

# Comparative Assessment of Diet Associated Androgenetic Alopecia among Men

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## ABSTRACT

Androgenetic alopecia or male baldness is a problematic situation which may be genetic or diet associated. In this study 300 individuals were selected and divided them into four different groups. In each Group the random glucose levels and quantity of hairs on head of all the individuals were measured. In Group B, Group C and Group D Mean  $\pm$  SD of Glucose levels and Hair quantity on head were calculated (105.56 $\pm$ 11.28), (62.50 $\pm$ 12.05), (210.20 $\pm$ 13.16), (32.40 $\pm$ 22.02) and (210.20 $\pm$ 13.16),(47.20 $\pm$ 12.02) respectively. Significant changes have seen in the results as compared to the control.

**Key Words:** Androgenetic alopecia, Insulin,metabolic syndrome.

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## INTRODUCTION

Androgenetic alopecia or male baldness is a problematic situation which may be genetic or diet associated (Rebora, 2004). There are two schools of thoughts one is conventional and other is modern which describes that malnutrition is also a cause of this problem (Acibucuet *al* 2010). Multiple studies have concluded that insulin resistance and metabolic syndrome are biological parameters play active role in the loosing of hair in men (Ahouansou *et al* 2007). Different researchers proved through their researches that male hormone dihydrotestosterone (DHT), insulin, and metabolic syndrome all are correlated with diet (Nabaie *et al* 2009). When dihydrotestosterone (DHT) attaches with the hair follicles it creates shrinking factor due to which the size of the follicle become short and ultimately it stop to produce hair.

In some cases different types of food increases the demand of insulin which results more and more dihydrotestosterone (DHT) produced in the body. On the other hand some kind of food enhances the metabolic syndrome. Metabolic syndrome is a general term used for the number of medical complications in the body like obesity, Hypertension,Low HDL, High serum triglycerides and hyperglycemia etc (Abdel Fattah, 2011). Nutritionist suggested that avoid carbohydrate rich food because it increases the glucose levels in the body. When blood glucose levels remain normal therefore the insulin levels of the body remain more and more stable. Number of researchers proved through their research that carbohydrates have a remarkable effect on blood sugar regulation (Su LH and Chen, 2010).

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A hair is formed by helix shaped fibrous protein called keratin. In the hair the quantitatively concentration of keratin is about 95%. A study stated that 18 different types of standard amino acids are found in the hair composition. Most important of them are proline, threonine, leucine and arginine and cysteine (Rogers and Avram,2008). Through different studies concluded that balanced diet is more important for the health of normal hair. Some essential and non essential minerals are so important for the normal growth of hair like iron, silica, and zinc.

## MATERIALS AND METHODS

In this study 300 individuals were selected and divided them into four different groups. In Group A 100 individuals were male and all were normal. In Group B 100 male individuals were malnourished where as in Group C 50 individuals were with genetic syndrome of baldness while in Group D 50 individuals were diabetic. The data of the individuals were taken from OPD, medical, skin wards of Jinnah hospital Lahore.All the individuals were of age 20-40 years and raw data was expressed statistically by SPSS.

## RESULTS

In each Group the random glucose levels and quantity of hairs on head of all the individuals were measured. Mean  $\pm$  SD of Glucose levels (127 $\pm$ 12) and Hair quantity on head (95 $\pm$ 05) were seen in the individuals of Group A which is control. In Group B, Group C and Group D Mean $\pm$ SD of Glucose levels and Hair quantity on head were calculated (105.56 $\pm$ 11.28), (62.50 $\pm$ 12.05), (210.20 $\pm$ 13.16), (32.40 $\pm$ 22.02) and (210.20 $\pm$ 13.16), (47.20 $\pm$ 12.02) respectively.

Group A: Control individuals (n=100)

Biomarkers	Units	Mean ± SD	P value
Glucose levels (random)	mg/dl	127±12	0.002
Hair quantity on head	%	95±05	0.001

<0.005

Group B: Malnourished individuals (n=100)

Biomarkers	Units	Mean ± SD	P value
Glucose levels (random)	mg/dl	105.56±11.28	0.001
Hair quantity on head	%	62.50±12.05	0.003

<0.005

Group C: Individuals with genetic syndrome of baldness (n=50)

Biomarkers	Units	Mean ± SD	P value
Glucose levels (random)	mg/dl	135.16±14.18	0.000
Hair quantity on head	%	32.40±22.02	0.001

<0.005

Group D: Diabetic Individuals (n=50)

Biomarkers	Units	Mean ± SD	P value
Glucose levels (random)	mg/dl	210.20±13.16	0.03
Hair quantity on head	%	47.20±12.02	0.02

<0.005

## DISCUSSION

Androgenetic alopecia is a common problem in both men and women but it is more dominated in men. There are many different causes of baldness but diet, genetic syndrome and diabetes is highly indicated (Sasmaz *et al* 1999). Different studies proved that balanced diet is more important for the growth of healthy hairs. Current study showed a significant (<0.05) difference of hair quantity on head (62.50±12.05) of malnourished individuals as compared with the control (95±05). A study described that 18 different types of standard amino acids are found in the hair composition. Most important of them are proline, threonine, leucine and arginine and cysteine.

Number of researchers suggested through their researches that many genes perform a significant

role in androgenetic alopecia. It has proved that a tiny mutation in single gene i.e. *AR* creates recessive signaling in androgen receptor (Nabaie *et al* 2009). However these genetic changes increase the risk of hair loss in men with androgenetic alopecia. In the same pattern present study expressed a significant genetic syndrome effects in hair quantity on head of Group C individuals (32.40±22.02) as compared to the control (95±05).

Hirsso *et al* 2006 expressed in their research that hairs grow into three phases with the rate of 1 to 2 cm per month and researchers proved through their research that diabetes can interrupt these phase. The individuals of Group D have higher glucose levels (210.20±13.16) as compared to the control (127±12) and they are diabetics and they showed a significant decrease in the hair quantity on head (47.20±12.02) as compared to the control respectively (95±05).

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