **Log 3**

*Third time with osteopath Robert Veelo, 2016-09-26*

Like last time, Veelo worked on mobilizing the wrist and elbow. I had not been very good at working with the elbow on my own, so he tried again to teach me how to do it correctly. He massaged my forearm with the gua sha scraper, and worked a little more on the flexibility in the wrist.

After this treatment, we decided that my arms were so well; we would wait and see how they worked over time. I felt much better, hardly noticing the stiffness. The pain was gone.

### **Log 4**

*Fourth time with osteopath Robert Veelo, after a longer break, 2017-01-06*

After a couple of months, the stiffness began to return. There was not much pain, but the fingers were harder to move correctly, and after playing for no more than 15 minutes, my movements became slower. Therefore, I decided to go to the osteopath one more time. He did much of the same as earlier, mobilizing the wrist and elbow, and continuing to massage the muscles with the gua sha scraper. This time, he also recommended that I buy my own scraper, to be able to massage myself at home.

I did buy myself a gua sha scraper, and tried to use this at home. I am unsure if it worked very much, but the muscles felt more relaxed and less stiff after using the scraper. I also noticed

that massaging painful places with my other hand could be difficult, but the scraper was able to massage such places more efficiently.

This time I decided it was enough with one treatment. I felt better and less stiff, and would try to manage on my own.

## **Appendix 4: Log, physiotherapy**

### **Log 1**

*First time with physiotherapist Christina Sandvand Omfjord, 2017-03-06*

When I went to the physiotherapist, the pain had gotten pretty bad. This time, the stiffness in wrist, fingers and elbow was back, and had spread not only in the left arm, but also the right one.

We started by spending about half an hour discussing the problem. After hearing my description of workload and pain, Omfjord had me lift my arms in different ways, and generally move my upper body on her command. After that I laid down on my back, and she pushed my forearms in different directions while I was told to push back. This resulted in no great pain.

After testing my arms, Omfjord concluded that I did not have a developed inflammation or any other diagnosis, but more likely stiffness in my muscles due to overuse. I lay on my stomach, and she massaged the muscles by the shoulder blades, on the sides of my body. This was very painful, especially on the left side. She also massaged my left forearm.

Following the massage, especially the one on the sides of my back, my arm was quite numb. Later during the day, I felt both soreness and stiffness, but Omfjord had prepared me I might feel something for the rest of the day.

She warmly recommended exercise, as a proper building strength would make the body able to handle greater workloads. She wanted me to come back a couple of times, but after that I will only exercise. I was recommended to contact a personal trainer at the fitness centre, and to start building strength. At home, I should also build strength in my wrists by letting my forearm rest on a table or on the knee and lift a light weight or a similar object, for instance a bottle containing half a litre of water. 15 repetitions, three intervals, each hand.

### **Log 2**

*Second time with physiotherapist Christina Sandvand Omfjord, 2017-03-10*

After the first treatment, I did feel some pain in my arms. The places in my back that she had massaged were very sore. I had a heavy day of writing and practicing the next day, and was

quite stiff and sore at the end of the day. However, I was unsure in this was partly because of the treatment or solely because of the workload.

The second time Omfjord had planned for us to do some exercises, but due to a slightly delayed appointment we decided not to waste time moving to the exercise room. Instead, Omfjord performed the same back massage as the previous time. This time, it was slightly more painful on the right side than on the left, but still very painful all over. She massaged both my arms as well. The arm massage is not as bad; this simply stings a little when she puts pressure on sore muscles. She repeated the importance of exercising at home, using the bottle of water.

After this treatment, I felt more pain in my left arm. I performed the strength exercise, and started writing again. Both wrists were stiff, and I had several small stabs of pain in the left forearm while writing. Could this be because of the treatment?

As she treated me, we also talked about my thesis and the different definitions when it comes to physiotherapy and the other treatment methods. She spoke warmly of exercise and strength building, and claimed that physiotherapy without exercise was old-fashioned.

### **Log 3**

*Third time with physiotherapist Christina Sandvand Omfjord, 2017-03-14*

During the first half of the appointment, Omfjord designed a warm-up programme for me. This is for use before practicing the violin. She changed the program as I reacted to the exercises, finding different ways to do a certain task if needed. The exercises sheet looked like this:

*Choose one of the two first exercises. The one that feels better.*

*Lay on one side with the upper leg pulled up to a little more than 90 degrees. Rotate the upper body, trying to push the shoulder blade down towards the floor. Hold approx. 1-2 minutes on each side. Let the breath out slowly as you rotate backwards like the picture shows. You should rotate until the point where it stops, and then push a little further.*

*Stand on all fours with one arm behind your neck or, like the picture, behind your back. Rotate the upper body down towards the other shoulder, and thereafter upwards. Let your head follow the movement. Do 10 rotations before you allow yourself a short break. 2 series on each side*

*Stand with you feet approx. 10 cm from the wall. Use the stomach to keep your lower back against the wall, e.g. straightening the sway back. When you have your entire lower back against the wall, you lift your straight arms up above your head, as far as you can without releasing your back from the wall. Repeat 10 times, calmly.*

*“Arrow” : Hold a rubber band with straight arms in front of you, one end in each hand. While one arm stays in front of the body, the other is pulled back as if drawing a bow and arrow (like the picture shows). There should be a small rotation of the upper body as you pull the rubber band backwards. Repeat 10-12 times on each side.*

*Lay on your stomach with your forehead on the floor. Let your arms form a diamond in front of your head, thumbs pointing upward. Lift your forearms upwards, so you can feel that you are using the muscles between the shoulder blades. 10 repetitions, 2 set.*

*Do the exercises as a warm up to practicing at home.*

I was told to do the first exercise, lying on one side on the floor, a little differently than the programme says. While lying on one side, I should move the arm on top in a circle, from in front of the body, over the head and to the back, all the time touching the floor. This also forces the shoulder blade towards the floor, and while it also rotates the shoulder joint.

After going through the warm-up programme, Omfjord did a new test of my arms. While working, she asked many questions about how I had felt since last time. She repeated that I had no clear diagnosis, but she also found certain painful places. She massaged the sides of my back again, and also massaged my forearms. The forearm massage was very painful when she worked on the underside of the forearms. She did this for quite some time.

#### **Log 4**

*Fourth time with physiotherapist Christina Sandvand Omfjord, 2017-03-23*

This time, the pain was worse between the treatments. I played more, but I also focused on always doing the warm-up programme and strength exercises for my wrists with the bottle of water. Omfjord massaged my forearms during the entire hour of treatment, and the massage was particularly painful this time. She finally decided that receiving treatment like this regularly would not help in the long run as I continue to play. Therefore, she recommends that I start exercising regularly, training strength and fitness to make my body able to handle the workload of playing the violin.

I was told to put ice on the worst places every night, maybe also with a bandage. Omfjord recommended, without knowing if it would work, to use a kind of brace on the upper part of my forearm. This sort of brace would put pressure on the arm, forcing the muscle a bit upwards towards the elbow. This may relieve the tendons holding the muscle, and also stretch the muscle a little bit. When the brace is off, I can massage my forearms by using a bottle, rolling the arm along the bottle to and fro. Omfjord wanted me to not use my hands to massage, as that would put unnecessary strain on the arm doing the massage, countering the effects.

The next appointment with the physiotherapist will not be until after two weeks. During these two weeks I will continue practicing, but as I have several chamber music concerts coming up, I will be forced to practice for longer periods at the time and for more hours than I would prefer. I will massage, ice and exercise, and try my best to practice at short intervals with breaks to let the muscles relax.

#### **Log 5**

*Had a brief chat on SMS, 2017-04-04*

Omfjord contacted me by SMS, asking about the pain during the two weeks without any treatment and many concerts. I had noticed that using the phone had become a little more painful (close to the base of the thumb), but that the pain while playing was not considerably worse. Omfjord decided not to treat me any further, but recommended that I contact a personal trainer to create a rehabilitating exercise programme, and also continuing to do the small exercises at home.

## **Appendix 5: Alexander Technique questionnaire**

### **Student 1**

1. My expectations is to learn techniques to be able to get rid of pains and to cope with future pains and problems.
2. Yes, in my neck and shoulders
3. Very useful and interesting! I liked all the things I learned about my body and how my muscles works.
4. I have tried to think about it when I practice and when I'm nervous.
5. It was difficult not to have tensions in my neck and shoulders when I was playing but it really nice to have some coping skills for when I'm nervous.
6. Absolutely!
7. I think everybody should go to these classes. It's good to have the knowledge to prevent unnecessary pains and strain injuries

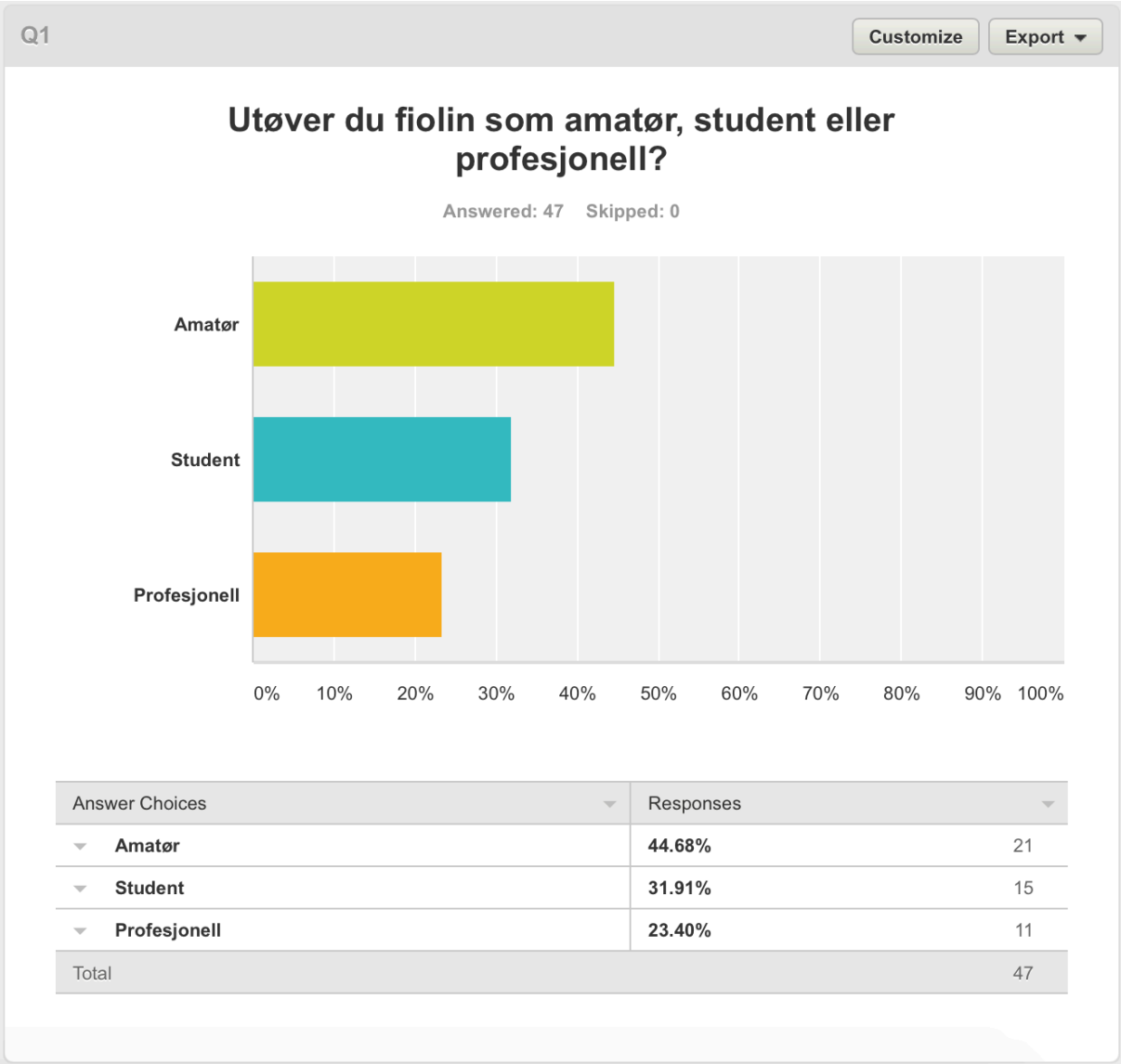
### **Student 2**

1. That it would help me be aware of the body's movements and how to do it more efficient and right.
2. Yes, in my shoulder
3. It was very useful! We learned simple, but really helpful things to be aware of.
4. Yes! It has really changed things for me.
5. Not really. But we haven't learned that much yet, so it's very easy to practice.
6. Yes
7. Yes!

### **Student 3**

No answer

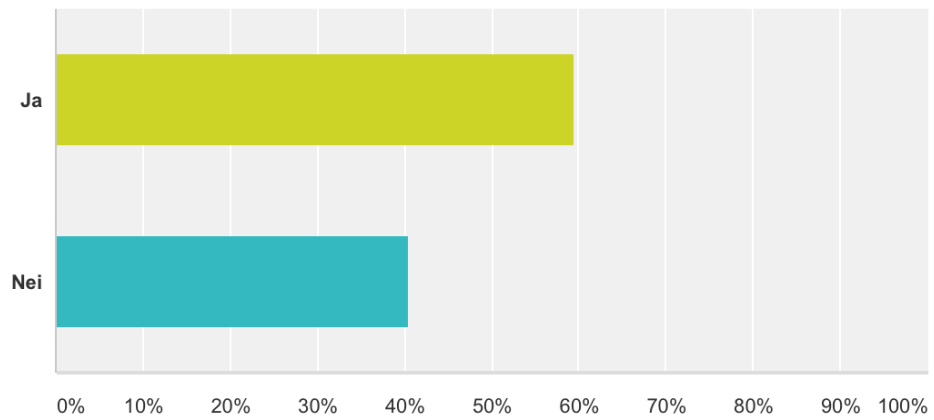
**Appendix 6: Web-based survey, results**





## Har du opplevd belastningsskader i forbindelse med utøving av fiolin?

Answered: 42 Skipped: 5

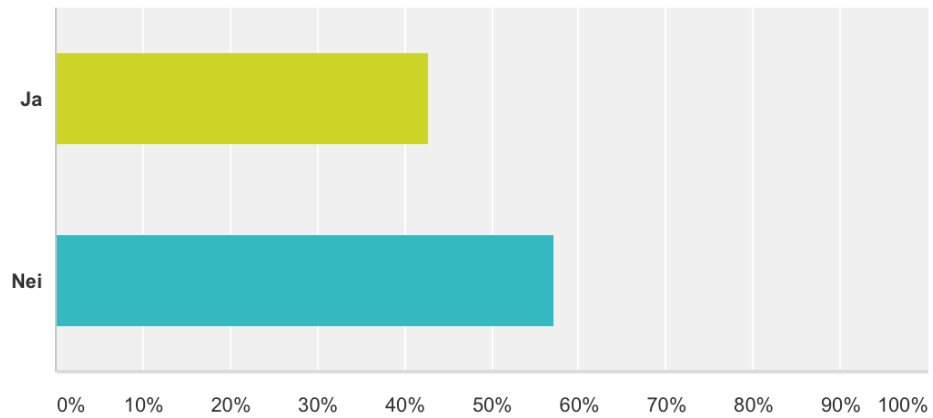


Answer Choices	Responses
▼ Ja	59.52% 25
▼ Nei	40.48% 17
Total	42

[Comments \(24\)](#)

### Får du eller har du fått behandling for belastningsskader i forbindelse med utøving av fiolin?

Answered: 42 Skipped: 5

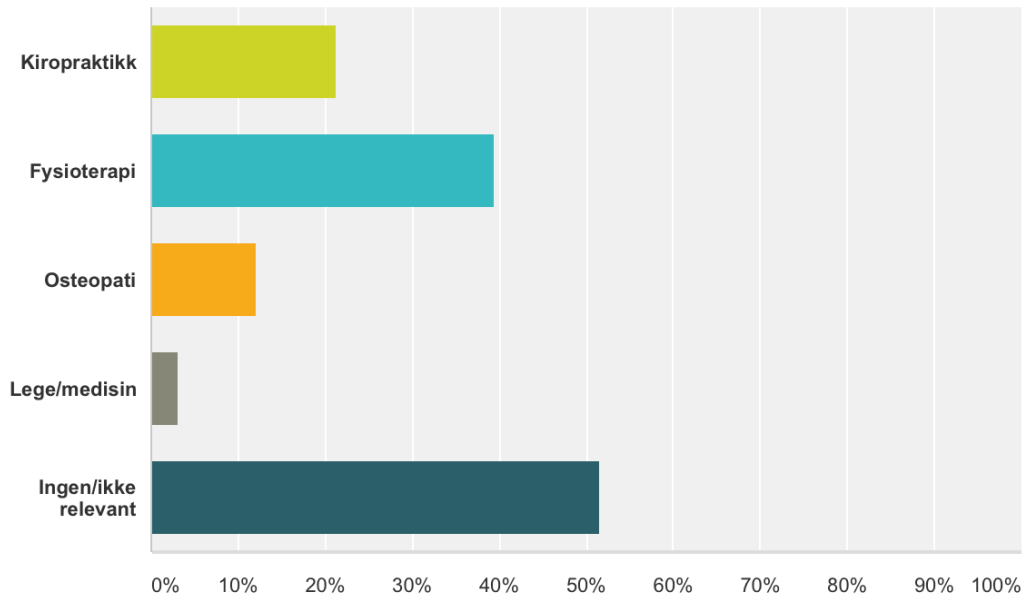


Answer Choices	Responses
▾ Ja	42.86% 18
▾ Nei	57.14% 24
Total	42

[Comments \(18\)](#)

## Hva slags behandling har du fått?

Answered: 33 Skipped: 14



Answer Choices	Responses
▼ Kiropraktikk	21.21% 7
▼ Fysioterapi	39.39% 13
▼ Osteopati	12.12% 4
▼ Lege/medisin	3.03% 1
▼ Ingen/ikke relevant	51.52% 17

Total Respondents: 33

[Comments \(10\)](#)

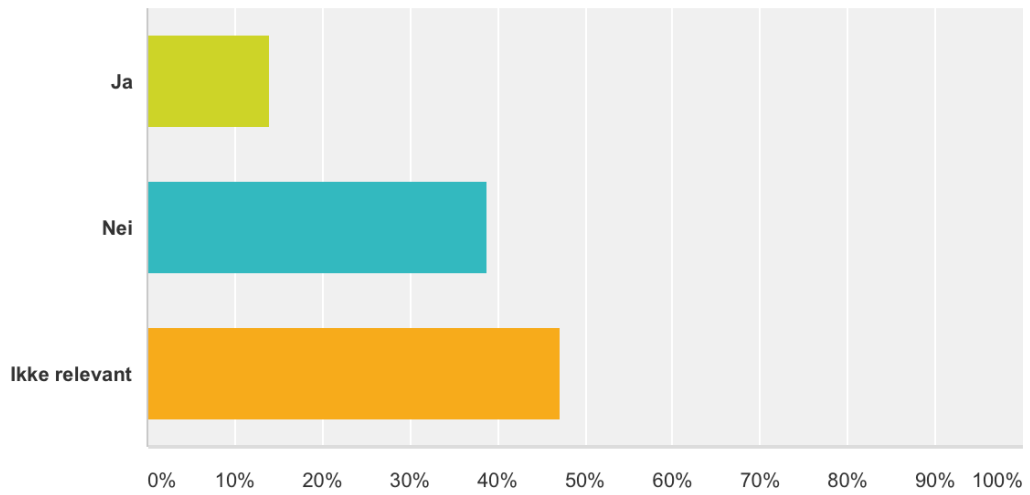
## Hvilken behandlingsmetode fungerte best for deg, og hvorfor?

Answered: 24 Skipped: 23

Answer Choices		Responses	
Kiropraktikk	Responses	16.67%	4
Fysioterapi	Responses	25.00%	6
Osteopati	Responses	0.00%	0
Lege/medisin	Responses	8.33%	2
Annet (spesifiser)	Responses	29.17%	7
Ikke relevant	Responses	41.67%	10

## Har du byttet fra én behandlingsmetode til en annen?

Answered: 36 Skipped: 11



Answer Choices	Responses
▾ Ja	13.89% 5
▾ Nei	38.89% 14
▾ Ikke relevant	47.22% 17
Total	36

[Comments \(6\)](#)

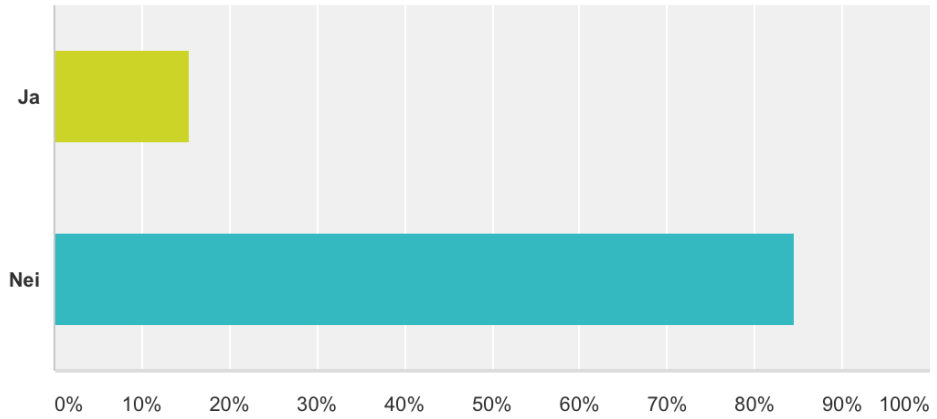
Q7

Customize

Export ▾

## Har du forsøkt Alexander-teknikk som behandlingsmetode og/eller forebyggende metode?

Answered: 39 Skipped: 8



Answer Choices	Responses
▼ <b>Ja</b>	15.38% 6
▼ <b>Nei</b>	84.62% 33
Total	39

[Comments \(7\)](#)

## **Appendix 7: Web-based survey, comments**

### **Question 2 (Have you experienced strain injuries related to playing the violin?)**

If yes, comment:

Inget långvarigt, men då och då ont i axlar och nacke.

1/17/2017 9:57 AM

Tendonitis i venstre håndledd

1/16/2017 2:55 PM

tendinit i venstre skulder

1/16/2017 11:30 AM

vondt i skuldre og nakke.

1/8/2017 8:43 PM

Seneskjedefbetennelser skuldre, fingre, rygg og nakkeplager

1/4/2017 10:29 AM

Skulder og nakke

12/22/2016 6:59 PM

Smerte i musklene mellom skulderbladene

12/22/2016 1:47 PM

Lett, begynnende senebetennelse i forbindelse med et 3 ukers orkesterkurs

12/21/2016 10:37 PM

Senebetennelse

12/21/2016 10:31 PM

Senebetennelse, vonde skuldre og rygg

12/21/2016 9:03 PM

Muskelbetennelse

12/21/2016 6:14 PM

Betennelse i skulder

12/21/2016 5:49 PM

senebetennelse i begge armene

12/21/2016 5:32 PM

Senebetennelse

12/21/2016 4:28 PM

Scenebetennelse i v. håndledd

12/21/2016 3:45 PM

Vondt i nakke/ rygg.

12/21/2016 3:14 PM

Skader i høyre skulder

12/21/2016 2:29 PM

Sterke smerter i skulder/nakke, mest muskulært.

12/21/2016 2:25 PM

Smerter i håndledd og skulderblader

12/21/2016 12:59 PM

Nakke, rygg og skulderproblemer.

12/21/2016 12:01 PM

Skulder og nakke

12/21/2016 10:37 AM

Skulder og nakke smerter

12/21/2016 10:33 AM

Jeg har som terapauten min kalte "S"-rygggrad som kan føre til belastning i øvre ryggrad. Knuter i ryggmusklaturen som ble smertefullt og til slutt gikk utover armene(de ble numne og det begynte å prikke i fingrene). Jeg dro til Finland til en musikkterapeut som spesialiserte seg på belastningsskader for musikere. Hun ga meg noen uttøyningsøvelser, samt rådet meg om å gjøre autentisk yoga.

12/20/2016 10:53 PM

Senebetennelse i høyre arm

12/20/2016 10:18 PM

**Question 3** (Do you receive or have you received treatment for strain injuries related to playing the violin?)

If no, did you do anything special to avoid injuries?

Jeg trener tre fire ganger i uka, også til håndnene.

1/16/2017 10:49 PM

Går jevnlig til massasje

1/15/2017 8:24 PM

Yoga



1/5/2017 3:13 PM

Trener regelmessig. Kondisjonstrening og noe styrke.

1/3/2017 9:19 AM

Riktig buegrep, avslappet og balansert kroppsholdning, bruk av bevisst pust

12/22/2016 10:25 PM

Det gikk over av seg selv ved at jeg spilte mindre.

12/21/2016 10:37 PM

Nei

12/21/2016 9:03 PM

Har kanskje ikke presset meg så langt som andre

12/21/2016 6:45 PM

Har brukt stekkeøvelser for å unngå problemer senere.

12/21/2016 6:14 PM

Trening

12/21/2016 5:49 PM

Har i periode vært sykemeldt, bruker aktivt støttebandasje og har blitt anbefalt lbuxkurer jevnlig for å prøve å hjelpe det.

12/21/2016 4:28 PM

Tatt det med ro i perioder der jeg har hatt vondt

12/21/2016 3:45 PM

Tøye ut venstrehånden ordentlig og ta pauser når kroppen sier fra

12/21/2016 2:29 PM

Det hjelper stort sett å roe litt ned på spillingen, og evt få noen til å gi meg en god og dyp massasje. Ingen behov for mer oppfølging enn dette når jeg ikke spiller mer.

12/21/2016 2:25 PM

Trening

12/21/2016 12:01 PM

Kiropraktor, osteopat, naprapat, fysioterapi. Samt å trene svømming for å myke opp og å styrke musklene

12/21/2016 10:37 AM

Ikke spilt så mye at det har gitt meg plager. Dette er jo en hobby!!! I tillegg er jeg mye fysisk aktiv og forebygger på den måten.

12/21/2016 10:29 AM

Les ovenfor! Ja, jeg fikk behandling i Helsinki. Ikke i form av medisin, men øvelser og positur.

12/20/2016 10:53 PM

#### **Question 4 (What kind of treatment did you receive?)**

**Other:**

Massage

1/17/2017 9:57 AM

Akupunktur

1/16/2017 2:55 PM

Naprapat

1/16/2017 12:53 PM

Psykomotorisk terapi, autogen trening, Alexanderteknikk

1/4/2017 10:29 AM

Massasje

12/22/2016 6:59 PM

Muskelterapi

12/21/2016 6:14 PM

Var på et møte med fysioterapeut, han sa at det eneste som hjalp var å holde armen i ro.

12/21/2016 4:28 PM

Brukte å tøyе håndleddet for å lindre smertene

12/21/2016 3:45 PM

naprapat

12/21/2016 12:59 PM

Spesialterapeut innen musikk

12/20/2016 10:53 PM

#### **Question 5 (What method of treatment was best for you, and why?)**

**Chiropractic:**

løser opp musklene, men hjelper ikke i lengden dersom man ikke passer på å bevege seg og trene.

1/8/2017 8:43 PM

Fordi det var dette som gjorde at jrg ble bedere

12/22/2016 6:59 PM

Fikk øvelser som fungerte bra i sammenheng med kiropraktor

12/21/2016 10:33 AM

Kiropraktikk var det siste jeg prøvde, og det som tok knekken på senebetennelsen for godt. I allefall frem til nå!

12/20/2016 10:18 PM

### **Physiotherapy:**

Best diagnostering

1/16/2017 12:53 PM

Langsiktig behandling, massasje, mobilisering, elektroterapi

1/4/2017 10:29 AM

Det er det eneste jeg har prøvd, men det ble bedre så derfor har det ikke vært nødvendig å oppsøke annen hjelp

12/22/2016 1:47 PM

Fysioterapi hjalp meg lite

12/21/2016 10:31 PM

Fungerer best over lengre tid, pga. treningsopplegg etter endt behandling.

12/21/2016 3:14 PM

Eneste kategori jeg har benyttet meg av.

12/20/2016 10:53 PM

### **Doctor/medication:**

smertestillende

1/16/2017 12:53 PM

kortison virket i kort tid

1/16/2017 11:30 AM

### **Other:**

Regelbunden massage tror jag på

1/17/2017 9:57 AM

Ingen ting har hjulpet. Måte bare lerne meg å spille litt annerledes, mindre og ta masse tid uten å spille å være frisk

1/16/2017 2:55 PM

De forskjellige behandlingstilbudene er bra for hver sin skadetype belastningstype.

1/16/2017 12:53 PM

Bevisstgjøring muskelbruk, kunnskap om ergonomi

1/4/2017 10:29 AM

Muskelterapi

12/21/2016 6:14 PM

naprapat hjalp litt, har ikke prøvd noe annet

12/21/2016 12:59 PM

Ev. Alexander-teknikk/tinami-teknikk

12/20/2016 10:53 PM

**Not relevant:**

Fordi lykkelig hadde jeg ingen problem så langt.

1/16/2017 10:49 PM

ja

1/3/2017 9:19 AM

Å trene styrke og klatre har hjulpet meg i stor grad.

12/21/2016 10:31 PM

Ikke relevant

12/21/2016 9:03 PM

I

12/21/2016 5:49 PM

Har ikke fått annen behandling enn å bli tipset om å bruke ibux mot inflammasjon

12/21/2016 3:45 PM

Klarer meg selv.

12/21/2016 2:25 PM

X

12/21/2016 1:54 PM

.

12/21/2016 12:01 PM

Alt har fungert til sin tid.

12/21/2016 10:37 AM

**Question 6** (Have you switched from one method of treatment to another?)

If yes, what did you switch to/from?

Fysio til akupunktur

1/16/2017 2:55 PM

Spiller ikke så mye lenger, men strekkeøvelser og yoga virker forebyggende.

12/21/2016 6:14 PM

Fra kiropraktikk til fysioterapi.

12/21/2016 3:14 PM

Tror på variasjon i behandling og ikke minst forebygging. Å trene opp muskulatur til å tåle belastninga det er å øve i timer hver dag.

12/21/2016 10:37 AM

Fra fysioterapi til kiropraktor

12/21/2016 10:33 AM

Byttet fra fysioterapi til kiropraktikk.

12/20/2016 10:18 PM

**Question 7** (Have you tried Alexander Technique as a method of treatment and/or prevention of strain injuries?)

If yes, how did you experience this? Did it have a treating or preventing effect?

Har brukt det i forbindelse med ryggproblem som har ikke så mye med spilling å gjøre.

1/16/2017 2:55 PM

Jeg tror at Alexanderteknikk er noe alle musiker skulle være optatt med i mer eller mindre måte. Kan forebygge skader. Når man får mer frihet i bevegelsene er det også positivt for klang og tekniske problemer. Skulle være en del av utdanning.

1/16/2017 11:30 AM

Forebyggende

1/4/2017 10:29 AM

Jeg har ikke forsøkt Alexander-teknikk, men jeg har forsøkt timani-metoden med Tina Margareta Nilssen og syntes det har hjulpet.

12/21/2016 10:31 PM

Det hjalp ikke

12/21/2016 2:29 PM

Bare prøvd et par ganger. Men sikkert greit og kunne litt om det for å være bevisst på avslapningsteknikker osv.  
12/21/2016 12:01 PM

Jeg har tatt i bruk enkelte tips som "å slappe av i midjen". Ikke hold pusten, "pust med magen", svikt i knærne og bred benstilling.  
12/20/2016 10:53 PM

## Appendix 8: Web-based survey, example of individual response

**COMPLETE**

**Respondent #47**

**PAGE 1**

**Q1: Utøver du fiolin som amatør, student eller profesjonell?**

Profesjonell

**PAGE 2**

**Q2: Har du opplevd belastningsskader i forbindelse med utøving av fiolin?**

Ja

---

**Hvis ja, hvilke?** Inget långvarigt, men då och då ont i axlar och nacke.

**Q3: Får du eller har du fått behandling for belastningsskader i forbindelse med utøving av fiolin?**

Ja

**Q4: Hva slags behandling har du fått?**

Fysioterapi

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Osteopati

Annet Massage

**Q5: Hvilken behandlingsmetode fungerte best for deg, og hvorfor?**

**Annet (spesifiser)** Regelbunden massage tror jag på

**Q6: Har du byttet fra én behandlingsmetode til en annen?**

Nei

**Q7: Har du forsøkt Alexander-teknikk som behandlingsmetode og/eller forebyggende metode?**

Nei