

## What is the Role of Blood Group in Skin Texture?

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**Abstract:** - Basic and foremost purpose of my research was to study the relationship between blood group and skin texture of human beings. My objective is “How blood grouping co-relates with skin type?” For the estimation of blood group, I used blood lancets to take blood samples from a finger and I applied three drops of blood on the glass slide. I poured one drop of Anti-A, Anti-B and monoclonal D on the blood drops present on glass slide, respectively. Clumping in one of the spots decides the blood group of individual. Mine blood group is B-positive. The blood group of 170 subjects was determined by this method. Then, I surveyed about subject’s skin texture. I found that half of Males with blood group B+ have oily skin texture and half of them have dry skin texture. Females with blood group B+ are having oily skin texture. Maximum females with A- blood group have oily skin and maximum males with A- blood group have normal skin.

**Key words:** - Blood Group System, Antibody, Antigen, Skin Texture, Blood Grouping, Subject.

### Introduction:

Karl Landsteiner was the first person who discovered ABO blood group in 1901. He was awarded Nobel Prize in 1930. In 1952, Bernstein discovered the Genetic basis of ABO blood group system. The ABO gene is autosomal. ABO blood group(1) is encoded by a single polymorphic gene I on chromosome 9. A, B, and O are the three multiple alleles of this blood group system. A and B alleles are dominant to O allele. The Alleles B and A are co-dominant. Antigen A is produced by allele A. Antigen B is produced by allele B. No antigen is produced by allele O. An antigen is the molecule that can stimulate immune response (antibody production). Red blood cells bear antigens and blood plasma contain antibodies. There are four different types of ABO blood group- AB, O, A and B based on absence or presence of protein molecules termed as antigens and antibodies. RBC’s surfaces of Person having A blood group with genotype AA or AO have antigen A and its serum contain antibody-B. RBC’s surfaces of Person having B blood group will have genotype BB or BO, have antigen B and its serum contain antibody-A. Person with genotype AB with blood group AB, have antigens A and B on their RBCs containing no antibodies in its serum. Person with genotype OO with blood group O, have no antigens on their RBCs containing Anti-A and Anti-B in its serum.

Blood transfusion is the process of transferring blood from one person to another. Transfusion of blood is done after confirming that no agglutination results in the blood of recipient. If agglutination occurs, the clumped cells cannot pass through capillaries and the clumped cells can leads to toxic reactions which may ultimately leads to death. After the discovery of blood group, blood transfusions become safer. For the confirmation of agglutination, blood samples of donor and recipient are cross-matched for compatibility. The individual who gives blood is termed as donor. The individual who takes blood is termed as recipient. Blood group A+ can be transfused to A+ and AB+ and can take blood from A+, A-, O+ and O-. Blood group A- can transfused to A-, A+, AB+, AB- and can take blood from A- and O-. Blood group B+ can be transfused to B+, and AB+ and can take blood from B+, B-, O+ and O-. Blood group B- can be transfused to B+, B- AB+ and AB- but can take blood from B- and O-. Blood group AB+ can be transfused to AB+ and can take blood from

A+, B+, A-, B-, AB+, AB-, O+, and O-. AB- blood can be transfused to AB+ and AB- and it can take blood from AB-, A-, B- and O-. Blood group O+ be transfused to A+, B+, AB+ and O+ and can take from O+ and O-. Individuals with blood group O- can give blood to persons with blood group of all four kinds and can only take blood from O-. People having blood group O are universal donors, why? It is because they don't have antigens on their RBC's surface, which means they can donate red blood cells to anyone. It doesn't cause agglutination in the recipient. People with blood group AB are universal recipients, why? It is because they have antibodies against antigens A or B which means they can take blood from any person having any kind of blood group and their immune system will not fight. So, they are considered as universal recipients.

In 1901, Karl Landsteiner discovered the Antigen for Rh blood group(2). This blood group system is differentiated into Rh+ve and Rh-ve signs due to presence or absence of antigen called Rh factor. Person with RR or Rr genotype will have blood type Rh positive. Person with rr genotype will have blood type Rh negative. The site of Rh factor is RBC's surface. Rh blood group was named after Rhesus monkey because its antigen was discovered in it. A person having Rh factors has blood group Rh-positive. A person not having Rh factors has blood group Rh-negative. Person with Rh-positive blood group can donate blood to Rh-positive because Rh recipient already has Rh antigens and it will not produce anti-Rh antibody. Rh negative can be transfused to Rh negative because donor's blood group will not produce Rh antibody. Rh negative blood can be transfused to Rh-positive recipient. If Rh-negative person receives Rh-positive blood, he/she will produce Rh antibodies against Rh-factors which can be fatal.

Skin texture means skin type and skin can be differentiated into four kinds- Combination, oily, normal and dry skin. Persons with normal skin feels no oil or dryness on their face. Normal skin is not much sensitive rather it is very fresh and smooth. Persons with oily skin have no oil or grease on their faces. Person with oily skin have blackheads and pimples on their faces. There are large pores on the oily skin. It has dull and shiny complexion. Dry skin is rough and it is not smooth rather it feels dehydrated. It has invisible pores. It has dull and rough complexion. And the fourth one is combination skin. Combination skin is actually a combination of dry, oily and normal skin type. Individuals with combination skin have black heads on their faces T-zone like nose, chin and forehead. Pores are larger than normal skin. It is shiny skin.

### **Objective:**

The basic and foremost purpose of my research was to study the relationship between blood group and skin texture of human beings. My objective is "How blood grouping co-relates with skin type?"

### **Materials and methods:**

Total 170 subjects participated in my project. The subjects were students in Bahauddin Zakariya University Multan, Pakistan. I first took the acceptance of subjects and enquired about their blood group and skin type for the sake of my research.

### **Blood grouping:**

For the estimation of blood group, we used blood lancets to take blood samples from a finger and we applied three drops of blood on the glass slide. We poured one drop of Anti-A, Anti-B and monoclonal D on the blood drops present on glass slide, respectively. We labelled the slide portions as A, B and D. It was mixed well. When RBC carrying one of the antigens are exposed to their corresponding antibodies, the agglutination occurs which means they have clumped. Clumping in one of the spots decides the blood group of individual. Mine blood group is B-positive. Blood group of all 170 subjects was determined by using this method.

### **Project Designing:**

I designed my project about relationship of blood group with skin texture. My first step regarding project was the estimation of blood groups of subjects. Then I took the acceptance of subjects before taking information from them. Subjects were the students of Bahauddin Zakariya University, Multan, Pakistan.

### **Statistical Analysis:**

Statistical analysis was performed by using MS Excel. Table was made by using MS Excel.

**Results:**

Role of blood group in skin texture is represented in table 1. In my project, I found that 50% males with A+ blood group have oily skin texture and 31.57% females with A+ blood group are having oily skin texture. 33.33% males with A+ are having dry skin texture and 15.70% females with A+ blood group have dry skin texture. 16.67% males with A+ blood group have normal skin type and 21.05% females have normal skin type. 0% males with A+ blood group are having combination skin type and 31.57% females with A+ blood group are having combination skin type. 0% males with blood group A- are having oily, dry or combination skin type and 0% females with A- blood group are having dry, normal and combination skin type. 100% females with A- blood group have oily skin and 100% males have normal skin type. 44.44% males with B+ blood group are having oily skin and 30.61% females with B+ blood group have oily skin. 44.44% males with B+ blood group have dry skin and females with 12.24% have dry skin. 11.11% males with B+ blood group have normal skin type and 30.73% females with B+ have normal skin. 0% males with B+ have combination skin. 20.40% females with B+ have combination skin. 0% males with B- have oily, combination skin and 50% males have dry and 50% males have normal skin. Females with 33.33% females with B- have dry and 66.66% females have normal skin. 0% Males with AB+ blood group have oily or normal skin type while 28.47% have oily, 66.66% have normal and 33.33% have combination skin type. 28.57% females with AB+ blood group have oily skin, 14.28% have dry, 28.57% have normal and 28.57% have combination skin type. 0% males with AB- blood group have dry, oily or combination skin and 100% have normal skin. 100% females with AB blood group have normal skin texture. 33.33% males with O+ blood group have oily skin, 27.77% have dry, 38.89% have normal and 0% have combination skin. 50% females with O- blood group have oily skin, 20% have dry, 10% have normal and 20% have combination skin. 100% males with O- blood group have normal skin.

**Table 1: Relation of Blood group with Skin Texture.**

Blood Groups	Oily		Dry		Normal		Combination	
	Male	Female	Male	Female	Male	Female	Male	Female
A+	50%	31.57%	33.33%	15.7%	16.67%	21.05%	0%	31.57%
A-	0%	100%	0%	0%	100%	0%	0%	0%
B+	44.44%	30.61%	44.44%	12.24%	11.11%	36.73%	0%	20.40%
B-	0%	33.33%	50%	0%	50%	66.66%	0%	0%
AB+	0%	28.57%	0%	14.28%	66.66%	28.57%	33.33%	28.57%
AB-	0%	0%	0%	0%	100%	100%	0%	0%
O+	33.33%	37.14%	27.77%	14.2%	38.89%	31.42%	0%	17.14%
O-	0%	50%	0%	20%	100%	10%	0%	20%

**Discussion:**

Questionnaire based research studies have given an important advancement in recent researches (1-10). I found that no one had worked in this project ever before. I am the first who worked on it. I asked my subjects to take part in this project. I asked them about their blood group and skin texture.

**Conclusion:**

After the completion of my project, I concluded that males with B+ have maximum oily skin texture and males with B+ have dry skin texture. Female with B+ blood group have maximum oily skin texture. Males and females with AB- blood group have maximum normal skin texture.

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