

Muslim Prayer- A New Form of Physical Activity: A Narrative Review

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ABSTRACT

Aims and objectives: This review aims to discuss the relationship of Muslim Prayer with regular physical activity and its various medical benefits along with spiritual benefits.

Methodology: For the present article, a literature search was performed using Google Scholar, Pubmed and Cochrane data base using the key words. Articles were searched and reviewed using the narrative approach.

Outcome & Conclusion: There are numerous physical and physiological benefits of Salat because almost all the muscles of the body and joints are exercised during Salat. Different studies prove the medical benefits along with spiritual benefits of Salat. So Salat can be considered as a new form of physical activity due to its multiple dimension positive effect on overall health.

Key words- Muslim Prayer (Salat), Physical Activity, Health Benefits

INTRODUCTION

Regular physical activity is important for living healthy lifestyle. Physical activity is an essential human functions. [1] The human body has evolve as a complex organism capable of performing different ranges of tasks, from large muscular activity to fine manual dexterity. [2] Daily physical activity can improve overall physical and musculoskeletal fitness. Numbers of evidences are there that showed that enhanced musculoskeletal fitness is associated with an improvement in overall health status and also decrease the risk of chronic disease and disability. [3] Regular physical activity induces multiple adaptations within various system of body. [4]

Regular physical activity helps in reducing risk of different cardiovascular disease, neurological conditions, systemic diseases, musculoskeletal conditions,

depression, and fall-related injuries. Physical activity is considered as a leading health indicator. [5] To promote and maintain health, all healthy adults aged 18–65 yr need moderate-intensity aerobic physical activity for a minimum of 30 min on five days each week or vigorous-intensity aerobic activity for a minimum of 20 min on three days each week. [6] Salat is a practice of formal prayer in Islam which must be practiced by Muslims. [7] Salat (Muslim Prayer) is the Arabic word for praying by Muslim worshippers and considered as second pillar of the Islamic faith. [8] Salat is the Muslim prayers which involve performing some spiritual along with certain physical postures. [9] Salat is performed by Muslim worshippers five times a day and it is a spiritual and physical act in where, muscular system of human body became active without muscle fatigue and induces serenity on body and soul. There are some scientific

evidences of long-term health benefits of performing moderate intensity activities regularly. ^[10] Muslim prayer (Salat) can be called as Islamic yoga because of some common postures and benefits like Yoga. Yoga consists of a number of 'asana' or body positions, which is to be maintained for a desired length of time along with reciting 'mantras' or breathing in a rhythmic manner. Salat (Islamic yoga) helps in promoting relaxation and emotional wellness, enhance balance and coordination, and helps in enhancement of immune system. Relaxation effect reduces the mental stress and tension & enhances the memory. Even each (Salat) positions is having some similarity with corresponding yoga position and the positions together "activate" all seven "chakras" (energy fields) in the body-as per yoga practices. ^[11]

The present review aims to discuss various physical and medical benefits of Muslim prayer with evidence based findings on proving Muslim prayer as a new form of physical activity

Physical Activity

Physical activity is one of the most basic human functions. The human body has evolved over millions of years for performing an enormous range of tasks, from walking; running or climbing to detailed actions involving fine manual dexterity. ^[2] Regular physical activity is being an important component of healthy lifestyle. Physical activity is one of the most basic human functions. ^[1] Routine physical activity can improve musculoskeletal fitness which results in improving overall health status and a reduction in the risk of chronic disease and disability. ^[3] Regular physical activity induces multiple adaptations within musculoskeletal and cardiorespiratory system. ^[4]

Muslim Prayer (Salat)

Salat is the Arabic word for prayers offered by Muslim worshippers, and it is also considered as the second pillar of the Islamic faith. The procedure of the prayer ritual includes standing, bowing, prostration and sitting. Salat is a physical as well as a

spiritual act involving total obedience and submission to Allah (God) and it is obligatory for all Muslims to perform it. The method of praying is similar all over the world. These are the following steps in performing Salat.

Standing for Prayer

Starting position is standing and worshippers should concentrate their minds on praying. in the comfortable standing position, the center of pressure is usually midway between the in step of the two feet. In a standing position, they raise their hands up to the ear lobe and bring them down one after another by holding the left wrist with the right hand on the abdomen, above the navel, or on the chest. During voluntary clenching of the right hand, blood flow is increased in the hand area of the left motor cortex, and the corresponding sensory areas in the post-central gyrus. Worshippers utter some *Quran versus* in Arabic which also contribute in activating speech muscles.

Bowing

After standing and uttering some verses from the *Quran*, bowing is done by forward movement of the vertebral column, resulting in activation of the back muscles especially the Para spinal muscles and this movement is supported by two straight hands grasping the hyperextended knees. After a few seconds, the worshipper gradually reverts to their normal standing position.

Prostration

The act of prostration is the substance of Salat. It is done from the standing position to kneeling, putting the head down and touching the ground with the forehead, with the palms remaining parallel to the ears, and touching the ground with the flexed elbows for a few seconds

Sitting and Finishing Salat

After standing and bowing, and proceeding to prostration, sitting is done on the left leg knee flexed with the inverted Dorsi-flexed ankle and flexed right knee and metatarsophalangeal joint for a couple of minutes. After that, Salat is concluded by

looking over one's right and left shoulder wishing peace for mankind. [8]

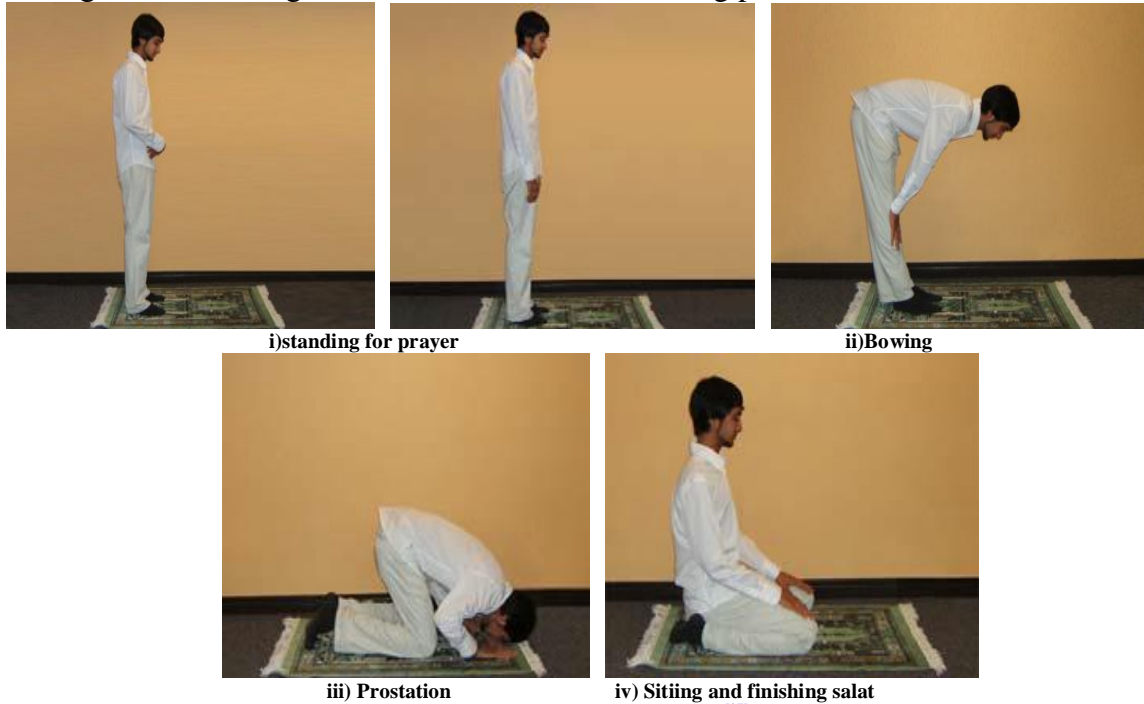


Fig-1 Steps of Muslim prayer [27]

Relationship of Muslim Prayer and Physical Activity

According to definition of the World Health Organization one of the major aspects of health is physical health which is easier to understand than other aspects of health. Physical health is proper function of organs and cells biologically in coordination. Medical and scientific societies showed the interest in understanding impressions of religion on health. There is 350 to 400 studies found by Matthews which shows that people having strong religious beliefs, have more lifespan and a better quality of living rather than people with weak religious belief. World Health Organization data shows 60% of health and quality of life is depended on lifestyle. Islam guides the people in a right way which helps them in problem solving and stress release. The first and the foremost important duty in Islam after faith in god and testify to the oneness of god is Prayer. Salat is an Arabic term which is used for Muslim prayers and it is the second base of Islamic faith which is usually done in a quiet place and helps in better concentration of the mind which leads to relaxation effect

and it is different from typical meditations. Salat is a physical movement as well as a spiritual practice relating to the pure obedience to god which is performed 5 times in a day. Various movements including standing, ruku, sujood and sitting. Joints involved in prayer contains shoulders, wrist, elbow, metatarsophalangeal, proximal and distal Interphalangeal, temporomandibular joint, jaw joint, spinal cord, pelvis, knee, ankle, subtalar, metatarsophalangeal and atlantoaxial. [9] Salat is spiritual and physical act which activates nearly all muscles of human body without muscle fatigue and induces serenity on body and soul. Scientific evidence shows that moderate intensity activities performed daily can have some long term health benefits. [10]

Muslim prayer (called: *Salat*) is having similar effect like gentle exercise that makes muscles contracts isometrically and isotonicly (Jing et al., 2012). Prayers have been shown to have a positive effect on the psychological as well as the physical health of the human body (Yucel, 2008). There are two main movements during *Salat* which involve two flexion movements,

namely Ruku (*bowing 90 degree forward flexion with both hands on knees*) and Sujud (*flexion with the hands and forehead flat on the floor*).^[12] An interesting statistic revealed that Arabians who follow the Muslim faith have a range of motion of 139.5° in comparison to non-Arabic patients who do not follow Muslim faith have 102.5° of range. The act of sitting on the floor and kneeling for daily religious activities from an early age may improve the flexibility of muscles.^[13]

Muslim prayer is also a form of a mild exercise. It involves movements of all body parts 5 times daily at regular intervals which helps to maintain the body round the clock without causing any strain or tiredness.^[14]

Benefits of Muslim Prayer

The major function of rehabilitation is to provide the proper therapy that helps in improving the physical activities of impaired and disabled persons through improvement in their muscle strength. The rehabilitation team should always take heed of the social and mental well-being of such patients. When the different aspects of Salat were studied, it shows improvement in heart, spine, memory, concentration, and cognitive functions, in fact the whole body gets benefitted by the cumbersome beneficial effects of different postures of Salat. Salat activity can help in the rehabilitation process of various musculoskeletal and neurological conditions.^[10]

Musculoskeletal Benefits

Islamic prayers include several physical activities while performing Raq'aas. Each includes standing erect, bowing to a right angle position, standing again, prostrating from standing position, then squatting with the knee joints maximally flexed and shins lying in parallel on ground, i.e., deep squatting, prostrating again, then deep squatting again. Raq'aas are no less than two and no more than four in each of the five main daily prayers. Each Raq'aa after the first has to start by standing up from either the position of prostration or from deep squatting position and it

concluded by rotation of the head and neck to the right and to the left. Such regular repeated movements for years strengthen the overall body muscular system. All the flexors and extensors of weight bearing joints are involved during various salat positions and these muscles bear the burden, of extending the knee joints against most of the body weight on getting up from prostration or deep squatting position. These gentle movements are helpful in maintaining joint mobility and elasticity of its surrounding structures.¹⁻⁷ and act as a form of endurance exercise which help to protect the joints from osteoarthritis (OA).^[15]

One study done that investigated the muscle activity of the neck extensors (NE), sternocleidomastoids (SCM) and biceps brachii (BB) muscles in healthy subjects during Salat and specified exercises using surface electromyography (EMG). A group of undergraduates aged between 19 to 25 years voluntarily participated in this study. For the assessment of the NE and SCM, the subjects were asked to perform Salat (salam's position) and exercise [neck rotation exercise]. Subjects were asked to perform takbir's position and biceps dumbbell curl (BDC) to access BB. The EMG and the motion signals of the muscles were recorded. The findings indicate that there were contractions of the muscles during the Salat and exercise with difference EMG level. Therefore, Salat may be useful in warm up exercise or in rehabilitation programs.^[16]

One study done on Muslim patients presenting with advanced degenerative arthritis of the knee, the movements of the affected joint are often preserved because of the traditional Arabic way of sitting and the Muslim way of praying force the knees into deep flexion for long periods many times a day. Arabic patient was having significantly better range of flexion than that of non-Arabic patients with knee osteoarthritis. There was also a statistically significant difference between the mean extension

deficit of the two groups with osteoarthritis. [17]

One research was done to investigate the activity of the gastrocnemius (Gas) muscle in healthy subjects during salat (ruku' position) and specific exercise [Unilateral Plantar Flexion Exercise (UPFE)] using electromyography (EMG). Both lateral and medial Gas muscles were assessed in a group of undergraduates aged between 19 to 25 years who voluntarily

participated in this study and the myoelectric activity of the muscles were recorded and analyzed. The finding showed that there were same EMG level contractions of the muscles during the salat and exercise. Therefore, salat may be considered useful for strengthening exercises and rehabilitation programs for lower limb activities. [18]

Another study was done to assess the effectiveness of Muslim Prayer movements on strength of lower back muscles (LBM) in relation to some common LBM exercises. A cross-sectional study was conducted at King Abdul Aziz University, Saudi Arabia in October, 2012. They analyzed surface electromyogram data of 15 men and 15 women aged (21.4±2.2 years) to compare the strength of LBM contraction in Muslim's prayers movements with that of three chosen LBM exercises. Their study showed that there were no significant differences between Muslim's four prayers movements and two of the LBM exercises included in the study ($p \geq 0.05$). The conclusion of the study was that major movements of Muslim's prayers is having similar effects as LBM exercises. [12]

Neurological and Cardiovascular benefits

One study was done to determine the effect of the Islamic prayer regime on balance. Sixty healthy male subjects were divided into two groups: one group who practiced Islamic prayer, and another group includes non-practicing subjects. The dynamic balance was assessed by using a Balance Master. Group performing Islamic prayer regimes were having statistically

significantly better dynamic balance than the non-practicing healthy subjects. The results of this study support the hypothesis that Muslim prayers benefits and improves the human physiological function, especially balance. [19]

Another study investigated the effect of Muslim prayer (Salat) on the relative power (RPa) of electroencephalography (EEG) and autonomic nervous activity and the relationship between them by using

spectral analysis of EEG and heart rate variability (HRV). Thirty healthy Muslim men participated in the study and Their electrocardiograms and EEGs were continuously recorded before, during, and after Salat practice with a computer-based data acquisition system which shows during Salat, a significant increase ($p < .05$) was observed in the mean RPa in the occipital and parietal regions and in the normalized unit of high-frequency (nuHF) power of HRV (as a parasympathetic index). This study concludes that regular Salat practices may help promote relaxation, minimize anxiety, and reduce cardiovascular risk. [20]

One study was done to identify the effects of the Muslim prayer, known as Salat, on heart rate (HR) and blood pressure (BP) while performing or mime the different postures of Salat *i.e.*:; standing, bowing, prostrating and sitting. The results showed that there was a significant difference in the HR of the subjects between performing and miming Salat. The standing and prostration positions of Salat produced the highest and the lowest HR, respectively. The systolic and the diastolic BP decreased significantly after performance and mime of Salat, and a greater reduction in BP was observed during performance of Salat. [21]

Psychological Benefits

Salah is the formal prayer of Islam that is a physically demanding practice that helps in adjusting the rhythm of the body. One study done on the muscle activity of the right and left external upper trapezius muscles to assess the level of muscle activity during

Islamic prayer. The EMG showed more significant decrease and relaxation compared with non-training tasks of clients. Salat augments the behavioral interventions because it helps develop internal awareness and enhance health status and reduce the risk of shoulder problems. [22] One study was done to find out the mental health and self concept among Muslim those Who Practice Regular Namaz and Tilawat -E-Quran and Muslim those Who Do Not Practice Regular Namaz and Tilawat -E-Quran. The result of this study conclude that Muslim those who Practice Regular Namaz and Tilawat -E- Quran have significantly high mental health than Muslim those who do Not Practice Regular Namaz and Tilawat -E- Quran. [23]

Muslim prayer is the meditation of Islam. One pilot study was done with EEG analysis in twenty-five trials of Muslim prayer was reported. Some of the findings are consistent with the majority of the previous meditation studies (alpha rhythm slowing, increased alpha rhythm coherence). However, Muslim prayer does not show an increase in alpha and/or theta power like most of the results of other meditation studies. [24]

Similarity between Yoga and Namaz

Muslim Prayer can be called Islamic Yoga because of the similar benefits like regular practice of Yoga .Yoga as 'one of the oldest systems of personal development encompassing body, mind and spirit'. Yoga is now became the fastest growing health trend for its curative powers of movement. Yogic Asanas comprises of a different of body postures, while reciting 'Mantras' or breathing in a rhythmic manner. Medical schools like Harvard and foundations such as Menninger Foundation have researched the various benefits of Yoga and now recommend it to their patients. Interestingly Islamic also have similarity in postures with yoga. This simple form of Yoga provides an individual physical, mental and spiritual benefits five times a day as Muslims assume certain positions while reciting Quran. Of course, not all the Yoga positions are found

in the Islamic, however, hospital researchers have concluded that patients benefit from even a simplified version of Yoga i.e. Islamic postures (Karima Burns, 2012; Roaf et al.,2014). The Muslim Prayer positions is similar as some Yoga position, and the positions together 'activate' all seven 'chakras' (energy fields) in the human body. The idea of activating a chakra may means thinking about how the 'feeling' sense functions (Roaf et al.,2014). [11]

DISCUSSION

This review focuses on evidence based various benefits of Muslim prayer. There are numerous physical, physiological and psychological benefits of Salat because almost all the muscles of the body and joints are exercised during Salat. In the prostration movement of Muslim prayer besides the limb, back and perineal muscles are exercised repeatedly. Prayer is a kind of psychological therapy that helps in calming and soothing the soul as well as relieving all tension. It was found that prayer is distinguished by a wonderful measure of smoothness, harmony and coordination, represented in standing, kneeling (ruku), prostration (sujud) and sitting between every two prostrations. Consequently, the risks of varicose vein reduced affects in those, who perform prayers regularly and properly. Also Sujud which is one of the action of Salat in which the head is in a position lower than the heart and therefore, receives increased blood supply and due to surge in blood supply, this phenomenon has a positive effect on memory, concentration, psyche and other cognitive abilities and also it helps in drainage of sinuses, as a result of which person has less chances of getting sinusitis. Sujud position also helps in maintaining the respiratory functions, and keeps lungs in good shape also. [25]

One study was done to assess the effect of Salat and mimicking salat movements and postures on subjects with erectile dysfunction. In that study Ten volunteers were recruited and were divided into two groups- one group who were

Muslims (Group I) were asked to perform their daily Salat and a new intervention of an additional 12 movement cycles of Salat for three sessions a week. Non-Muslim subjects (Group II) were taught to mimic Salat movements, and were asked to perform a total of 12 movement cycles without reading the recitation for three sessions a week. An International Index for Erectile Function 5 (IIEF-5) questionnaire was given to the subjects before and after the intervention of performing Salat or mimicking Salat movements and postures. The results showed that all measured parameters improved significantly, with the largest change observed in the maximum percent volumetric change over the baseline (from 138 to 222%). This study concludes that the alternative approach of Salat and mimicking Salat movements and postures, may have beneficial effects for ED patients. [26]

Salat as a physical exercise is quite similar to the tai chi and yoga as it also involves the movements of the whole body and promotes physical fitness. Recent studies of yoga show that a decrease in the systolic pressure is observed when an individual performs yogic relaxation and meditation. One study showed that Salat decreased systolic BP and also reduces the sympathetic discharge resulting in and predominance of the parasympathetic system. A study covering 17,000 Harvard alumni provides strong evidence that moderate aerobic exercise is equivalent to jogging about 3 miles a day. Ibrahim et al. suggests that subjects who perform Salat regularly, five times a day, would have a healthy body composition, increase the basal metabolic rate and reduced body fat mass. [21]

Studies on the benefits of 'Salat' have revealed that when it performed correctly and with the right postures along with the spiritual well-being; it is also improving mental and physical health, improving muscle strength, joint mobility and blood circulation. A study reported that the different postures of salat provide

concentric and eccentric muscle actions which play an important role in postural stability and balance. [19] Namaz is a haemodynamic exercise which overall improved circulation, coordination, Good Posture, balance and wellbeing which burn off the calories and helps in losing weight and maintaining and body composition and increased aerobic capacity & reduces incidence of brain hemorrhage & stroke. [14]

CONCLUSION

A sound body with sound mind is essential for every man to achieve the goal. Muslim prayer coordinates the actions of body & mind of people. Different studies prove the medical benefits along with spiritual benefits. So, by these evidence based researches Muslim prayer postures can be taken as a new form exercise for treating different musculoskeletal and neurological conditions.

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How to cite this article: Nazish N, Kalra N. Muslim prayer- a new form of physical activity: a narrative review. *Int J Health Sci Res*. 2018; 8(7):337-344.
