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# **Relevance of Blood Groups in Nail Biting and Nail Growth: An Original Research Study**

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KEYWORDS	ABSTRACT:					
Nail Growth, Nai Biting, Bloo	d Objective: The in nail biting ha	objective of this present study was to fin- bit and nail growth in humans.	d the significance and role of blood group			
Groups, Rhesu factor.	s Material and M and Nail biting antibodies nam taken and then group types wa if they have nai	Material and Methods: This study was conducted to analyze the correlation between Blood groups and Nail biting and Nail growth in 200 study subjects. Blood is checked against three types of antibodies namely Antibodies A, Antibodies B and anti-Rh serum. Blood sample of subject was taken and then checked for the blood group type. A list of all subjects with their respective blood group types was made and then asked them one by one in how many days do your nails grow and if they have nail biting habit.				
	Results: The A the O–, B– and results in conte and A-male has	+ and O+ blood males and B+ blood fen AB- blood male and B- blood, AB- bl xt to nail biting. The results also showed a fastest nail growth	nale give maximum positive results while ood, and blood A– females gave negative that B- females have slowest nail growth			
	Conclusion: Th blood group in	e results from the study concluded that A females have maximum habit of nail bitin	A+ and O+ blood groups in males and B+ ng and A- males have fastest nail growth.			

#### Introduction

Karl Landsteiner in 1901 discovered the ABO blood group system in humans. The classification for the blood groups was based on presence and absence of the specific antibodies and antigens. The blood groups in human are genetically determined and is based on the inheritance of the genes from their parents. The ABO blood group can be divided into 4 types: A, B, AB and O.<sup>1</sup> (Table 1) Wayback in 1937, Rhesus (Rh) factor was discovered. These are defined as inherited protein present to the surface of red blood cell. Depending upon the presence and absence of Rh factor the blood is categorized as Rh positive and Rh negative. Thus the blood groups can further be classified as A+ or A-, B+ or B-, O+ or O- and AB+ or AB-.<sup>1,2</sup> Any individual with Rh+ blood group can take blood from Rh+ blood group donor whereas transfusion is possible in case of transfer of blood from Rh- donor to Rh+ positive acceptor

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because in this case antibodies will not produce due to absence of Rh antigens on negative blood type. Rhblood group cannot take blood from Rh+ blood group because Rh antigen will stimulate the production of antibodies which kill the blood cells and may lead to mortality.<sup>2</sup> Nails are not only an important aspect of the external appearance; they are also mirrors of the internal constitution and nutritional status.<sup>3</sup> Human Fingernails are said to be having a protective action for the finger tips and surrounding tissues from injury.4,5 The epithelial matrix cells adhering to the nail bed give rise to the development of nails.<sup>6,7</sup> The growth of nails is an indication of eliminating dead cells from the human body.<sup>8</sup> The nails growth rate is higher in children than young and elderly adults.9Human nail is comprised of numerous components including a nail plate, nail bed, matrix, nail cuticle, eponychium, hyponychium, specific ligaments and nail folds.<sup>10</sup> The nail plate is the hard part of nail and is made up of Keratin protein. It is hard part of Nail. Nail bed is the living tissue under the nail. Nail Matrix is the structure present at the base of the nails and is the region where the growth begins.<sup>11</sup> Nail biting is characterized as a psychological, para-functional and an obsessive-compulsive disease. The habit usually starts during childhood, and mostly continues until adulthood. Nail biting habit is very difficult to get rid of. This habit results in numerous harmful effects on mouth and finger and may lead to ill effect on the digestive system and specifically the stomach. It can also damage the tissue that makes nail grow resulting in abnormal looking nails.12 Human fingernails grow an average of 3.3mm per month. The various factors effecting the nail growth include- the systemic health, nutrition and proper nail care.<sup>11</sup> The objective of the present study was to correlate blood grouping with nail biting and nail growth.

#### **Material and Method**

The present study consisted of 200 subjects selected from the patient's visiting the Dental OPD of a private Dental College in Kanpur City for their regular dental checkup. The study was conducted over a period of 6months from July 2023 to December 2023. After obtaining the ethical clearance from the institutional ethical committee an informed consent was taken from all the study subjects that were included in the study. Only those subjects were included in the present study who gave a written consent of approval to be a part of the study and



who allowed the blood group examination to be performed for them. A preformed questionnaire was prepared and handed over to all the study subjects which included questions based on their demographic details, whether they were having habit of nail biting and in how many days do their nails grow. Once the questionnaire is completely filled by the study subjects, blood group estimation was done following the below mentioned procedure. The inclusion criteria consisted of: Healthy patients in the age group of 18-25 years, the patients with no history of prolonged systemic illness; any infection of deformity of the finger nails. The exclusion criteria for the present study consisted of: patients above 25 years of age; those suffering from underlying systemic/medical illness and having any infection or developmental anomaly in growth and development of the finger nails. The statistical analysis was performed using MS Excel.

Blood Grouping: In order to check the blood group of the subjects included in the study, dangle the hand down to increase the flow of blood in the fingers. Clean the fingertip to be pierced with spirit or 70% alcohol (usually ring or middle finger). With the help of the sterile lancet, pierce the fingertip and place one drop of blood in each of the slide. Add one drop of antiserum into each slide and ensure that the slide is clean and dry prior to use. Do not allow the antisera reagent dropper to touch the blood sample. The result of the reaction should be interpreted immediately after mixing. Mix each blood drop and the antiserum using a fresh mixing stick. Blood is checked against three types of antibodies - Antibodies A, Antibodies B and anti-Rh serum. After adding antibodies to blood sample wait for few while to observe precipitates formation. If blood cells clot it means blood cells reacted with one of the antibodies. If blood cells do not clot on antibodies A or Antibodies B then it is blood group O, if it clots on both antibodies A and B then Blood group is AB. If blood cells clot against Antibodies A then it is Blood Group B and if blood cells clot against Antibodies B, then it is Blood Group A. After this positivity or negativity of blood sample is checked against anti-Rh serum. Mix anti-Rh serum on blood sample if blood cells clot on Rh antibodies then blood group type is positive and if they do not clot then it is negative blood group type such as A negative or A Positive Blood group.

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#### Result

The correlation and effect of blood grouping on nail biting is mentioned in Table 2. A total of 200 subjects were included in the present study. Out of these 200 study subjects, 9.25% of males and 13.15% of females stated that they were not having any habit of nail biting whereas 11.84% of males and 47.27% of females say that they were having habit of nail biting. The A+ and O+ blood males and B+ blood female give maximum positive results(have nail biting habit) while the O-, Band AB- blood male and B- blood, AB- blood, and

**Table 1:** Types of Blood Groups

blood A- females gave negative results(do not have nail biting habit). Very few researches are mentioned in the literature regarding significance of blood group and its correlation with nail biting. Role of blood group in nail growth is given in Table No 3. The results show that Bfemales have highest mean (17.88), which signifies that their nail growth is very slow and A- males have smallest mean (6.52) which denotes that their nail growth is very fast. Thus the result states that Bfemales have slowest nail growth and A-male have fastest nail growth.

Type of Blood Group	Antigen	Antibody	
А	А	Antibody B	
В	В	Antibody A	
AB	A,B	No antibody	Universal Acceptor
0	No Antigen	Antibodies A,B	Universal Donor

Table 2: Effect of blood	l grouping	on nail	biting
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Blood Crown Type	Number	Yes		No	
blood Group Type		Male	Female	Male	Female
$\mathbf{A}^+$	35	3.25	08.65	2.15	2.00
A	30	0.52	1.25	0.10	0
<b>B</b> <sup>+</sup>	49	2.45	18.15	2.50	4.25
B	24	1.25	1.20	0	1.25
$AB^+$	22	1.05	4.05	0.25	1.20
AB <sup>-</sup>	15	0	0.52	0	0
$\mathbf{O}^+$	13	3.32	11.40	4.25	2.05
0.	12	0	2.05	0	2.4

Table 3:	Role of	f Blood	Group i	n Nail	Growth
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Plead Crown Type	Male	Female	Male	Female
blood Group Type	(Mean)	(Mean)	(SD)	(SD)
$\mathbf{A}^+$	9.86	13.01	4.0	5.86
A <sup>-</sup>	6.52	7.82	0	0
<b>B</b> <sup>+</sup>	8.88	7.86	16.2	4.86
B.	16.12	17.88	0	2.02
$AB^+$	9.86	9.24	6.86	4.88
AB <sup>.</sup>	No subject	7.82	No subject	0
<b>O</b> <sup>+</sup>	8.64	8.86	3.86	4.00
0.	No subject	7.78	No subject	3.00

#### Discussion

Questionnaire based studies have given an important advancement in recent researches.<sup>1,2,11,12</sup> In the present

study the A+ and O+ blood males and B+ blood female give maximum positive results while the O–, B– and AB– blood male and B– blood, AB– blood, and blood

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A– females gave negative results in context to nail biting habit. This is in accordance to study conducted by Qadir MI and Qureshi  $HN^{12}$ , who also reported similar results. In the present study B– females have slowest nail growth and A–male have fastest nail growth, which is similar to result obtained in the study conducted by Qadir MI and Zainab S.<sup>11</sup> As very few studies are mentioned in literature regarding comparison of blood group with Nail Biting and Nail Growth, more studies should be done with larger sample size to confirm the correlation.

#### Conclusion

It was concluded from present study that fastest nail growth is observed in B- females and slowest in A-males and nail biting was maximum in O+ blood male and B+ blood female while the nail biting was minimum in O negative blood type and AB- blood male and in B- blood, AB- blood, and A- blood female. The nail biting is highest in the females and is minimum in the males.

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