

Investigation of garments fit for 20-30 aged Bangladeshi men's

Abstract

In this research the author tries to find out the traditional pattern making error comparing with 3D scanning measurement data to test fit and balance of make to order garments. At first the author select only men's classic shirt to evaluate the traditional error for make to order item. After analyzing B_G-W_G and Bust/Chest typical body sizes are selected to develop block to test factor affecting on fit and balance on real body with garment scanning. Using pattern block of typical body shape the author tries to find out the fit for regular shirt in order to find balanced and fit garment for real bodies. After investigating the pattern block and shape evaluate the adaption fit and balance for each customer. All the resulted data can be implementing by any fashion designer and pattern maker to overcome the traditional error to ensure the fit criteria for the customer.

Keywords: pattern, fit, size, ease, balance

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Introduction

Fitting clothing that is „well-cut through the body” and „fitting clothing” were facts that were seen as figures of dignity in 20th-century Europe.¹ After that, the fit started to affect fashion. Despite the ease of the clothing, the varying fits are a result of the tailors' aim to use less fabric. The fabric started to evolve into more fitting, closer-to-the-body clothing by removing extra seam allowance. It was applied to alter how the idea of beauty seemed.² The men's daily life and comfort are affected by Fit. This study shows that forty seven percentage men's in the Bangladesh between the ages of 20-25 and forty nine represent the unusually small sector have objection about garments fit. “It can be a nightmare for short men to find clothes that fit them properly – let alone styles that are on the cutting edge of fashion,” (The long and short of it all 2003, p. 1). The secondary and significant component that affects how well clothing fits is sizing. The majority of sizing systems are established from measurements made in the 1940s, which did not take into account modern body proportions. Each designer might set their own proportions for each desired size using this kind of sizing method. The majority of male buyers are unhappy with fit and size. The fit of clothing can be improved thanks to modern technology. In the future, use body scanners for size modification to ensure better fit.³ The main objective of this research is to find and establish a way to confirm the garments fit and balance according to the body shape. The objectives of this research are pointed below:

- To know practical and theoretical significances.
- To know about the typical body measurement briefly.
- To know pattern block adopted for different types body.
- Establishing the criteria for fit and balance.
- Find out the rational proportion for side and horizontal balance.

Experimental

Materials and methods

Material

Device:

- 3D body scanner (Human Solution 1.0).
- Mobile camera for shooting different (Front) projection of shirt.

Software:

- Human Solution 1.0 (Anthroscan).
- Adobe Photoshop CS3.

Male as a subject: In this study in total 16 Bangladeshi Males body has taken which ages between of 20-30. The non-probability sample was taken from different area of the Bangladesh.

Measurements: This study focus on mature bangladeshi male over the age of 20-30.

Methodological framework

Industrial System	Traditional system	3D scanning system
	Making 02 (Two) Sample pattern and classic shirt by this measurement sheet	Body Analysis by (B_G-W_G)
	Scan after wearing the garments	Measurement sheet
	Evaluate the fit from those sample	Divide into three (03) sizes
		Select 02 typical body from this size chart
	After evaluating fit compare between slim and regular shirt fitting	
	Recommend which types of fit is appropriate for which types of customer	

Method

Form of the garments: Male shirt in “H” is chosen to investigate the objects. “H” form were chosen as the objects is that human body shapes of H styles are disparate even under the same linkage on pattern blocks.

Pattern block: In total, two pattern blocks were obtained from this study. The first two „H” dress patterns resulted to the subsequent two patterns. With the exception of the side seam position and sloping shoulder line, all pattern block indexes were constant. In particular,

the neckline and armhole were maintained the same. As shown in Figure 1, the angle of the shoulder lines for the first and second blocks was reduced by rising the shoulder point and dropping the shoulder neck point by 0.5 to 1 cm. All pattern block adjustments must affect how dresses fit and balance, and they also allow us the ability to alter how actual shirts fit and balance.

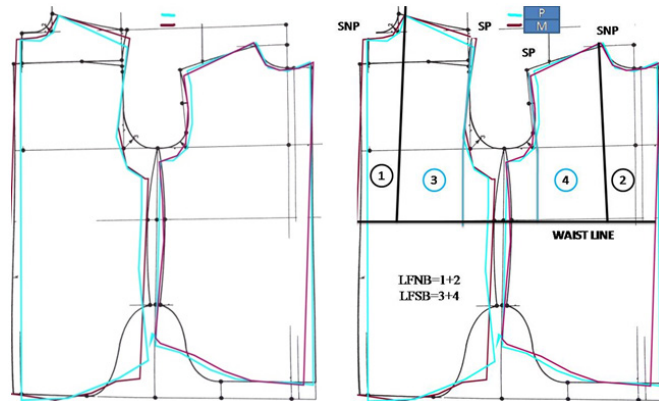


Figure 1 1st and 2nd Pattern blocks : (a) illustration of pattern adoption (b) measurement of LFNB and LFSB.

Evaluation of shirt sample

Pattern block balance

From the above Tables 1–3 we can see clearly the pattern block is deferent than shirt fit. From Table 1 we can see, two shirts are good fit. Because the range of fit is (0±0.5cm). But in the pattern block two male has huge different.

Table 1 Pattern balance calculation for male 1

Pattern block analysis			
LFNB	A+D	42.3+42.3	84.6
LFSB	B+C	42+41	83
PB=(LFB-Shoulder forwarding)-(LFSB)= (84.6-83) = 1.6			

Table 2 Pattern balance calculation for male 2

Pattern block analysis			
LFNB	A+D	47.3+47.3	94.6
LFSB	B+C	46+46	92
PB=(LFB-Shoulder forwarding)-(LFSB)= (88.5-77) = 2.6			

Table 3 Balance calculation with shirt

Balance criteria	Subject	
	Male 1	Male 2
LFNB	43.3	48.5
LFSB	43.1	48
GB	0.2	0.5

Measurements of real garments

All of the shirts in Figure 2 have been carefully made up and laundered, and images of a sample model wearing a shirt were taken from the front, profile, and back. The model and picture were in a fairly solid posture to maintain the scale of the images, and the camera's height was directly above the model's hip level. Additionally, BH measurements of the distances between floors were made to get the average values (Table 4). Second, all front center seams of shirts were taken apart, pressed, and then photographed from the front and from the side.

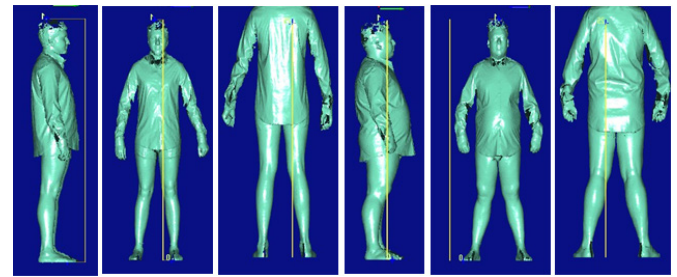


Figure 2 Photo of All sample (Front, Profile and Back) (3D Scan).

Table 4 Average bottom height of shirt

Measuring item (cm)		Dress made of Pattern 1	Dress made of Pattern 2
BH of "H" style	Front	104.4	96.8
	Profile	104.4	96.8
	Back	103.3	98.2

Fit evaluation

In this study the garments are considered to be well-fitting when the bottom heights of three projections will stay at the seam level (distance is 0–0.5cm). First and second „H” type male shirts in each sample had a varied fit value. The first and second patterns were also used to create „H” style samples with a satisfactory fit. Additionally, compared to „H” type, it is harder to achieve a fit condition with „X” style dresses.

Results and discussion

3D Scanning Data analysis

from this Figure 3 we can see 16 males male are divided into five groups according to B_G (Bust Grith)- W_G (Wasit Grith). Now the author classify all the male according to B_G - W_G .

- A. 0-5 (SMALL)
- B. 5-10 (MEDIUM)
- C. 10-15 (LARGE)
- D. 15-20 (XTRA LARGE)
- E. 20-25 (XXL)
- F. 25-30 (XXXL)

This groups are stated by a Table 5 in below:

From this Table 5 we can see that most of the male bodies are gathered into two sections. In LARGE and X LARGE Section. That's why the author picked two male from this two group to examine the next research. If we arranged the size chart according to Bust/Chest girth, we can see this two male body also separated into two groups. This two body contain typical body features among of all male body. After analyzing the results from two test the author select 2 typical body for next research (Tables 6–8) (Figure 4) (Figure 5).

Discussion

Fit and balance evaluation

The concept of a well-fitting shirt is that when the bottom heights of the three projections are at the seam level (distance is 0–0.5cm). First and second patterns both include (FB=7.1 and 4.8). Each of those men has a unique FB for the „H” style. Therefore, based on his

research, the author will suggest what would be the best suit for them on Facebook. The dress will maintain its two front center borders in their original positions when the angle is 0° (1°), showing a proper fit of the front center line. More „H” dress samples made from the

second pattern block were fitted; as a result, the angle is closer to 0° in „H” style clothing when FB=7.1 cm and FB=4.8cm. Additionally, it is simpler to get the ideal front edge balance with „H” type dresses.

Table 5 Size chart according to B_G-W_G for 16 male

Male	S (0-5)	M (5-10)	L (10-15)	XL (15-20)	XXL (20-25)	XXXL (25-30)
A	-	✓	-	-	-	-
B	-	-	-	✓	-	-
C	-	✓	-	-	-	-
D	-	-	✓	-	-	-
E	-	-	-	-	✓	-
F	-	-	-	✓	-	-
G	-	✓	-	-	-	-
H	-	-	✓	-	-	-
I	-	-	-	✓	-	-
J	-	-	✓	-	-	-
K	-	-	-	✓	-	-
L	-	-	-	✓	-	-
M	-	-	-	✓	-	-
N	-	-	✓	-	-	-
O	-	-	-	-	✓	-
P	-	-	✓	-	-	-

Table 6 Two body from six size group

sl/ model name	sl/ model name	0010 Body height	3030 Shoulder width left	3031 Shoulder width right	3020 Cross shoulder	0040 Distance neck to buttock	6510 Waist girth	7525 Hip girth	1520 Neck at base girth	5040 Neck to waist center back	4515 Bust/ chest girth
1	M	176.4cm	13.0cm	14.2cm	46.8cm	60.1cm	87.7cm	102.7cm	41.9cm	39.9cm	103.3cm
2	P	175.3cm	15.5cm	17.0cm	54.1cm	60.2cm	108.6cm	115.1cm	45.4cm	39.9cm	119.1cm

Table 7 Traditional sizing system for selected 2 males (CM)

Model no	Model name	Neck size	Chest	Scye depth	Natural waist length	Half back	Sleeve length for shirt	Cuff size
1	P	45	119.1	27.2	45	22.5	66	33.4
2	M	41	103.3	25.2	45	20.5	66	31

Table 8 Difference between Node and with shirt scanning data [Chart has to be big for clear understanding]

sl model No	sl model name	3030 Shoulder width left	3031 Shoulder width right	3020 Cross shoulder	4510 Waist girth	7525 Hip girth	3010 Side upper torso length left	3010 Side upper torso length right	4515 Bust/chest girth
3D Scanning Copy (Node)	M								
3D Scanning Copy (With Garment)	M								
1	M	0.2	0.6	3.4	16.6	2.1	-0.8	-1.9	4.6
3D Scanning Copy (Node)	P								
3D Scanning Copy (With Garment)	P								
2	P	-0.7	-2.8	0.5	18.1	15.7	-1.9	-2.7	8

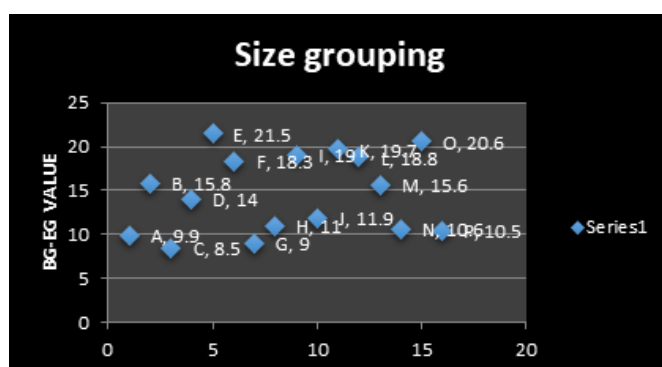


Figure 3 Size Grouping according to body analysis of 16 male sample.



Figure 4 Male 1 (P) and Male 2 (M) (Sample shirt).

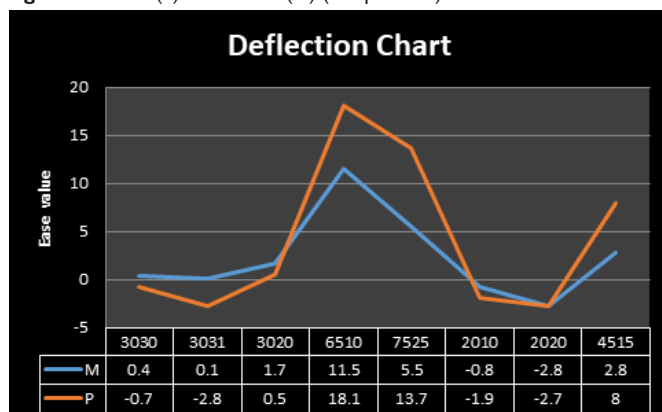


Figure 5 Deflection graph between node body and the body with shirts (3D Scanning).

Ease distribution evaluation

From Figure 6 & Figure 7 we can see, most of the parameter has 4 to 6cm ease between node body and the garments. Male number one and two wearing the “H” Style garments for each. In “H” Style garments is not like the “X” style garments. This research also suggest about the amount of ease should be fitted for which type of body. For body item number 3020, 6510 which indicated about the exceptional body parameter (3.4, 16.6) have to control the ease distribution. Ease distribution should be 6 -10 cm for regular classic shirt. According to his body shape in the parameter 3020 eases should be ± 5 cm (Should be decreased) and in the parameter 6510 eases should be ± 10 cm (Should be decreased).

for male : "m"

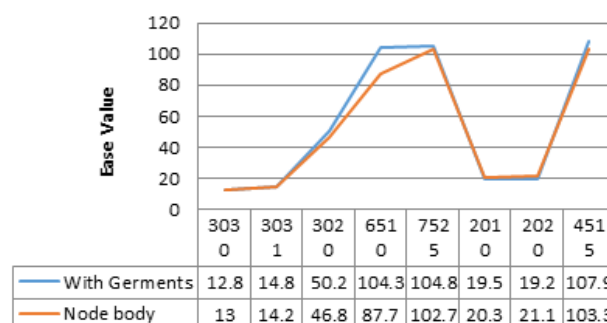


Figure 6 Ease calculation for Male "M".

for male: "p"

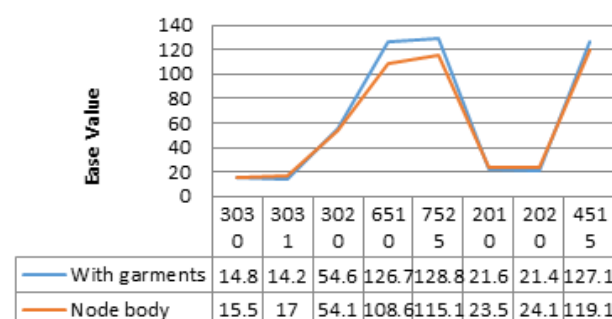


Figure 7 Ease calculation for Male "P".

Again for male number "P"

We can see, most of the parameter has 2 to 4 cm ease between node body and the garments. Male number one and two wearing the “H” Style garments for each. In “H” Style garments is not like the “X” style garments. This research also suggest about the amount of ease should be fitted for which type of body. For body item number 6510 and 7525 which indicated about the exceptional body parameter (18.1 and 13.7) have to control the ease distribution. According to his body shape in the parameter 6510 eases should be ± 10 (Should be decreased) and in the parameter 7525 eases should be ± 5 (Should be decreased).⁴⁻⁷

Conclusion

Microsoft Excel and the 3D body scanning method with Human Solutions 1.0 software were both used. All of this is accomplished without physical touch, in a brief amount of time, in a way that is secure and comfortable for people, and is actually highly valuable, especially when there are too many subjects. From the two typical bodies, it is clear that the balance and fit points are different. That's why the author chooses the way to recommend the actual fit and balance according to body shape of male. From this research author find out two miss-fit points for two male. So, we can easily recommend fit and balance for each type of body shape.

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Conflicts of interest

The authors declare no conflict of interest.

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