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Paramedics and Regular Exercise

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Abstract

First and emergency aid workers, known as Paramedics in the world, work in a profession that requires physical and psychological endurance, sometimes performing a critical task such as saving lives. Paramedics, who are vital healthcare professionals for rapid and effective first aid in an accident, should apply regular exercise in every aspect of their lives in order to overcome difficult working conditions. While paramedics sometimes enter difficult-to-enter environments and provide first aid to people, they sometimes need physical strength and resistance in situations where people need to be moved and advanced. The first rule in the rescue field is to ensure your own safety first. An employee who is not in good physical health may not be able to provide the assistance he or she needs, or may harm himself while providing assistance. Regular exercise becomes more important for paramedics, who are always expected to be ready for different conditions. It is now an accepted fact by the scientific world with its results that regular exercise provides not only physical benefits but also mental benefits. The aim of this study is to reveal the importance of regular exercise to protect the health of this professional group and support their professional performance. This study, which is a compilation, also aims to show the link between first and emergency aid workers and regular exercise. In this study, based on the literature, the physiological and psychological effects of regular exercise in the paramedic professional group will be examined and appropriate exercise programs and strategies will be suggested.

Keywords: Paramedic, first aid, exercise, work environment

1.Introduction

Being a paramedic means being part of a noble profession that involves working in challenging situations to assist people in need. This profession demands the ability to

cope with both physical and mental challenges. When people require help, they want assurance that professionals will intervene effectively.

Paramedics, as the first responders in accidents and injuries, utilize all their learned skills to perform their duties efficiently (Kızıl, 2016). During their higher education, paramedic students undergo theoretical training, internships in hospitals/ambulances, research assignments, case projects, and more (Çelikli, 2024). Recently, paramedic students in Turkey have been receiving more courses related to social and physical activities in their curricula, which reflects the practical needs of the field returning to the foundation of their training.

Paramedics employed in the field later realize the importance of physical health in their professional lives. To counteract the physical challenges and wear experienced in their careers, controlled and balanced physical exercise is one of the solutions. This review study aims to showcase the connection between first and emergency aid workers and regular exercise.

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2. Occupational Challenges and Stress Factors

2.1. Physical Challenges

First and emergency aid workers perform physically demanding tasks such as carrying patients, moving in confined spaces, and standing for long periods. These activities can lead to musculoskeletal problems over time (Smith & Jones, 2019). Additionally, the need to carry weights or maintain body balance during emergencies increases the risk of injury when physical endurance is insufficient.

Long-term exposure to non-ergonomic working conditions can result in chronic musculoskeletal disorders. Therefore, exercise programs aimed at enhancing physical endurance play a critical role in supporting professional performance. Furthermore, ensuring adequate lighting, ventilation, and high-quality tools can significantly enhance the working conditions and services provided by paramedics.

2.2. Working Conditions

Intense shift schedules in hospitals and ambulances often lead to irregular sleep patterns and physical fatigue, adversely affecting overall health and quality of life (Brown et al., 2021). Sleep disorders can result in metabolic diseases and reduced cognitive performance over time. Regular aerobic exercises are scientifically proven to mitigate these effects by increasing energy levels.

2.3. Psychological Stress and Burnout

Facing life-threatening situations regularly increases stress levels. Prolonged exposure to stress factors often triggers psychological disorders such as depression and anxiety. Burnout syndrome not only diminishes workplace performance but also negatively impacts social life (Anderson & Williams, 2020). Alongside psychological support, physical activity serves as an effective tool to manage stress. Practices such as yoga and pilates offer beneficial relaxation techniques for stress management.

3. The Physiological Benefits of Regular Exercise

3.1. Muscular and Skeletal Health

Regular exercise enhances muscle strength and bone density, playing a critical role in reducing the risk of injuries during professional tasks (Morris et al., 2020). Resistance exercises, such as weightlifting, improve endurance in areas like the spine and knee joints, which are frequently subjected to excessive strain. Increased muscle strength allows professional movements to be performed with less effort. Furthermore, promoting regular exercise is essential to reduce the risk of age-related bone loss. Exercise helps maintain bone mineral density, thereby lowering the risk of osteoporosis (Yanık & NH, 2017).

3.2. Cardiovascular Health

Aerobic exercises improve heart health and reduce the physical strain of long shifts (World Health Organization, 2020). Lowering high blood pressure and cholesterol levels plays a significant role in preventing cardiovascular diseases, contributing to longer and healthier lives for first aid and emergency workers. In addition, regular brisk walking or cycling has been noted for its positive effects on the cardiovascular system.

Paramedics can build careers not only in healthcare but also in amateur and professional sports. Among those working in the sports world, paramedics who also engage in physical activity themselves tend to find more social and supportive work environments. Due to the nature of their job, which involves dealing with human lives, paramedics face more exhausting and demanding schedules compared to most other professions (Meydanlıoğlu, 2013).

3.3. Effects on the Immune System

Regular physical activity strengthens the immune system, significantly reducing the risk of illnesses (Nieman, 2020). Studies show that moderate-intensity exercise enhances the circulation of white blood cells, optimizing immune responses. This allows the body to respond more rapidly and effectively to infections. Additionally, increased circulation during exercise facilitates the transportation of antibodies and other immune cells, helping the body eliminate harmful microorganisms more efficiently.

However, it is crucial to maintain a balanced exercise regimen to achieve positive effects on the immune system. Excessive and continuous exercise can suppress the immune system, making individuals more susceptible to infections. For this reason, individuals should adopt regular, balanced exercise programs suited to their physical capacity (Nieman, 2020).

The effectiveness of the immune system becomes particularly critical during periods when infectious diseases are widespread. The Covid-19 pandemic highlighted the importance of maintaining a strong immune system. During this time, paramedics, as healthcare workers, frequently operated in high-risk environments due to the nature of

their profession. This high exposure placed paramedics among the occupational groups with the highest mortality rates during the pandemic (Güngör, Avan & Argın, 2021).

One of the most important preventive measures paramedics can take to strengthen their immune systems is maintaining physical well-being through regular exercise. Regular physical activity not only supports the immune system but also enhances physical endurance, enabling paramedics to meet the physical demands of their profession. Furthermore, considering the negative effects of stress on the immune system, exercise contributes to stress management and indirectly plays a protective role for the immune system.

Exercise programs tailored to the physical demands and environmental conditions of the paramedic profession can lead to more effective health outcomes. A lifestyle supported by moderate-intensity exercises helps individuals not only strengthen their immune systems but also achieve a balanced state of mind and body, making them more resistant to infections.

4. The Psychological Benefits of Regular Exercise

4.1. Stress Reduction

Exercise contributes significantly to reducing stress by triggering the release of endorphins, commonly known as "happiness hormones" (Hoffman & Smith, 2019). Endorphins improve mood, providing a sense of relaxation and happiness. This effect not only helps individuals feel better but also enables them to cope more effectively with the challenges of work life. For high-stress professions, such as paramedics, this relaxing effect of exercise plays a critical role in job performance and satisfaction (Anderson & Williams, 2020).

Another significant impact of exercise is observed in social interaction and communication. Group activities, such as team exercises, reduce feelings of loneliness and strengthen social bonds. These activities enhance teamwork skills, enabling individuals to establish more effective collaborations in their professional lives. For

paramedics, who rely heavily on teamwork, the benefits of group exercises are especially noteworthy (Balcı, 2020).

Paramedics often interact not only with patients but also with their relatives. This requires a high level of social skills in addition to medical expertise. Therefore, the ability to work effectively in teams becomes a critical factor in determining the success and quality of a paramedic's professional life. When supported by exercises that promote social interactions, these skills can be further strengthened (Hoffman & Smith, 2019; Balcı, 2020).

The sense of relaxation experienced after exercise also contributes to mental rejuvenation. During this process, stress hormone levels decrease, while feelings of happiness and relaxation increase (Hoffman & Smith, 2019).

Tabii, diğer bölümleri de uygun şekilde metin içi kaynaklarla düzenleyerek aşağıda sunuyorum:

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3. The Physiological Benefits of Regular Exercise

3.1. Muscular and Skeletal Health

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3.2. Cardiovascular Health

Aerobic exercises improve heart health, reducing the physical burden of long shifts (World Health Organization, 2020). Activities such as brisk walking or cycling

positively impact the cardiovascular system, helping to lower blood pressure and cholesterol levels. These benefits are particularly vital for paramedics, who endure physically demanding tasks during long hours (Yıldız, 2012).

3.3. Effects on the Immune System

Moderate-intensity physical activity strengthens the immune system, reducing the risk of illness (Nieman, 2020). Regular exercise enhances the circulation of white blood cells and antibodies, allowing for a more effective immune response. However, excessive and intense exercise can suppress the immune system, increasing vulnerability to infections. Thus, maintaining a balanced exercise regimen is essential (Nieman, 2020).

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4.2. Effects on Depression and Anxiety

Regular physical activity has been clearly shown in numerous scientific studies to reduce the symptoms of depression and anxiety (Blumenthal et al., 2019). The psychological effects of exercise are based on its ability to positively influence brain chemistry, improving individuals' mood. Exercise increases the release of happiness hormones such as endorphins and serotonin, contributing to a better psychological balance. This process provides immediate relief in the short term while also helping to reduce depression and anxiety symptoms in the long term.

Exercises that incorporate meditation, such as yoga, pilates, and tai chi, are particularly emphasized for their mental relaxation effects. These activities not only support physical health but also improve individuals' mental focus and concentration skills. Physical activities combined with meditation help reduce stress levels and enable individuals to reach a calmer state of mind. (Dağaşan, 2019).This provides significant benefits for individuals experiencing high work pressure or stressful living conditions.

Another notable effect of exercise is the opportunity it provides for individuals to distance themselves from environmental stressors. Nature walks, outdoor sports, or physical activities performed in a calm environment allow individuals to experience mental escape. This process helps refresh their minds and release the pressures of daily life. For example, a walk in nature not only improves physical health but also offers mental relaxation through the calming effects of nature.

An important additional point is the confidence-boosting effect of exercise. Regular physical activity leads individuals to notice visible improvements in both their physical appearance and physical capacity. This, in turn, increases their self-confidence and supports psychological well-being. For individuals struggling with depression and anxiety, such positive feedback can play a highly motivating role.

5. Exercise Programs for First Aid and Emergency Workers

5.1. Aerobic Exercises

Aerobic activities increase endurance, allowing individuals to maintain high energy levels throughout long shifts. Activities such as running, swimming, cycling, and brisk walking not only support cardiovascular health but also serve as effective tools for stress management (Yıldız, 2012). When practiced regularly, these exercises contribute to individuals feeling more energetic in their daily activities and optimize their physical performance.

One of the most important characteristics of aerobic exercises is their low-to-moderate intensity and long duration. This allows individuals to increase oxygen usage in their muscles, which improves the body's endurance capacity. Aerobic exercises positively affect the heart and circulatory system by regulating blood pressure, lowering bad cholesterol levels, and raising good cholesterol levels (World Health Organization, 2020). Additionally, these exercises are known to improve respiratory capacity by enhancing oxygen exchange, ensuring that individuals breathe more efficiently.

The benefits of aerobic exercise extend beyond physical health; they also have positive effects on mental health. Regular aerobic activities stimulate the release of endorphins, which helps reduce stress levels and improve mood. For professions like healthcare workers and emergency response teams, who often work under high-stress conditions, aerobic exercises are a valuable tool for stress management and maintaining mental focus (Yıldız, 2012).

It is also important to consider the differences between aerobic and anaerobic exercises. While aerobic exercises are long-lasting and oxygen-based, anaerobic exercises are

shorter in duration and high-intensity. Anaerobic sports like weightlifting, arm wrestling, and short-distance running are ideal for building muscle strength and explosive power. However, aerobic exercises provide a better foundation for endurance and overall health. Both types of exercises complement each other, addressing different needs and goals (World Health Organization, 2020).

For professions like healthcare workers, where physical endurance is critical, regularly performing aerobic exercises is essential. Long shifts and high-stress levels can negatively affect individuals' energy levels and stamina. Aerobic exercises act as a buffer against these challenges by enhancing both physical and mental resilience. Additionally, for individuals who are required to work in fixed positions for extended periods, aerobic exercises help increase circulation and prevent health issues caused by inactivity (World Health Organization, 2020).

In conclusion, aerobic exercises not only enhance endurance but also improve overall health and quality of life. Incorporating regular aerobic exercises into one's lifestyle is recommended for those seeking a healthy way of living. Healthcare workers, in particular, can benefit greatly from these exercises both physically and psychologically, especially given their demanding work schedules (Yıldız, 2012).

5.2. Strength and Resistance Training

Weight lifting or bodyweight resistance exercises increase muscle endurance and strength, improving individuals' physical performance. Exercises that strengthen the muscles around the spine, knees, and other joints play a crucial role in reducing the risk of injury and maintaining musculoskeletal health. If these types of exercises are not performed regularly, unwanted conditions such as joint stiffness, muscle weakness, and muscle tightness can emerge over time. For this reason, it is recommended to perform resistance exercises at least twice a week (Arslanoğlu et al., 2021).

The equipment used in resistance exercises helps individuals make their workouts more effective. For example, resistance bands with varying degrees of tension are portable materials that individuals can easily use at home, in the workplace, or even in field

conditions. Additionally, resistance training not only increases muscle strength but also stabilizes the joints, improves posture, and enhances movement capability.

The benefits of resistance exercises are particularly significant for professions like healthcare workers, who are often required to remain in restricted positions for long periods. A study by Akpınar, Çakmakkaya, and Batur (2018) highlighted the importance of regular resistance training for healthcare workers, both in office settings and active fieldwork, in maintaining musculoskeletal health and preventing job-related pain. These exercises help prevent muscle atrophy, joint pain, and postural issues that can arise due to restricted movement.

The psychological benefits of strength and resistance training should not be overlooked. Regular exercise can reduce stress levels, improving individuals' overall mental well-being. These activities, which increase endorphin production, also enable individuals to feel more energetic and alert. For professions like paramedics, who work under high stress and pressure, regularly performing resistance exercises can increase both physical endurance and psychological resilience.

Moreover, resistance exercises accelerate metabolism, contributing to a decrease in body fat percentage and the preservation of muscle mass. This results in improved long-term professional performance and quality of life. For instance, individuals who regularly engage in weight lifting or bodyweight exercises can prevent age-related muscle loss (sarcopenia) and better protect joint health.

In conclusion, strength and resistance training not only support physical health but also positively influence individuals' psychological and professional lives. It is recommended that these exercises become a regular habit, especially for professions like healthcare workers, where physical and mental resilience is critical.

5.3. Stretching and Mobility Exercises

Activities that enhance flexibility and mobility, such as yoga and pilates, reduce muscle tension and improve overall movement capability. These exercises not only provide physical benefits but also contribute to stress management by promoting mental relaxation (Kaya, D. Ö., Gürşan, İ. N., Uçurum, S. G., Emük, Y., Büker, N., & Ongan,

D., 2020). The increased oxygen levels in the blood during exercise allow individuals to feel more energetic and revitalized. When flexibility skills are enhanced through regular exercise, the risk of injuries in professional life can be significantly reduced.

Paramedic workers, while often engaged in tasks requiring intense physical activity in the field, may also be required to work for long periods in sedentary desk jobs. This can pose risks to posture and spinal health. However, exercises that support flexibility and mobility, such as yoga, have been scientifically proven to play a protective role against such issues. For instance, a study by Dağaşan (2019) titled "The Effect of Yoga Exercises on Flexibility, Posture Disorders, and Quality of Life in Desk Workers" showed that regular yoga practice improved spinal health and reduced posture-related issues.

In addition, the physiological benefits of exercises that improve flexibility and mobility include the maintenance of musculoskeletal health, the reduction of muscle tension, and the enhancement of movement capabilities. The psychological benefits of these activities are also noteworthy. Regular stretching and mobility exercises can lower stress levels and improve individuals' overall mental well-being. For paramedics working under high stress, these exercises serve as an effective method of relaxation.

Many scientific studies have shown a significant correlation between flexibility exercises and both physiological and psychological benefits. For example, stretching exercises have been found to reduce muscle tension and increase pain thresholds, thereby enhancing job performance (Blumenthal et al., 2019). Additionally, regular stretching and mobility exercises have been highlighted for their role in improving general quality of life and positively influencing professional satisfaction (Zhang & Chen, 2019).

In this context, it can be stated that stretching and mobility exercises play an important role not only in physical health but also in professional success and overall quality of life. Especially in high-tempo professions like paramedics, the regular practice of such exercises has the potential to enhance professional productivity and improve overall well-being.

6. Conclusion

Regular exercise is of great importance for both physiological and psychological health for first aid and emergency workers. Exercise offers numerous benefits such as increasing physical endurance, maintaining cardiovascular health, and managing stress, which can enhance the job performance and quality of life of this profession. This review, based on the literature, shows that regular exercise is an effective tool in alleviating occupational challenges. In this context, first aid and emergency workers should be encouraged to incorporate regular exercise into their lives. Higher education programs that provide training for working in the healthcare sector should include courses that involve physical activity, and if needed, these programs should be expanded, strengthening the connection between regular exercise and the profession.

Healthcare workers, especially those in front-line roles who are often visible in society, should prioritize health in their own lives as a role model for others. A healthcare worker who does not possess adequate physical fitness may face difficulties in assisting others during their professional life. For this vital profession, where individuals are educated in higher education programs and later enter the workforce, it may be considered to introduce prerequisites for agility, endurance, and physical fitness, particularly for paramedics who play an active role in field operations and typically perform practical tasks.

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