Human skin pigmentation as adaptive evolution

Science, Anthropology

Human Skin Pigmentation as Adaptive Evolution Introduction According to Jablonski 46), ancient research has linked the human skin color with environment, whereby the skin color is associated with the level of exposure to Ultra Violet radiation (Jablionski 2012). The human skin is well adaptive to harmful UV radiation through the release of melanin from the melanoma cells. Melanin helps in the protection of the skin from UV radiation and also facilitates the skin adaptation to heat. UV exposure is essential in the formation of vitamin D through the human skin, which is vital in strengthening the human immune system and healthy growth (Chaplin and Jabloski 2012). Anthropologists and scientists have asserted that the levels of vitamin D in the human body help in the evolution of the skin color, and hence the human skin pigmentation is a suitable example of adaptive evolution (Aranow 2011).

Body

Ancient researchers, scientists and philosophers associated the human skin color with the environment, in terms of the levels of exposure to UV radiation. Hippocrates and Aristotle associated human traits, culture and temperament to the environment, with dark skin color associated to high exposure to UV radiation and heat (Jablionski 2012). Ancient naturalists, such as John Mitchell and Samuel Smith, argued out that human skin pigmentation varied in accordance to levels of exposure to UV radiation and heat. Naturally, the human skin is naked and hence it is the sole contact interface between the human body and the environment. The human skin hair is minimal as compared to other mammals, and hence there is reduced protection to UV radiation and heat. On this note, Charles Darwin asserted

that natural selection led to the evolution of the human skin due to pressure exerted by physical, biological and chemical environmental changes (Bruckner-Tuderman and Has 2014).

Skin hairlessness evolved due to the need for body heat loss from the skin surface through thermoregulation, especially under hot conditions or intense UV radiation (Jablionski 2012: 47). Thermoregulation increases skin hairlessness through evolution of epidermal cells, such as keratins and stratum corneum, which reduce the permeability of the skin and enhance resistance to abrasion and microbial attacks (Bruckner-Tuderman and Has 2014). There is high correlation between human skin pigmentation and UV radiation, whereby skin reflectance is more correlative in autumn than summer levels of UV radiation. The ability of the human skin to produce melanin helps in the adaptability to UV radiation, and thermoregulation. The adaptation of hominins, which lived in hot environments and intense radiation, was characterized by skin hair loss on exposed skin due to the necessity of heat loss for effective brain functioning for the primates. Primates had intense metabolism and brain activity, and hence the natural skin evolution and adaptability for effective heat loss (Jablionski 2012). Intense skin hair hinders thermoregulation and functionality of the eccrine sweat glands, and hence there is need for skin pigmentation to help in effective thermoregulation and controlled creation of vitamin D (Aranow 2011).

Conclusion

Body heat regulation is vital for any human or mammal and is highly influenced by skin pigmentation, skin hair, and environmental factors

(Bruckner-Tuderman and Has 2014). The exposure to UV radiation is vital in the increment of vitamin D in the body that is vital for metabolism (Jablionski 2012). However, the body must adapt through skin hairlessness and pigmentation to help in the control of body metabolism and thermoregulation (Aranow 2011). There is high correlation between human skin pigmentation and UV radiation, and hence the ability of the human skin to produce melanin helps in the adaptability to UV radiation, and thermoregulation for disease protection (Chaplin and Jabloski 2012).

Works Cited

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