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## Construction of functional garments to reduce existing clothing practices and problems of fractured limb patients

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### Abstract

Clothes are necessary for several reasons: they are required by law in many areas of the world, serve as a way to identify certain cultures and traditions, set societal norms and standards and provide protection from the elements, such as wind, cold, rain and strong sunlight. Clothing has been used by humans for thousands of years, and comes in a variety of forms. Clothing has evolved throughout the course of history to include more fabrics, styles and designs and helps to shape the identities of individuals and societies around the world.

**Keywords:** designing, functional garments, limb fractures

### Introduction

Clothing performs a range of social and cultural functions, such as individual, occupational and gender differentiation, and social status. In many societies, norms about clothing reflect standards of modesty, religion, gender, and social status. Clothing may also function as a form of adornment and an expression of personal taste or style. The most obvious function of clothing is to improve the comfort of the wearer, by protecting the wearer from the elements. In hot climates, clothing provides protection from sunburn or wind damage, while in cold climates its thermal insulation properties are generally more important. Shelter usually reduces the functional need for clothing. For example, coats, hats, gloves, and other superficial layers are normally removed when entering a warm home, particularly if one is residing or sleeping there. Similarly, clothing has seasonal and regional aspects, so that thinner materials and fewer layers of clothing are generally worn in warmer seasons and regions than in colder ones. Clothing protects against many things that might injure the uncovered human body. Clothes protect people from the elements, including rain, snow, wind, and other weather, as well as from the sun. However, clothing that is too sheer, thin, small, tight, etc., offers less protection.

### Objectives

1. To identify the different types of fractures in male patients.
2. To design functional garments as per their need and evaluate their acceptability.

### Methodology

The study was conducted in Kanpur district. Five specialized hospitals were selected for the present study. 100 male respondents were selected from the selected hospital, dependent and independent variables such as age, education, income, design, functional garments, costing etc. were selected. The statistical tools applied were percentage and weighed mean.

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## Results

**Table 1:** Distribution of respondents on the basis of their education level (N = 100)

Education	Frequency	Per cent
Can read and write	11	11.0
High school	17	17.0
Intermediate	14	14.0
Graduate	38	38
Post graduate	20	20.0
Total	100	100.0

There is considerable effect of education on the choice of clothing of fractured patients. But most of them have very little knowledge regarding the availability and cost of specific clothing. Also, the psychology of the patients and their caretakers is such that the condition of fractures is for a

limited time period and the patient can manage with old clothing. So, it can be said that education has an effect on the choice of clothing but is overruled with the level of knowledge and the Indian psychology.

**Table 2:** Distribution of respondents on the basis of type of fractures (N=100)

S. No.	Categorization of respondents	Frequency
I.	Upper arm and shoulder joint (n <sub>1</sub> =12)	
	(i) Upper arm	0
	(ii) Upper arm and shoulder joint	8*
	(iii) Shoulder joint and elbow	2
	(iv) Upper arm and elbow	2
II.	Lower arm and wrist (n <sub>2</sub> =12)	
	(i) Lower arm	7*
	(ii) Wrist	3
	(iii) Lower arm and elbow	1
	(iv) Elbow and wrist	1
III.	Lower leg and ankle (n <sub>3</sub> =44)	
	(i) Knee	6
	(ii) Lower leg	25*
	(iii) Ankle	3
	(iv) Lower leg and ankle	5
	(v) Lower leg and knee	3
	(vi) Knee and ankle	3
IV	Upper leg and waist (n <sub>4</sub> =32)	
	(i) Upper leg	15*
	(ii) Waist	8
	(iii) Upper leg and lower leg	5
	(iv) Upper leg and waist	1
	(v) Upper leg and knee	1
	(vi) Upper leg and ankle	1
	(vii) Knee and waist	1

$$N = (n_1+n_2+n_3+n_4) 100$$

A patient suffering from fracture in limbs will have difficulty in wearing pull-on clothes like T-shirts and clothes that are too tight and need to be tied or button fixed. She will require clothing that slips on easily, has elastic and does not have

fasteners like buttons, hooks, belts, etc. So, it should be kept in mind by experts and garment manufacturers to design such clothing that suits the specific needs of patients with fractures in upper and lower limbs.

**Table 3:** Distribution of respondents on the basis of preference for style of dress as per the fracture of their body parts N=100

Fractures	Activities						
	A	B	C	D	E	DE	AD
	(f)	(f)	(f)	(f)	(f)	(f)	(f)
Upper arm and shoulder joint (n <sub>1</sub> =12)	0	0	0	0	0	12*	0
Lower arm and wrist (n <sub>2</sub> =12)	1	3	0	2	9	6*	0
Lower leg and ankle (n <sub>3</sub> =44)	13	0	2	18*	0	8	3
Upper leg and waist (n <sub>4</sub> =32)	4	2	0	19*	0	7	0

- A = Dresses which slip on  
 B = Dresses with button and button hole  
 C = Dresses with elastic as a tying feature  
 D = Dresses with zipper for closing and opening  
 E = Dresses with Velcro tape

Results shows that 19 respondents from the group of respondents (f=32) suffering from fractures in their upper leg and waist preferred to wear dresses with zipper for closing

and opening while 7 respondents liked both type of dresses with zipper for closing and opening and dresses with Velcro tape followed by 4 and 2 respondent who wanted to wear

dresses which slip on an dresses with button and button hole. All respondents liked dresses which they themselves can wear or with little or no help of their attendants or family members, therefore all the respondents almost preferred comfortable dresses with easily manageable fasteners like zipper or Velcro tape.

**Table 4:** Distribution of respondents on the basis of their preference for functional garments N=100

Functional garments	Frequency	Per cent
Yes	100*	100.0*
No	0	0.0

Unlike fashion clothing, which is essentially a product of the designer's creative instincts, the process of designing functional clothing begins and end with the user specific requirements. These requirements, whether for performance or for comfort, are determined by the environment in which the user operates, and the activities that he or she performs.

Clothing, by its nature has a restrictive effect on body movement as well as on transport of heat and moisture from the body. Clothing can be abrasive, noisy, smelly or unattractive. Clothing designed specifically for certain functionalities has been shown to cause heat stress, reduce task efficiency as well as range-of-motion of the wearer. The process of design, therefore, begins by first establishing the many requirements of the user. Subsequent processes are based on meeting, to the best possible extent, these user requirements.

### Conclusion

Disabilities often lead to special functional requirements of clothing and other textile products according to their environmental conditions. Some clothing producers make special designs for disabled people, e.g. for wheelchair users, and the distribution is often by mail order. However, many disabled people feel that these special garments still emphasize their disability, and they prefer to take the trouble to buy the clothing in normal shops with a much larger choice and adapt to their needs. But wheelchair users, or other categories of disabled people, often are not standard sized, and alterations of "normal" and specially designed and relatively expensive clothing still might be necessary.

### Recommendations

1. Cotton is the ideal material because it absorbs perspiration well and is the most comfortable to wear and do not reflect the light from pressure points as do some synthetic fabrics.
2. Try to avoid any fabric that is likely to cling to the body rather the garment should fall nicely over one's mid-section.
3. The most disabled limb should be dressed first and undressed last. For example,
4. When taking out clothing, remove sleeve from the unaffected arm first as the person can bend his hand.
5. Put on clean clothing by slipping in the sleeve from the weak side first.
6. Place the sleeve of the shirt as high as possible on the person's shoulder of the affected arm to facilitate dressing or undressing.

### References

1. Harriet Meinander, Minna Varheenmaa. Clothing and textiles for disabled and elderly people. VTT Processes, 57 p. Name of Project Easytex (Aesthetical, adjustable,

serviceable and mainstay textiles for disabled and elderly), 2002.

2. Kate E. Carroll, Doris H, Kincade. Inclusive Design in Apparel Product Development for Working Women with Physical Disabilities. *Family and Consumer Sciences Research Journal*. 2009; **35**(4):289-315. <https://doi.org/10.1177/1077727X07299675>
3. Kishore, Neeti, Rukhsana, Pandey, Ritu. Clothing requirements of physically challenged college going boys and designing suitable garments. *Asian Journal of Home Science*. 2010; **5**(1):70-72.