Review Article

FIVE SUNNAH THAT LATER PROVED BY SCIENCE

Nuruddin Mohammed Nur¹ & Omar Mihat*¹

¹Kulliyyah of Medicine & Health Sciences, Universiti Islam Antarabangsa Sultan Abdul Halim Mua'dzam Shah, 09300 Kuala Ketil, Kedah, Malaysia.

ARTICLE INFO

Corresponding author:
Dr. Nuruddin Mohammed Nur

Email address: nuruddinnur@unishams.edu.my

Received: February 2022 Accepted for publication: April 2022

Keywords:

sunnah of prophet; Prophet Muhammad; early rising; fasting.

ABSTRACT

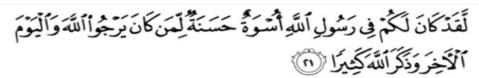
The Sunnah refers to the sayings and practices of the Prophet Muhammad (SAW) and is the second source of knowledge for Muslims. Sunnah encompasses the beloved Prophet's character, manners, habits, and legislative rites to bring a worshipper closer to Allah Almighty. Although following the Sunnah is not obligatory, it is considered mandatory for enthusiastic adherents due to its spiritual and scientific benefits. Those who wish to learn, Allah has sent a messenger who embodies vitality in his personality for the benefit of his Ummah. This study is a narrative review to highlight sunnah of Prophet Muhammad (SAW) that proven scientifically. A sunnah of Prophet Muhammad (SAW) is early raising that can improve cognitive function, enhanced organizing skills, stay stress-free and enjoy quality sleep. Eating less and mindful eating prevent chronic diseases & health problems (e.g., obese). Furthermore, practicing sunnah when drinking water can prevent many diseases such as gastrointestinal tract (GIT) damage, kidney damage and arthritis. It also prevents choking of esophagus and 'acidosis'. Another sunnah fasting also help people to lose weight, develop a healthy brain and heart, increase growth hormone and acts as anti-inflammation. Finally, staying active for example swimming and horse riding are also sunnah of Prophet Muhammad (SAW) that can lead to good mental health, improve body coordination, and muscle strength and cardiovascular fitness. Staying active, early rising, fasting, drinking water and mindful eating are closely related to five components of the healthy lifestyle. These practices now proved to prevent occurring of non-communicable disease which are the main burden of developed and developing countries including Malaysia.

INTRODUCTION

Like all religions, Islam requires a specific code of conduct for its adherents. However, few religious traditions were quite as strict with the standards as Islam. Much of this is due to the fact that the first Muslims made a point of recording as much as they could about the life of Islam's prophet, Muhammad, in order to utilise it as a guide for their own lives.

Prophet Muhammad (SAW) is Allah Almighty's last Prophet. Allah (SWT) has sent two types of revelation to His Messenger (PBUH): the Quran and the Sunnah. Everything the Prophet (SAW) says, does, or admits is referred to as the Sunnah. The real affection of Muslims is for Prophet Muhammad (SAW), whose entire life is encapsulated in his Sunnah. Following Prophet Muhammad (SAW) is the proper way that leads to ultimate happiness since he is the walking Quran. It is critical that we learn about the Prophet's Sunnah and then attempt to follow His (SAW) path in order to be successful in both realms. Allah says in the Al-Quran (Figure 1).

Our Holy Prophet Mohammad's (SAW) personality, etiquettes, customs, and legislative responsibilities



"There has certainly been for you in the Messenger of Allah an excellent pattern for anyone whose hope is in Allah and the Last Day and [who] remembers Allah often." [Quran 33:21]

Figure 1: Verse al-Quran 33:21

were fulfilled to keep Muslim believers closer to Allah (SWT). Prophet Muhammad (SAW) constantly put what Allah (SWT) revealed to him in the form of Divine revelation, the Quran, into reality throughout his life. He fulfilled all of Islam's principles in order to become a role model for Muslims who want to live a virtuous life. There are several physical and spiritual advantages for every Sunnah that a Muslim practices [1].

EARLY RISING

Every day, Prophet Muhammad went to bed early and awoke to the Adhan of Fajr. Being an early riser has been proven linked to increased productivity and better mental health in general. So, while waking up early may be difficult, you may begin to improve your quality of life by taking little steps, even if it's only waking up 15 minutes earlier to begin with.

Our beloved Prophet Muhammad (SAW) said: "O Allah, bless my nation in their early mornings" (Sunan Ibn Majah). But why is it so tough for us to follow through with the time we have in the morning? It may be the only time we have to spend on ourselves, so why is it so difficult for us to do so? Islam emphasises the need of cleansing our intentions on a regular basis [2]. We should sit down and read the Qur'an and pondering on the verses in the early mornings to help us achieve calm within our souls. Getting up early in the morning to do the Tahajjud prayer before Fajr would make us feel complete and prevent us from feeling lost [3].

Getting up early to study about our beloved Prophet Muhammad (SAW) would allow us to understand why we follow the Sunnah and to truly comprehend what he was like in order to try to be like him. Early risers are more likely to fall asleep quickly. To sleep, you don't need to count sheep. When you get up early, your body becomes sleepy quickly, allowing you to have a good night's sleep as soon as you go into bed. You become used to the natural circadian cycle, which causes you to go to bed and rise early [4].

Longer awake hours result in enough adenosine buildup. Adenosine is a neurotransmitter that inhibits neuron activity, causing drowsiness. Getting up earlier causes adenosine to accumulate faster, making you drowsy later in the day. Going to bed early increases your chances of completing all four phases of sleep over the course of four to six sleep cycles, resulting in a more relaxed and rejuvenated feeling [5]. Because they are more likely to complete all phases of the needed sleep cycles, early birds have greater sleep quality than night owls. They have greater vitality in the morning than night owls, who don't have enough time to complete all phases of sleep. Passing sleep phases and cycles is beneficial to one's physical and mental health. During the deeper stages of sleep, growth hormones are produced, which cause tissue repair and regeneration [6].

You get the advantages of numerous excellent habits when you get up early, resulting to an energetic, well-rested, stress-free, punctual, and healthy you. You gain a feeling of order in your life, which makes you

feel better. In fact, a 2012 National Library of Medicine research found that healthy individuals who got up early had a better mood than night owls [7].

EATING LESS AND MINDFULL EATING

Habit is something that is usually or regularly done. It is genuinely important for everyone to develop good habits in life especially for muslims. Islam's comprehensive approach to life and thus health offers us the ability to remain robust and healthy. Our prophet Muhammad S.A.W has taught us since 1400 years ago with a lots of good habits to be practiced in daily life. Science later proved that by learning, adopting and maintaining habits derived from the Prophet, can help us reach our full potential, both in our spiritual and worldly lives. One of the habits of prophet Muhammad that science later proved is eating less and mindful eating. Eating less means the quantity of food should be kept at a moderate level. In Islamic practice of eating, the proportion is 1/3 of food, 1/3 liquid, and ¼ breath [8]. As in one of Hadith Prophet Muhammad S.A.W said: Nothing is worse than a person who fills his stomach. It should be enough for the son of Adam to have a few bites to satisfy his hunger. If he wishes more, it should be: One-third for his food, one-third for his liquids, and one-third for his breath" (narrated by Tirmidhi & Ibn Majah). This eating practice seems to be the guardian of self-improvement.

Prophet Muhammad often reminds his ummah to control appetite and drink as it will affect one's health. Based on The National Health and Morbidity Survey (NHMS) 2019 finding, it is showed that half of adults in Malaysia were either overweight or obese [9]. By controlling our daily food intake, many benefits can be obtained for example prevent disease and health problem like obesity and heart attack, reduce binge eating, lose weight and slow aging. Another point is mindful eating. The term "mindfulness" was defined by Jon Kabat-Zinn as "paying attention in a particular way, on purpose, in the present moment, and nonjudgmentally" [10]. Kabat-Zinn was the original developer and leader of the Mindfulness-Based Stress Reduction program at the University of Massachusetts Medical School. He wrote the book Full Catastrophe Living in 1990 to offer guidance on living mindfully based on his experiences with this program since 1979 [11].

Mindful eating is a way of eating that focuses on people's sensuous awareness of food and the way they taste, feel and experience the food [12]. Imam Ali (a) stated "Remember Allah when eating and refrain from useless talking, as food is a blessing and sustenance from God and you should remember Him and be thankful as you eat". Increasing number of people to believe that mindful eating can help individuals to loss weight. However, it is worth to note that the researchers were unable to find the correlation between mindful eating and weight lose incurred even though 13 out of 19 studies found weight loss in approach of mindful eating [13]. They favored for further research to

find a specific relationship between these two. It is believed that the main goal of mindful eating is to encourage people to fully engage in the eating experience by helping them relish the food and the moment of eating.

Malaysian government has implemented KOSPEN (Komuniti Sihat Perkasa Negara) which gives emphasis on healthy eating as one of the scope to prevent Non-Communicable disease.

THE WAY OF DRINKING WATER ACCORDING TO PROPHET MUHAMMAD SAW SUNNAH

Islam teaches the Ummah to live life in the best manner. There are Al-Quran and the Sunnah of the Prophet Muhammad SAW that we should adhere as an obedient Muslim. The Prophet guided us and left us with his Sunnah for us to follow to lead a hasslefree life. As Islam believers, we must take a good care of our spiritual, mental, emotional and physical health. Diet and nutrition play a big part in maintaining the best possible health [14].

Water is very important in one's life. Even though it is just water but there are certain ways to drink water to get the most benefits out of it. The Prophet Muhammad SAW has already taught us on how to drink water in the most appropriate manner. The ways of drinking which are taught by the Prophet Muhammad SAW has now been approved by science after conducting experiments and researches. There are several ways to drink water which were taught by the Prophet Muhammad SAW. They are do not drink water in a short period of time, drink water while sitting down, drink water while taking three breathing pauses, do not exhale in a drinking water [15].

There's an experiment conducted by the royal society of chemistry on carbon dioxide and water reactions. Own exhaled breath was used to see the water and carbon dioxide reactions. There was formation of weak acid which produce the result by changing the color of indicator (acid-base) [16]. Carbon dioxide reacting with water causes the formation of carbonic acid. We know that when carbonic acid in dissociated it forms hydrogen ions and bicarbonate ions. Hydrogen ions increase the acidity of the solution [17]. These statements from the experiment and research show the negative effects of drinking the water that we had exhaled. Exhaled air contains high level of carbon dioxide. When we exhale into the water we are drinking, the carbon dioxide will react with the water and forms carbonic acid. When carbonic acid goes into the body, it will lower the blood pH as there are hydrogen ions (H+) in carbonic acid (H2CO3). Lower blood pH causes acidosis which may lead to kidney failure [18]. In KOSPEN (Komuniti Sihat Perkasa Negara) Malaysian government stressed on drinking more plain water rather than sweetened water and made a requirement for any feast festivals or occa-

The sunnah of Prophet Muhammad SAW is not only for the Muslims to follow but they are for everyone.

Prophet Muhammad SAW is the best living example that we should look up to.

STAYING ACTIVE

Several studies show the benefit of staying active by doing the physical activity plays role in prevention of chronic disease and premature death in any country. Effectiveness of regular physical activity is very much important in the prevention of primary and secondary chronic diseases such as hypertension, diabetes, cancer, obesity, depression osteoporosis, cardiovascular disease and premature death [19]. Rasulullah SAW showed 1400 years ago the importance of activity and doing exercise.

According to hadith, the prophet Muhammad encourages us to staying active by doing some physical activity such as swimming, archery, wrestling and horseback riding. This kind of activity was practice by the people from thousand years ago. We could say that by doing those activity gave the human a benefit without them realizing it [20].

At first swimming is such an activity by which our whole body movement occurs which causes our heart rate to go up and reduce stress in the body. Swimming increases body and muscle strength, stabilize cardiovascular activities. In the water, it was difficult to breath, so it will increase heart rate as the heart need to pump blood to keep oxygenated blood sufficient for our body [21]. Swimming also helps in maintaining a healthy weight as the calorie burn during swimming is really high, we also keep lung healthy by increase the functional residual capacity. The body movement during swimming tone the muscles and builds strength of the body. Lastly, swimming causes total body workout because we use all our muscles during swimming [22].

Riding horse is a common activity in religious school. By riding the horse, we can get a mental health benefits. Many rich people reduces their stress by this activity. During riding on the horse, we can got the feelings of relaxation [23]. By trying to stabilize our body on horse, we can improves our core strength and balance with coordination, as to take control of the horse we need to improve that criteria. Riding horse also can increases muscle tone and strength as we need to hole the rope to stop the horse movement that required big forces. Lastly, we can improves circulation and flexibility of our body, as during horse running, the body condition was upside down, that situation give benefit to the circulation because the blood go all over body, and make our body follow the horse body direction [24].

Archery is good physical activity. The archer usually have good heart health because by archering. To pull the string of the bow, it need a good heart because when the archer pull, they need to hold breath during holding a big forces at their hand. By doing those, the muscle will strengthening, because archer keep giving heir biceps forces. We also can relief our stress as when we let the forces that we hold, it feel like we let got the big stress. Beside that by playing archery we can increase Hand-Eye

Coordination and depth of focus as we need to target the highest score at the archery board [25].

Wrestling is actually not a bad thing as long as it was done in appropriate way. By wrestling we can get benefits from the mental aspect as during the match, we need to keep our mental strong as we can be beaten of our opponent anytime and we need to bear with it. Next, by wrestling we need to do the full-body workout [26]. This is because, the body of wrestler need to be fit, as we need to be mobile, the wrestler with fat body, will easily beaten up because their movement will be slow. From the cardio aspect, we can see that wrestling is a high intensity game, so the wrestler need to keep a good stamina by doing cardio workout such as jogging [27]. By wrestling we can increased our strength and endurance, because we need to suit our self in the high intensity condition, we need to focus 100%, and other aspect. From that we will keep reacting fast to suit our self in any the condition. The calorie burn, during wrestling is promisingly high, because we need to move our body fin high speed, and doing cardio. This will give our body good condition [28].

BENEFIT OF FASTING

There are few terms used in fasting known as Intermittent fasting (IF), Alternate day fasting (ADF) and traditional calorie restriction (CR). IF is the practice of energy restrictions 1 to 3 days per week. Whereas ADF means fast and feed in an alternate day. ADF is a subclass of IF. CR is a traditional way of restriction of calories. Nowadays IF gained more practice for Malaysians [29]. IF and ADF helps in losing the weight and protect the heart as it is as effective as CR [30].

Fasting reduces blood insulin levels which helps in reduction of fat. Fasting also increases growth hormone (GH) which helps in fat burning and muscular gain. Not only that fasting improve cellular repair and gene expression [31]. Fasting causes decrease in insulin levels, increased growth hormone, and high norepinephrine level which facilitate body fat reduction by breaking down of fat, causes high energy expenditure. The experiment showed that short-term fasting increases metabolic rate which ultimate burn more calories. IF utilizes the concept of balance of calories. It induces increases calories out (induces metabolic rate) and reduces the calories in (reduction of food consumption. As reviewed by scientific papers, intermittent fasting can cause weight loss of 3-8% over 3-24 weeks, which is a very important [32].

Oxidative stress is the main source of origin for many chronic diseases. Oxidative stress produces free radicals known as reactive oxygen species (ROS). It damages the cells and important cellular organelles specially DNA. Several studies show that intermittent fasting increases the body's resistance towards oxidative stress and free radicals. Additionally, many studies show that intermittent fasting helps to fight against inflammation which is another major source of common diseases [33].

Heart disease is the world's major killer as of today. It's known that different heath markers also know as risk factors can increase or decrease the risk of heart diseases. Various studies how that Intermittent fasting improve numerous different risk factors which include total and LDL (bad) cholesterol, blood triglycerides, blood pressure, blood sugar levels and inflammatory markers. However much of these studies based on animal model [34].

It's also thought that fasting can improve the way your body metabolizes sugar. This can reduce your risk of gaining weight and developing diabetes, which are both risk factors for heart disease [35]. However, there are concerns about the potential side effects of regular fasting for certain people or in specific circumstances. Fasting is not recommended for people with eating disorders and those who are underweight, women who are pregnant or breastfeeding People taking diabetes medications, people with end-stage liver disease [36]. The effects of fasting on heart health look promising, but more study is needed to determine whether regular fasting can reduce your risk of heart disease. If you are considering regular fasting, talk to your doctor about the pros and cons. Keep in mind that a hearthealthy diet and exercising regularly also can improve your heart health [37].

When we fast, the body tissues causes a "waste removal" process known as autophagy. "Autophagy is the body's way of cleaning out damaged cells, in order to regenerate newer, healthier cells", according to Priya Khorana, PhD, in nutrition education from Columbia University. "Auto" means self and "phagy" means eat. So the literal meaning of autophagy is "self-eating." The process of autophagy causes the cells breaking down and metabolizing broken and dysfunctional proteins that build up inside cells for long time. Increased autophagy initiates protection against several diseases, including cancer and neurodegenerative diseases such as Alzheimer's disease [38].

Intermittent fasting and caloric restriction have been shown to extend life expectancy and reduce inflammation and cancer protection in animal models [39]. Intermittent fasting improves metabolic reactions which help for healthy brain. Intermittent fasting reduces: blood sugar levels, inflammation, insulin resistance and oxidative stress. Several studies in mice and rats have shown that intermittent fasting increase the growth of nerve synapse and nerve cells, which believed to have important beneficial brain function. Fasting also increases levels of a brain hormone called brain-derived neurotrophic factor (BDNF). A BDNF deficiency has been implicated in depression and various other brain problems. Animal studies have also shown that intermittent fasting protects against brain damage due to strokes [40].

CONCLUSION

"You have a good model in the Messenger of Allah for one who hopes for Allah and the Last Day" [Qur'an 33:21]. A role model is someone you

would admire and would follow his actions, habits, and way of thinking. In this modern age, so many of us would refer to successful businessmen, scientists or even celebrities as our role models, but the real role model recommended by Allah is none other than our beloved Prophet (SAW).

Five sunnah have proved scientifically beneficial for our healthy life. One of them is early rising. Starting the day early also improves your concentration which means we can achieve those goals and tasks that we set out the night before. It means when we get to our work we stay fully awake and properly disciplined to the day and become more dynamic. Another sunnah of Rasulullah (SAW) is eating less and mindful eating. By eating less and mindful eating we get a lot of benefits such as weight loss, stress reduction, increased satisfaction, better digestion, reduced overeating or binge eating and so on. Third sunnah that was discussed drinking water according to sunnah. By sitting and drinking, our muscles and nervous system is much more relaxed and helps the nerves to digest food and other fluids easily. Our kidneys also pace the filtration process while sitting and drinking. Staying active by doing some exercises were practiced by Rasulullah (SAW). By staying active we can reduce our risk of heart diseases, manage weight better, lower blood cholesterol level, lower risk of type 2 diabetes and some cancers, lower blood pressure and many benefits. The fifth sunnah was fasting. Fasting has enormous beneficial effects on health. Examples are; fasting improves blood sugar control, fights inflammation, boost heart health by reducing blood pressure and cholesterol level, prevent neurodisorders, improves degenerative metabolism system, stimulates growth hormone secretion, delay ageing and alleviate cancer prevention, etc. By following Prophet Muhammad's Sunnah (SAW) people will get blessings of good health from Allah SWT. Science also proven benefits or practicing sunnah. We should practice these sunnah and explore more by doing research on the other habits Rasulullah (SAW)

ACKNOWLEDGEMENT

We sincerely acknowledge KPSK to arrange manuscript writing workshop and Professor Dr. Liza Sharmini Ahmad Tajudin to look at our manuscript for few improvements in this manuscript.

REFERENCES

- Muhamad A, Syihab AH, Ibrahim AH. Preserving Human-Nature's Interaction for Sustainability: Quran and Sunnah Perspective. Sci Eng Ethics. 2020 Apr;26(2):1053-1066. doi: 10.1007/s11948-020-00192-7. Epub 2020 Feb 11. PMID: 32048138.
- Gamal Abou El Azayem & Zari Hedayat-Diba (1994) The Psychological Aspects of Islam: Basic Principles of Islam and Their Psychological Corollary, The International Journal for the Psychology of Religion, 4:1, 41-50, DOI:

- 10.1207/s15327582ijpr0401 6
- Mohamad Nor, Z. ., Nabilah Yusoff, N. ., Fakhrol Razi, F. R. ., & Sanusi, N. A. (2018). A Good Night's Sleep: A Narrative Review from Islamic Perspectives in Relation to Modern Sciences. IIUM Medical Journal Malaysia, 17(2). https://doi.org/10.31436/imjm.v17i2.933
- 4. Cooney, S., 2021. Cardinal Direction. Brushing, 5(1), p.17.
- Hilditch, C.J. And Flynn-Evans, E.E., 2021. Circadian Rhythms and Homeostatic Mechanisms for Sleep Regulation. Integrative Sleep Medicine, p.65.
- Munz, M., Baving, L. and Prehn-Kristensen, A., 2021. Sleep following intense physical exercise stabilizes motor learning in typically developing boys. Mental Health and Physical Activity, 20, p.100365.
- Root Kustritz, M.V., Bakke, H.J. and Rendahl, A., 2021. Correlation of Chronotype (Lark Versus Night Owl Status) with Mind-Set and Effect of Chronotype on Examination Performance in Veterinary School. Journal of Veterinary Medical Education, p.e20210033.
- 8. Omoba, O.S., 2021. HEALTHY EATING AND HUMAN DISEASE: DIETARY SHIFT IN A SUSTAINABLE FOOD SYSTEM.
- Mohd Ashri, M.H., Abu Saad, H. and Adznam, S.N.A., 2021. Socio-Demographic Characteristics, Body Weight Status and Energy Intake among Users and Non-Users of Dietary Supplements among Government Employees in Putrajaya, Malaysia. Nutrients, 13(7), p.2248.
- Leggett, W., 2021. Can Mindfulness really change the world? The political character of meditative practices. Critical Policy Studies, pp.1 -18
- Lo, H.H.M., Ngai, S. and Yam, K., 2021. Effects of Mindfulness-Based Stress Reduction on Health and Social Care Education: a Cohort-Controlled Study. Mindfulness, pp.1-9.
- Tool, A.N.T., 2021. Mindful Eating. Handbook of Research on Clinical Applications of Meditation and Mindfulness-Based Interventions in Mental Health, p.55.
- Zervos, K., Koletsi, M., Mantzios, M., Skopeliti, N., Tsitsas, G. and Naska, A., 2021. An Eight-Week Mindful Eating Program Applied in a Mediterranean Population With Overweight or Obesity: The EATT Intervention Study. Psychological Reports, p.0033294120988104.
- Thakur, A., Chitra, U. And Chitra, P., 2021. BAL-ANCING ORAL HEALTH AND NUTRITION IN THE TIME OF COVID-19. Annals of the Romanian Society for Cell Biology, 25(6), pp.16852-16866.
- 15. Bakar, I.A. and Ab Rahim, R., 2021. The Evaluation of Sunnah and Non-Sunnah Eating Manners among Young Muslim Generation and Their Effects on Comfort Practices and Satiety Level: Case Study in Kuantan, Pahang. Journal Of Hadith Studies, pp.52-60.
- Mohammadinejad, A., Rizi, K.S., Oskuee, R.K., Aryan, E., Meshkat, Z., Ulianas, A. and Rezayi, M., 2021. Development of detection methods for diagnosis and analysis of highly toxic metal phosphides: A comprehensive and critical re-

- view. Biotechnology and Applied Biochemistry.
- 17. Clayton-Smith, M. and Sharma, M.P., 2021. Renal physiology: acid-base balance. Anaesthesia & Intensive Care Medicine.
- 18. Magder, S., Magder, A. and Samoukovic, G., 2021. Intracellular pH regulation and the acid delusion. Canadian Journal of Physiology and Pharmacology, 99(6), pp.561-576.
- Chastin, S.F., Abaraogu, U., Bourgois, J.G., Dall, P.M., Darnborough, J., Duncan, E., Dumortier, J., Pavón, D.J., McParland, J., Roberts, N.J. and Hamer, M., 2021. Effects of regular physical activity on the immune system, vaccination and risk of community-acquired infectious disease in the general population: systematic review and metaanalysis. Sports Medicine, pp.1-14.
- Jasim, S.K., 2021. Historical Review: Athletics and Heroic Sports Encouraged and Played at Islamic period and Greek. Turkish Journal of Computer and Mathematics Education (TURCOMAT), 12(12), pp.4337-4342.
- Mastel, F.F., 2021. Utilizing an Instructional Intervention in Aquatics: An Experimental Study for Improving Wellness Awareness in Adults (Doctoral dissertation, North Dakota State University).
- 22. Crowley E, Harrison AJ, Lyons M. The Impact of Resistance Training on Swimming Performance: A Systematic Review. Sports Med. 2017 Nov;47 (11):2285-2307. doi: 10.1007/s40279-017-0730-2. PMID: 28497283.
- 23. Stergiou A, Tzoufi M, Ntzani E, Varvarousis D, Beris A, Ploumis A. Therapeutic Effects of Horseback Riding Interventions: A Systematic Review and Meta-analysis. Am J Phys Med Rehabil. 2017 Oct;96(10):717-725. doi: 10.1097/PHM.000000000000000726. PMID: 28252520.
- Uldahl, M., Christensen, J.W. and Clayton, H.M., 2021. Relationships between the Rider's Pelvic Mobility and Balance on a Gymnastic Ball with Equestrian Skills and Effects on Horse Welfare. Animals, 11(2), p.453.
- 25. Nascimento, H., Alvarez-Peregrina, C., Martinez-Perez, C. and Sánchez-Tena, M.Á., 2021. Differences in Visuospatial Expertise between Skeet ShootingAthletes and Non-Athletes. International journal of environmental research and public health, 18(15), p.8147.
- 26. Cattan, G.H., 2021. Pyramidal Systems in Resistance Training. Encyclopedia, 1(2), pp.423-432.
- 27. Ashmawy, A.E.S.S., 2021. The Effect of Using High-Intensity Interval Training to Develop Some Coordination Abilities On the effectiveness of the Technical performance of wrestling players. International Journal of Sports Science and Arts, 18(018), pp.71-90.
- Erdem, T., Özdemir, M. And Tanir, H., 2021. Determination of Weight Loss Methods and Their Effects in Wrestlers Participating in the Senior Women's Turkish Wrestling Championship.
- 29. He, S., Wang, J., Zhang, J. and Xu, J., 2021. Intermittent Versus Continuous Energy Restriction for Weight Loss and Metabolic Improvement: A Meta-Analysis and Systematic Review. Obesity, 29(1), pp.108-115.

- 30. Epstein, E.S., Maysent, K. and Wilkinson, M.J., 2021. Fasting for Cardiovascular Health. In Prevention and Treatment of Cardiovascular Disease (pp. 143-160). Humana, Cham.
- 31. Horne BD, Muhlestein JB, Lappé DL, May HT, Carlquist JF, Galenko O, Brunisholz KD, Anderson JL. Randomized cross-over trial of short-term water-only fasting: metabolic and cardiovascular consequences. Nutr Metab Cardiovasc Dis. 2013 Nov;23(11):1050-7. doi: 10.1016/j.numecd.2012.09.007. Epub 2012 Dec 7. PMID: 23220077.
- Adrienne R. Barnosky, Kristin K. Hoddy, Terry G. Unterman, Krista A. Varady, Intermittent fasting vs daily calorie restriction for type 2 diabetes prevention: a review of human findings, Translational Research, Volume 164, Issue 4,2014, Pages 302-311, ISSN 1931-5244. https://doi.org/10.1016/j.trsl.2014.05.013.
- 33. Aftab Ahmed, Farhan Saeed, Muhammad Umair Arshad, Muhammad Afzaal, Ali Imran, Shinawar Waseem Ali, Bushra Niaz, Awais Ahmad & Muhammad Imran (2018) Impact of intermittent fasting on human health: an extended review of metabolic cascades, International Journal of Food Properties, 21:1, 2700-2713, DOI: 10.1080/10942912.2018.1560312.
- Dong, T. A., Sandesara, P. B., Dhindsa, D. S., Mehta, A., Arneson, L. C., Dollar, A. L., Taub, P. R., & Sperling, L. S. (2020). Intermittent Fasting: A Heart Healthy Dietary Pattern?. The American journal of medicine, 133(8), 901–907. https:// doi.org/10.1016/j.amjmed.2020.03.030.
- Tappy, L., 2020. Metabolism of sugars: A window to the regulation of glucose and lipid homeostasis by splanchnic organs. Clinical Nutrition.
- Cuccolo, K., Kramer, R., Petros, T. and Thoennes, M., 2021. Intermittent fasting implementation and association with eating disorder symptomatology. Eating Disorders, pp.1-21.
- 37. Ravi K. Amaravadi, Alec C. Kimmelman and Jayanta Debnath. Targeting Autophagy in Cancer: Recent Advances and Future Directions. Cancer Discov September 1 2019 (9) (9) 1167-1181; DOI: 10.1158/2159-8290.CD-19-0292.
- 38. Hartman ML, Veldhuis JD, Johnson ML, Lee MM, Alberti KG, Samojlik E, Thorner MO. Augmented growth hormone (GH) secretory burst frequency and amplitude mediate enhanced GH secretion during a two-day fast in normal men. J Clin Endocrinol Metab. 1992 Apr;74(4):757-65. doi: 10.1210/jcem.74.4.1548337. PMID: 1548337.
- Hwangbo, D.S., Lee, H.Y., Abozaid, L.S. and Min, K.J., 2020. Mechanisms of lifespan regulation by calorie restriction and intermittent fasting in model organisms. Nutrients, 12(4), p.1194.
- 40. Mattson, M., Moehl, K., Ghena, N. et al. Intermittent metabolic switching, neuroplasticity and brain health. Nat Rev Neurosci 19, 81–94 (2018). https://doi.org/10.1038/nrn.2017.156