
Fatigue in Sports: Causes, Symptoms and Treatment

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Abstract: Fatigue is the tiredness which one feels after continuous work. It results normally if the person works beyond his capacity or due to exertion. Fatigue can be described as the lack of energy and motivation (both physical and mental). Fatigue may be of two types. They are Physiological Fatigue and Psychological Fatigue. There are several causes of fatigue. Some you can control, others, you may not be able to control. Fatigue can be caused by various lifestyle factors, psychological conditions, and medical conditions. There are many symptoms of fatigue. Many of these symptoms can disrupt your daily life and routine. Some of the symptoms are Muscle aches, Headaches, Extreme sleepiness, etc.. The type of fatigue occurs in our body as a result of exercise and sports are muscle fatigue. Muscle fatigue is the ability of a muscle to generate the necessary force. Muscle fatigue commonly occurs after exercising vigorously. Muscle fatigue can occur in two basic mechanisms: (a) central involves proximal motor neurons (mainly in the brain); and (b) peripheral involves within the motor units (i.e., motor neurons, peripheral nerves, motor endplates, muscle fibers). There are many factors which will cause fatigue in sports. Some of the factors are Lack of Conditioning, Poor Fueling, Neural Fatigue and Health Issues. If you are suffering from chronic fatigue, you do not have to accept it, and live with it. There are treatments available which can help. The treatment of chronic fatigue syndrome is basically treatments to relieve the symptoms.

Keywords: *Fatigue, Psychological Fatigue and Physiological Fatigue.*

Introduction:

The definition of fatigue, is extreme tiredness. It is common for people to feel fatigued once in a while. You can feel fatigued after a long week at work or after a difficult day with the kids.

You can also feel fatigue after eating a big meal. These reasons are very common, and nothing to worry about. If you are feeling extremely fatigued all the time for no apparent reason, there could be an underlying reason. According to Bartley, "Fatigue or tiredness is but one of the many reactions of a person as a whole to a situation as he consciously or unconsciously interprets and evaluates it. Fatigue is simply one form of inadequacy to meet the demands the person recognizes. "Fatigue is the tiredness which one feels after continuous work. It results normally if the person works beyond his capacity or due to exertion. Each of us responds to work differently and fatigue patterns vary in many ways. Patterns of fatigue depend upon individual responses to different work in different ways. Fatigue can be described as the lack of energy and motivation (both physical and mental). Also, fatigue can be a normal response to physical and mental activity; in most normal individuals it is quickly relieved (usually in hours to about a day, depending on the intensity of the activity) by reducing the activity. Fatigue is a very common complaint and it is important to remember that it is a symptom and not a disease. Many illnesses can result in the complaint of fatigue and they can be physical, psychological, or a combination of the two.

What Does Fatigue Mean?

When many people define fatigue, they call it a feeling of sleepiness. While a feeling of sleepiness is included in the fatigue definition, there is much more to it than that. If you are asking yourself, "what is fatigue?", the answer would be tiredness, a desire to sleep, lack of motivation, and a feeling of weariness. Fatigue depends upon one's approach, postural strain, muscle tension, concentration and skill required and equipment being used. If a person likes a job and enjoys doing it, she finds it less fatiguing than another which she dislikes.

The followings are some common factors of fatigue:

1. Mental approach
2. Postural strain
3. Muscular tension
4. Amount of concentration
5. Required skill
6. Frustration and worry
7. Lack of appreciation for the work done
8. Unfamiliar working conditions
9. Unexpected demands on her time and energy

Types of Fatigue:

Fatigue may be of two types:

1. Physiological Fatigue
2. Psychological Fatigue

1. Physiological Fatigue:

This type of Fatigue is related to the body. While doing muscular activity the body consumes fuel and gives out energy. Glycogen is the energy producing material. It is formed by muscle tissue from carbohydrates. In muscular work it unites with oxygen in the blood stream to release energy. Due to this process, carbon dioxide and lactic acid are produced. All these are the waste products, their presence interferes with continued muscular activity and we feel tired and Physiological Fatigue arises. So all these waste products are to be removed from the body and the body requires more of fresh oxygen to oxidize the lactic acid. The blood stream takes away the carbon dioxide to the lungs where it is removed and brings oxygen to the muscle to oxidize lactic acid. Thus oxygen helps to prevent fatigue. Short periods of rest or deep breathing help the tired person to recover from Physiological Fatigue.

2. Psychological Fatigue:

Much of the fatigue experienced in the day to day activities of living is of psychological in nature.

Psychological Fatigue can be of two types:

1. Boredom Fatigue
2. Frustration Fatigue

1. Boredom Fatigue:

This type of fatigue arises out of following reasons:

1. Dislike of the task performed.
2. Lack of interest.
3. Desire to stop the job.
4. Monotonous and repetitive job.
5. Lack of motivation to perform the job.

Boredom Fatigue may arise from the nature of job, with the result that some individuals could be bored with one task and not bored with another. People who dislike routine are not well

adjusted to the needs of the household and not motivated to perform these jobs suffer from this kind of boredom.

1. Frustration Fatigue:

This type of fatigue arises when one becomes a failure and does not reach a goal after continuous effort. When plans fail to work out and goals cannot be reached or any conflict situation arises, a person may experience feelings of frustration and tension is increased. Housewives who do not plan their activities may not be able to complete the task getting tensed and become frustrated. Uncertainty and confusion in performance lack of appreciation for the work done, unfamiliar working conditions, inability to satisfy all the family members, conflict with the new developments, methods and time required by the task, continuous failure may lead to this type of frustration fatigue. Today's homemaker often participates in many activities outside the home. Her dual responsibilities involve worry, which adds to the problem of Fatigue.

Causes of Fatigue

There are several causes of fatigue. Some you can control, others, you may not be able to control. Fatigue can be caused by various lifestyle factors, psychological conditions, and medical conditions.

- Alcohol use
- Alcohol abuse
- Excessive physical activity
- Long periods of inactivity
- Not enough sleepiness
- Use of antihistamines
- Use of cold and cough medications
- Unhealthy eating habits
- Depression
- Anxiety
- Stress
- Diabetes
- RLS (restless legs syndrome)
- Obesity
- Cancer
- Chronic kidney disease

- Overactive thyroid (hyperthyroidism)
- Under active thyroid (hypothyroidism)
- Anemia
- Acute liver failure
- Heart disease

Fatigue Symptoms

There are many symptoms of fatigue. Many of these symptoms can disrupt your daily life and routine. While it is common to experience the symptoms of fatigue occasionally, you should see a doctor if you are feeling fatigued for two or more weeks. If you have tried to reduce stress, eat a healthy diet, and have made it a point to get more rest, and you are still experiencing these symptoms, you should see a doctor. If the fatigue becomes constant, you may be suffering from chronic fatigue. The chronic fatigue symptoms are similar to those of simple fatigue, however, the chronic fatigue symptoms are much more severe.

- Weakness
- Muscle aches
- Headaches
- Extreme sleepiness
- Lack of motivation
- Inability to enjoy fun activities
- Irritability
- Becoming overly emotional
- A desire to lie in bed all day

Compassion Fatigue

Compassion fatigue is commonly seen in doctors, nurses, and teachers. This type of fatigue is a combination of emotional, spiritual, and physical exhaustion. It is caused when a person is the caretaker for patients who suffer from physical distress or serious emotional pain. While you are watching a person suffer, it can take everything out of you at the same time.

Symptoms of Compassion Fatigue

- Difficulty sleeping
- Impaired judgment
- Impaired behavior
- Loss of hope
- Anger
- Depression

Extreme Fatigue in Women

Women often experience extreme fatigue. It can make everyday activities difficult.

Causes of Extreme Fatigue in Women

- Stress
- Family
- Home
- Work
- Menstruation

There are several types of fatigue. Each type has similar symptoms, but different causes. If you are experiencing any type of fatigue, there are treatments available. These treatments will make everyday tasks seem much less difficult.

Fatigue in sports

The type of fatigue occurs in our body as a result of exercise and sports is muscle fatigue.

Muscle Fatigue

Muscle fatigue is the ability of a muscle to generate the necessary force. Muscle fatigue commonly occurs after exercising vigorously. Muscle fatigue can cause pain, soreness, or weakness in the muscles. In order to prevent muscle fatigue, you should avoid overdoing it during your workout.

Muscle fatigue is the transient decrease in performance capacity of muscles, usually evidenced by a failure to maintain or develop a certain expected force or power. Fatigue curves vary between individuals and within individuals depending upon the conditions that exist. Muscle fatigue can occur in two basic mechanisms: (a) central involves proximal motor neurons (mainly in the brain); and (b) peripheral involves within the motor units (i.e., motor neurons, peripheral nerves, motor endplates, muscle fibers).

Central fatigue is caused by an inhibition elicited by nervous impulses from receptors (probably some kind of chemo receptors) in the fatigued muscles. The inhibition may act on the motor pathways anywhere from the voluntary centers in the brain to the spinal motor neurons. This kind of fatigue should manifest itself by a decrease in the outflow of motor impulses to the muscles.

In **peripheral muscle fatigue** there are at least two different sites where repeated contractions may cause impairment: the "*transmission mechanism*" (neuromuscular junction, muscle membrane, and endoplasmic reticulum), and the "*contractile mechanism*" (muscle filaments).

Causes of Fatigue in sports

The feeling of fatigue when you're participating in sports is your body's way of communicating that you need to ease up on the intensity of your physical activity. Dr. Wim Ament explains in a 2009 journal review in "SportsMedicine" that fatigue helps prevent you from performing exercise at an intensity and duration that could cause harm to your body. While high-intensity or long-duration sports always eventually lead to fatigue, you can help prevent it with proper conditioning and fueling.

Lack of Conditioning

Participating in sports requires a high level of conditioning in order for your muscles to be able to continue to work at a high intensity or for a longer duration. The University of Washington's Orthopedics and Sports Medicine department notes that a lack of conditioning can cause your muscles to weaken and thus lead to fatigue more quickly. Once participation in your sporting event causes you to work at a level or duration beyond that of which you're conditioned, you'll feel fatigued. This is why athletes incorporate additional conditioning work into their training regimen.

Poor Fueling

When you're participating in a sport, your muscles require adenosine triphosphate, which fuels contractions. During high-intensity sports, such as those that require sprinting, the ATP is provided through the anaerobic lactic pathway, which is extremely limited. As a result, you hit fatigue more quickly. During lower-intensity sports, such as distance running, the ATP is provided via the aerobic pathway, which is available in larger amounts; when conditioned, you can go farther without hitting fatigue. Once the ATP is used up, you'll feel fatigued. The body converts glucose and glycogen, which you get from food, to ATP, so ensure your blood glucose and glycogen levels are available for fuel by consuming carbohydrates prior to a sporting event. In addition, dehydration limits your body's ability to transport fuel to your working tissues, so take in plenty of fluids before and during sport to maintain performance.

Neural Fatigue

Short-term, intense exercise during sports can cause your neuromuscular system to become fatigued, and the neurotransmitters, which carry a nerve's message to the muscles, become impaired. When the neuromuscular system becomes fatigued, it's less efficient, and the muscle fibers contract with less force and power.

Health Issues

Some fatigue can be caused by outside health issues. For example, athletes with arthritis can suffer from fatigue more quickly. A lack of sleep and low levels of iron also can lead to

fatigue. In addition, emotional issues, such as depression and stress, can cause you to become physically fatigued more quickly.

Chronic Fatigue Syndrome Treatment

If you are suffering from chronic fatigue, you do not have to accept it, and live with it. There are treatments available which can help. The treatment of chronic fatigue syndrome is basically treatments to relieve the symptoms.

Antidepressants: Many people who suffer from chronic fatigue are also suffering from depression. If you take an antidepressant to treat the depression, it may make it easier to deal with the issues associated with chronic fatigue. A mild antidepressant will also help with your sleep, and relieve any muscle pain that you are experiencing due to the chronic fatigue.

Sleeping pills: Taking either an over the counter sleep aid, or having one prescribed by your doctor is a great way to treat chronic fatigue. In taking a sleeping pill, you will be able to fall asleep faster, and stay asleep longer. This will prevent the feeling of tiredness associated with fatigue.

Start a bedtime routine: Going to bed at the same time every night will help with chronic fatigue.

Also, you should avoid napping. While you may have the urge to nap throughout the day, it can only do you harm when it is time to go to sleep at night.

Avoid caffeine: Caffeine is a stimulant, which can make it a powerful force behind chronic fatigue syndrome. If you cut the caffeine out of your diet, you will be more relaxed, and will be able to sleep better.

Psychological counseling: By speaking with a counselor, you can discuss ways of coping with your chronic fatigue, so that it does not create problems in your everyday life.

Graded exercise: Inactivity is a major cause of chronic fatigue. By exercising more often, and doing range of motion and stretching exercises, you are becoming more active. These exercises need to be done in just a few minutes a day, and can make a huge difference in your level of fatigue.

Level out your activity: If you are having a good day, you do not want to go overboard with your level of activity. If you overdo it on a good day, you will have many more bad days.

Reduce stress: While it may be easier said than done, reducing stress is a great way to treat chronic fatigue. If you find yourself getting overwhelmed, you should step back, calm down, and relax. There are many stress reduction techniques that you can try to keep your stress level down.

Massage: Getting a nice massage is a great way to combat fatigue.

Acupuncture: Acupuncture, a method of relieving the symptoms of several conditions through the use of needles, is a great way to relieve the symptoms of chronic fatigue.

Yoga: Yoga will not only add some activity into your daily routine, it is also a very relaxing way to be more active. This can have a great impact on your level of fatigue.

Anti-fatigue mats: Anti fatigue mats are made to reduce fatigue that is used when standing or sitting on hard surfaces for long periods of time. These mats can be made of rubber, vinyl, carpeting, and wood.

Conclusion:

If you are training hard, you may not understand how important rest is to your fitness goals. After all, it can be incredibly tempting to push yourself in an attempt to build bigger muscles, more endurance and skills which are beyond compare. Being short on sleep can lead to increased chances of illness since your immune system will eventually become run down and will stop being able to fight infection so easily. Sleep does more than give us energy, although that is an important benefit. If you are fatigued, you will not be able to train as hard or as long and this can make your workouts downright ineffective. You will find that whether you are performing drills or you are playing in a game, without energy you will be unable to keep up with the other players. That can cause you to miss important passes or chances to score and can bring your entire team down. Obviously, this is not something you want so it is important to go into each game well rested and full of energy. It is important for you to make sure you are getting a sufficient amount of quality sleep in order to keep yourself in top physical and mental condition. The last thing you want to do is allow your fatigue to cost your team the victory they have been working so hard to achieve.

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