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## Effects of Exercise on an American Sign Language Interpreter: Work Production, Mental Health and Physical Health

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**Effects of Exercise on an American Sign Language Interpreter: Work Production, Mental Health and  
Physical Health**

Sierra Greiner

Western Oregon University



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**WE, THE UNDERSIGNED MEMBERS OF THE GRADUATE FACULTY OF WESTERN OREGON UNIVERSITY HAVE EXAMINED THE ENCLOSED**

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Action Research Project Title:

Effects of Exercise on an American Sign Language Interpreter: Work Production, Mental Health and Physical Health

\_\_\_\_\_

\_\_\_\_\_

Graduate Student: Sierra Griener

Candidate for the degree of: Master of Arts in Interpreting Studies

*and hereby certify that in our opinion it is worthy of acceptance as partial fulfillment of the requirements of this master's degree.*

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## EFFECTS OF EXERCISE ON INTERPRETERS

### **Acknowledgments**

During this action research project, I experienced many major life transitions. I changed course in what I want to do with my profession. I switched from working in video relay services to working with the Corvallis, Oregon school district. I also got engaged and began planning a wedding. I would first like to thank my family, including my parents, John and Dina, and my brother, Alex, who have always encouraged me to follow my passions and made me feel as though I could accomplish anything I set my mind to. I would also like to thank my soon-to-be husband, Calvin, who has been supportive of me throughout graduate school and has been my biggest source of emotional support throughout this journey.

I would also like to give a special thank you to the faculty at Western Oregon University. I have attended classes with Elisa Maroney since before the start of my interpreter training program. Dr. Maroney has always been a role model to me, and I am grateful to have gone through this journey with her. Erin Trine has been a significant inspiration for me since my undergraduate program and has taught me how to become a better professional in the field of interpreting. Amanda Smith has given me creative outlets to focus on when I have felt overwhelmed, and her words of encouragement have helped me get through this program. Finally, thank you to the ladies at the writing center, Rosario and Erica, for giving me different perspectives on my paper and giving me the best advice on how I can improve my writing. I truly would not be where I am today had not been for the support of all of these amazing individuals along the way.

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## **Abstract**

Mental burnout and physical fatigue are common in American Sign Language interpreters. In this action research project, I studied the relationship between exercise and one interpreter's mental and physical strain and job performance. Exercise has always been my main source of self-care. I wanted to take a deeper look at the scientific reasoning behind why a regular exercise routine can lead to a clearer working mind. I conducted research on myself over 20 weeks using a log of my daily workouts, weekly work samples, and weekly journal entries, focusing on how I was feeling mentally and physically. This study allowed me to see how my weekly exercise routine has had a direct positive impact on my work and my mental and physical health.

*Keywords:* exercise, mental burnout, ASL interpreters, mental health, physical health

## EFFECTS OF EXERCISE ON INTERPRETERS

### **Chapter 1: Introduction**

Considering burnout is prominent in the interpreting field (Adigun, 2019; Schwenke, 2012), finding a self-care routine is crucial for working interpreters to reduce or prevent burnout. Not only is burnout common in the interpreting field, physical injury (Feuerstein et al., 1997) and mental strain are also a concern for ASL interpreters (Lor, 2012; Knodel, 2018). Therefore, having a regular exercise routine may be an effective method to reduce not only burnout, but also and physical injury and mental strain.

### **Background**

I graduated with my Bachelor of Science in American Sign Language (ASL)/English Interpreting from Western Oregon University in June of 2020. In my undergraduate program, the impacts of self-care and burnout in the field of interpreting were emphasized by my professors. This led me to explore the types of self-care that benefited me the most over the duration of my undergraduate program. The self-care method that I utilized and enjoyed the most was a regular exercise routine. I noticed that when I had a regular exercise routine, I was able to better focus on my work with improved clarity and I felt more motivated in general.

Once I graduated and entered the field of interpreting, I found it difficult to maintain my regular exercise routine. In my first year of working in the field, I experienced signs of mental burnout as well as physical injury, primarily wrist pain. I could not help but wonder if utilizing a proper exercise routine would have made an impact on my daily work as an interpreter as well as my mental and physical health.

### **Statement of the Problem**

As an ASL interpreter, it can be difficult to prioritize self-care, especially in the form of exercise. Considering that burnout and physical injury (e.g., wrist pain) are common in ASL



interpreters (Feuerstein et al., 1997), there is a need for a resolution to decrease the chances of burnout and injury in the field. There is currently a critical shortage of qualified interpreters throughout Canada and the United States (Swartz, 2008), and burnout may be a factor that contributes to this national interpreter shortage (Jackman, 1999). With this in mind, decreasing burnout in the field could allow for more successful interpreters as well as more interpreters in the field in general. Studies (Naczenski et al. 2017; Crezee et al. 2014) have shown that physical activity is effective in reducing burnout; however, what duration and frequency of physical activity is most effective remains unknown.

Physical pain may also be a factor in the interpreter shortage. According to Feuerstein et al. (1997), occupational upper extremity disorders continuously affect worker's health and production. These disorders, while not disabling initially, can, over time, lead to disability. Considering ASL interpreters need their bodies to work, the injuries interpreters are susceptible to put them at risk of shortening their careers. Exercise has the potential to strengthen an individual's muscles and increase endurance; therefore, it may be beneficial for interpreters to utilize exercise as a form of injury prevention.

### **Purpose of the Study**

Considering the gap in the literature concerning the optimal frequency and duration of exercise needed to benefit a working interpreter (Naczenski et al., 2017), the goal of this study was to determine the optimal weekly frequency and duration of an exercise routine for myself as an ASL interpreter to receive benefits regarding work production and mental and physical health. Finding the minimal and maximum amount of weekly exercise that can benefit an interpreter's injury prevention and mental clarity at work may reduce stress and lead to more successful and happy interpreters in the field. My hypothesis for this study was that a higher average weekly

frequency, approximately five days in one week, and a higher average duration, approximately 45–60 minutes per day, of exercise will lead to an increase in work production and mental and physical health.

### **Theoretical Framework**

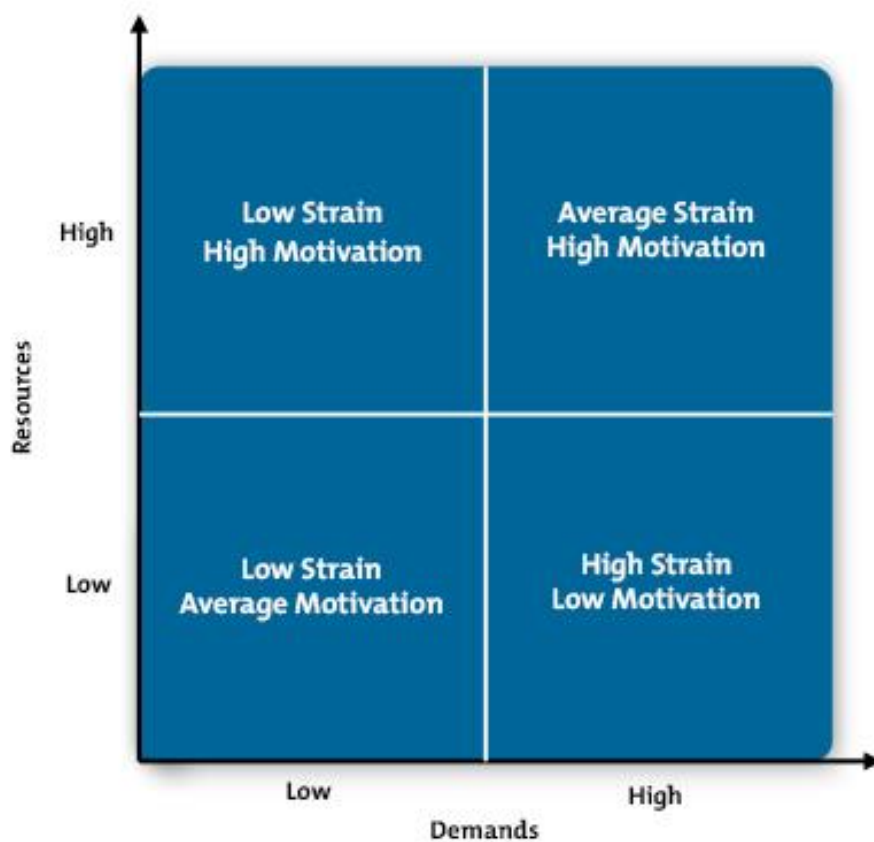
For this study, Caspersen et al.'s (1985) definition of exercise was used when determining how to log my exercise minutes: “exercise is physical activity that is planned, structured, repetitive, and purposive in the sense that improvement or maintenance of one or more components of physical fitness is an objective” (p. 128). Exercise is a subset of physical activity; however, the differentiating factors are that exercise is planned and structured and includes an objective to improve physical fitness (Caspersen et al., 1985). Therefore, while I may have been physically active throughout the days of the study, exercise was only documented if it followed these attributes.

Considering burnout has a direct correlation to a decrease in job performance (Maslach & Jackson, 1981), the *job demands-resources* (JD-R) model was utilized in this study to examine the relationship between burnout and work production (Bakker et al., 2004). The JD-R model recognizes that each occupation has its own specific burnout risk factors and that these factors can be classified into two categories: *job demands* and *job resources*. *Job demands* refer to “physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort and are therefore associated with certain physiological and/or psychological costs” (Bakker et al., 2004, p. 86). Examples of job demands include “high work pressure, role overload, emotional demands, and poor environmental conditions” (Bakker et al., 2004, p. 86). *Job resources* refer to “physical, psychological, social, or organizational aspects of the job that are (1) functional in achieving

work goals; (2) reduce job demands and the associated physiological and psychological costs; or (3) stimulate personal growth and development” (Bakker et al., 2004, p. 86). The JD-R model (see Figure 1) suggests that when an imbalance exists (more *job demands* and less *job resources*), it can lead to strain on individuals in the working environment (Bakker et al., 2004).

### Figure 1

*Job-Demands Resources Model* (Bakker & Demerouti, 2007)



In Figure 1, the relationships between *job demands* and *job resources* are shown. When *job demands* are high and *job resources* are low, this creates higher levels of strain and low motivation. This can have a direct negative impact on an interpreter's work production and create higher levels of stress. When *job demands* are low and *job resources* are high, this creates less

strain and higher motivation, which can be beneficial for an interpreter's work production and help in the reduction of stress.

The data from my study shows how well I am coping with my *job demands*, such as emotional demands, high work pressure, and so on, based on the JD-R model. This is used to determine if exercise has helped to increase the *job resources* I have readily available. This involves the organizational (production), psychological (mental health) and physical (physical health) aspects of the job.

## Chapter 2: Literature Review

### Burnout and Work Production

Burnout is associated with feelings of mental and physical exhaustion, consisting of a lack of energy, low mood and extreme fatigue (Naczenski et al., 2017). Research shows that burnout in those working in social services can cause the quality of the services being provided to decline (Maslach & Jackson, 1981). This can have serious impacts on a worker's colleagues and the consumers they interact with (Maslach & Jackson, 1981). As a result of a higher demand for and low supply of ASL interpreters, many interpreters have been in situations that are not ideal (i.e., poor working conditions and pay), causing interpreters to become burnt out or to leave the profession (McCartney, 2018).

There are three components of burnout, with emotional exhaustion being the first stage and the main concept of burnout. The other two components are depersonalization and reduced personal accomplishment (Cordes & Dougherty, 1993). For interpreters, depersonalization refers to feeling that one is dehumanizing their clients (Schwenke, 2012). Depersonalization and emotional exhaustion can decrease job satisfaction; therefore, it can be beneficial for interpreters to reduce both in the professional setting (Humphrey, 2015). Reduced personal accomplishment refers to a decline in feelings of "competence and successful achievement in work" (Vercambre et al., 2009, p. 2). It is suggested that reduced personal accomplishment develops from depersonalization and is evoked by emotional exhaustion (Houkes et al., 2011).

A study conducted in Africa found that burnout is inevitable for sign language interpreters (Adigun, 2019). According to Schwenke (2012), there is a lack of knowledge on coping strategies for burnout that successful interpreters can use. Research also shows that the number of hours and years an individual has worked are not related to burnout (Schwenke,

2012). This is supported in Humphrey's (2015) study, which found that the type of employment (i.e., educational setting, video relay service) is also not related to burnout. In Schwenke et al.'s (2014) study, it was found that maladaptive perfectionism can cause increased stress, thereby causing higher levels of burnout.

Studies have shown that employees who experience burnout sleep more poorly, have a decrease in cognitive functioning and are at a higher risk for developing cardiovascular diseases (Naczenski et al., 2017). Fortunately, exercise has been associated with better sleep (Kline, 2014), increases in cognitive function (Mandolesi et al., 2018) and is a useful preventative tool for cardiovascular disease (Tian & Meng, 2019). According to Crezee et al. (2014), the effects of exercise, which consist of awareness of the body and relaxation, can help reduce "mild to moderate levels of burnout and trauma" (p. 78). Naczenski et al. (2017) also found convincing evidence that exercise can reduce burnout. However, the duration and frequency of physical activity that may be most effective remains unknown. Thus far, studies have only found that being physically active once or twice a week for four to 18 weeks may be effective in preventing and reducing burnout (Naczenski et al., 2017).

Studies show that exercise can improve learning and memory as well as increase hippocampal BDNF expression (Ruegsegger & Booth, 2017), which can help to reduce a working interpreter's mental strain. Additionally, studies on mice and humans have shown that cardiovascular exercise can create new brain cells (Charles, 2022). This process is called neurogenesis and improves overall brain performance. Studies have also shown that an individual's concentration can improve after 30 minutes of moderate to intense exercise (Loprinzi & Kane, 2015) and that exercise in general can have a positive impact on mental energy (Charles, 2022).

## **Mental Health**

Mental health is a concern for the interpreting field, as “interpreters are frequently emotionally impacted by the traumatic material they interpret” (Lor, 2012, p. i). Because of the highly emotional environment interpreters work in, interpreters are at increased risk for vicarious trauma (Knodel, 2018). According to Mehlmann-Wicks (2022) vicarious trauma is “a process of change resulting from empathetic engagement with trauma survivors. Anyone who engages empathetically with survivors of traumatic incidents, torture, and material relating to their trauma, is potentially affected” (n. p.). It should be noted that vicarious trauma and burnout are not related (Knodel, 2018). Burnout is typically more of a gradual process, while vicarious trauma can occur abruptly without warning (Knodel, 2018). Lai and Heydon’s (2015) study found that among 271 participants, 21.36%, reported that their vicarious trauma had a negative impact on their work as interpreters. Interpreters often remain uneducated on managing the effects of vicarious trauma (Knodel, 2018). However, a variety of literature indicates that self-care can be beneficial in reducing the side-effects of vicarious trauma (Knodel, 2018).

Regular exercise is a recommended form of self-care to help reduce stress (Crezee et al., 2014). There is currently abundant evidence of a correlation between exercise and improved mental health (Landers, 2012). Studies have shown that exercise has the ability to release endorphins, improving one’s mood as well as reducing symptoms of anxiety and depression (Kumar, 2017). Johnson and Feuerstein (2005) state that exercise can help interpreters to view their health in regard to work demands in a more positive way. However, as for exercise and burnout, the optimal duration and frequency of exercise needed to maximize its psychological benefits are unknown (Raglin, 1990).

Rodrigues et al. (2021) found that those who exercise regularly generally feel better about themselves and experience improved psychological well-being. Rodrigues et al.'s (2021) study indicates that the higher the frequency with which an individual exercises, the more likely the individual is to receive positive effects from the workout. In this study, positive effects refer to an improvement of life satisfaction, self-esteem and subjective vitality (Rodrigues et al., 2021). Those who have high subjective vitality are more active and productive, have better coping behaviors and have increased psychological health and well-being (Kawabata et al., 2016). Following a specific exercise routine could allow for more positive effects from the exercise itself (Rodrigues et al., 2021). This can allow for an improvement to one's well-being, life satisfaction and self-esteem (Rodrigues et al., 2021).

### **Physical Health**

It is important for sign language interpreters to implement strategies to reduce health-related disorders that may occur as a result of their interpreting duties (Adigun, 2019). It has already been determined that exercise is beneficial for both one's mental health and one's physical health (Warburton & Bredin, 2019). Considering interpreters are often required to be in awkward positions while performing forceful movements for an extended period of time with limited rest, interpreters are at a higher risk for musculoskeletal disorders resulting from work (Johnson & Feuerstein, 2005). Supporting this data, one study found that among 40 interpreters attending a regional Registry of Interpreters for the Deaf conference, 87.5% stated that they have experienced at least two symptoms of repetitive stress injury (Stedt, 1992). Similarly, another study showed that 73.6% of the participating interpreters experienced pain, aches, stiffness, burning, numbness or tingling in the neck region, while 69.6% experienced symptoms in the hand or wrist area (Feuerstein et al., 1997).



Exercise has been shown to increase bone mineral density in individuals who are physically active compared to those who are sedentary (Hoffman, 2017), which is a critical factor in preventing osteoporosis (Goolsby & Boniquit, 2016). Studies have shown exercise to cause ligaments and tendons to increase in both size and strength (Hoffman, 2017). This could be the result of an increase in the collagen within the connective tissue. This can be beneficial for injury prevention in interpreters, as “connective tissue provides the support or framework of the body” (Hoffman, 2017, p. 1). A decrease in muscle mass and strength can result in an individual’s functional ability to be negatively affected as well as increase the risk of fractures (Hoffman, 2017). Forms of exercise such as resistance training can help increase both muscle mass and strength (Hoffman, 2017). This is important in preventing injury, as when an individual’s functional ability improves, their risk of injury is highly reduced (Hoffman, 2017). Resistance training is also beneficial for reducing the risk of musculoskeletal injuries that are correlated to muscle imbalance (Hoffman, 2017). This is specifically important for ASL interpreters, considering they are at a higher risk for musculoskeletal injuries (Johnson & Feuerstein, 2005).

Johnson and Feuerstein (2005) found in their study that many interpreters use exercise to prevent injury on the job. In fact, Humphrey (2015) found that exercise was the number one most used source of physical self-care among the participants of the study (49.4% out of 76 participants). It was also shown that those who used exercise as a form of physical self-care had experienced fewer instances of physical injury, which indicates that exercise is effective in preventing physical injury (Humphrey, 2015).

### **Chapter 3: Methodology**

A regular exercise routine may impact how an individual feels as well as the quality of work they produce. To understand how exercise can positively affect interpreting work as well as an interpreter's mental and physical health, this study examined the relations between these variables and an average amount of weekly exercise. Exercise in this study was defined as intentional efforts to exercise (Caspersen et al.'s 1985), such as weightlifting, hiking, running and so on. I intended to document the different types of exercise being performed; however, there was not enough variety to significantly impact the results.

#### **Design**

For this action research project, I conducted the study on myself. Interpreter samples were taken weekly. Each sample consisted of five to ten minutes of English to ASL interpreting work. I utilized videos of lectures, although the subject matter varied. I used YouTube as my source of videos and Loom to film the interpretations. Following the work samples, I used the Loom description box to journal how I felt about the sample, my thought process throughout the sample and how I felt mentally and physically. Data was collected from the interpreted samples, consisting of omissions, skewing of the message, and unclear production. This data was documented on a Google Doc using tables for each work sample. Throughout the duration of this study, I also logged my daily exercise routine on my iPhone notes app. I used a table in the notes app to catalogue the types of exercise I performed, such as cardio or weightlifting, and the amount of time spent on the exercise.

#### **Sample**

I used an idiographic approach to my study, as I wanted to gain an in-depth understanding of how my mind and body react to a regular exercise routine in correlation to my work

production as well as my mental and physical health. I began taking weekly work samples and logging my exercise on January 29th, 2022, and finished on June 18th, 2022. Altogether, data was collected for 20 weeks. While this data was being collected, I was a student in Western Oregon University's master's program. I had one year of experience as a full-time video relay service interpreter and began working as a full-time K–12 interpreter two months prior to the end of the study. I also obtained a bachelor's degree in Western Oregon University's interpreter training program prior to beginning the master's program. While this study was conducted, I was living in Salem, Oregon.

### **Data Analysis**

To identify correlations between the exercises and my sample production and mental and physical health, a weekly summary of each exercise log was compared to my interpreted sample and journaling for that week. DeCarlo et al.'s (2021) thematic analysis was used for this data analysis, and I therefore analyzed my data to find a common theme. I documented key phrases from the journal entries and organized them into three separate categories: *Production*, *Mental Health* and *Physical Health*. The phrases in the *Production* category were *unclear*, *unnatural*, *omissions*, *successful*, *positive endurance*, *negative endurance*, *clear ASL* and *skewing*. The phrases in the *Mental Health* category were *overwhelmed*, *negative focus*, *positive focus*, *energized* and *in control*. The phrases in the *Physical Health* category were *no pain*, *neck pain* and *headache*. The phrases were then divided into two separate categories: *positive* and *negative*. The phrases in the *positive* category were *successful*, *positive endurance*, *clear ASL*, *positive focus*, *energized*, *in control* and *no pain*. The *negative* category consisted of the phrases *unclear*, *unnatural*, *omissions*, *negative endurance*, *skewing*, *overwhelmed*, *negative focus*, *neck pain* and *headache*.

I made a table on a Google Doc for each work sample and made tallies for each time one of the phrases was used in the journal entry for that work sample. I then transferred this data into a bar graph on Microsoft Word to make the data easier to read. A total of six bar graphs were produced: two bar graphs for each of the three categories. One bar graph shows the average number of days of exercise in the week the phrases occurred, and the other shows the average number of minutes of exercise in the week the phrases occurred. I then compared the bar graphs and my work samples to my weekly exercise journal. I studied the data to look for patterns between the frequency and duration of exercise throughout the week, my work production and my self-reflections.

## Chapter 4: Results and Discussion

Twenty weeks of data were analyzed, focusing on the average frequency (days) of exercise and average duration (minutes) of exercise per week. The range of exercise throughout the study was 0 days and 0 minutes in a week to 5 days and 190 minutes in a week. It should be noted that the 190 minutes were not logged for the same week as the 5 days, as the minutes per day varied. This is the reasoning behind the days and minutes of exercise being analyzed separately as well as for differentiating between the frequency and duration of exercise per week.

### Findings

Under the *production* category, the phrase *unclear* averaged a total of 0 days and 0 minutes of exercise per week, *unnatural* averaged 1 day and 45 minutes, *omissions* averaged 0.8 days and 33 minutes, *successful* averaged 2.75 days and 116.25 minutes, *positive endurance* averaged 3.33 days and 125 minutes, *negative endurance* averaged 1.66 days and 70 minutes, *clear ASL* averaged 2.5 days and 97.5 minutes and *skewing* averaged 1.5 days and 60 minutes (see Figures 2 and 3). Under the *mental health* category, the phrase *overwhelmed* averaged a total of 1 day and 45 minutes of exercise per week, *negative focus* averaged 1.5 days and 53.75 minutes, *positive focus* averaged 2.5 days and 90 minutes, *energized* averaged 4 days and 150 minutes and *in control* averaged 3 days and 112.5 minutes (see Figures 4 and 5). Under the *physical health* category, the phrase *no pain* averaged a total of 2.833 days and 107.5 minutes of exercise per week, *neck pain* averaged 0 days and 0 minutes and *headache* averaged 1 and 45 minutes (see Figures 6 and 7).

Several themes were identified in the data regarding the phrases that correlate to the average frequencies and durations of exercise. I decided to group the phrases into categories based on the frequency and duration averages. The data shows that the phrase *unclear* in the

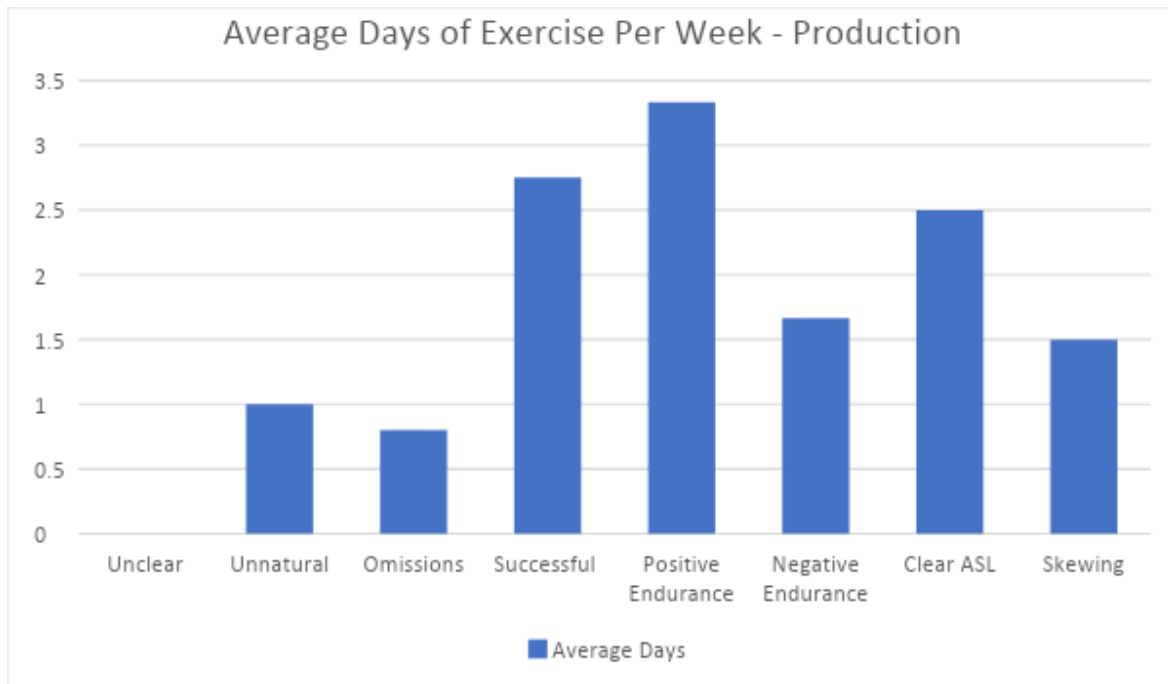
*Production* category and the phrase *neck pain* in the *Physical Health* category correlated to an average of 0 days and 0 minutes of exercise per week. The phrases *unnatural*, *omissions*, *negative endurance* and *skewing* in the *Production* category, *overwhelmed* and *negative focus* in the *Mental Health* category and *headache* in the *Physical Health* category correlated to an average of 0.8 to 1.66 days and 33 to 66.66 minutes of exercise per week, averaging 40 minutes of exercise per day. The phrases *successful* and *clear ASL* in the *Production* category, *positive focus* in the *Mental Health* category and *no pain* in the *Physical Health* category correlated to an average of 2 to 2.833 days and 75 to 116.25 minutes of exercise per week, averaging 39 minutes of exercise per day. The phrase *positive endurance* in the *Production* category and *energized* in the *Mental Health* category correlated to an average of 3 to 4 days and 125 to 150 minutes of exercise per week, averaging 39 minutes of exercise per day.

When examining the bar graphs, similar findings can be identified for the average frequency (days) and duration (minutes) for each category. As such, the days and minutes bar graphs to follow the same shape for each category (*Production*, *Mental Health* and *Physical health*). For example, the bar graph in Figure 2 shows that in the *Production* category, the phrase *positive endurance* is associated with the highest average number of days, while the phrase *unclear* is associated with the lowest average number of days. Simultaneously, the bar graph in Figure 3 also shows that the phrase *positive endurance* is associated with the highest average number of minutes, while the phrase *unclear* is associated with the lowest average number of minutes.

Figures 2 and 3 show that the phrase *unclear* paralleled with the lowest average number of days and minutes of exercise per week, followed by *omissions*, *unnatural*, *skewing*, *negative endurance*, *clear ASL*, then *successful*. *Positive Endurance* was associated with the most average number of days and minutes of exercise per week.

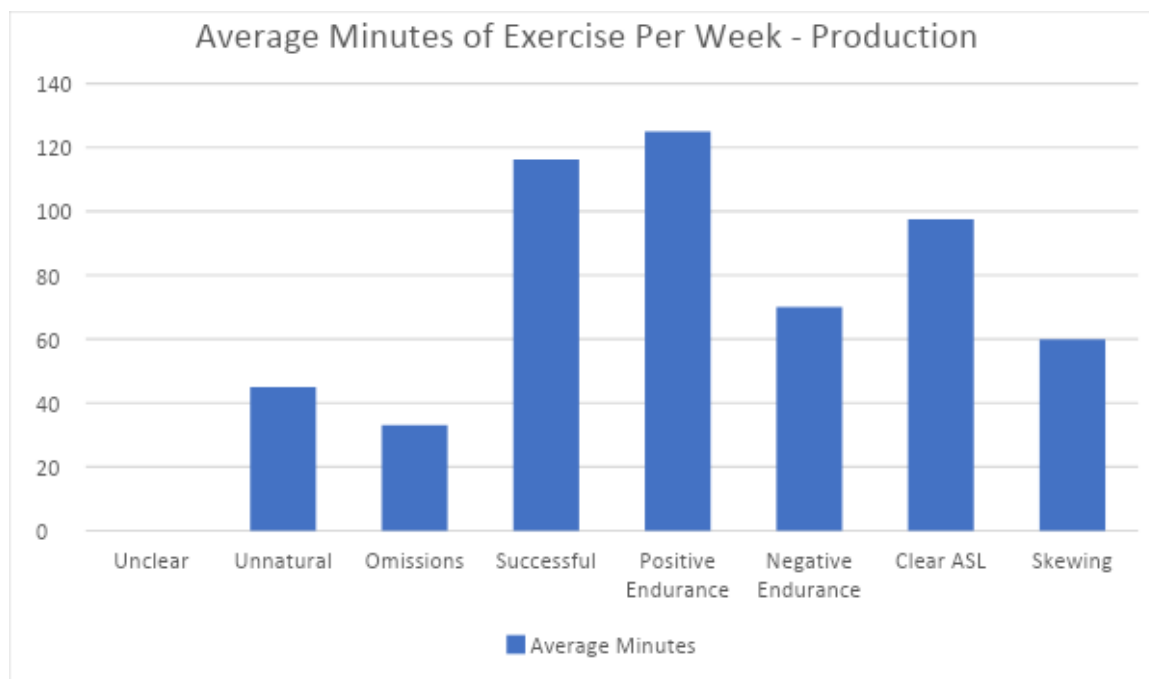
## Figure 2

*Average Days of Exercise Per Week – Production*



**Figure 3**

*Average Minutes of Exercise Per Week – Production*

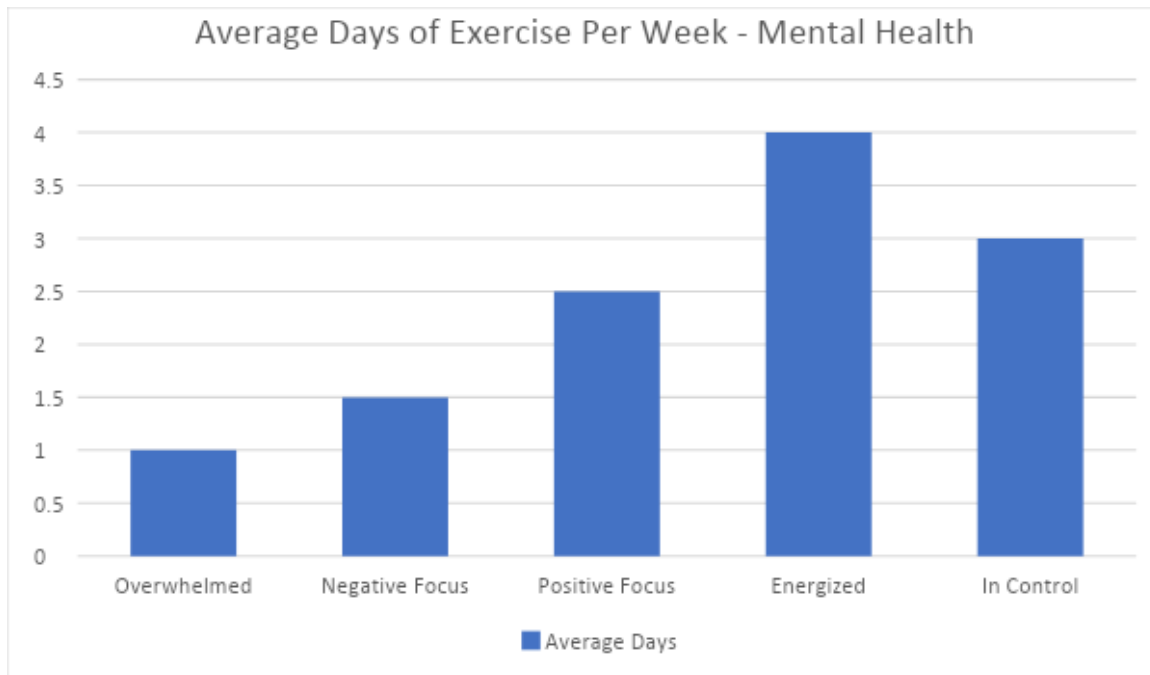


Figures 4 and 5 show that the phrase *overwhelmed* paralleled with the lowest average number of days and minutes of exercise per week, followed by *negative focus*, *positive focus*, *in control*. *Energized* was associated with the most average number of days and minutes of exercise per week.

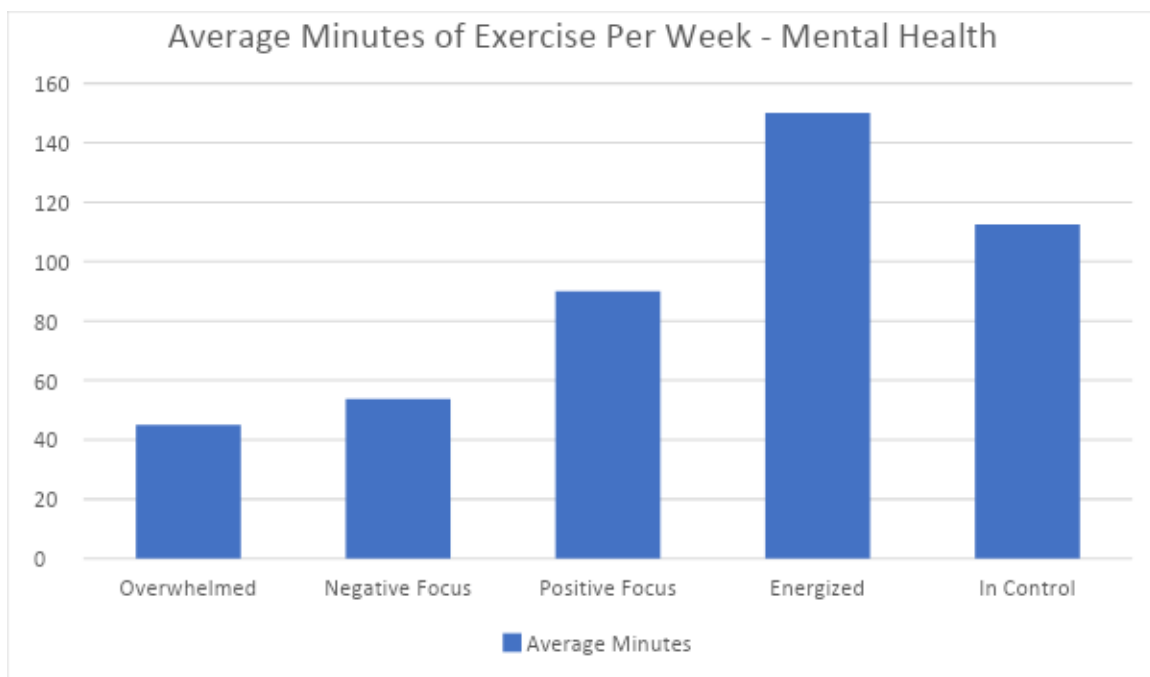


**Figure 4**

*Average Days of Exercise Per Week – Mental Health*

**Figure 5**

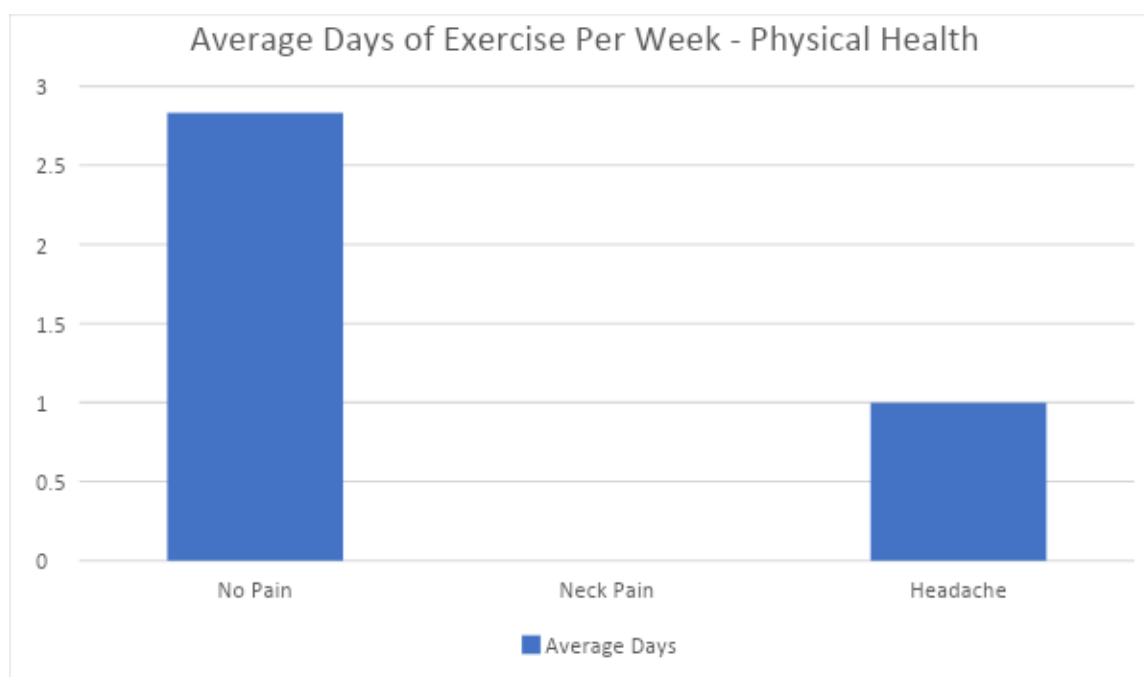
*Average Minutes of Exercise Per Week – Mental Health*



Figures 6 and 7 show that the phrase *neck pain* paralleled with the lowest average number of days and minutes of exercise per week with a total of zero days and minutes, meaning, the only time neck pain occurred was when zero exercise was performed for the week. Followed by *headache*, then *no pain* was associated with the most average number of days and minutes of exercise per week.

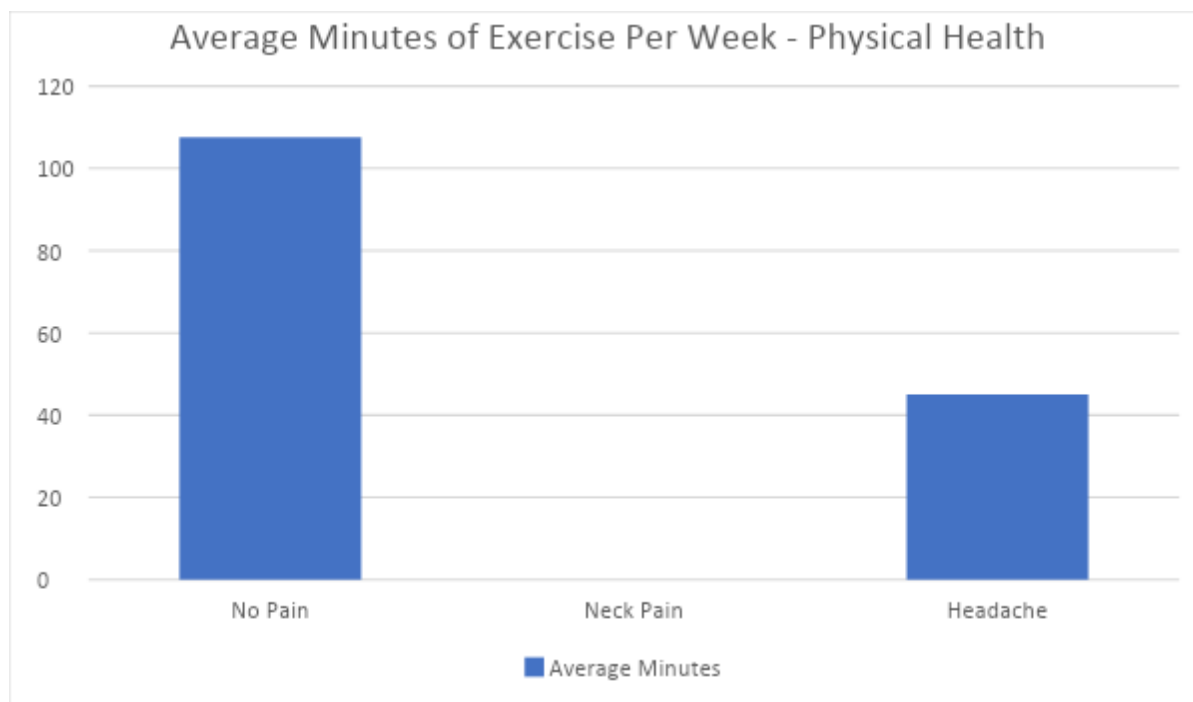
**Figure 6**

*Average Days of Exercise Per Week – Physical Health*



**Figure 7**

*Average Minutes of Exercise Per Week – Physical Health*



## Discussion

After conducting the research, my predictions were that a higher frequency and duration of exercise in one week would lead to an increase in work production and mental and physical health. Overall, the optimal exercise frequency and duration suggested by the study are lower than I originally hypothesized, as I originally hypothesized that five days of exercise per week and 45–60 minutes of exercise per day would be optimal in terms of benefiting a working interpreter. However, in this study, I found that an average of 2 to 2.833 days of exercise and 39 minutes of exercise per day could be the optimal amount for a working interpreter.

Beginning at an average of zero days of exercise and zero minutes of exercise per week, the phrases found in this category were *unclear* and *neck pain*, meaning these two phrases did not occur when any amount of exercise was performed for the week. This shows that the *job*

*resources* from the JD-R model (Bakker et al., 2004) were low, as the phrase *unclear* in the *Production* category suggests low organizational resources, and the phrase *neck pain* suggests low physical resources. Having less *job resources* and higher *job demands* indicates that there was more strain when no exercise was conducted for the week.

The average frequency of 0.8 to 1.66 days of exercise and the average duration of 33 to 66.66 minutes of exercise per week resulted in the most negative phrases for any frequency and duration averages. This suggests that this frequency and duration of exercise does not provide benefits for a working interpreter, as the data shows that I was unable to adapt to the *job demands*. The *job resources* from the JD-R model (Bakker et al., 2004) were lacking in the organizational category, indicated by the phrases *negative endurance* and *skewing*; in the psychological category, indicated by the phrases *overwhelmed* and *negative focus*; and in the physical category, indicated by the phrase *headache*.

The data suggests that the benefits of exercise may begin at an average of 2 to 2.833 days and 75 to 116.25 minutes of exercise per week. There is considerable evidence of this being the optimal average amount of exercise per week. For these frequency and duration averages, the most positive phrases occurred, while also resulting in zero negative phrases. This correlates with the literature, as it is suggested that exercising once or twice a week for 4 to 18 weeks can be beneficial to decreasing burnout, which leads to better work production and improved mental health (Naczenski et al., 2017). Considering this study took place over a span of 20 weeks, the data exceeds the 4 to 18 week range. The difference in my study is that I needed to exercise for an average of 2 days per week to receive the benefits of decreased symptoms of burnout rather than 1 day per week. Coping with *job demands* such as emotional demands, increased work pressure, role overload and so on (Bakker et al., 2004) can be beneficial in decreasing the

symptoms of burnout. In this particular data set, the results suggest that I had more *job resources* than *job demands*. This is evident by the phrases *successful* and *clear ASL* in the *Production* category, indicating organizational resources; *positive focus* in the *Mental Health* category, indicating psychological resources; and *no pain* in the *Physical Health* category, indicating physical resources. This suggests that with this frequency and duration of exercise, I was better able to manage high work demands and potential role overload as well as combat the emotional demands of the job (Bakker et al., 2004).

The data also shows that there are benefits to exercising an average of 3 to 4 days per week and 125 to 150 minutes per week, as these frequency and duration averages included the phrases *positive endurance* and *energized*, with no negative phrases. While this frequency and duration did not have as many positive phrases as the frequency of 2 to 2.833 days and the duration of 75 to 116.5 minutes per week, it could indicate that to gain the effects of *positive endurance* and *energy*, it may be beneficial to exercise an average of 3 to 4 days per week and 39 minutes per day. This data set suggests that I was able to better use the *job resources* from the JD-R model and reduce the *job demands* (Bakker et al., 2004). This is indicated by the phrase *positive energy* from the *Production* category, showing a use of organizational resources, and the phrase *energized* from the *Mental Health* category, showing evidence of psychological resources. In this data set, there is no indication of whether physical resources were being used, as none of the phrases from the *Physical Health* category occurred during this average frequency and duration of exercise.

Considering that the two average data sets with only positive phrases had an average of 39 minutes of exercise per day, this study suggests that 39 minutes is the optimal duration of exercise needed to receive benefits. On the other hand, the data set with the most negative

phrases had an average of 40 minutes of exercise per day. This may suggest that the frequency of exercise is more important than the duration of exercise. This theory aligns with the literature, as Rodrigues et al.'s (2021) study shows that exercise frequency is important in regard to increasing the effective response that individuals experience during exercise, resulting in more benefits from the exercise.

Prior to this study, I predicted that 5 days of exercise per week and 45–60 minutes of exercise per day would be the optimal amount of exercise per week to benefit a working interpreter. The data indicates that the frequency and duration of exercise needed to receive optimal benefits were less than I originally predicted. Currently, it is unknown if too much exercise can lead to a decrease in work production and mental and physical health, as the maximum number of days I exercised during this study in 1 week was 5 days, and I did not exceed more than 60 minutes of exercise in a given day. It is also unknown if a certain type of exercise can be more beneficial than another, as during the 20 weeks of this study, I mainly used weightlifting as my form of exercise, while the other forms of exercise (e.g., hiking, cardio) were not conducted frequently enough to make an impact on the data.

## Chapter 5: Conclusion

In this action research project, I examined the relationship between exercise and the effect it can have on my practice as an ASL interpreter regarding work production and mental and physical health. Before this project, literature has shown that exercise can be beneficial in preventing burnout (Naczenski et al., 2017), increasing mental energy (Charles, 2022) and possibly preventing physical injury in ASL interpreters (Humphrey, 2015). However, the optimal frequency and duration of exercise per week required to benefit an ASL interpreter has remained unknown (Naczenski et al., 2017). The goal of this study was to determine the optimal amount of exercise regarding frequency and duration per week for my practice as an ASL interpreter to receive noticeable benefits.

After spending 20 weeks collecting data regarding my weekly exercises, work samples and journal entries, the data was analyzed using the JD-R model (Bakker et al., 2004). There was a noticeable improvement in work production and mental and physical health beginning at an average of 2 to 2.833 days and 75 to 116.25 minutes per week, resulting in an average of 39 minutes of exercise per day. Benefits continued up to an average of three to four days and 125 to 150 minutes per week, also resulting in 39 minutes of exercise per day. Overall, the frequency of exercise per week seems to have a greater impact than the duration of exercise. This is because while only negative phrases were associated with less than two days of exercise per week, the average amount of exercise per day for this data set was 40 minutes, which is only a one minute difference from the data set in which positive results were first identified.

While this study makes progress in filling the gap in knowledge on the optimal frequency and duration of exercise needed to benefit a working ASL interpreter in regard to work production and mental and physical health, information is still lacking. Currently, it is unknown

if one type of exercise is more beneficial than another. However, when considering Rodrigues et al.'s (2021) study, it may be beneficial to use the exercise type that one enjoys the most, as having a positive relation to the exercise can increase life satisfaction, self-esteem, and subjective vitality, which are all valuable in decreasing burnout and improving one's mental and physical health. Continuing this study, I would like to dive deeper into several types of exercises and the various benefits that one can receive from them. In order to better pinpoint the ideal exercise type for ASL interpreters, it would be beneficial to conduct a longer study and add more variety regarding the types of exercise performed throughout it.



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## Appendix A

### Blank Charts for Raw Data Collection

**Table A1**

*Work Production*

	Total (mins)	Total (days)
Unclear	avg:	avg:
Unnatural	avg:	avg:
Omissions	avg:	avg:
Successful	avg:	avg:
Endurance +	avg:	avg:
Clear ASL	avg:	avg:
Endurance -	avg:	avg:
Skewing	avg:	avg:

Averages (avg) are per week.

**Table A2***Mental Health*

	Total (mins)	Total (days)
Overwhelmed	avg:	avg:
Focus -	avg:	avg:
Energized	avg:	avg:
In Control	avg:	avg:
Focus +	avg:	avg:

Averages (avg) are per week.

**Table A3***Physical Health*

	Total (mins)	Total (days)
No Pain	avg:	avg:
Neck Pain	avg:	avg:
Headache	avg:	avg:

Averages (avg) are per week.

**Table A4***Loom Description Box***ted talk - YouTube - 18 January 2022**

Sierra Rae Greiner Greiner · 10 months ago  
Not shared ▾

# add tag

Add a description...

**Comments**

There aren't any comments yet.  
Be the first. Add a comment on the video above.





## Appendix B

### Charts with Raw Data Collection

**Table B1**

*Work Production*

	Total (mins)	Total (days)
Unclear	0,0 avg: 0	0,0 avg: 0
Unnatural	0,90,45 avg: 45	0,2,1 avg: 1
Omissions	0,45,0,0,120 avg: 33	0,1,0,0,3 avg: 0.8
Successful	90,150,135,90 avg: 116.25	2,4,3,2 avg: 2.75
Endurance +	150,135,90 avg: 125	4,3,3 avg: 3.333
Clear ASL	105,90 avg: 97.5	3,2 avg: 2.5
Endurance -	0,120,90 avg: 70	0,3,2 avg: 1.666
Skewing	0,120 avg: 60	0,3 avg: 1.5

Averages (avg) are per week.

**Table B2***Mental Health*

	Total (mins)	Total (days)
Overwhelmed	45 avg: 45	1 avg: 1
Focus -	0,105,0,110 avg: 53.75	0,3,0,3 avg: 1.5
Energized	150 avg: 150	4 avg: 4
In Control	135,90 avg: 112.5	3,3 avg: 3
Focus +	90,90 avg: 90	3,2 avg: 2.5

Averages (avg) are per week.

**Table B3***Physical Health*

	Total (mins)	Total (days)
No Pain	45,150,105,135,90,120 avg: 107.5	1,4,3,3,3,3 avg: 2.833
Neck Pain	0 avg: 0	0 avg: 0
Headache	0,90 avg: 45	0,2 avg: 1

Averages (avg) are per week.

**Table B4***Loom Description Box***20 April 2022**

Sierra Rae Greiner Greiner · 7 months ago

Not shared ▾

# add tag

Felt in control of the interpretation. No distractions. Felt I comfortable with a longer lag time as I was able to remember the information.  
Good stamina. No physical pain.

0:32 Unneeded FS

0:51 Omission

3:36 wrong sign for RESULTS

4:48 Skewing of message

5:15 Forgotten what speaker said

6:10 Unclear FS

Shift-enter for a new line

**Comments**

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