

Electric current effect on the human body

Brainstorming

What kind of effects could the current flow have on human body?



Discussion topic #1

What do you remember about the safety course?



Electrical signals on brain

The brain controls the muscles in our body by sending electrical signals through the nervous system.

Any external current added to the internal physiological currents could be dangerous and even lethal.



Physiological effects of currents

Current	Reaction
Below 1 mA	Generally not perceptible
1 mA	Faint tingle
5 mA	Slight shock felt, not painful but disturbing; average individual can let go; strong involuntary reactions can lead to other injuries
6 to 25 mA (women)	Painful shock, loss of muscular control
9 to 30 mA (men)	The freezing current or let-go range; individual cannot let go but can be thrown away from the circuit if extensor muscles are stimulated
50 to 150 mA	Extreme pain, respiratory arrest, severe muscular contractions; death possible
1,000 to 4,300 mA	Rhythmic pumping action of the heart ceases; muscular contraction and nerve damage occur; death likely
10,000 mA	Cardiac arrest, severe burns; death probable

Table 1. Effects of Electric Current in the Human Body

<https://electricityismagicnotphysics.weebly.com/dangers-of-electricity.html>

Question #1

What does the current flowing in a human body depend on?

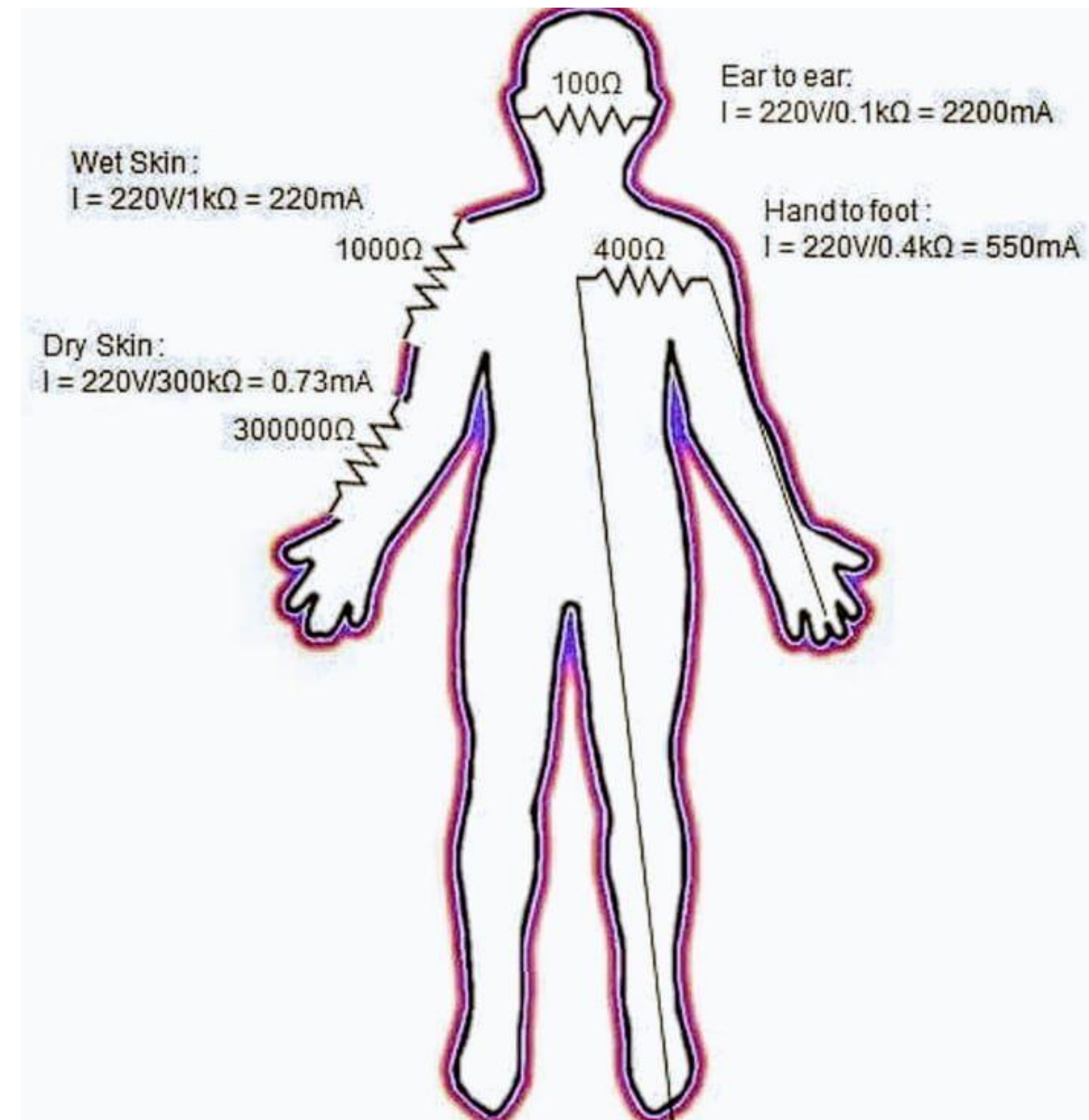


Answer #1

It depends on RESISTANCE!

Human body resistance has a value between 500Ω and 5000Ω .

3000Ω is the typical value used to represent the human body resistance.



Question #2

Why could birds stand safely on trellis wire?



Answer #2

Because we need a potential difference for having current!

On the same trellis wire we have an identical voltage.



Example: PHASE FINDER

