

# Curbing the rise in work-related musculoskeletal disorders: Self-massage as pain intervention



## Introduction

Work-related musculoskeletal disorders (WMSDs) are fast becoming a workplace concern and public-health problem worldwide. Incidence rates have escalated in recent years, in tandem with the shift to remote working since the onset of the Covid-19 pandemic. Yet most cases go unreported. Once associated primarily with manual labour, WMSDs are now affecting even those performing light physical work, such as office workers.

This white paper sheds light on the rise in WMSDs globally, evaluates its impact on the individual and the organisation, discusses how massage therapy could serve as intervention for musculoskeletal pain, and presents other recommendations for the organisation. Finally, we argue that anyone can acquire self-massage skills to alleviate musculoskeletal pain, given the right knowledge and tools.

## Definitions of MSD and WMSD

Musculoskeletal disorders (MSD) are “injuries of the muscles, nerves, tendons, joints, cartilage and spinal discs”<sup>1</sup>. MSD sufferers experience musculoskeletal pain, such as aching and stiffness of the muscles or joints, and pain that worsens with movement. Other signs of MSDs include fatigue, swelling and sleep disturbances.

Work-related MSDs (WMSDs) are those in which “the work environment and performance of work contribute significantly to the condition; and/or the condition is made worse or persists longer due to work conditions”<sup>1</sup>.

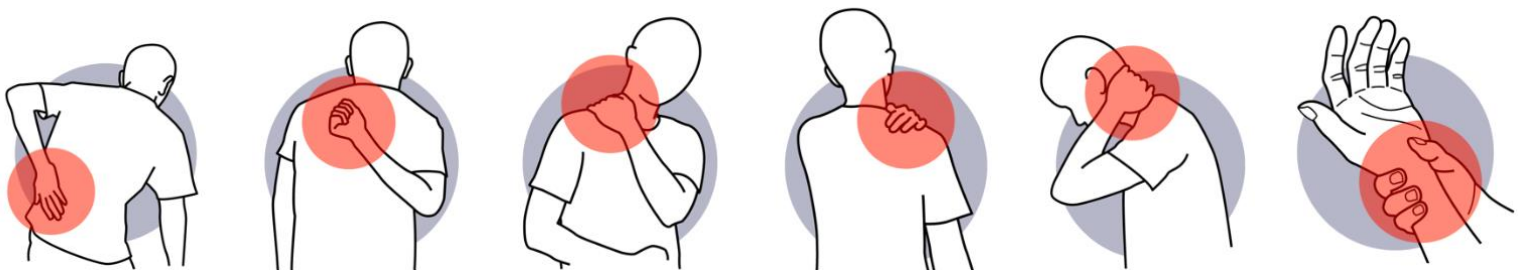
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The International Labour Organization (ILO) and the World Health Organization (WHO) consider MSDs as occupational diseases and a “new epidemic” that needs to be researched and curtailed.

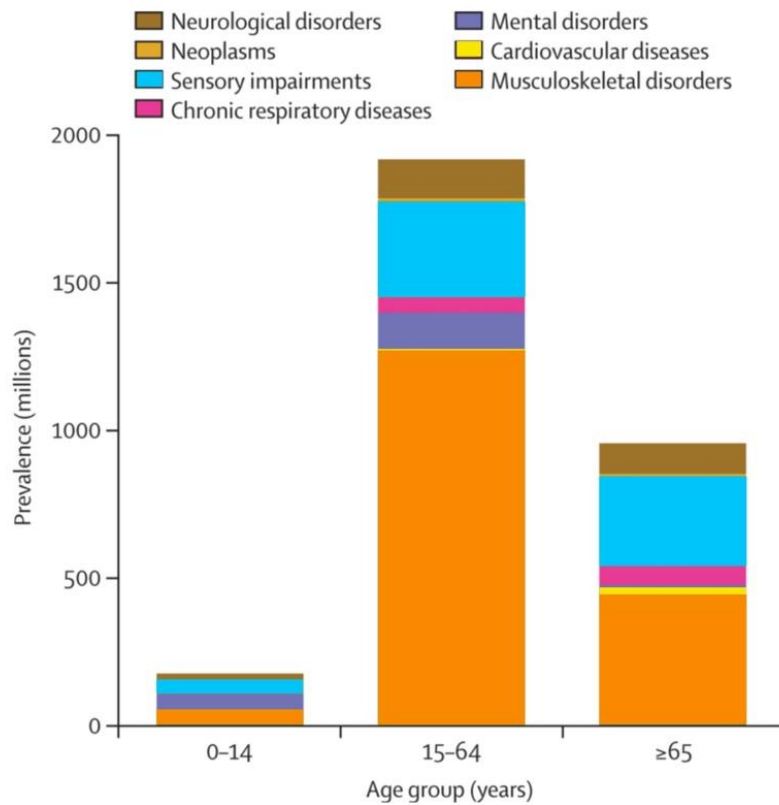
## Prevalence of WMSDs Worldwide

Approximately 1.71 billion people suffer from MSDs<sup>2</sup>, about a quarter of the world population, according to The Global Burden of Disease Study 2019. MSDs outrank all other categories of diseases combined as the leading cause of disability (Figure 1)<sup>2</sup>.

Musculoskeletal pain is even more widespread, affecting almost everyone in a typical year and one in four of us on a daily basis<sup>3</sup> (Figure 2). Back pain is the most common, followed by neck and shoulder pain (Figure 3)<sup>3</sup>. It was also found that pain does not discriminate gender, living area, parental status, age or type of work. Desk workers are as equally affected as manual workers (Figure 4)<sup>3</sup>.



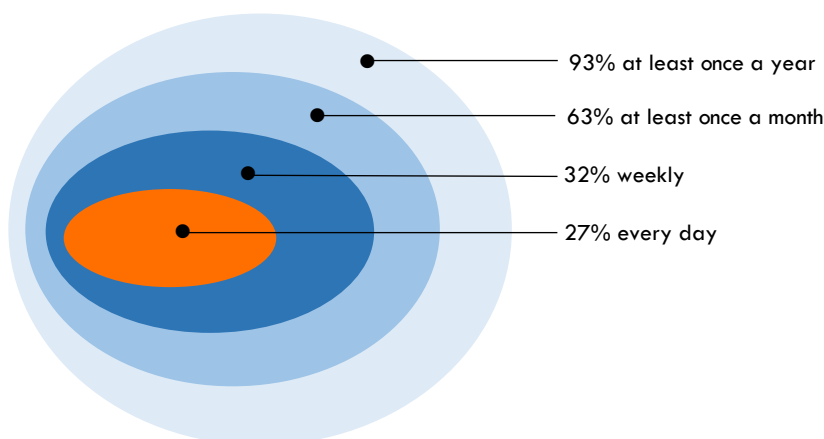
**Figure 1.**  
*Prevalence of Diseases as Causes of Disability*



MSDs outrank all other categories of diseases combined as the leading cause of disability.

Note. Reprinted from “Global estimates of the need for rehabilitation based on the Global Burden of Disease study 2019: a systematic analysis for the Global Burden of Disease Study 2019”, 2021, Cieza, A., et al, Lancet (London, England), 396(10267), 2006–2017.

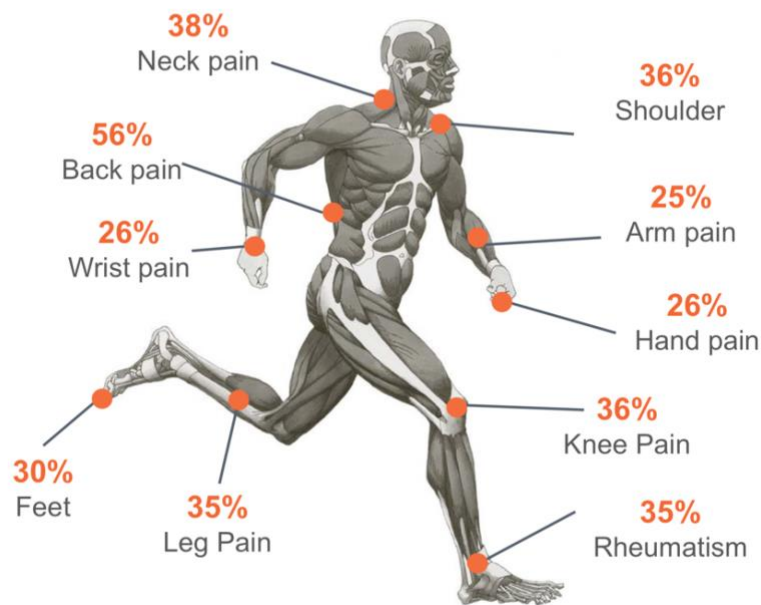
**Figure 2.**  
*Percentage of People According to Frequency of Body Pain*



Musculoskeletal pain is widespread, affecting almost everyone in one year and one in four on a daily basis.

Note. Data from “Global Pain Index Report”, 2020, GSK, pp. 29-30. N = 19,000.

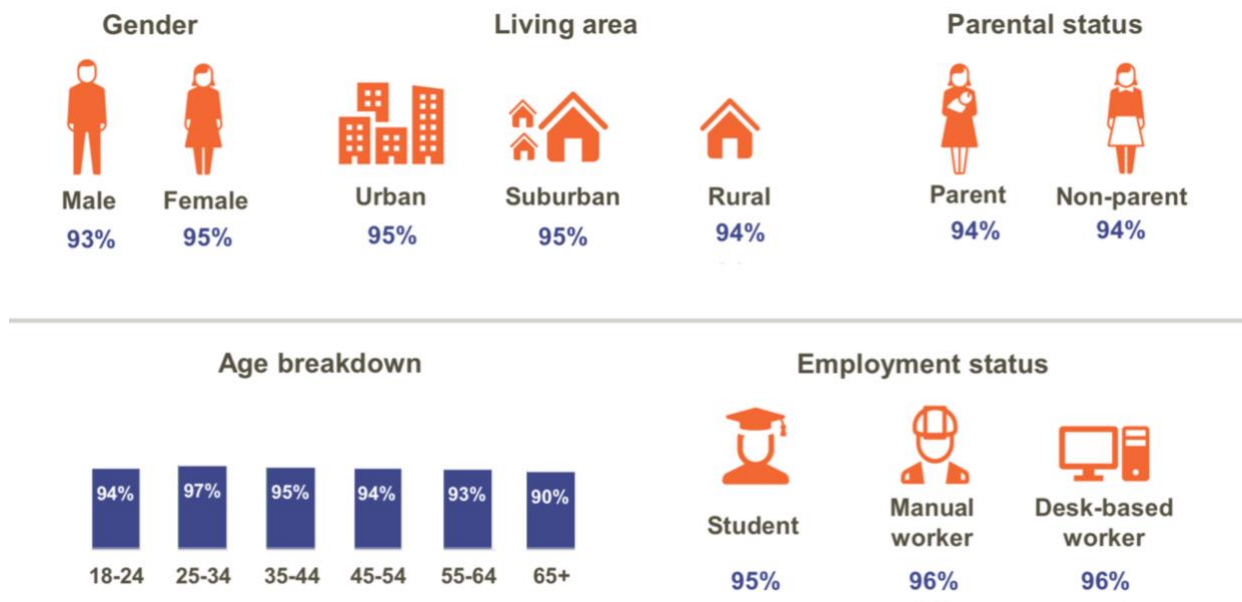
**Figure 3.**  
Percentage of People According to Location of Pain



Back pain is the most common complaint, followed by neck pain and shoulder pain.

Note. Reprinted from "Global Pain Index Report", 2020, GSK, p. 31. *N* = 19,000.

**Figure 4.**  
Demographic Characteristics of People Who Suffer Pain in a Year



Note. Adapted from "Global Pain Index Report", 2020, GSK, p. 53. *N* = 19,000.

In the office context, surveys indicate that 70% (Singapore 2018<sup>4</sup> and Nigeria 2020<sup>5</sup>) to 85% (Malaysia 2018<sup>6</sup> and Saudi Arabia 2021<sup>7</sup>) of office workers experience musculoskeletal pain. Low-back, neck and shoulder pains are the most common complaints amongst office workers<sup>4,5,6</sup>. Pain in the wrists and hands is also prevalent<sup>5</sup>.

If not addressed, these work-related musculoskeletal pains are likely to persist and lead to WMSDs.

### Rise in WMSDs since Covid-19 Pandemic

There is evidence that WMSDs are on the rise since the outbreak of the Covid-19 pandemic. U.K. charity organisation Versus Arthritis spotted this trend in the early part of the pandemic in 2020. Its nationwide study on desk workers indicated that four in five had developed WMSDs since working from home in lockdown. The reasons cited were reduced activity, long hours of work and unsuitable work conditions<sup>8</sup>.

The uptick in WMSDs is also backed by anecdotal evidence from medical practitioners. In a 2022 commentary, a principal physiotherapist at Singapore's Tan Tock Seng Hospital wrote that he was seeing a threefold increase in the number of patients developing sedentary-related WMSDs<sup>9</sup>. He attributed the trend to sedentary lifestyles associated with working from home.

Dentists have also observed a higher incidence of abnormal teeth-grinding, or bruxism<sup>10,11</sup>, which can lead to jaw disorder if left untreated. Jaw disorder has been shown to be highly correlated with neck disorder<sup>12</sup>, a common WMSD.

### Underreporting of MSD Cases

Findings from the GSK Global Pain Index 2020 show that a significant proportion of sufferers are not open to discussing pain. However, wide cultural differences exist. At the low end of the spectrum, 22% of pain sufferers in Italy are hesitant to talk about their pain, while at the opposite end the percentage in India is threefold (Figure 5)<sup>3</sup>. We can therefore expect actual MSD cases to be higher than reported, more so in certain cultures.

The underreporting is more dire during the Covid-19 pandemic. The Versus Arthritis poll in the U.K. concluded that nine in ten desk workers refrained from reporting to their employers about their pain struggles during the initial lockdown<sup>8</sup>. This could be attributed to the cultural taboo surrounding pain as well as the risk of losing one's job under economic uncertainty.



Pain does not discriminate gender, living area, parental status, age or type of work.

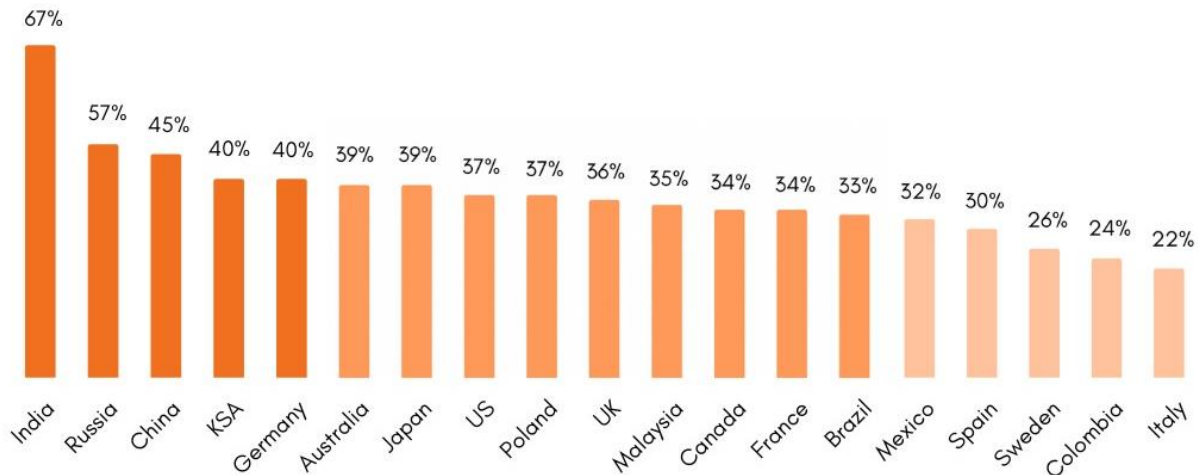


Increased sedentary lifestyle due to working from home has led to the rise in WMSDs.



Pain is a taboo topic for many people, which deflates actual MSD numbers.

**Figure 5.**  
Percentage of Pain Sufferers Who Agree that Pain is Taboo



Note. Reprinted from "Global Pain Index Report", 2020, GSK, p. 17. *N* = 19,000.

### Impact of WMSDs on the Individual

WMSDs have a profound physical impact on the individual. Sufferers tend to move less and exercise less. They are also more inclined to resort to eating comfort food when in pain<sup>3</sup>. These undesirable habits predispose them to other health conditions.

Their mental health is also not spared. MSD sufferers report being unable to relax, being moody and being less sociable. Less significant, yet still noteworthy, is the feeling of uselessness and loneliness when one is in pain<sup>3</sup>. MSDs are also linked to fatigue, insomnia, anxiety, and poorer mental wellbeing<sup>13</sup>.

The negative effects of MSDs on one's health imply that affected employees are more likely to:

- Be less focussed or less productive
- Be unhappier or less fulfilled at work
- Have a lower sense of morale and self-worth
- Quit their job or retire earlier from work



### Impact of WMSDs on the Organisation

Besides affecting employees, WMSDs have a sizeable impact on the organisation and the economy at large. Several measures of the impact of WMSDs include disability-adjusted life years (DALYs), number of work days lost, and production and productivity losses. The following data extracted from a 2019 EU report<sup>13</sup> provides some estimates:



- WMSDs make up 15% of total DALYs. This means that out of all the years lost due to ill-health, disability or early death, 15% is due to work-related injuries and illnesses.
- Workers with WMSDs are more likely to take medical leave and for a longer period, compared to their counterparts without health problems. Those with chronic WMSDs are 3.7 times more likely to be absent from work for more than eight days a year compared to the healthy group.
- WMSDs lead to lost production and lower productivity. In Germany, lost production due to absenteeism and lower productivity accounted for 0.5% and 1% of the country's gross domestic product (GDP) respectively in 2016.

As for Singapore, the Workplace Safety and Health Institute estimated in 2014 that WMSDs and other ergonomic problems resulted in an economic loss of SGD 3.5 billion a year to the country<sup>14</sup>, approximately 1% of Singapore's GDP. (More recent data cannot be found.)

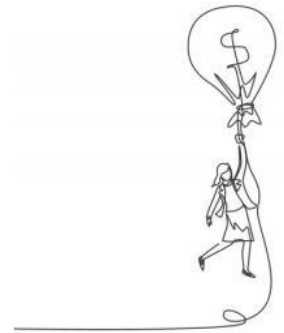
### Massage Therapy as Evidence-Based Treatment for Musculoskeletal Pain

Massage therapy is increasingly supported by a strong body of evidence as intervention for musculoskeletal pain. In a 2019 literature review, Turkish researchers found 3005 scientific papers related to massage therapy in pain management, published over a period of 10 years. Half were randomized controlled trials, considered the most rigorous scientific method to ascertain the effectiveness of treatments. The literature review concludes that massage therapy is the preferred treatment for chronic musculoskeletal pain<sup>15</sup>. Similarly another systematic review of 67 randomised controlled trials strongly recommends massage therapy for pain management<sup>16</sup>.

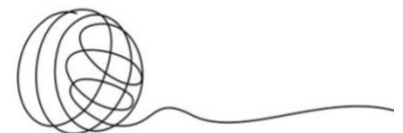
For centuries, massage therapists have been dealing with musculoskeletal pain. They feel for muscle tightness, nodules or knots that are sore or tender. They understand the importance of releasing these "points" to bring relief to other parts of the body. However, because the pain source and pain sites are not always in the same location, treatment can be a daunting process of trial and error.

Today, there is a scientific term for these hyperirritable "points" – trigger points. It was coined in 1942 by Dr. Janet G. Travell, M.D. After decades of research, she and Dr. David G. Simons, M.D., teamed up to publish their findings on trigger points in 1983. This medical text introduced the concept of referred pain, technically known as myofascial pain\*, by mapping out trigger points and the pain sites they refer<sup>17</sup>.

According to Travell and Simons, trigger points are the primary cause of pain in about 75% of the cases seen in pain clinics, and they play a role in almost all pain issues. They have also been found to be responsible for numerous musculoskeletal pains prevalent amongst desk workers, such as neck pain<sup>18,19</sup>, shoulder pain<sup>20,21</sup>, low-back pain<sup>22,23</sup>, forearm pain<sup>24,25</sup>, as well as migraines and tension headaches<sup>18,26</sup>.



Massage therapy is scientifically proven to be effective in treating musculoskeletal pain.



Trigger points are hyperirritable knots in a taut band of muscle that refer pain to other parts of the body when stimulated.

\* Myofascial pain syndrome is a condition characterized by trigger points, where pain is referred to muscles and surrounding fascia, the thin connective tissue wrapped around muscles.

In summary, this is what we know today about how trigger points work, in simple terms<sup>27</sup>:

- They weaken muscles and restrict their range of motion.
- They cause tension in the muscle's attachments and can thus affect joints.
- The buildup of tension restricts blood circulation, disrupting metabolism and proper functioning of the muscles.
- They almost always refer pain to other remote locations when stimulated.
- They refer pain in predictable patterns.

The effectiveness of massage therapy to alleviate musculoskeletal pain therefore depends on the ability of the practitioner to locate and deactivate these trigger points. When performed effectively, it achieves the following three outcomes<sup>27</sup>:

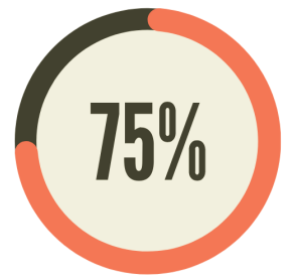
- Releases trigger points to the extent that it is no longer active
- Breaks the biological feedback loop that keeps the muscle contracted
- Improves blood circulation to restore metabolism and proper functioning of the muscle

Since trigger points refer pain in a predictable way, we can take the guesswork out of massage therapy. Not only does this allow practitioners of massage therapy to be more effective and efficient in their work, treatment through self-massage also becomes practicable.

### We Teach People Self-Massage

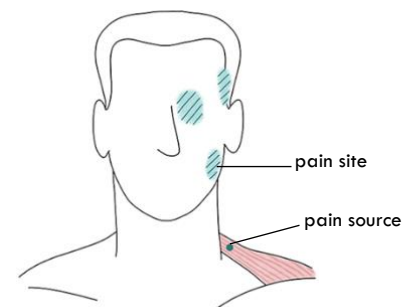
Our goal at Aleyda Academy is to simplify the technical knowhow of massage therapy for the layman so that it becomes an accessible, practical and cost-effective form of pain management for anyone who needs it. We conduct self-massage courses using pain diagrams, simple explanations and demonstrations to relieve specific pains. By providing the right information, tools and proper guidance, we can empower just about anyone to treat chronic pains with self-massage.

The biggest advantage of self-massage is that it allows a person to be in control of his pain, not the other way round. According to global research, three in four pain sufferers desire help and education to control pain (Figure 6)<sup>3</sup>. Self-massage also enables one to exercise control over the frequency, place and time of treatment, as well as massage pressure and manipulation. On top of that, it is more economical than multiple visits to the clinic.



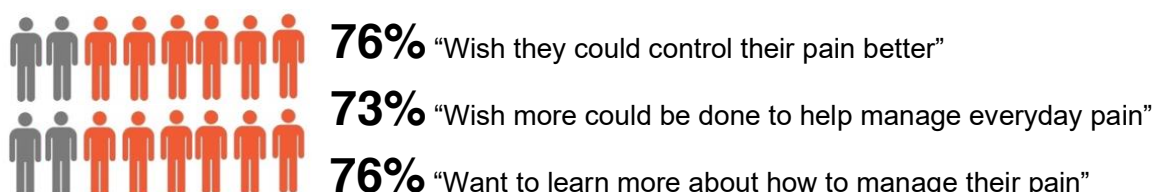
Trigger points are the source of pain in 75% of cases seen in pain clinics.

– Travell & Simons



Trigger points refer pain in a predictable way, allowing practitioners to identify the source of pain more accurately.

**Figure 6.**  
*Percentage of Pain Sufferers who Desire to Control Pain*



*Note.* Adapted from “Global Pain Index Report”, 2020, GSK, pp. 19-20. *N* = 19,000.



## **Introducing Unknotify: Evidence-Based Self-Massage Toolkit**

When Covid-19 broke out in 2020 and disrupted the delivery of in-person training, our Academy began digitising our self-massage courses. The escalation of WMSDs made it ever more important to bring our expertise to the masses. So we devised a wellness box.

Unknotify is an evidence-based self-massage toolkit to help people release their muscle knots, or trigger points. It contains massage tools, relaxation aids, and instructional videos that can be accessed online anytime, anywhere. Although designed with desk workers in mind, it is suited for any MSD sufferer who spends prolonged periods sitting, standing or looking down. Unknotify is the culmination of our team's decade-long work of researching and practising massage therapy.



Version 1.0 of Unknotify addresses musculoskeletal pain commonly experienced by desk workers – low-back pain, neck pain, shoulder pain and upper-limb pain. Future updates will cover other areas of musculoskeletal pain and conditions.

## **Conclusion**

This white paper highlights several points: First, WMSDs have been increasing the onset of the Covid-19 pandemic. The issues are real; yet most employees are not discussing or reporting their suffering. It is therefore imperative for employers to check in regularly with their staff about their health. Conversations about pain should be normalised and carried out in an open, non-judgemental way, so that those affected feel safe to speak up.

Secondly, WMSDs have a huge impact on the individual, the organisation and the economy. Missed work days, lost productivity and lower quality of work cost a staggering 1% to 1.5% of a country's GDP. This does not include indirect costs such as higher staff turnover and lower morale. It therefore makes sense for employers to invest in helping employees prevent and manage WMSDs. Support can be rendered in numerous ways – by sponsoring training on managing WMSDs, providing proper tools and equipment, providing fuss-free access to pain specialists, making workplace risk-assessments, promoting healthy work habits, and so on.

Thirdly, massage therapy has been clinically proven and is in fact a recommended intervention for musculoskeletal pain. Deactivating trigger points, to which 75% of pain cases are attributed, is what makes massage therapy effective and efficient.

Finally, massage therapy need not be a skill confined to the experts. It can be simplified and acquired by anyone for self-treatment. Our decade-long work at Aleyda has been about alleviating musculoskeletal pains for others through massage therapy. The time has come for us to share our expertise and put self-massage skills in the hands of the everyman.

Hello, Unknotify!



## About Aleyda Academy

Aleyda Academy, the training arm of Aleyda, comprises pain specialists whose mission is to inspire and empower people to prevent and manage their aches and pains. We offer wellness courses, consulting services and toolkits that draw on our collective expertise in massage therapy, ergonomics and functional exercise. Our sister company Aleyda Mobile Spa provides massage therapy in the convenience of anywhere.

*Disclaimer.* Massage therapy addresses the source of pain rather than the root cause of pain. Since MSDs are often caused by multiple factors – psychosocial, physical and environmental – a more holistic approach to treatment is required.

In Aleyda, we routinely use massage therapy, along with lifestyle and workspace modifications, as the first step towards rehabilitation. Once pain is diminished, the individual will be able to move on more quickly to other treatments, such as physical therapy and functional exercise.

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