

Chapter 6 — The Proper Clothing of the Body

of *The Science of Living, or, The Art of Keeping Well*
(1910)

by William S. Sadler, M.D.

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Sources for Chapter 6, in the order in which they first appear

- (1) D. H. **Bergey**, A.M., M.D., *The Principles of Hygiene: A Practical Manual for Students, Physicians, and Health-Officers* (Philadelphia: W. B. Saunders Company, 1909)
- (2) J. H. **Kellogg**, *The Miracle of Life* (Battle Creek, Mich.: Good Health Publishing Company, 1904)
- (3) Edward F. **Willoughby**, M.D., *Hygiene for Students* (New York: The Macmillan Company, 1901)

Key

- (a) **Green** indicates where a source author (or a previous Sadler book) first appears, or where he/she reappears.
- (b) **Yellow** highlights most parallelisms.
- (c) **Tan** highlights parallelisms not occurring on the same row, or parallelisms separated by yellowed parallelisms.
- (d) An underlined word or words indicates where the source and Sadler pointedly differ from each other.
- (e) **Pink** indicates passages where Sadler specifically shares his own experiences, opinions, advice, etc.
- (f) **Light blue** indicates passages which strongly resemble something in the Urantia Book, or which allude to the Urantia phenomenon.

- (g) **Red** indicates either an obvious mistake, in most cases brought about by Sadler's miscopying or misunderstanding his source, or an otherwise questionable statement on Sadler's part.

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VI — THE PROPER CLOTHING OF THE BODY

IX: CLOTHING (Bergey 256)

[contd] The function of clothing is

to protect against the weather—heat,
cold, and dampness—

and to protect against injury (B 256).

XV: THE CLOTHING OF THE BODY (Kellogg 338)

[Introduction.] (Kellogg 338)

Civilized man requires clothing both
for protection and to satisfy the demands
of modesty.

Custom goes farther, and finds in clothing
a means of body decoration or
ornamentation,

6:0.1 The real purpose of clothes is

not display and adornment,

but rather to protect the body from the
elements of cold and heat,

from injury,

and adequately to satisfy the social
demands of modesty.

If we accept the doctrine that man in his
primitive innocence roamed this world,
garbed in the scant attire of the savage,
and that it was only with the awakening
of the consciousness of sin that clothes
became necessary, then our external
adornment becomes a token of racial guilt
and the necessity for clothes is hardly a
thing to be proud of. Clothing is a
perpetual reminder of the loss of the
primitive innocence of former ages.

Why should so much time be spent on
clothing the body,

SOURCE

even going so far as to change the form of various portions of the body, producing the most cruel and hideous deformities, and **often** with the most disastrous results (K 338).

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ofttimes in ways that are highly injurious and disease-producing?

How much better it would be to follow the dictates of judgment and reason rather than to be guided by the follies of fashion and the demands of popular **custom**.

COLD WEATHER CLOTHING

IX: CLOTHING (Bergey 256)

Protection against Cold. (Bergey 256)

[contd] The most important use of clothing in cold climates is to protect against cold.

6:1.1 The chief purpose of clothing is to protect the body in cold weather.

The average man is unable to produce sufficient heat to keep the body warm during the winter

Clothing serves this purpose by diminishing the radiation of heat from the body (B 256).

unless that heat be conserved by means of clothing in close contact with the skin.

V: CLOTHING (Willoughby 121)

The habits of some races, as those of **tropical** Africa, and the experience of the **Turkish bath**, show that the **human body possesses an extraordinary resistance to external heat**,

The human body can resist heat far better than cold.

The bare skin will withstand both the heat of the **tropics** and the enormously high temperature of the **Turkish bath**,

but its power of resisting cold is far less, even among the rudest of savage tribes (W 121).

but it cannot withstand excessive cold without some sort of protection.

XV: THE CLOTHING OF THE BODY
(Kellogg 338)

The Properties of Different Clothing Materials.
(Kellogg 339)

[contd] Different substances behave very differently in relation to the transmission of heat, absorption of moisture, and permeability to air; and consequently the material with which clothing is made has a very important relation to health (K 339).

V: CLOTHING (Willoughby 121)

Linen and cotton are good conductors of heat, especially the former, and very non-absorbent of moisture, whether into the substance of the fibres or into their interstices (W 122).

[See 6:1.6, below.]

Silk and wool are bad conductors; silk for equal thicknesses being the more so ... (W 122).

XV: THE CLOTHING OF THE BODY
(Kellogg 338)

The Best Material for Underclothing. (Kellogg 339)

The air inclosed in the meshes of a fabric constitutes an excellent nonconductor. Several thin garments are on this account much warmer than one thick one, the interposed layers of air having a high protective value (K 340).

6:1.2 The value of various clothing materials as heat-conservers differs greatly.

Linen and cotton are good conductors of heat,

and therefore are better suited to summer than winter wear, unless worn next to the skin with an outer garment made wholly or partially of wool.

Wool and silk are both poor conductors of heat,

therefore not adapted for warm weather clothing, but well suited for winter.

6:1.3 Several layers of clothing are much more useful in keeping the body warm than a single layer,

SOURCE

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even though that single layer be as heavy or heavier than all the materials composing the several layers.

V: CLOTHING (Willoughby 121)

The growing practice of “weighting” textile fabrics is a fraud, injurious alike to the tissue, the health of the wearer and the true interests of commerce.... Muslins are stiffened with gum, cotton and linen goods laden with starch and earthy matters,

black silk may consist in great part of “dye” and dirt and even cloth and serges are treated with zinc chloride, a caustic salt which by absorbing moisture adds to the weight (W 129).

[contd] The dyes, too, are not always harmless.... Some green tartans have been found to be heavily laden with arsenite of copper, easily detached, and symptoms of poisoning have followed the use of sage green and other woollen materials.

The bright anilin colours, fuschin, &c., often, indeed generally, retain some of the arsenic used in their manufacture, and stocking and gloves of these hues frequently give rise to painful inflammation and eruptions of the skin (W 129-30).

IX: CLOTHING (Bergey 256)

Protection again Cold. (Bergey 256)

If we take the amount of radiation of heat from the naked body as 100,

The modern practice of weighting fabrics with “earthy” materials

or loading them down with dyes to such an extent as to render them almost impervious to air and moisture,

is to be deplored.

Many of these dyes are poisonous

and cause inflammations and eruptions of the skin.

6:1.4 If we take the naked body and represent its radiation of heat by one hundred,

SOURCE

the radiation is reduced to 73 by means of a **woollen shirt**;

to 60 by means of both a woollen and a **linen** shirt;

to 46 by means of a woollen and a linen shirt and a vest;

to 33 by the addition of a **coat** (B 256).

V: CLOTHING (Willoughby 121)

Trimnings of fur are more ornamental than useful (W 123).

Furs have the additional recommendation of handsome appearance, though to get the full value out of them they should be worn, as in Eastern Europe and Central Asia, with the fur inside (W 123).

XV: THE CLOTHING OF THE BODY (Kellogg 338)

The Properties of Different Clothing Materials.
(Kellogg 339)

Linen absorbs moisture much more rapidly than does wool, and dries more than twice as quickly.

This is also true of **cotton** to a less degree,

and to a still lesser degree of **silk**.

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the ordinary **woollen shirt** is found to reduce the radiation of heat to seventy-three.

A **linen** and an outer woollen shirt will reduce the heat loss to sixty.

A linen shirt, a woollen shirt, and a vest, reduce heat radiation to forty-six;

while a linen shirt, a woollen shirt, and a **coat** and vest, reduce the heat radiation to thirty-three per cent.

6:1.5 Furs are more ornamental than useful, as they are ordinarily worn.

They may, indeed, become positively harmful from the over-heating of a limited surface of the skin.

To get the real benefit of fur coats, they should be worn with the fur inside.

6:1.6 **Linen absorbs moisture more readily than wool and dries twice as quickly.**

In the ability to absorb bodily moisture, **cotton** comes next;

then **silk**.

SOURCE

Quick moistening of a fabric is a test which is constantly employed to distinguish linen from cotton (K 339).

The Best Material for Underclothing. (Kellogg 339)

Woolen goods hold the moisture for a long time, and accumulate it ... It is on this account not well adapted for garments to be worn next to the skin. Linen is superior to all other fabrics for this purpose.

Cotton stands next in value. The fact that the quick drying of linen

exposes the skin to rapid cooling by evaporation,

necessitates the wearing of outer garments of wool

to prevent the too rapid loss of heat ... (K 339-40).

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Quick moistening is a time-honored test between linen and cotton.

This ability to absorb water largely and evaporate it quickly makes linen a very desirable fabric for underclothing

with but this single objection:

too quick evaporation of the perspiration from the underclothes

will chill the skin.

This single objection to linen as a material for underclothing is overcome by

the wearing of cotton, or, still better, woollen outer garments.

This arrangement permits the quick removal of the exhalations of the skin by rapid evaporation through the linen under garments;

at the same time prevents chilling by the slow passage of the heated vapors through the cotton and woollen outer garments.

SOURCE

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IX: CLOTHING (Bergey 256)

Cleanliness in Relation to Clothing. (Bergey 261)

Starching and ironing tend to close the pores in clothing and render it more impervious.... In winter starching and ironing serve to conserve the heat of the body (B 261).

6:1.7 Starched clothes are probably a little warmer during the cold season, as they lessen the radiation of heat from the body.

XV: THE CLOTHING OF THE BODY (Kellogg 338)

The Best Material for Underclothing. (Kellogg 339)

[repeated] Several thin garments are ... much warmer than one thick one,

Two thin suits of underwear will always prove warmer than one,

the interposed layers of air having a high protective value (K 340).

an air space existing between them which lessens the loss of heat.

[Introduction.] (Kellogg 338)

The temperature in which an individual actually lives is that of the air next to the body inside of the clothing, and sufficient clothing must be worn to maintain this temperature, which, ordinarily, is about 77° to 86° F. (K 338).

The actual temperature of the body next to and underneath the underwear is about eighty-six degrees.

V: CLOTHING (Willoughby 121)

Passing by the palpable inconsistencies of evening dress, in which the upper part of the trunk containing the lungs is uncovered and exposed successively to the heated atmosphere of ball-rooms and to the chill night air, ... we shall limit our criticisms to the everyday dress of women of all ranks alike (W 125-26).

6:1.8 The practice of attending balls and other evening functions clad in low-necked attire,

SOURCE

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with no other outer wrap than a thin opera coat, is conducive to chilling of the skin, frequently resulting in pneumonia and other internal congestions.

Garters, again,

6:1.9 The wearing of tight garters

by either men or women interferes with the circulation of blood in the lower extremities, especially the return circulation through the veins.

are a fertile cause of varicose veins,

Varicose veins and ulcers of the leg are both produced and aggravated by this practice.

which are far more frequently met with among women than men (W 128).

XV: THE CLOTHING OF THE BODY
(Kellogg 338)

Useful Hints Respecting the Clothing. (Kellogg 344)

Don't wear more clothing than is really necessary for comfort (K 345).

6:1.10 Great care should be taken not to over-clothe the body during the winter.

Warm wrappings about the neck cause the skin of the neck to become moistened with perspiration.

Over-clothing debilitates the skin, producing unconscious perspiration,

When the wrappings are removed indoors, the slow cooling which takes place in consequence of the evaporation, chills the parts, and may produce sore throat or nasal catarrh (K 344).

the evaporation of which exposes the body to chilling and subsequent colds.

The skin must be kept warm, but it should be slowly and systematically trained to react to cold—to withstand ordinary drafts if necessary. In this way one may gradually build up a skin reaction which will prevent many attacks of cold and grippe.

SOURCE

On going out of doors, don't forget to slip on an outer garment of some kind if the temperature is considerably lower than the indoor temperature; especially protect the head and the feet (K 345).

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On the other hand,

when going out of doors during the cold weather, do not forget to put on suitable outdoor wraps.

While it is important not to over-clothe the body indoors, it is equally important not to under-clothe it when going out into the cold.

W A R M W E A T H E R CLOTHING

IX: CLOTHING (Bergey 256)

[repeated from 6:0.1] The function of clothing is to

protect against the weather—heat, cold,

[See 6:3.1, below.]

and dampness—and to protect against injury (B 256).

Protection against Heat. (Bergey 257)

The degree of porosity is an important feature in summer clothing (B 257).

Protection against Cold. (Bergey 257)

[T]he clothing worn next the body should be porous, so that all the pores should not be filled with perspiration.... Some authorities claim that linen, of coarse mesh, is best adapted for this purpose because it does not retain the moisture as long as wool (B 256).

6:2.1 Clothing also serves the purpose of

protecting the body against the heat of summer,

the sunburn of the sunlight,

and the dampness of the rainy day.

The essential feature of summer clothing is porosity.

The meshes should be large and the weave coarse.

SOURCE

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Abundant opportunity should be afforded for the elimination of heat.

V: CLOTHING (Willoughby 121)

The colour of clothing is a matter of little importance in the shade, but in the sun the best reflectors are coolest, such as white and light greys,

White, gray, or other light-colored clothing is better suited to warm weather, as it more fully radiates the light of the sun,

while blue and black are the worst as absorbing the most heat (W 123-24).

thus protecting the body from the absorption of external heat, as well as aiding in carrying off the heat of the body.

No starched clothing should be worn during the summer. Every one will recall how uncomfortable stiff, starched shirts, waists, and other summer clothing are as compared with loose-fitting, pliable flannels and other soft clothing, on a hot day.

6:2.2 Black and blue garments are the most unsuitable for hot weather. These dark colors largely absorb the heat rays of the sun and transmit them to the body.

[contd] Dark colours also absorb odours, &c., more than light ones, and the black woollen dresses worn by hospital sisters are most improper.

They also absorb odors in a larger degree than light colors.

Indeed, for everyday use light coloured garments, of whatever material, provided it can be washed, are to be recommended, though dark colours are preferred, because they do not show the dirt!

Their only advantage (in reality a disadvantage) is that they do not show the soil so readily;

SOURCE

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What woman would like to wear a cotton print or muslin six months without washing, yet it would not be half so dirty as the more absorbent dark woollen dress that she would wear as long without a scruple (W 124).

XV: THE CLOTHING OF THE BODY
(Kellogg 338)

White Garments Preferable to Colored. (Kellogg 341)

White cloth reflects all the rays of light,

and may thus afford protection, provided the fabric is thick enough so that the light rays do not penetrate.

The most complete protection from the sun's rays

is afforded by a white garment **lined with a dark fabric** of some sort (K 341).

but it must be remembered that they gather dirt just as quickly.

While there are many vocations in which white clothing cannot be worn because of the ease with which it is superficially soiled and begrimed,

one would not want to wear a suit of black underclothing for three months just because it does not show dirt.

6:2.3 Since **white** materials reflect the heat of the sun,

they are best for summer wear,

but when they are very thin, much of the heat passes right through the clothing without being reflected.

Therefore, the coolest possible garment for hot weather wear

is obtained by employing a thin, white-colored fabric **lined with a very thin, dark-colored lining.**

Such a garment will be found to be the coolest possible creation for summer wear.

SOURCE

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V: CLOTHING (Willoughby 121)

Waterproof clothing, *i.e.*, indiarubber, is absolutely impenetrable by wind or rain, and under many circumstances is indispensable.

It is often urged against its use that it retains and condenses the perspiration,

but if not worn constantly, ... these objections have no weight compared with the enormous advantages it presents (W 123).

6:2.4 Waterproof clothing is sometimes worn as a protection against chill and dampness.

Such garments prevent the evaporation of the sweat and other poisonous vapors from the body.

For this reason they are unhygienic, and should be immediately removed upon coming indoors.

Otherwise, chilling of the skin and derangement of the circulation result from this retention of perspiration.

If the underclothes are saturated with perspiration, they should be immediately removed. Dry the skin quickly with a Turkish towel and put on dry under garments.

PROTECTION AGAINST INJURY

IX: CLOTHING (Bergey 256)

Protection against Injury. (Bergey 258)

[contd] Clothing protects the body against mechanical injury, from frost, or from the direct rays of the sun.

6:3.1 Clothing serves to protect the skin against various injurious agents.

Gloves protect the hands when performing rough work and during cold weather.

SOURCE

Among civilized peoples **protection of the feet** is also necessary to avoid injury or annoyance in walking over rough ground (B 258).

Figs. 48, 49, 50, and 51 ... give the outlines of normal feet and the manner in which these normal outlines are **deformed** by the universal soles of the shoemaker. It will be seen that the shoemakers' soles ... in no way conform to the outlines of normal feet (B 259-60).

XV: THE CLOTHING OF THE BODY (Kellogg 338)

Useful Hints Respecting the Clothing. (Kellogg 344).

Don't wear thin-soled shoes at any season of the year (K 345).

Equable Clothing Essential to Health. (Kellogg 342)

Many persons suffer greatly from insufficient clothing of the limbs in the cold seasons and on cold mornings and evenings, without being aware of the cause of their illness. Congestion of the head, and various disturbances of the stomach and bowels

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Shoes **protect the feet** from bruises

and from the heat and cold.

Some great evangel of reform is needed to revolutionize the modern methods of clothing the feet. The Chinese are not the only race that deliberately distort their feet. Among the better classes of the civilized races, it is almost impossible to find a foot that is not more or less permanently **deformed**.

The shape and impress of the natural sole of the foot is almost entirely ignored in the making of the modern shoemaker's last.

6:3.2 Excessively thin-soled shoes are dangerous in both summer and winter.

Colds in the head, disturbances of the bowels,

SOURCE

and other internal organs, and especially lung affections,

are the result of this neglect (K 343).

Useful Hints Respecting the Clothing. (Kellogg 344).

Don't wear high-heeled shoes, nor pointed shoes, nor tight shoes, nor low shoes (K 345).

[[W]hen, as in women's boots of late years, the heel is also tapered to a point and slanted forwards, the whole machinery of walking is thrown out of gear (Willoughby 127).]

IX: CLOTHING (Bergey 256)

Protection against Injury. (Bergey 258)

High heels are especially injurious, because they place the larger part of the weight of the body on the ball of the foot (B 260).

V: CLOTHING (Willoughby 121)

ERRORS AND FOLLIES IN DRESS (Willoughby 125)

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and inflammation of the pelvic organs,

often result from long chilling of the feet.

We cannot find language sufficiently strong to express our condemnation of

the modern, close-fitting, pointed-toed shoe,

with its ridiculous French heel.

The high-heeled shoe is especially detrimental to young girls.

No mother should think of permitting her daughter, just budding into womanhood, to wear these absurd and health-destroying creations of fashion and folly.

6:3.3 It should be borne in mind that

SOURCE

The aim of the shoemaker seems to be to make the longitudinal axis of the foot a straight line and each foot bilaterally symmetrical. With the hand, indeed, this is the case. The middle finger is the longest, and those on each side of it nearly correspond; but we are not like monkeys, quadrumanous.

The great or inmost toe is the longest and in a line with the side of the foot, while the others are successively shorter (W 127).

IX: CLOTHING (Bergey 256)

Protection Against Injury. (Bergey 258)

Laced shoes are the most rational, because they can be fastened to the feet in such a manner as to allow the least amount of friction.

Rubber shoes should be worn only for a short time during wet weather,

and should be removed as soon as they are not needed (B 260).

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man has a foot unlike that of the monkey, whose foot much resembles the hand.

Man's great toe, corresponding with the thumb, is the longest of all the toes;

therefore, proper fitting shoes can not be made after the lines of the glove, as our pointed-toed shoes are constructed, but must be built along the lines of the natural foot.

6:3.4 Laced shoes are preferable to buttoned shoes.

They are more easily regulated with respect to ease and comfort, and permit of more unhampered action on the part of the foot.

While rubber shoes are a boon in wet weather,

they should be removed at the earliest possible moment.

XV: THE CLOTHING OF THE BODY
(Kellogg 338)

Useful Hints Respecting the Clothing. (Kellogg 344).

Rubber heels are a great comfort (K 345).

Rubber heels are a great comfort to many people.

THE INJURIOUS EFFECTS OF CLOTHING

Savage Fashions. (Kellogg 350)

6:4.1 It is a practice prevalent among most savage and barbarous peoples to deform or distort some part of the body. (See Fig. 11.)

[contd] As the flat-headed woman watches with interest and growing pride the progressive depression of her infant's skull, while from day to day she binds more tightly upon it the flattened disk of wood; and as the Chinese woman glories in the shriveled and misshapen stump of what was once her child's foot, as a developing mark of aristocratic gentility,

The Chinese bind up the feet of their aristocratic girl babies.

The North American Indian straps a board over the forehead of his papoose in order to impart a fashionable degree of flatness to the head.

The African belle may be adorned with a ring either in the lip or in the ear, while her cousins may be grotesquely tattooed. Among uncivilized races such practices do not seem so far out of place;

SOURCE

in like manner does the civilized mother pride herself on the smallness and roundness of her daughter's corset-deformed waist, ... which is ... more disastrous in its consequences to bodily health and vigor, than any similar barbarity practiced upon themselves or their children by the members of any savage or semisavage tribe (K 350).

Why Woman Is “the Weaker Vessel.” (Kellogg 356)

[contd] That there has not been a general rebellion against this unnatural and mischief-making mode of dress on the part of the intelligent women of this enlightened age, is probably due to the popular but fallacious idea which seems to be so thoroughly fixed in the minds of both men and women, that woman is “the weaker vessel” ... (K 356).

Any one who has made himself familiar with the activity of the women of savage nations, or even the women of the peasant classes in civilized countries, must have recognized the fallaciousness of this popular idea ... (K 357).

De Saussure relates that when he had finished his observations in the valley of Zermatt, he packed a collection of mineralogical specimens in a box, and called for a porter to carry it out of the valley ... After a fruitless search for a man who was able to transport his box of specimens,

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but when civilized, intelligent—even Christianized peoples—resort to deforming the human body,

it should shock our sensibilities to the point of serious contemplation.

6:4.2 Among civilized races, woman has come to be regarded as the “weaker vessel.”

She is not so regarded among the uncivilized.

An African explorer¹ was unable to get a male porter who would undertake to carry a heavy box of minerals over the mountains.

SOURCE

he finally was told that if he wished a porter to carry his package, he must employ a woman, as no man could be found who was able to even lift the box.

He accordingly engaged a woman who offered herself for the purpose,

and stated that she carried the heavy box of minerals over the steep mountain roads without the slightest injury either to it or to herself (K 357).

Some years ago the author saw a woman in the market place at Naples, Italy, carrying off upon her head an immense load of vegetables, which required two men to lift into position (K 357).

Common Evils in the Customary Dress of Women. (Kellogg 346)

[contd] The generally recognized fact that the average civilized woman is far inferior in strength to the average civilized man

is in large part due to the **unhealthy and unnatural dress** almost universally worn by civilized women (K 346).

IX: CLOTHING (Bergey 256)

Injurious Effects of Clothing. (Bergey 260)

[contd] The clothing should be of such a pattern as to conform to the natural shape of the body

without constricting or compressing any portion thereof (B 260).

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At last, he was told that **no man** could carry such a weight,—that he would have to get a woman.

Thereupon he secured the services of a female porter

who easily carried this enormous burden—

so heavy as to require two men to lift it.

6:4.3 The physical weakness of the modern civilized woman,

while resulting, no doubt, from many and varied causes,

is chiefly the result of her **unnatural and unhealthy mode of dress.**

6:4.4 The fundamental principle underlying all methods of dress is that

we should make our clothes to fit the body given us by God,

and not squeeze and distort the human form divine into fitting the clothes—

SOURCE

6: THE SCIENCE OF LIVING

garments which the originators of fashion may decree that men and women should wear.

XV: THE CLOTHING OF THE BODY
(Kellogg 338)

The Deformities of Civilized Women. (Kellogg 349)

If the sacrifices which the civilized woman makes to fashion were no greater [than those of the aristocratic Chinese woman], there would be comparatively small ground or complaint;

but the habitual girding of the waist results in mischiefs of vastly greater magnitude than those which the Chinese woman inflicts upon herself (K 349-50).

[*Note:* A. Ernest Gallant, M.D. advocated the wearing of a specially designed corset. Among his articles on the subject was "The Corset for Movable Kidney and Associated Visceral Ptosis," which appeared in the Nov. 7, 1908 issue of *Journal of the American Medical Association.*]

6:4.5 It is bad enough to constrict the feet with unnaturally shaped shoes,

to deform the skull after the fashion of the Indians,

but consequences of far greater gravity follow in the wake of the modern practice of constricting the waist,

thus compressing the vital organs found in the chest and abdomen.

6:4.6 Constriction of the waist by corsets and bands on the part of women, and by tight belts on the part of men, cannot be too strongly condemned.

We are aware that doctors have recently arisen to defend the corset, claiming that women have so weakened the muscles of the abdominal walls from tight lacing, that the corset has become a real necessity to the present generation.

But who can fail to discern the folly of such philosophy? It might be argued with equal force that any physical or moral vice of the present day has become a necessity because of the physical or moral weakness which indulgence has produced. These champions of the corset, in the very arguments they advance, confess to the fact that it has weakened the abdominal muscles and displaced the internal organs of its devotees. Far better it would be, instead of defending this pernicious instrument of torture and deformity, to point out methods whereby its harmful effects may be partially or wholly overcome, to lift a warning voice to every mother against allowing her daughter to

The fashionable **dressmaker** insists that the young lady's figure must be "**formed,**"

be "**formed**" by the **dressmaker**—

yes, to teach young and old to be content with the human figure as carved by Nature, and to be satisfied with the human form as outlined by the Master Artist.²

FASHION DEFORMITIES

6:5.1 How pathetic to behold the young girl, while her brothers romp and play with freedom and pleasure, having her form gradually compressed and misshapen by the tight corset,

and so as she develops she grows into a mold, like a **cucumber in a bottle** (K 349).

as a little **cucumber** might be forced to distort its form while growing **in the neck of a small bottle.**

SOURCE

Waist Constriction. (Kellogg 346)

The following table shows the figures obtained by modern **measurements**:—

French peasant women ... 45.4% [i.e., waist to height ratio]

Chinese women ... 45.4%

Average of forty-three American women, eighteen to twenty-five years of age, wearing healthful dress ... 44.64%

Venus de Milo ... 47.6%

Average of two thousand men, eighteen to twenty-five years of age, measured by Dr. Seaver of Yale ... 42.7%

Average of eleven hundred women wearing ordinary dress ... 39%

Apollo Belvidere ... 45% (K 347)

The author has taken the pains, also, to measure a large number of ancient models as represented in famous statuary. He finds the same thing to be true. Here are some figures. **The circumference of the waist of the Venus de Milo is nearly one-half that of the height of the figure, the exact proportion being 47.6 per cent of the height** (K 347).

The author has measured the waists of a large number of civilized women of different nationalities,—American, English, French, and German, Indian women, Mexican women, Chinese women, Zulu women, Arabian women, Egyptian women, negro women from far up the Nile,—

and has invariably found that women who have never been deformed by wearing the clothes which the civilized woman habitually wears,

have waists larger in proportion to their height than have men of the same race³ (K 347).

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6:5.2 From **measurements** taken among various **savage** and **uncivilized** tribes as well as among American and European women who have never worn corsets, it has been found that the circumference of the waist of the average healthy woman is **just about one-half her height.**

The circumference of the waist of the Venus de Milo is just forty-seven and six-tenths per cent of her height. (See Fig. 12.)

The author and his wife have measured numerous women of different nationalities,

whose waists have never been constricted,

and have almost invariably found their circumference to be from forty-five to fifty per cent that of the height.

SOURCE

Diseases Due to Fashionable Dress. (Kellogg 351)

[The author some years ago was obliged to remove a kidney in whom the organ had become displaced [due to waist constriction upon the kidneys] (K 353.)

[contd] Nervous exhaustion, pain in the small of the back, headache, biliousness, neuralgic pains, heaviness across the lower abdomen, pains in the legs, nervousness, general languor and weakness, inactivity of the bowels, lack of endurance,—these and many more diseases ...

are the direct outgrowth of the displacement of the abdominal organs such as arises from waist constriction, whether occurring in men or in women (K 351).

Effect of Waist Constriction upon the Kidneys. (Kellogg 353)

A German surgeon was obliged to open the abdomen of a woman, and remove a large portion of the liver

which had been cut off by constriction of the waist, and had become gangrenous (K 353).

6: THE SCIENCE OF LIVING

6:5.3 So pernicious is the effect of waist constriction upon the health that many modern physicians have come to recognize a whole group of diseases as being caused directly or indirectly by tight lacing.

Floating kidneys,

headaches, backaches, sideaches, and liver complaints,

are oftentimes caused by this fashionable practice.

It is reported that a German surgeon had to open the abdomen and remove a portion of the liver

which had been entirely cut off in a case of corset constriction.

6:5.4 Corsets restrict the breathing; they weaken the abdominal muscles; they displace the internal organs, favoring constipation, and indirectly contributing to the causes of indigestion, and congestion of the liver and pelvic organs.

SOURCE

6: THE SCIENCE OF LIVING

Diseases Due to Fashionable Dress. (Kellogg 351)

A large share of the illnesses from which women suffer, and which are attributed to peculiarities of sex, result from this mechanical cause alone (K 351).

The corset is indirectly chargeable with a vast amount of the sufferings of womankind usually designated as “female complaints.”

Crippled Breathing. (Kellogg 355)

It is thus evident that, in its interference with the proper respiration, as well as from the mechanical injuries which it inflicts, the common mode of dress, which involves constriction of the waist,

6:5.5 The wearing of corsets

is the most potent means of impairing the health and vigor of the whole body, and may be justly reckoned as perhaps the greatest of all factors in the general decadence in physical vigor so apparent among women of the present day (K 356).

has probably contributed more than any other single factor to the gradual undermining of the physical health and vitality of American women,

in a measure unfitting them for motherhood.

[Compare: Neurasthenias, autointoxications, premature decay of the vital powers, even such dreadful maladies as ... cancer of the stomach and other organs may be traced directly or indirectly to these internal deformities resulting from the sitting position and the habitual wearing of the corset or tight lacing (“Why Is the American Woman an Invalid?,” in *Good Health*, Vol. XIII, No. 10, February 1907, p. 57).]

According to eminent authorities, tight lacing predisposes to many forms of tumor-growths of the pelvis and abdomen, due to the disturbance of circulation and displacement of internal organs.

V: CLOTHING (Willoughby 121)

ERRORS AND FOLLIES IN DRESS (Willoughby 125)

6:5.6 The author would not have it understood that he desires to

SOURCE

Of course, if women, as age advances, show a tendency to corpulence and flaccidity of muscle, there is no objection to their wearing an **easy-fitting** corset of stout jean without bones,

but if their muscles had been allowed to develop freely this would rarely be necessary (W 127).

XV: THE CLOTHING OF THE BODY
(**Kellogg** 338)

Why Many Women Suffer. (Kellogg 358)

“**Health corsets**” are a device of the devil to keep in bondage women who are seeking for deliverance from the weakness and misery from which a really healthful mode of dress might emancipate them. Shoulder braces and harnesses of every description are on the whole a **snare and a delusion** (K 359).

6: THE SCIENCE OF LIVING

condemn all forms of corsets and hygienic waists or other **loose-fitting** supporters and waists worn by excessively fleshy women.

At the same time, observation has led to the opinion that

practically all the so-called “**health corsets**,” reform waists, etc., are a **snare and a delusion**.

Many of them are a great improvement over their wicked predecessors, but at best they should be regarded in the light of crutches or temporary makeshifts. They cannot be relied upon to take the place of the natural tone and strength of the muscles, which must be built up by painstaking and persistent exercises.

PERVERTED BREATHING

6:6.1 It must be evident to the most casual observer that any long-continued stricture of the waist will produce a superficial type of breathing. When the waist is constricted, the diaphragm cannot functionate as in normal respiration. Its downward movement is prevented by corset wearing. This is the only explanation of the fact noted in the chapter on Breathing, that civilized women employ costal breathing (chest breathing), while men employ more largely the abdominal type of breathing. *Women have to breathe with their chests*—often with only the upper portion of the chest, because the corset prevents expansion at the equator of the trunk.

[See Chapter IV: “Natural Breathing, or the Vitalized Life,” p. 27.]

The Far-reaching Mischief from Errors in Dress. (Kellogg 360)

6:6.2 Many medical men of to-day believe that the tight lacing of the last generation is in many ways responsible for the fact that

The sons of the mothers whose constitutions have been weakened by the following of customs in dress, are born with feeble vitality and little power to resist disease.

the daughters of the rising generation are physically inferior to their mothers and grandmothers when they were girls.

This must be regarded as one of the causes which is operating to produce the rapid race deterioration which we see going on all about (K 360).

There can be little doubt that this inordinate distortion of the human form must sooner or later exhibit disastrous effects upon posterity.

TREATMENT OF WEAK MUSCLES

6:7.1 Many will no doubt ask what can be done to overcome the weakness of muscles and to restore misplaced and misshapen internal organs resulting from tight lacing. It is hardly possible that many of the victims of the corset can escape more or less lengthy medical attention, but there are several things which will greatly alleviate their condition and partially undo the results of this wrong practice. We would therefore suggest that instead of continuing the corset because of the weakness it has produced, some suitably fitting bandage be worn which will extend around the body and serve as a sort of hammock—support for the lower and most pendulous portion of the abdominal wall. The internal organs have a tendency to displace downward, as the result of constriction at the waist, but may be partially held in place by means of this abdominal support, which should be used only temporarily, while the patient goes to work by proper exercises and massage and, if possible, sinusoidal electricity, to strengthen and upbuild the abdominal walls, thus enabling Nature to do her work without artificial support. The cause of the difficulty must be removed, as none of these abdominal bandages should be depended upon any longer than is required to strengthen Nature's crippled resources.

6:7.2 The following exercises are valuable for strengthening the abdominal muscles:⁴

6:7.3 1. Lying on back resting hands on hips, stiffen knees and raise legs to as near right angles to the body as possible.

SOURCE

6: THE SCIENCE OF LIVING

6:7.4 2. All forms of trunk bending and twisting.

6:7.5 3. Forward bending of trunk (keeping knees stiff) until ends of fingers can touch floor.

6:7.6 4. Lying on floor face down, raising both the extended hands and feet from the floor at the same time, supporting body by abdominal muscles.

6:7.7 5. Deep breathing, walking, and even proper stair climbing, all help to develop weak abdominal muscles.

6:7.8 6. Massage to abdomen.

CLOTHING OF THE EXTREMITIES

Equable Clothing Essential to Health. (Kellogg 342)

6:8.1 The clothing of the extremities deserves more than a passing notice.

The **arms and legs**, and particularly the feet, **require special protection**, for the reason that they are farthest from the body, while they present a larger surface in proportion to their weight and the amount of blood supplied to them than does the trunk (K 342-43).

The **arms and legs** represent parts of the body where the blood-vessels are most exposed;

where the blood is more easily chilled; where there is less of the warm blood and animal heat to keep the tissues warm.

When the arms and limbs are chilled,

When the legs and arms are chilled,

their blood vessels are contracted, and **some internal part** must of necessity be overcrowded with blood, or **congested** (K 343).

some internal organ is at the same time proportionately **congested**.

SOURCE

6: THE SCIENCE OF LIVING

When the liver is habitually overcharged with blood because of chilling of the lower extremities, the result will be to encourage enlargement of the liver and the dropsical and other affections which follow, often to a fatal result. Women are particularly prone to carelessness in this regard, and children are often neglected (K 343).

It is a great mistake to put so much clothing upon the chest and abdomen, frequently entirely overlooking the extremities.

Little girls with short dresses and insufficiently clad limbs and ankles are an invitation to pneumonia,

and often when they are thus clothed at the critical period of their lives, the foundation is laid for a life-long invalidism.

The present short-sleeved garments may be a hygienic blessing in the summer, but they are a positive curse in the winter, as the extremities are the parts of the body **in special need of clothing** during the cold season.

Useful Hints Respecting the Clothing. (Kellogg 344)

Don't wear at night underclothes which have been worn during the day (K 345).

6:8.2 Do not make the mistake of wearing underclothes or other garments at night which have been worn during the day.

[contd] Don't forget, on going to bed at night, to hang up the underclothing

Likewise, great care should be taken to arrange properly the garments worn during the day,

in some place where it will **air overnight** (K 345).

so that **at night** they may be thoroughly **aired**.

SOURCE

Don't dress the neck too warm when going out in cold weather (K 344).

Warm wrappings about the neck cause the skin of the neck to become moistened with perspiration.

When the wrappings are removed indoors, the slow cooling which takes place in consequence of the evaporation, chills the parts, and may produce sore throat or nasal catarrh (K 344).

A little extra protection is required for the ears,

but it is not necessary to muffle up the neck with thick furs to protect the ears. A light scarf or ear muffs are all that is needed (K 344).

IX: CLOTHING (Bergey 256)

Injurious Effects of Clothing. (Bergey 260)

The clothing of women should be suspended from the shoulders and not from the hips, in order to diffuse the weight more evenly (B 260).

6: THE SCIENCE OF LIVING

6:8.3 It is a great mistake to dress the neck too warm during the cold season.

The wearing of heavy furs or enormous mufflers is weakening to the skin

and productive of sore throats and colds.

The only parts of the face in need of special protection from the cold are the ears.

Such protection is best afforded by the ordinary style of ear-muffs.

6:8.4 The pernicious practice of suspending heavy skirts from the waist is a curse both to the growing girl and the adult woman.

This habit interferes with the proper circulation of the blood in the lower extremities, at the same time producing more or less congestion of the pelvic organs.

The skirts should be suspended by the means of proper supports from the shoulders or waist, or in some other hygienic manner which will avoid the dragging of these heavy weights upon the pelvic frame.

SOURCE

V: CLOTHING (Willoughby 121)

Summary of Chapter 5. (Willoughby 141)

[K]nickerbockers should take the place of cotton drawers and heavy skirts, of which one should be enough, and the shorter the better; to need holding up is absurd (W 142).

IX: CLOTHING (Bergey 256)

Cleanliness in Relation to Clothing. (Bergey 248)

The amount of clothing necessary to conserve the heat of the body of one person may be entirely too light or too heavy for another (B 248).

6: THE SCIENCE OF LIVING

If no other remedy can be found, it would be better to adopt some style of

knickerbockers to be worn in place of cotton drawers and heavy skirts.

THE QUESTION OF UNDERCLOTHING

6:9.1 In discussing underclothing, it must be remembered that

individuals greatly differ, both in the sensibility of the skin and in the ability of the body to keep itself warm.

Ironclad rules concerning underwear cannot be laid down.

The author, years ago, was accustomed to wear the heaviest underclothing during the winter, but by practising cool morning bathing for a number of years and reducing the weight of the under-garment from year to year, he has improved the skin circulation until at the present writing he is wearing next to the thinnest cotton union suits throughout the winter.

SOURCE

6: THE SCIENCE OF LIVING

Much can be done to train the skin to better circulation and reaction; but this must be done very gradually, or else the skin may be chilled, and pneumonia and other serious diseases may result from an over-enthusiastic desire to harden oneself to the cold.

XV: THE CLOTHING OF THE BODY
(Kellogg 338)

The Best Material for Underclothing. (Kellogg 339)

[See 6:1.6, above.]

6:9.2 All things considered, linen mesh is the **best material for underclothing.**

The only thing against it is the cost, which prevents it from coming into general use. Linen is the ideal fabric to wear next to the skin, for the reason that it is comparatively light for the protection it affords, and holds the heat moderately well. It promotes a fair degree of heat radiation during the summer. But its chief virtue lies in that while it serves as a protection from cold, it permits of the free passage and evaporation of the moisture and gases which are exhaled from the skin; and herein lies the chief objection to both wool and cotton under-garments.

[repeated from 6:1.6] **Cotton** stands next in value (K 339).

Next to linen, **cotton** must be accepted as the best underwear,

[repeated from 6:1.6] **Woolen** goods hold the moisture for a long time, and accumulate it, and with it of course are retained the various excretory substances which escape from the body in the sweat. It is on this account not well adapted for garments to be worn next to the skin (K 339).

and **wools** and flannels must be regarded as the most unsatisfactory from almost every standpoint.

(See discussion in fore part of this chapter.)

SOURCE

6: THE SCIENCE OF LIVING

Useful Hints Respecting the Clothing. (Kellogg 344)

Don't adjust the clothing to suit the season of the year only,

but adapt it to the weather conditions of each particular day (K 345).

Healthful Dress a Moral Obligation. (Kellogg 360)

A little better plan is to have the upper and lower garments made in one piece, "union suits" (K 361).

6:9.3 It seems superfluous to remind sensible people of the necessity of properly changing clothing with the change of seasons, or with a change in the weather during any one season.

Underwear, overcoats, outer garments, etc., should be changed according to the season

and to the temperature from day to day.

Unless there is a great change in temperature, it will be found best not to change the weight of underclothes from day to day, or week to week, but to meet these changes by shifting the outer garments or wraps.

6:9.4 We strongly advocate the union suit for boys and girls, men and women.

Its advantages are many, chief of which is that it affords uniform covering of the skin without overlapping of garments in the region of the abdomen and pelvis, where they are least needed, and where undue accumulation of heat is undesirable. They do away with the temptation to have garments drawn tightly about the waist, and it is to be hoped that this type of undergarment will soon come into universal use.

SOURCE

6: THE SCIENCE OF LIVING

V: CLOTHING (Willoughby 121)

ERRORS AND FOLLIES IN DRESS (Willoughby 125)

A woman walking in a dirty street or country road, her wet skirts flapping at her heels, and, as well as her stockings, bespattered with mud, is a sign at once pitiable and contemptible (W 129).

6:9.5 We cannot dismiss this phase of our subject without a word of disapproval for the long dress—the fashionable trains and trailing skirts.

The decree of fashion in this respect has been a little more reasonable in recent years,

but still it is not uncommon to see some women of culture and education, whose garments sweep the street, gathering up filth by the pound and microbes by the million.

This street-dirt is carried into the home and scattered over the beautiful rugs, where perhaps an innocent babe will crawl about and infect itself with some deadly microbe.

HEAD COVERING

6:10.1 The fashion in hats is subject to frequent change,

IX: CLOTHING (Bergey 256)

Injurious Effects of Clothing. (Bergey 260)

The wearing of heavy head-coverings is ... injurious, because it places a constant weight upon the spinal column (B 260).

but the heavy hat, of whatever pattern, must rest under permanent condemnation.

It is responsible for many headaches and much depression.

SOURCE

The combination head-covering worn by women in **mourning** is injurious, and frequently leads to persistent nervous trouble, as well as to general fatigue from its weight (B 260-61).

The **use of veils** is especially injurious because of the obstructed **vision** which they induce (B 260).

Protection Against Heat. (Bergey 257)

The effect of the direct radiation of heat from the sun may be inhibited in part by a proper covering of the head. For this purpose **straw hats** with broad brims are most serviceable. They shade the head and face, and allow free ventilation of the scalp, with a layer of air between the head and the covering (B 257).

6: THE SCIENCE OF LIVING

And for the same reason the heavy **mourning** paraphernalia must be condemned as unhealthful.

Some more hygienic means should be discovered for expressing one's sense of bereavement in the case of the loss of loved ones.

Oculists have recently called attention to the fact that

the **wearing of veils** is of more or less injury to the **vision**.

Compelling the eyes to see objects through a network so closely placed before them is found to be injurious to the sense of sight.

6:10.2 **Straw hats**, of course, are the ideal for both men and women during the summer;

and the woman who has a heavy head of hair will find them most acceptable during the greater part of the year.

6:10.3 Men's stiff or felt hats should have small holes at some point in the crown to permit of the circulation of air.⁵

SOURCE

[The pressure of a tight hatband is undoubtedly the principal cause of baldness among men (Walter Moore Coleman, A.B., *The Elements of Physiology for Schools* [1903], pp. 332-33).]

[*Note:* This theory was proposed by Delos L. Parker, M.D., in "The Cause of Common Baldness," which appeared in Vol. 71 of *Medical Record* (Feb. 9, 1907), p. 220.]

6: THE SCIENCE OF LIVING

There can be little doubt that the rigidity of the hatband is more or less responsible for baldness on the part of men,

as well as the exclusion of fresh air and sunshine from the hair by tight and close-fitting hats.

This no doubt accounts for the fact that men are oftentimes bald on the crown of the head while the hair grows well about the borders of the scalp.

The theory has recently been advanced that superficial breathing is responsible for baldness.

There is no doubt something in this, but it still remains a fact that men, while they breathe much more deeply and normally than women, are the great sufferers from baldness.

6:10.4 For exactly the same reason that heavy hats are undesirable, the modern practice of wearing an inordinate amount of artificial hair in connection with the fashionable pompadours or so-called "rats," etc., must be condemned as unhealthful and sure to result in subsequent headaches and ultimate disease of the natural hair itself.

BED CLOTHING

V: CLOTHING (Willoughby 121)

BEDDING AND BEDCLOTHES (Willoughby 124)

[contd] Soft, and especially feather, beds are weakening. The harder a bed, consistently with comfort, the better.

6:11.1 Comparatively hard beds are more hygienic than the soft feather beds.

SOURCE

Good hair mattresses are the most wholesome; but flock, if clean, are unobjectionable (W 124).

The sanitary or Liverpool mattresses of wire twisted on a wooden frame are a great improvement, even on the spring mattress, which is very apt to get out of order (W 124).

The down bedcover and cushion used in Germany with a sheet make an ideal bed. Our blankets are too heavy, and thick cotton counterpanes are heavy without being warm (W 124).

Coverings should be light, pervious to the evaporation from the body, and yet bad conductors of heat (W 124).

6: THE SCIENCE OF LIVING

We use the term "hard" bed in contrast to the feather bed, and refer to such foundations as

a good hair mattress,

box springs, etc.,

with perhaps a cotton pad resting on the top.

The old-fashioned comforter is undesirable. It is easily soiled and difficult to launder.

Blankets and down quilts are preferable.

Care should be taken not to have too much covering during sleep.

The body must be kept warm, but sometimes less covering could be used if the sleeping garments were of the proper sort. The ordinary loose nightdress is practically useless during the winter.

Both men and women should adopt some form of sleeping garb which will protect the body, especially the lower extremities.

SOURCE

6: THE SCIENCE OF LIVING

Any one ... will agree with me as to the luxury of warmth without weight, and “ventilation” without cold. Such is the principle of the Indian “sleeping costume” of flannel shirt and “pyjamas” and of that of the sensible if eccentric Dr. Jäger, adapted in details to the different climates (W 125).

Such protection is probably best afforded by some garment of the pajama type.

The matter of proper dressing at night deserves attention, because hygienic sleeping requires that the room should be cold. One of the blessings of winter is to be found in the ability to sleep in a cold room while the body itself is kept comfortable and warm.

1. Stanley reports that the two hundred women porters whom he employed on one of his expeditions proved to be the best porters he ever had in Africa (K 357-58).
2. [F]or any person to presume to improve upon the masterpiece of the Great Artist which he himself pronounced very good, is an affront, an insult to the Creator (K 361).
3. Kellogg excluded obese women: “The measurements of abnormally fleshy persons were not taken, but none others were excluded” (K 348).
4. In 1893, J. H. Kellogg published a similarly themed article, “Exercise, the Remedy for the Evils of Conventional Dress,” but it prescribed different exercises from those proposed by Sadler. The article appeared in *Modern Medicine*, Vol. 2, No. 5, May, 1893.
5. Every hat should have one or more small holes in the crown or sides to allow the air to reach the head; the shops have such hats for sale (Daniel S. Lamb, A.M., M.D. and Isabel Haslup Lamb, M.D., *Rules of Health* [1900], p. 15).