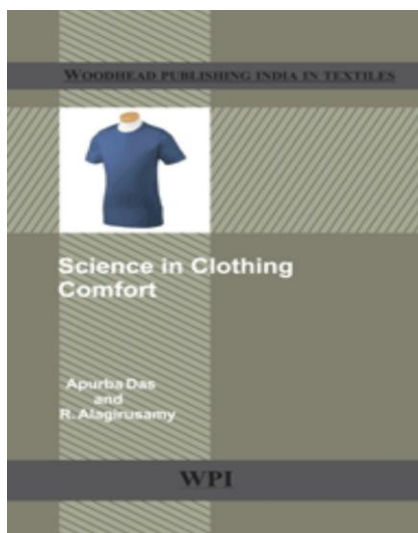


راحتی پوشاک

مدرس: دکتر پدرام پیوندی

فصل ۱



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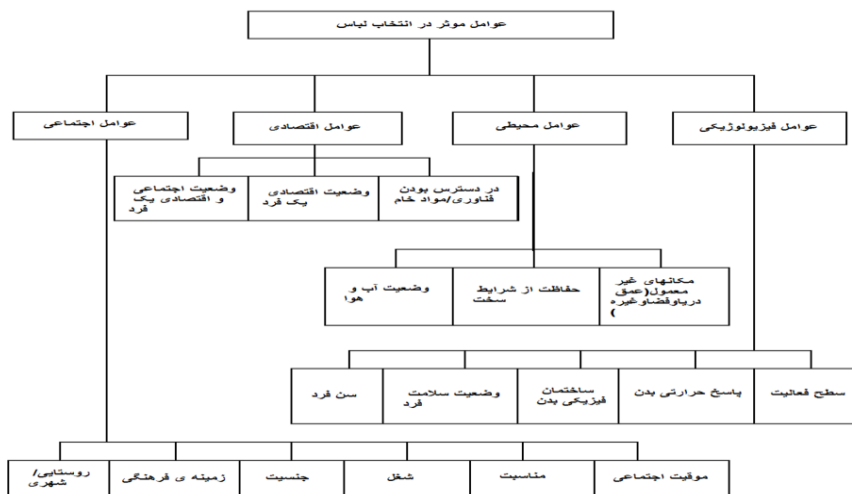
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۱.۱ نیاز و انتخاب لباس

نیازهای اساسی انسان عبارتند از: غذا، لباس و سرپناه. پس از برآوردن نیاز اول یعنی غذا، پس از آن دومین نیاز مهم انسان لباس می باشد. در جامعه امروزی، ما از لباس انتظار بیشتری علاوه بر برآورده کردن نیازهای اساسیمان داریم.



در اکثر جوامع، لباس به منظور بیان ثروت، موقعیت، شغل، سن، مناسبت، جنسیت و غیره مورد استفاده قرار می گیرد.



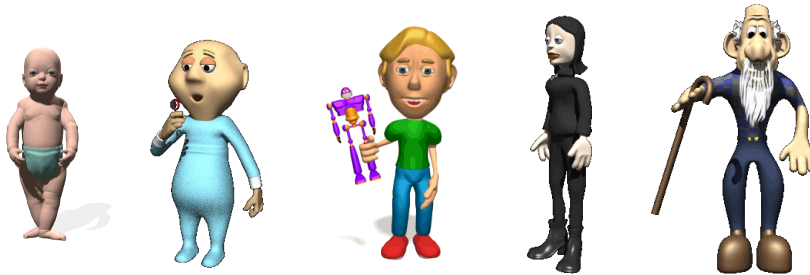
7. 7 عوامل موثر بر انتخاب لباس

از شکل ۱.۱ میتوان دریافت که عوامل تأثیرگذار در انتخاب لباس را می توان به طور گسترده به ۴ دسته بزرگ تقسیم کرد. برای مثال عوامل اجتماعی، عوامل اقتصادی، عوامل زیست محیطی و عامل های فیزیکی. همه این عوامل نقش قابل توجهی را در انتخاب مدل لباس یک فرد ایفا می کنند.

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عامل آخر و خیلی مهم، شرایط فیزیکی شخص است. که عبارتند از: سن، وضعیت سلامت شخص، ساختار بدن، پاسخ فیزیولوژیکی بدن، سطح فعالیت و غیره. الگوی لباس با سن فرد تغییر می کند. به علت تغییرات روانی و فیزیولوژیکی، با گذشت زمان، یک کودک نسبت به یک انسان سالخورده به انواع متفاوتی از لباس احتیاج دارد.



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پارچه ها با محافظت کردن از انسان ها در برابر عوارض جانبی ناشی از شرایط محیطی در به وجود آوردن احساس راحتی در فرد نقش مهمی ها ایفا می کنند. پوشاک میان پوست و محیط زیست یک لایه هوا ایجاد می کند که از سیستم تنظیم حرارت بدن برای نگه داشتن درجه حرارت در داخل محدوده معین محافظت می کند، حتی زمانی که درجه حرارت و رطوبت محیط خارجی تا حدی تغییر می کند.



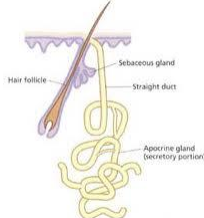
1.2 Components of clothing comfort

Comfort is one of the most important aspects of clothing. Many attempts have been made to define comfort, but a satisfactory definition is yet to be obtained [3]. Comfort has been defined by many researchers in different ways [4–6].

- Comfort is influenced by the physiological reaction of the wearer.
- Comfort is temperature regulation of the body.
- Comfort is the absence of unpleasantness or discomfort.
- Comfort is a state of pleasant psychological, physiological and physical harmony between a human being and the environment. All three aspects are equally important, since people feel uncomfortable if any one of them is absent.



Broadly there are four basic elements of clothing comfort, namely thermo-physiological aspect, sensorial or tactile aspect, physiological aspect and fitting comfort.



1.3 Clothing comfort and wearer's attitude

The wearer's attitudes towards clothing are influenced by the sensory attributes of the clothing (softness/harshness, warm/cool touch etc.), serviceability characteristic (e.g., durability, creasing, pilling) and most importantly by its expected comfort and satisfaction related attributes.



These attitudes may be gathered either through prior experiences with the exactly same or similar type of clothing, or from information obtained about the clothing through interpersonal, advertising or retail channels.



DeLong et al. [12] in their study to evaluate the consumer response to apparels asked consumers to complete the sentence "When I think about sweaters, I think about" without presenting any fabric samples or items of clothing. They performed a content analysis of the words that consumers used in order to assess the factors underlying the concept of "sweater".

1.4 Human–clothing interactions

1.4.1 Clothing as thermal barrier

Hindrance to the release of body heat Fourt and Hollies [18] have described the clothing system as “a quasi physiological system interacting with the body”. This means there relationship between human body and clothing is a two-way process. Both the clothing and the wearer perform their specific activities for others. The clothing protects the wearer from the environmental hazards for which it has been designed, whether they are heat, cold, fire, toxic agents or any other thing. At the same time the clothing does some adverse things to the wearer, e.g. by unwanted thermal insulation when it is not required, or by hindering the free evaporation of sweat from skin. Presence of clothing layer(s) prevents the efficient evaporative cooling of human body, which is his sole defence against severe heat. Thus the wearer faces the unbearable and dangerous conditions when he or she works near fire, like overheating,dehydration, and sometime may also collapses.

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In normal conditions, without any activity, the metabolic heat produced by a normal person is nearly about 80 watts (same as an electric light bulb!) and in the condition of high activity it can rapidly rise to more than a kilowatt [19]. So, the human body requires an effective cooling system, and physiological system of the body provides this cooling effect. This metabolic heat load, mainly during high activity, poses a consistent threat of overheating and the presence of clothing makes the threat even worse.



The most important mechanisms for effective heat transmission are:

- all the metabolic heat produced should be carried to the inner body surface (inner layer of skin) by the effective circulation of sweat;
- the skin should be able to generate the necessary amount of sweat;
- the generated sweat should get transmitted effectively (in liquid as well as in vapour form) through clothing ensemble.



One cannot adjust or change the first two mechanisms, but can definitely control the third mechanism by proper clothing. When someone wears excess number of clothing than what is required, he may feel overstressed or overheated with normal activity.

Helps to retain body heat

Except very hot environmental conditions and at very high activity levels, most of the environmental temperatures are below the human body temperature and clothing is required to hinder the flow of body heat to the atmosphere. So, in all these environmental conditions the heat flows out from the human body to the atmosphere due to the temperature difference, i.e. human body temperature is higher than the environment. In normal room temperature, i.e. approximately $27 \pm 2^\circ\text{C}$, the wearer requires minimum clothing layers to maintain the heat balance.



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The wearer does not require too much thermal insulation in clothing as the temperature difference between skin and the normal environment is low. The heat, generated in the body, gets transmitted slowly through the clothing and the open body surfaces (hands, arms, face, palms, etc.). As the temperature of the atmosphere drops further (say below 10°C) the rate of heat loss from body to atmosphere increases rapidly and the wearer feels cold due to thermal imbalance.



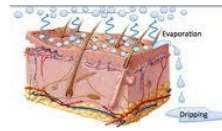
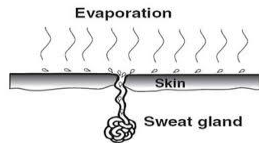
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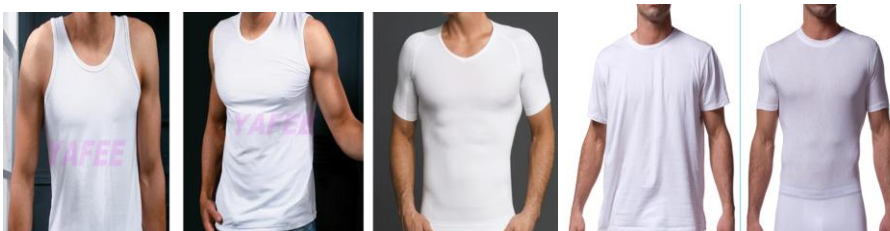
The best and easiest way to prevent this body heat loss is to have certain insulating layer around the body, and that is done by wearing some additional layers of clothing (which also provide insulating still air layer). Under this condition, loss of body heat through clothing drops significantly and little amount of heat loss still takes place through some opening of body surface. In extreme cold conditions (say below -20°C) the loss of body heat is prevented by enhancing the thermal insulation of clothing and covering all the body parts.



1.4.2 Mechanisms of enhancement of body heat release



The symptoms of overheating or overstress due to excess number of clothing rapidly disappear when the excess clothing is removed. The transmission of body heat through clothing ensemble changes automatically by different mechanisms. Activity of the wearer influences the heat transmission characteristics of clothing. As soon as the wearer starts moving or walking or running the thermal insulation of clothing reduces because of a combination of forced air circulation between and through the layers of clothing. This reduction in thermal transmission is further enhanced by the typical bellows effect at various openings and also due to movement



The changes in clothing design may be effected by:

- (i) creating openings, to allow natural convection by chimney effect, at various places in the clothing, e.g. neck, wrists, ankle and waist.
- (ii) designing loose fit clothing to have free convection of air and free interchange with outside air by means of a bellows effect.
- (iii) providing full-length zippers in the clothing for specific applications.
- (iv) avoiding the use of impermeable materials, whenever possible, can further facilitate evaporative cooling.

1.4.3 Multilayer clothing system

Most of the performance clothing assemblies are generally not a single layer system. These generally consist of a number of layers and each layer performs its specific function. These layers are generally of three types, i.e. inner layer, middle layer(s) and outer layer.

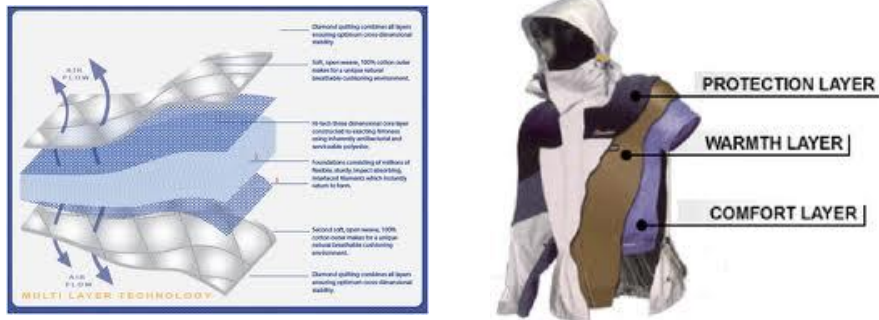
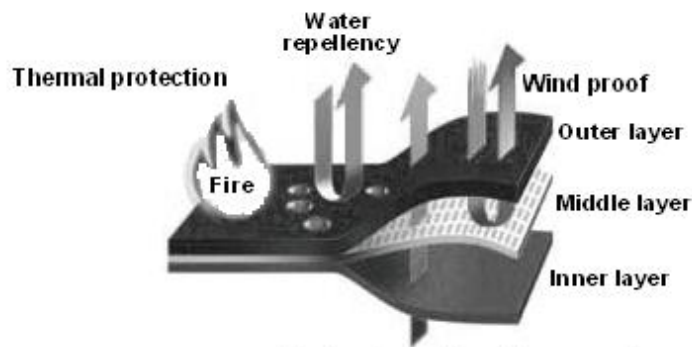


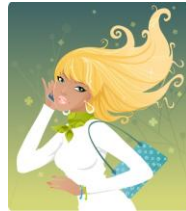
Figure 1.2 shows the typical functions of individual layers of a three layer clothing system, where the inner layer is generally an underwear which performs mainly the sweat absorption, direct cooling of the skin, transmission and tactile functions; the middle layers are generally shirt or sweater which helps still-air entrapment to provide insulation, transmission etc.; and the outer is primarily a shell layer for protection from extreme environmental factors, like rain, wind, chemical, heat, radiation, etc.



1.5 Understanding clothing comfort

1.5.1 Need and consumer trends

The basic and universal need of consumers in clothing is comfort and they look for good feel and comfort when they buy clothing and other textile materials. Clothing is very important in our life that we use everyday to obtain physiological and psychological comfort and also to ensure physical conditions around our body suitable for survival.

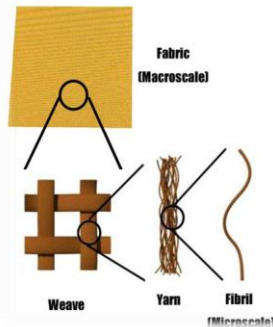


Therefore, it is extremely important for the survival of human beings and improvement of the quality of our life to have good understanding of the fundamentals of clothing comfort. From the viewpoint of the manufacturers of clothing and textile materials, understanding of clothing comfort has substantial financial implications in the effort to satisfy the needs and wants of consumers in order to obtain sustainable competitive advantages in modern consumer markets.



1.5.2 Scientific approaches

To have proper understanding of the clothing comfort and to predict comfort performance of clothing during wear, one needs integrated scientific knowledge of physics, physiology, neurophysiology, and psychology of comfort. In long-term perspective, it is very important to have proper knowledge on clothing comfort to improve the quality of life and the survival of human beings.



The clothing and textile industries should take necessary initiative in this area to achieve market leadership. Researchers identified the psychological sensory attributes what consumer desire, which is correlated with the technical parameters of clothing through psychophysical perceptual trials.

