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The Unsuspected Capacity of Human Cells to Dissociate the Water Molecule, A Congruous Explanation to Spontaneous Human Combustion

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Abstract

The term "spontaneous human combustion" refers to a situation when a human body is found with significant portions of the middle parts of the body reduced to ashes, much less damage to the head and extremities, and minimal damage to the direct surroundings of the body [1]. So far, this unique type of burn injury cannot be explained based on the concentrations of oxygen that the atmosphere contains, this is between 18 and 21%. And although there has been an attempt to explain spontaneous human combustion as a process in which body fat combines with atmospheric oxygen and begins to burn, for the flame to erupt spontaneously, that is: without any apparent ignition process, it is required that the saturation of the tissue be very close to 100%.

Keywords: Burn injury; Human cells; Water molecule; Atmospheric oxygen; Environment; Bloodstream; Toxicity

Introduction

The sequence of events in spontaneous human combustion is very characteristic, as the trunk and abdomen are reduced to ashes, which indicates very high temperatures, around 1000 Celsius. But to reach these temperatures, assuming that it is atmospheric oxygen that feeds the flame, the surroundings of the victim's body, that is: furniture, walls, household goods, etc., should also show signs of carbonization. Which characteristically does not happen in spontaneous human combustion, since the process that could be called initial seems to happen in the center of the trunk and abdomen, since they are the parts that are usually reduced to ashes, and usually only the distal part of the legs remains unscathed. The process gives the appearance of starting abruptly and of short duration, because once the ashes are formed, which seems to happen very quickly, the flames are extinguished, without causing even minimal changes in the victim's environment.

And contrary to what we observe in fires that are fueled by atmospheric oxygen, in which the victim's environment usually burns first or at least with more intensity, given the exposure to the necessary oxygen, in these cases coming from the atmosphere, and logically, the most affected parts of the body are external, such as the skin and subcutaneous cellular tissue, but they follow an inverse order to that observed in spontaneous human combustion, where the formation of ashes is abrupt and with flames apparently localized, since they do not spread to the environment.

In fires fueled by atmospheric oxygen, the body appears to melt, but from the outside in. And in spontaneous human combustion, the internal organs are invariably reduced to ashes, indicating a sudden, even violent, combustion process that begins inside the body and expands outward. But then, it is very difficult to explain the origin of oxygen, because according to the prevailing dogma, the oxygen that our body contains comes from the atmosphere, being absorbed through the lungs, and then distributed through the bloodstream to all the cells of the organism. But so, we cannot understand how it is that, inside the cells, the proportion of oxygen reaches figures almost 5 times higher than the proportion of oxygen in the atmosphere, because inside the cell the oxygen saturation reaches value close to 100%, and at those concentrations, the flame appears at any time. So, the explanation for such a high intracellular oxygen content is that human cells can generate their own oxygen, like plants [2]. The mechanism in both cases is the dissociation of the molecules from water. The proportion of oxygen inside the cells of our body is very high, normally values above 90%. And when the saturation is very close to 100%, the appearance of the flame is at any time.

Cells, both eukaryotes and prokaryotes, contain molecules capable of transforming the power of light into chemical energy that can be used by living beings. As an example, we have all those molecules that derive from protoporphyrin IX, a compound present in all living beings. These molecules have the intrinsic property of irreversibly dissociating the water molecules present inside the cell, as they do not tolerate the high toxicity of oxygen. But the only molecule known to date, which tolerates oxygen toxicity, and is therefore capable of both dissociating and reforming it is melanin. The reaction can be written as follows:

$$2H_2O_{(liq)} \rightarrow 2H_{2(gas)} + O_{2(gas)} \rightarrow 2H_2O_{(liq)} + 4e^-$$

The portion highlighted in blue occurs strictly inside melanin, because being a highly endergonic chemical reaction, only the melanin molecule can gather the necessary energy to carry it out, absorbing it mainly from sunlight. The green-colored part of the reaction happens both inside and outside the melanin molecules. So, inside the cells, the proportion of oxygen is very high, but as it comes from the dissociation of the water contained inside the cells, the proportion of hydrogen is also very high, which would explain the notorious speed with which the high temperatures necessary to convert human tissues are reached, practically to ashes. and in a matter of minutes.

Therefore, the presence at the intracellular level of oxygen and hydrogen, and in high concentrations, are congruent with the relatively rare spontaneous combustion, since the cellular mechanisms that control the appearance of the flame, developed over eons of years of evolution, are very efficient, but in a few cases (fortunately), these mechanisms are significantly affected, which conditions spontaneous human combustion to occur.

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