



## Exercise and its Impact on Anger Management

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### Abstract

Anger is a basic emotion, experienced by almost all the human beings in response to the unwanted behavior of others. Everyone had angry feelings at sometimes or other. It is a normal reaction when circumstances are not fair or our expectations are not met. It is a healthy human reaction and in its healthy form, anger provides a warning signal to the brain that something is wrong and supplies the body with energy in the form of adrenaline to correct the situation. But sometimes anger becomes negative when people deny it, suppress it or express it inappropriately. Anger can be of state or trait type. State anger is situational specific and is not stable. On the other hand, trait anger is stable personality trait that leads to angry reactions. Various pharmacological as well as non-pharmacological measures can be used to control the episodes of anger. One of the effective and with non-side effects treatment for anger management is regular practice of exercises. Physical exercise provides an opportunity to release emotions, especially if person feel that they are about to burst. Present article had shown the positive impact of exercise on anger management.

**Keywords:** Exercise; Anger; Anger Management.

### Introduction

All of us experienced anger. Anger is a completely normal, healthy human emotion. Anger often serves important functions, such as motivating the individual to take protective action and achieve goal or overcome obstacles but when it gets out of control and turn destructive, it can lead to various physiological, psychological and behavioral problems [1]. Anger overcomes us when something goes wrong or when we think something has gone wrong. Anger can lead to problems in work, in one's personal relationships and in the overall quality of one's life [2,3].

Anger is one of the most common, powerful and perplexing human emotion. The things that make people angry are as diverse as people themselves. Anger can have a significant impact on interpersonal communication. For a relationship to last and two people to take pride and delight in their togetherness, sooner or later they have to deal with and have to manage the experience and expression of anger [4]. Due to excessive anger, some of us have cringed under the rage in our families, struggled with it in our souls, felt it towards our friends, co-workers and loved ones. Some of us have shocked others with volcanoes of anger [5]. We find ourselves doing and saying things we don't want to do. We don't know where

the button to turn our anger down or off. A study conducted by Hoy and Griffin found that 23% people openly express their anger, 39% says they hold it in or hide it, 23% says they walk away, 23% confess to having hit someone and 17% admit they have destroyed someone's property out of anger [6].

### What does Anger Mean?

Anger is 'an emotional state that varies in intensity from mild irritation to intense fury and rage [7]. Anger can be defined as an emotional state experienced as the impulse to behavior in order to protect, defend or attack in response to a threat or a challenge [8]. Of itself, anger is not classified as an emotional disorder but it becomes problematic only when experienced with such a frequency or intensity that it detrimental to health. Problematic anger, associated with poor impulse control, is commonly evident in domestic violence and other forms of criminal behavior [9]. Di Giuseppe et al defined anger as, "an internal mental subjective feeling state with associated cognitions and physiological arousal patterns" [10].

### Why does Anger exist?

The major origins of anger control problems for an individual are likely to be an interaction of both internal and external factors.

These commonly include a family history of violence, expression of bullying and experience of physical, sexual or emotional abuse. In addition to psychosocial factors, biological predisposition may also play a crucial role. Physiological response is that triggered in the autonomic nervous system by adrenalin, which produces symptoms such as increased heart rate, sweating and flushing, which are common to all emotions. It is the individual's labeling of these symptoms as "anger" which differentiates it from other emotions [11,12]. Some brain circuits are of central importance in anger. Anger involves the activation of the papezs circuit, which includes sites in the amygdale, the ventrolateral hypothalamus and down to place in the midbrain (the periaqueductal gray matter). Activity of the circuit is supported by the neuropeptide substance P. In human the stimulation of these location showed irritation and report violent rage attack [13-16]. Anger, like other emotional states, is influenced by our cognitions and our behavior like our physiology. Cognitions involved in an angry response commonly include thinking errors such as personalizing- 'he did it deliberately to upset me'- and catastrophizing- 'it's awful: I will never get another job'. Common anger- inducing beliefs typically include, for example, that the life should be unfair or that one is entitled to take revenge for perceived injustice. The behavioral solution to anger can include 'adaptive' responses such as problem solving, assertiveness, tactical withdrawal and maladaptive responses such as social withdrawal, self -harm and verbal and physical aggression. External or social factors also have a role in determining anger, for example- frustration, provocation, peer influence, environmental factors such as noise, over- crowing or poor living conditions can also act as influential determinants [11-13]. Thus anger has biological, psychological as well as social origin.

**Dimensions of Anger**

Anger is broadly classified into anger experience, expression and control. Experiences of anger are conceptualized as having two major components: State and Trait anger. State anger is defined as a psychological emotional state marked by subjective feelings that vary in intensity from mild irritation to intense fury and rage. Trait anger is defined in terms of individual differences in disposition to perceive a wide range of situations as frustrating and by the tendency to respond to such situations with elevation in state anger. State anger has three components- feeling angry, feel like expressing anger verbally, feel like expressing anger physically. Trait anger has two components: angry temperament, which is a general propensity to experiences and express anger without specific provocation and angry reaction, which is the disposition to

express anger when criticized or treated unfairly by other individuals. Anger expression is conceptualized as having two major components: the anger expression-out component involves the expression of anger towards other people or objects in the environment and the second component is anger directed inwards i.e. holding in or suppressing angry feelings. Anger control is also conceptualized as having two major components: anger control-out and anger control-in. These two components show the individual differences in the extent to which a person attempts to control the expression of anger [7-8,17].

**Development and Expression of Anger** (Harris and Rowlin, 1992) [18]

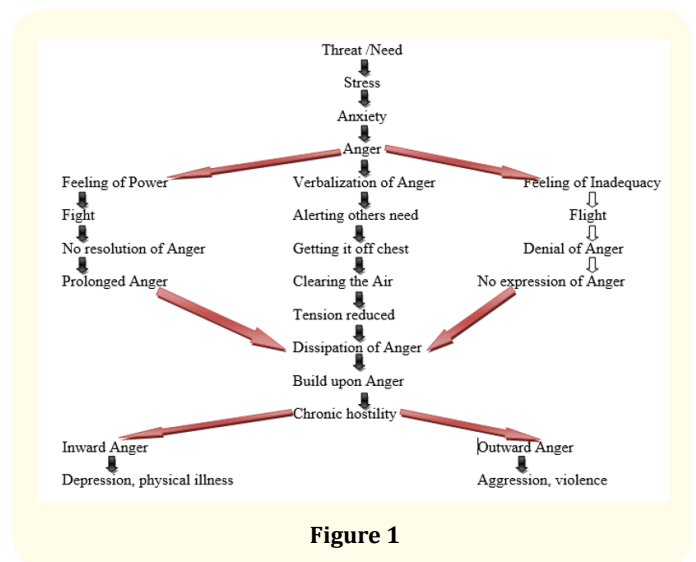


Figure 1

**How to Manage Anger?**

The goal of anger management has to reduce our emotional feelings and physiological arousal that anger cause. We can't get rid of or avoid, the things or people that enrage us, nor can change them, but we can learn to control our reactions [2,3]. Thus, the aim of therapy for anger problems is the control of anger, not its suppression. Various strategies can be used to manage anger but exercise is a promising treatment option with no side-effects.

Physical exercise is known to produce health-related benefits for different target groups. Physical exercise can be used both as early prevention, and as part of a continuous treatment process. Physical activity stimulates various brain chemicals that leave the feeling of happiness and relaxation. Person also feels better when they exercise regularly, which can boost their confidence and improve self-esteem. Physical and mental health are linked with each

other. Improving physical condition helps to better manage emotions and when exercise is used in conjunction with therapy and anger management strategies, it helps to control anger and frustration [19,20].

According to psychologist Kelly Wilson in her book "Things Might Go Terribly, Horribly Wrong," hundreds of studies have demonstrated that exercise reduces anger that is the result of frustration by burning off excess energy and releasing powerful endorphins that can help in altering mood. Exercise also reduces blood pressure. High blood pressure can make the person to feel angry, and may also be the consequence of excessive anger. Physical exercise is one of the most effective methods for reducing anger. Physical exercise provides an opportunity to release emotions, especially if person feel that they are about to explode [19,20].

Aerobic exercise relies on oxygen to produce energy and is generally performed for several minutes or more. Aerobic exercises include a host of workouts that raise heart rate. Because aerobic exercise increases the heart rate and exercise the pulmonary system, it is particularly effective at lowering blood pressure and reducing anxiety which result in decreasing the episodes of anger. Various studies have reported a relationship of anger with physical fitness level [21,22]. Stewart et al. highlighted a significant correlation between higher levels of aerobic fitness and desirable reduction in the scores of anger among study participants [23].

Malhotra P, *et al* did a study to assess the effect of physical exercise on anger management. Subjects' anger was assessed using State- Trait Anger Expression Inventory- 2TM (STAXI-2TM). In the experimental group, Physical exercises (Surya namaskar and aerobic exercise- Brisk walking and Jogging) were used as a part of intervention for fifteen days along with routine care whereas in the control group only routine care was provided. On the basis of percentile of anger scores, state anger in both the groups showed significant changes after fifteen days but trait anger was only significantly reduced in experimental group after interventions. Hence, the study reveals that physical exercises were effective and can be used to control the anger [24,25].

#### How much a person can perform physical Exercise?

British Association of Sport and Exercise Sciences carried a panel of experts to review the literature and generate "ABC" guidelines that health professionals might use. In the ABC of Physical Activity for Health, A stand for all healthy adults, B stand for Beginners, and C is for Conditioned individuals. All healthy adults aged 18–65 years should aim to take part in at least 150 min of

moderate-intensity aerobic activity each week, or at least 75 min of vigorous-intensity aerobic activity per week, or equivalent combinations of moderate- and vigorous-intensity activities. Moderate-intensity activities are those in which heart rate and breathing are raised, but it is possible to speak comfortably. Vigorous-intensity activities are that in which heart rate is higher, breathing is heavier, and conversation is harder. Aerobic activities should be undertaken in bouts of at least 10 min and, ideally, should be performed on five or more days a week. Beginners should work steadily towards meeting the physical activity levels recommended for all healthy adults. Conditioned individuals who have met the physical activity levels recommended for all healthy adults for at least 6 months may achieve additional health benefits by engaging in 300 min or more of moderate-intensity aerobic activity per week, or 150 min or more of vigorous-intensity aerobic activity each week, or equivalent combinations of moderate- and vigorous-intensity aerobic activities. Children and young people aged 5–16 years should accumulate at least 60 min of moderate-to-vigorous-intensity aerobic activity per day, including vigorous-intensity aerobic activities [26].

As per the Chief Medical Officer's Guidelines, Children of pre-school age who are capable of walking unaided should be physically active daily for at least 180 minutes (3 hours), spread throughout the day. For The age of 5-18 years children and young people should engage in moderate to vigorous intensity physical activity for at least 60 minutes and up to several hours every day. For Adults and older adults (65+ years) activity should add up to at least 150 minutes (2½ hours) of moderate intensity activity in bouts of 10 minutes or more – one way to approach this is to do 30 minutes on at least 5 days a week [27].

As per the WHO's Global Action Plan 2013, the main goal regarding physical activity is to achieve a 10% relative reduction in the prevalence of insufficient physical activity, that is defined as < 150 minutes of moderate intensity activity a week or equivalent, for adults aged 18 or above [28,29].

#### Discussion

Physical inactivity is the tenth main cause of disability adjusted life years worldwide. Age standardized data show that 35.6% of adults aged 15 and above worldwide are insufficiently active [30].

Data from 2011-12 found that only 36.6% of males and 38.8% of females over 65 engage in sufficient physical activity. In view of 75 and over group, these figures are even more problematic with just one in three men and one in five women being adequately physical active [31].

Exercise regulates the activity of nervous system by stimulating a cascade of neuroplastic mechanisms that further support improvement in hippocampus functioning [32-36].

Exercise influences the striatum by increasing dopamine signaling and angiogenesis. A greater dorsal striatal volume is related to enhance cognitive and emotional control [37,38].

Physical exercise increases the basal metabolism and improves the blood circulation in all parts of body. Exercise also uses extra calories; along with promote a sense of well- being by secreting endorphins [39].

Increase physical activity not only raised the level of nor-epinephrine and endorphin but also positively affects the mood, self confidence, concentration, stress and anger [40-41].

Studies have revealed that aerobic exercise results in mood states resembling an "iceberg profile ", which consists of elevated scores on vigor subscale combined with low scores on negative emotion states such as anger, confusion, fatigue and tension [42].

Joseph., *et al* did a qualitative study to assess the effect and determinants of exercise. Each participant actively participated in a 10- week individualized exercise training program with the aim to obtain  $\geq 90$  minutes of moderate -to- vigorous activity each week. Participant explained how exercise had increased their confidence, self- esteem, improvement in mental health and also exercise gives a sense of achievement [43].

Researchers showed that exercise -based therapeutic interventions provides positive feelings such as happiness, joy and pleasure by minimizing the frequency of frustration, anger, sadness and anxiety [44,45].

A study done by Gerber, found that after doing a twelve week aerobic exercise program, participants significantly reduced ( $p < 0.001$ ) their psychopathological symptoms like emotional exhaustion, depersonalization etc. This further improved mood state considerable from before to after a single exercise session [46].

Exercise intervention could improve the patient's positive coping level and reduce the negative coping level of patients. Exercise as an activity characterized by neural excitation and thus could enhance the self-efficacy, self-esteem, and other psychological resources of the participants. Changes in coping ability indicated the positive role of the collective exercise on their mental health [47].

A study done by Roh, showed that Pilates, a slow exercise, provides a psychologically positive and calming effect [48].

Data suggesting that a mild to moderate exercise regimen may be optimal for achieving mental health benefits. Exercises also enhance cognitive and executive functioning as well as positive affect. Exercise results in overall improvements in psychological well-being improve mood, self- esteem, and overall self-control ability. Physical exercise also decreases the psychologically symptoms of anger, gives positive energy and at the same time promote relaxation [49].

## Conclusion

Anger is an internal, cognitive – emotional-physiological experience, consisting of emotional feelings (feeling mad or furious), physiological arousal (elevated heart rate, muscle tension) and cognitive processes (attributions of intentional harm, blaming). Anger appears in response to a range of external and internal factors. Anger also leads to personal, social, legal, educational and vocational consequences. Based on the evidences and the various researches, it was shown that physical exercise can be implemented as a way of coping mechanism in order to manage the anger. A protocol related to exercise can be developed and used for controlling anger in day to day life as a routine practice.

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