

# ENERGY FACTS

Cooperative Extension Service  
Michigan State University

Energy Fact Sheet No. 14

Extension Bulletin E-1154

September 1977

## Cut Cooling Costs: Keep Cool With Clothing

By Leslie K. McConkey<sup>1</sup> and Bernetta Kahabka<sup>2</sup>

When we think of using energy to keep comfortable, we think most often of heating our homes. There are energy costs in cooling, too. In fact, the greatest demands for electricity occur during hot summer weather.

The clothing we choose can help us keep cool with a minimum of energy use. The way we dress makes a big difference in our comfort and efficiency and can greatly reduce our need for air conditioning.

For instance, if a man takes off a sport coat, replaces a long-sleeved shirt with a short-sleeved one, takes off his tie and opens his collar, he can be as comfortable at 80 degrees as he was at 77. Likewise, a woman who wears a light skirt instead of slacks, a sleeveless top instead of a long-sleeved blouse and sandals instead of closed shoes can raise the thermostat a couple of degrees without feeling any warmer.

Why are a couple of degrees one way or the other so important? A report from the U.S. Office of Energy Conservation and Environment says that raising thermostat settings in all air-conditioned homes and businesses in the nation by only one degree Fahrenheit would save the United States the equivalent of 100,000 barrels of oil a day.

The chart at right indicates how clothing changes can affect our comfort.

### Clothing and Comfort

The amount of clothing we wear has a significant effect on our summer comfort. Less is usually cooler. Other factors are important, too. These include clothing design, fiber content and fabric construction.

Whether we feel hot, cold or comfortably-in-

WOMEN	RAISE THERMOSTAT SETTING
Replace light slacks with light skirt.	1.5°F
Replace long-sleeved dress with sleeveless dress.	.2°F
Replace dress made of tightly woven cloth with one having an open weave.	.5°F
Remove stockings.	.1°F
Replace full slip with half slip.	.6°F
Remove full slip.	1.0°F
Replace pumps with sandals.	.2°F
Remove hat.	.2°F
Remove light long-sleeved sweater.	1.7°F
Remove heavy long-sleeved sweater.	3.7°F
<hr/>	
MEN	
Replace heavy trousers with light trousers.	.6°F
Replace winter-weight jacket with summer jacket.	2.5°F
Replace long-sleeved shirt with short-sleeved shirt.	.8°F
Replace long light trousers with Bermuda shorts.	1.0°F
Remove summer-weight jacket.	2.0°F
Remove undershirt (T-shirt).	.5°F
Remove tie and open collar.	.2°F
Replace knee-length socks with ankle socks.	.6°F
Remove light long-sleeved sweater.	2.0°F
Remove heavy long-sleeved sweater.	3.7°F

(Chart provided by Dr. Ralph Goldman, U.S. Army Ergonomics Laboratory and the John B. Pierce Foundation, New Haven, Connecticut.)

between is related to the body's heat exchange system with the environment. In hot weather, the body perspires. Body heat is taken up by the moisture on the skin. The perspiration evaporates, cooling the body.

Because evaporation is the most important means

<sup>1</sup>Assistant Editor, Information Services Dept; <sup>2</sup>Extension Specialist, Dept. of Human Environment and Design.

of heat loss from the body, we need to choose clothing that will allow a good flow of air across the skin. Therefore, loose garments with large neck and sleeve openings will feel cooler than clothing with tight-fitting wrists, necks and waists. Clothing that clings to the skin tends to insulate it from cooling breezes and so makes us feel uncomfortably warm.

How well the fibers in a garment absorb moisture is another factor. Absorbent fibers take moisture away from the body. Nonabsorbent fibers tend to hold moisture next to the skin, where it acts as insulation that holds body heat in.

The most absorbent fiber is cotton. Linen is also highly absorbent. Though we don't often think of wearing wool in summer, it, too, in light weights, lets heat out and air in to keep the body cool.

In contrast to the high absorbency of these natural fibers, most man-made fibers tend to be quite low in absorbency. Rayon does a good job of absorbing moisture, but acetates, acrylics and mod-acrylics, nylons and polyesters absorb very little moisture.

This is not to say that you should wear only cotton in hot weather. Fabrics made of nonabsorbent fibers can be quite comfortable and cool, if the clothing style is loose and open and the fabric is not tightly constructed. Loose weaves and knits that permit the passage of air through them can be very com-

fortable, even though the fiber is not absorbent. Fabrics made of blends of absorbent and nonabsorbent fibers are another cooling possibility.

#### **Other tips for keeping cool with clothing:**

- Wear light colors. Dark colors tend to absorb sunlight, while light colors reflect it. Psychologically, cool colors like light blues and greens feel cooler than warm colors like orange, yellow and pink.
- Eliminate layers of clothing. Leave off undershirts, full slips, sport coats and ties as much as possible. Layering blocks the movement of air to the skin.
- Wear sandals or open shoes without nylons or heavy socks. Open footwear allows heat to escape and perspiration to evaporate. If you must wear socks, wear cotton ones.
- Choose water-repellent rather than waterproof rainwear for summer. A raincoat that won't let water in won't let body heat and moisture out, either.
- Wear a hat to shade you from direct sun. Choose a wide-brimmed straw or other fiber or construction that will allow air to move in and out.
- Avoid wearing a lot of accessories like neck scarves and belts. These add extra layers that block air movement across the skin.