

## How Can Oxygen Level Be Related To Hair Growth?

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### ABSTRACT

The objective of recent study was to find out that how does oxygen level is related to hair growth. Total 200 subjects participated in this study performed at Baha Uddin Zakariya University. Peripheral capillary oxygen saturation evaluate the arterial oxygen saturation (SaO<sub>2</sub>) which mentions the value of saturated oxygen hemoglobin in the blood capillaries. Oxygen is carry through by the attachment with hemoglobin. The peripheral capillary oxygen saturation is calculated by the help of two methods: one is pulse oximetry and the other one is arterial blood gases or ABG's. The pulse oximetry method is circuitous, not include the involvement of devices into the body. The amount calculated by this method is available in the % (percentage) form. If the measuring instrument give value between the 90 to 100% then it will be the normal oxygen supply to the cells. A device called pulse oximetry was used to test the oxygen level. This fingertip was placed on device. Thus the oxygen saturation was measured within blood and results were obtained in the form of digital value. It was concluded from data that the results for female and combined subjects were significant but results for male subjects were non-significant.

Keywords: Pulse oximetry, peripheral capillary, saturated oxygen, circuitous, hemoglobin.

### INTRODUCTION

SpO<sub>2</sub> represents for peripheral capillary oxygen saturation, an approximation of the value of oxygen in the blood. To a greater extent, it is the percent um of diffused oxygen present with the hemoglobin as in contrast to the oxygenated or no non-oxygenated blood present in the capillaries. Peripheral capillary oxygen saturation evaluate the arterial oxygen saturation (SaO<sub>2</sub>) which mentions the value of saturated oxygen hemoglobin in the blood capillaries. Oxygen is carry through by the attachment with hemoglobin. It is present in the erythrocytes and give color to it. The color is given to the erythrocytes is red. The peripheral capillary oxygen saturation is calculated by the help of two methods: one is pulse oximetry and the other one is arterial blood gases or ABG's. The pulse oximetry method is circuitous, not include the involvement of devices into the body. When light waves passing from the fingertips it calculate the absorbance or emission of it.

The diversification of the light waves that were passing from the finger will supply with the amount of peripheral capillary oxygen saturation calculation as the degree of oxygen concentration creates diversification in the color of blood. Its function is like that as it describe in the previous lines. The amount calculated by this method is available in the % (percentage) form. If the measuring instrument give value between the 90 to 100% then it will be the normal oxygen supply to the cells. And it shows that if percent um is 98% then it shows that each erythrocyte is oxygenated while the 2 percent um is non-oxygenated. If there is sufficient supply of oxygen then it will be very useful in the muscle activity during physical exercise. If there is no sufficient supply of oxygen then it creates a disease called hypoxia. And it is measured by the Withings Pulse™ Ox. It's not for a health examination and should not be employed to cure or examine a pathological condition.

Rate of hair growth is different in different people. Genetics, styling, iron level, gender, age and hair color are some factors that affect the hair growth. The flow of blood to the scalp is also a major factor that affects hair growth. The average rate of hair growth in different people is 1.25cm per month. According to this average growth year per year is 6 inches. However this rate is different for different body parts. This growth rate also depends on shape of follicles. As every person has different follicles shapes, that is why people have different growth rates for hair. There are also some factors that limit the hair growth. For example unhealthy diet and not good care of hair result in poor growth. Use of excessive wrong products on hair also result in hair fall. Hormonal imbalance can also disturb the growth rate. Hair growth can be improved by different method for example by eating protein rich and biotin rich food. These affect the cells of follicles and result in faster hair growth. Biotin rich food include almond, milk, cheese, salmon and avocado.

## **MATERIALS AND METHODS**

Total 200 subjects participated in this study performed at Baha Uddin Zakariya University.

### **Oxygen level measuring method:**

A device called pulse oximetry was used to test the oxygen level. This fingertip was placed on device. Two wavelengths passed from fingers to photodetector. Thus the oxygen saturation was measured within blood and results were obtained in the form of digital value.

### **Project designing:**

Questionnaire was prepared to evaluate that how oxygen level can be related to hair growth. Total 200 subjects participated in this study performed at Baha Uddin Zakariya University.

## **STATISTICAL ANALYSIS**

Statistical analysis were performed by using statistical software statistix and MS Excel and *t*-test. *p* value must be less than 0.05.

## **RESULT AND DISCUSSION**

How oxygen level (Mean  $\pm$  SD) can be related with hair growth is given in Table 1.

The female subjects with average oxygen level of  $95.28 \pm 4.34$  had fast hair growth and female subjects with average oxygen level of  $97.39 \pm 2.29$  had slow hair growth. *t* test value was 0.001 and results were significant. The male subjects with average oxygen level of  $94.94 \pm 4.22$  had fast hair growth and male subjects with average oxygen level of  $96 \pm 3.75$  had slow hair growth. *t* test value was 0.26 and results were non-significant. The overall subjects with average oxygen level of  $95.11 \pm 4.27$  had fast hair growth and overall subjects with average oxygen level of  $96.80 \pm 3.08$  had slow hair growth. *t* test value was 0.002 and results were significant.

**Table 1:** How oxygen level (Mean  $\pm$  SD) can be related with hair growth?

GENDER	FAST GROWTH	HAIR SLOW GROWTH	HAIR P VALUE
MALE	94.94 $\pm$ 4.22	96 $\pm$ 3.75	0.26
FEMALE	95.28 $\pm$ 4.34	97.39 $\pm$ 2.29	0.001*
OVERALL	95.11 $\pm$ 4.27	96.80 $\pm$ 3.08	0.002*

\* $p < 0.05$  (where  $p$  value for male subjects is 0.26, for female subjects is 0.001 and for overall subjects is 0.002)

## CONCLUSION

It was concluded from data that the results for female and combined subjects were significant but results for male subjects were non-significant.

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