

## EFFECT OF ELECTRIC CURRENT ON THE HUMAN BODY

Yunusova Zukhrakhan Takhirovna

Andijan Institute of Economics and Construction, Assistant teacher of the "Civil engineering" department

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**Abstract.** *In this article, the impact of electricity on the human body, its importance today, the use of electricity in buildings, production, all organizations, in life, in technology, biological and clinical deaths, the importance of knowing the properties of electricity for future generations. information provided.*

**Keywords:** *electric current, biological death, clinical death, resistance, frequency, voltage, insulation, electric conductor, voltaic arc, magnetic field, static electric field.*

### INTRODUCTION

Currently, the use of electric current in all areas is widely established. Electricity is widely used in industry, production, life, and technology. Accidents that may occur under the influence of electric current and their prevention are important. The most dangerous aspect of electric current is that there is no possibility to notice this danger in advance. That is why it is important to take various important measures against the danger of electric current, to provide with barrier means, to install personal and collective protection systems. The effects of electric current are not limited to biological effects, but are divided into electric arc effects, magnetic field effects, and static electric field effects. It is useful for everyone to know these things.

Thermal (that is, heat), electrolytic, biological effect of electric current is observed in the human body. The thermal effect of electric current is observed as a burn in some part of the human body, heating of blood vessels, nerves and cells. Electrolytic effect is understood as a condition that causes changes in the physical and chemical properties of blood as a result of the breakdown of salts in the blood or cells. In this case, the electric current can affect only some parts of the body without crossing the central nervous system and the heart-blood. The biological effect of electric current is a characteristic of a living organism. As a result of this effect, the living cells in the human body vibrate due to the sharp contraction of the muscles, which mainly disrupts the bioelectric processes in the body. That is, the human body is mainly bioelectric currents. managed using as a result of the effect of high-voltage electric current from the external environment, the regime of biocurrents is disturbed, and as a result, a state of electrocution occurs in the human body. will come.

Depending on the variety of effects of electric current on the human body, it can be divided into two groups. 1. Local electric effect. 2 Electric shock.

As a result of local electric impact, it is possible to show cases of formation of electrical signs of burns, skin metallization. Burns caused by electricity mainly occur when an electric arc forms between the body and the electrical conductor. Depending on the effect of the voltage on the electrical conductor, such a burn can be different. Mild burns are limited to inflammation, blisters are formed in moderate burns. In case of severe burns, cells and skins turn into coal and cause severe complications. Electric signs - this is expressed by the appearance of a clear gray or light-yellow mark with a diameter of 1-5 mm on the upper part of the skin. Such signs are not dangerous. In case of metallization of the skin, the metal usually melts and breaks down into small

particles and penetrates into the skin. This situation also occurs when an electric arc is formed. After a certain period of time, this skin will fall off and will not leave any complications. Electric shock is divided into four levels.

1. As a result of sharp contraction of muscles, a person gets out of the current and does not lose consciousness.

2. As a result of sudden contraction of muscles, a person loses consciousness, but the heart and breathing work.

3. After losing consciousness, the respiratory system and heartbeat stop.

4. The state of clinical death, in which no signs of life are visible in a person.

The state of clinical death is the interval between life and death, and a person lives at the expense of internal capabilities for a certain period of time. At this time, there are no signs of life, i.e. breathing, blood circulation, regardless of external influences. he does not feel pain, the pupil of the eye is enlarged and does not perceive light. But in such a period, the life in it is not completely extinguished, certain metabolic processes continue in the cells. And this will be enough to continue the minimum life activity of the organism. Therefore, it is possible to restore some parts of the organism that have lost life activity as a result of external influences and can be brought back to life. Clinical death lasts 7-8 minutes. If there is no help, the cells in the cerebral cortex are destroyed first. And the state of clinical death passes to the state of biological death.

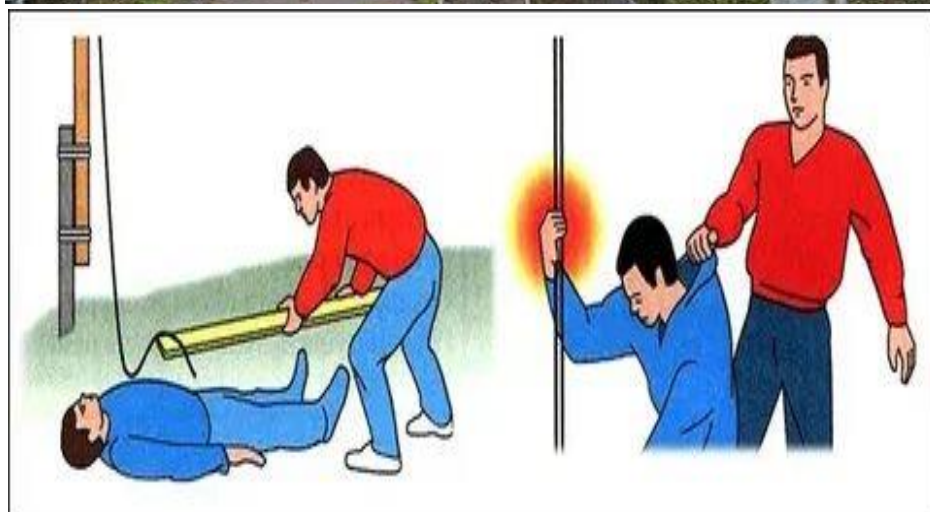
#### *Electrical injury*



#### *Clinical death process*



Biological death is an irreversible process characterized by the complete cessation of biological processes in the body. Also, the protein in the body is broken down. This happens after the time of clinical death. The effect of current on the human body depends on several factors. One of the main factors is the duration of electric shock to a person, that is, the longer a person is under the influence of electric current, the more he will be damaged. As the second factor, the personal characteristics of the human organism, as well as the type and frequency of current play a big role. The known resistance of the human body to the impact of the current, as well as the voltage of the current, determines the level of the known effect, because the amount of current flowing through the body increases as a result of the increase in voltage without changing the resistance of the human body. The resistance of the human body is taken as the sum of skin resistance and resistance of internal organs. Since the skin is mainly composed of hard layers of dry and dead cells, it has resistance and it represents the resistance of the human body as a whole. The resistance of the body's internal organs is not very strong. Dry, undamaged human skin has a resistance of 2,000 to 20,000 Ohms and higher, while wet, damaged skin has a resistance of 40-5,000 Ohms. And this resistance is equal to the resistance of human internal organs. For general technical calculations, the resistance of the human body is assumed to be 1000 Ohm. The amount of current that flows through the human body determines its complexity, that is, the amount of current that flows determine its complexity, that is, the greater the current that flows, the greater its complexity.



If 0.6-1.5 mA of 50 Gs industrial electric current flows through the human body, it feels it, and this amount of current is called electric current. If the amount of current flowing through the

human body is 10-15 mA if enough, then the muscles in the body will contract irregularly, and the person will lose the ability to control the parts of his body, that is, if he is holding a wire with an electric current, he will not be able to open his paws, he will not be able to remove the electric wire that is affecting him. Such a current is called a limiting current. If the number of current reaches 25-50 mA, then the effect of the current affects the chest, as a result, it becomes difficult to breathe. a person may die as a result of cessation of breathing. If the amount of current is 100 mA or more, it will affect the heart muscles and the rhythm of the heart will be disturbed, as a result, the blood circulation system will completely fail, and this condition will also lead to death. The continuity of the current flowing through the human body is also of particular importance, because if the current is exposed for a long time, then the current conductivity of the human body increases. And as a result of the harmful effects of the current accumulating in the body, the complication becomes worse. The type and frequency of the current also have an effect. The most harmful current is electric current around 20-100Gs. The level of impact of electric currents with a frequency of less than 20 Gs and more than 100 Gs is reduced. Electric currents of high frequency do not cause electric shock, but can cause burns. If the current does not change, then the amount of the current at the detection limit is 6-7 mA, the amount of the arresting limit is 50-70 mA, and the amount that can stop the heart's activity in half a second increases to 300 mA.

### **CONCLUSION**

Today, the demand for electricity is very high. The correct use of electricity is of great importance for the fate of every person. For this, it is important to know the safety rules when using electricity. In the process of working with current, it is necessary to pay attention to the isolation of conductors. This leads to the protection of the human body from various effects of current.

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