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HOUSEWORK WITH EASE

How to
AVOID CUMULATIVE STRAIN
in The Home

by

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TWO SHILLINGS AND SIXPENCE

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FATIGUE AND IRRITATION :

When you feel tired, nervy and depressed, and find your family irritating, it is often your muscles and nerves that have let you down. Study and experiment have shown that there is a right and wrong way of using your muscles. The experiments were originally carried out in industry, but this booklet shows that what works well in industry can be adapted for the home. No one deserves more help than the housewife. Why should she be depressed and grow old before her time when knowledge is available that will help her to retain her vitality ?

CONSTANT TENSION :

Modern gadgets are a boon, but whether we have them or not there will always be objects to move, lift and carry. Even with all the gadgets and kitchen planning, the ill effects of constant tension still exist if muscles are not properly used.

Rheumatism, sore back, tired feet and swollen legs often result from constant standing and handling household articles the wrong way. No matter how well designed are the home and its contents, the housewife must move well to be healthy.

CUMULATIVE STRAIN :

Most of those troubles arise from what has been called "cumulative strain." For example, the effort in lifting a teapot, or dusting a table, may appear negligible, but constantly performing those and similar actions in the wrong way will result in a "build up" of strain which undermines health and vitality.

This simple experiment helps to demonstrate how cumulative strain arises :—

Clench your hand for a full minute, with forearm and wrist bent. Look at the back of your hand and note how the veins are compressed and the knuckles lose their colour. Restricted blood supply is "starving" the muscles. Waste material, formed in the muscles, accumulates to cause fatigue and make the tissues uncomfortable.

Now slowly open your hand and note how the fingers are apt to be "sticky" in opening. The tissues tend to remain shortened after strong contraction of the muscles. This hang-over from sustained tension causes the tissues to deteriorate if

there is constant repetition and if nothing is done to counteract it. Stiffening of the tissues leads to "fibrositis" in many parts of the body, especially in neck, shoulders, back and buttocks.

PROTECTIVE REACTIONS:

The first duty of muscles is to protect the parts they control and the two main types of reaction in this respect are designed (a) to Safeguard Balance and (b) to Prevent Injury.

With the slightest threat to balance the muscles in the lower limbs and back stiffen. And so when this is constantly taking place, progressive and permanent stiffening of those structures will result.

Standing with the feet close together is the most common cause of this progressive stiffening. The slightest movement of the upper part of the body when the feet are side by side tends to cause loss of balance, so that stiffening of lower limb and back muscles takes place to prevent falling, figure 1. On the other hand, when one foot is in advance of the other, balance is maintained by adjustment of body weight from one foot to the other.

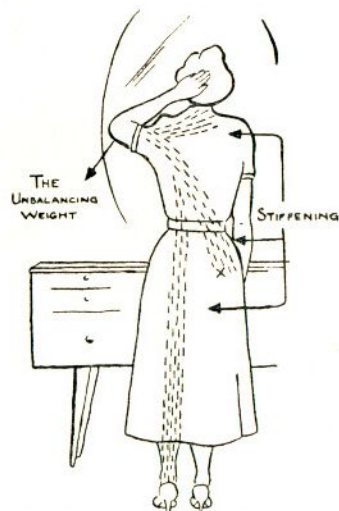


Fig. 1. Postural Stiffening when Feet Side by Side.



Fig. 2. Court Shoes—Toes Compressed

When any part of the body is threatened with hurt or injury, the muscles controlling the area try to withdraw it from the source of threat. In wearing "court" shoes, for example, body weight presses the toes into the front of the shoes, so that muscles of legs and feet contract in an attempt to withdraw the toes from the uncomfortable pressure, figure 2.

DRESS:

Protective reactions of muscles may be constantly taking place without our being conscious of the avoidable strain which results. A tight skirt, for example, prevents free movement of legs and feet necessary for good balance. It is therefore important that you should be sensibly dressed to allow free movement.

Your shoes should have broad heels to make good balance possible—not necessarily flat heels. Shoes should be comfortable, with a good grip round the "waist" of the foot to prevent undue pressure on the toes.

WORKING HEIGHT:

Constant bending should be avoided whenever possible. Household gadgets and fixtures should be adjusted to suit the build of the individual housewife. For example, the height of the kitchen sink should be adjusted when possible. It is better to have such fixtures too high rather than too low.

AVOIDABLE STRAIN:

Some idea of the amount of avoidable strain in housework can be brought out in relation to ironing. Figure 3 shows common faults in performing this apparently simple household task.

1. Court shoes causing protective stiffening of foot and leg muscles.
2. Feet together causing stiffening of lower limbs and back.
3. Knees and thighs stiff because the housewife is bending from hips.
4. Back stiffening because of feet positions and "top heavy" bending.
5. Chest, shoulder and arm stiffness because her hand is pressing in towards her body.
6. Neck and shoulders stiff because of bent back and "elbow out" position in pressing iron in towards body.
7. Hand and forearm stiffness because of bad gripping action of hand.

REDUCING STRAIN :

Sitting might reduce some of the lower limb strain in ironing, but may also increase strain in upper limb, chest and back. Free movement of the lower limbs is healthier than constantly sitting or standing in one position.

Figure 4 shows how much of the strain in ironing can be eliminated.



Fig. 3. Needleless Strain

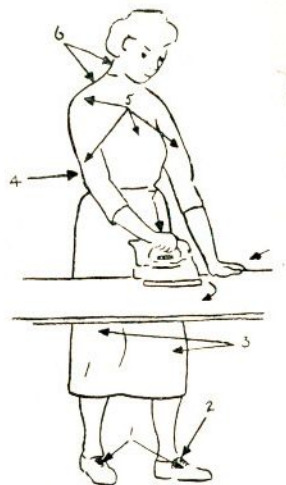


Fig. 4. Reduced Strain

1. The wearing of reasonably strong lacing shoes which give good support to the "waist" of the feet.
2. One foot is ahead of the other, so that balance can be adjusted by moving freely from one foot to the other.
3. Knees and thighs are reasonably relaxed because the feet are properly placed and knees are relaxed *before looking down*.
4. Back is reasonably relaxed because the housewife is well balanced with no bending from the hips.
5. Chest, shoulder and arm are reasonably relaxed because the housewife is pressing the iron *away* from her body and making proper use of her body-weight in pressing.
6. Neck and shoulders are reasonably relaxed because the back is straight and the elbow is not jutting out from her side.

7. Hand and forearm are comfortable because the iron is held in the palm of her hand.

KEY FACTORS :

When the many faults in one action are pointed out it may appear a hopeless task trying to change your ways of doing the multitude of actions housework involves !

There are, however, key factors in using the body which make adjustment of physical actions less difficult than one might imagine. If you concentrate upon adjustment of the key factors, other improvements become automatic.



Fig. 5. Feet Together—Excessive Tension



Fig. 6. Adjust Feet for "Follow Through"

The Key Factors in housework actions are :—

1. **Proper Feet Positions.** Always have one foot in advance of the other to make balance easier.
2. **Relax Knees.** Always relax your knees *before* looking down or lowering your hand. *Lowering movements should start at the knees, not the head.*
3. **Head Up.** Acquire the habit of gently reaching upwards with the top of your head to straighten your neck. This will automatically straighten your spine.



Fig. 7. Feet Together—So Arms do the Work

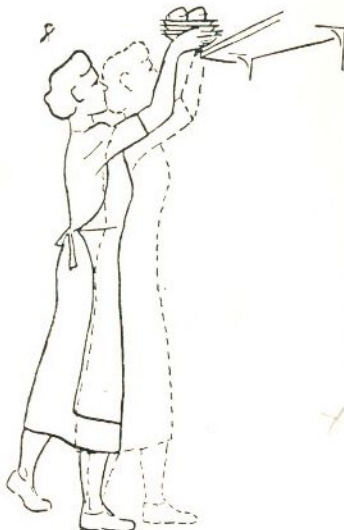


Fig. 8. Feet help with the Load



Fig. 9. Wrong Hold — Back Strain



Fig. 10. Good Hold—Easy Movement

4. **Proper Hold.** Use the *palm* of the hand and the *bases* of the fingers whenever possible for holding objects, *not the ends of the fingers.*
5. **Use of Body Weight.** When dealing with heavy objects in pushing, pulling or lifting, use the weight of your body rather than sheer muscular effort of the arms. Proper placing of your feet makes this possible.

FEET POSITIONS:

Figure 5 shows a common factor in the development of chronic disabilities in lower limbs, back and shoulders. Standing with feet together, the housewife inevitably bends from the hips. When reaching out to the drying board she tends to overbalance so that the left lower limb has to stiffen. In this case, her hands have to reach out from her sides, so that there is excessive tension in arm, shoulder and neck each time she performs the movement. Constant repetition of this kind of action is a common cause of "fibrositis" in the neck, shoulders and back.

In figure 6 we see how proper placing of the feet allows free movement from one foot to the other. When working at the sink one foot should be in advance of the other. Outward turning and movement of the left foot should take place when putting articles on the drying board. This movement of the foot not only reduces strain in lower limbs, but also allows the body to "follow through" with the hands. In this way shoulder, neck and back strain is reduced.

When the sink is boarded all the way to the floor it may appear difficult to work with one foot forward. If, however, the knees are relaxed *before* looking down this can be done comfortably.

Figure 7, lifting a pile of dishes to a high shelf, shows how back strain is likely to occur when reaching upwards. Because the feet are side by side the housewife has to lean backwards to maintain balance and so there is a risk of injury to the spinal "discs." This risk will not arise when one foot is advanced and the body follows through with the load, figure 8.

When using a vacuum cleaner with feet too close together, figure 9, bending from the hips is difficult to avoid. In this case the action is more strenuous than it need be, because the vacuum is being pushed down *against* the floor instead of *over* it.

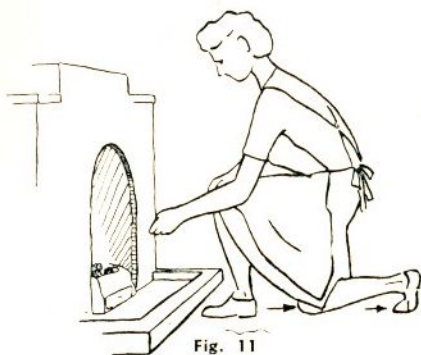


Fig. 11



Fig. 13

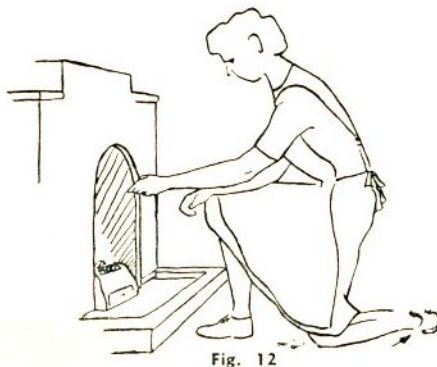


Fig. 12



Fig. 14

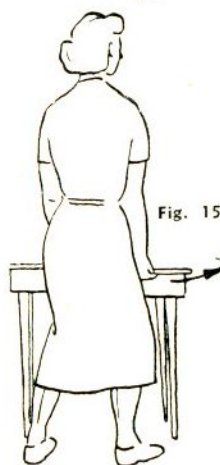


Fig. 15

Fig. 11. Concentrated Pressure—
Foot and Knee Irritation

Fig. 12. Diffused Pressure—Less
Discomfort

Fig. 13. Stiff Knees—Bad Bending
Habit

Fig. 14. Relax Knees First for Free
Movement

Fig. 15. Feet Placed for Correct
Movement

With one foot ahead of the other, body weight can move freely from one foot to the other and is thus employed in moving the vacuum *over* the floor, figure 10. Note the relaxed knees, which are an outstanding feature of good movement.

Positions of the feet in kneeling are also important. In figure 11, showing a housewife kneeling to light a fire, pressure on the toes causes excessive tension in feet, legs, knees and lower back. Kneeling this way causes pressure on the lower edge of the kneecap and is the cause of "housemaid's knee." If the toes are allowed to stretch out, as in figure 12, pressure is diffused along the leg and the general tension is reduced.

RELAXING KNEES:

The sequence in which different parts of the body come into play usually determines the amount of strain involved in any action. When the hands are lowered by bending the head and upper body *first*, stiffening of the lower limbs and back must take place. This results in bending from the hips and in back strain, as in figure 13.

Advancing one foot and relaxing the knees *before* lowering the hands makes the action easier and more graceful, figure 14. This is a good exercise for developing the habit of lowering the hands the correct way.

Many housewives feel discomfort when bending the knees while lifting. This is because the upper part of the body and head are bent before the knees bend and the feet are usually too close together, so that the knees are *tense before* they start to bend. This subtle feature of bending movements can be appreciated by means of the following experiment:—

- (a) Stand with feet side by side, bend head and upper body *first* then bend your knees;
- (b) Put one foot forward, stretch the top of your head up to stretch your spine, then relax your knees *before* looking down.

The more comfortable condition of your knees in the second action will be obvious. When lowering the hands it is therefore essential that the *knees should be relaxed first and one foot should be advanced*.

When lifting the end of a heavy table the knees should be relaxed *before* taking hold, so that the body moves upwards as the load is taken, figure 15. The foot on the side to which movement has to take place should point in that direction.

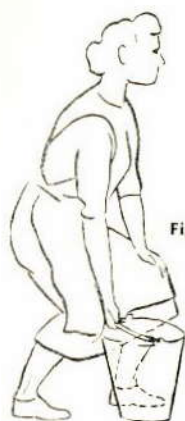


Fig. 16

Fig. 16. Foot Behind Pail—Legs do the Work

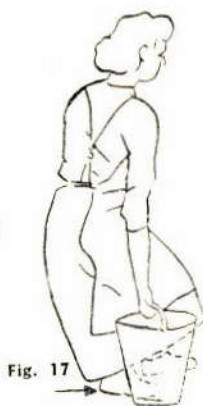


Fig. 17

Fig. 17. Pail Outside Foot—Dangerous



Fig. 18

Fig. 18. Stretch Leg Up for Good Movement

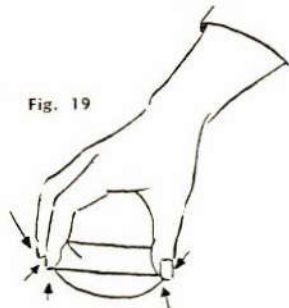


Fig. 19

Fig. 19. Finger End Pressure—Excessive Tension

Fig. 20. Taking Hold the Correct Way

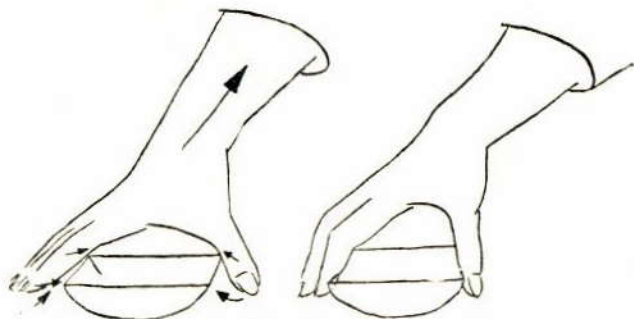


Fig. 20
12

Those factors also apply when lifting a heavy pail from the floor. With one foot well ahead of the other and knees relaxed *before* the hand is lowered, the back remains comparatively straight and the legs do the work, figure 16.

An important feature of this action is that the rear foot should be *behind* the pail as the hand takes the load. Even when the feet are properly placed and the knees relaxed, lifting a heavy pail when the load is on the outer side of the rear foot imposes considerable torsion, or twisting strain on the lower back, figure 17.

Note that in the correct lifting movement the head is not bent forward, as the lift begins, but faces the direction in which movement is taking place.

HEAD UP :

An outstanding feature of wrong lifting movements is the tendency to "double up" over the hands as they take the load. This reduces the efficiency of muscles doing the work and increases the risk of back strain. When a lifting movement begins by moving the top of the head upwards, the spine is automatically straightened and there is less strain in upper limbs and back. This action of the head is characteristic of all good movements performed in the upright position and should be practised constantly as an exercise, figure 18.

PROPER HOLD :

Possibly because girls begin needlework at an early age, there is a tendency for housewives to hold objects with the finger ends instead of with the palms of the hands.

Pressure on the sensitive ends of the fingers when holding an object causes excessive tension in the whole upper limb and chest. This can be appreciated by holding a sharp-edged object, like an ash tray, for a few minutes between the ends of the fingers and thumb, figure 19.

Even when the ends of the fingers have to be used in holding a small object, the fingers should be moving in the direction of the lift *before* they take hold, figure 20. In this way the object can be held more securely and with less muscular tension.

The tendency to grip excessively when using the ends of the fingers commonly results in the thumb being strained, especially

when turning a stiff water tap or door handle. Figure 21 shows a common action in turning a tap, in which there is excessive tension in the fingers and thumb.

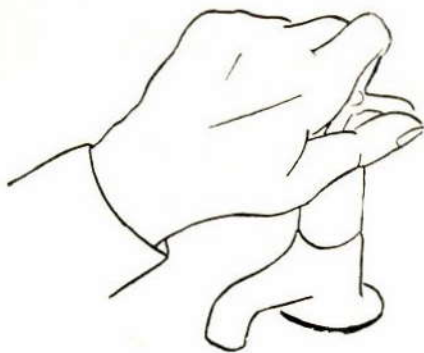


Fig. 21. Excessive Thumb Tension

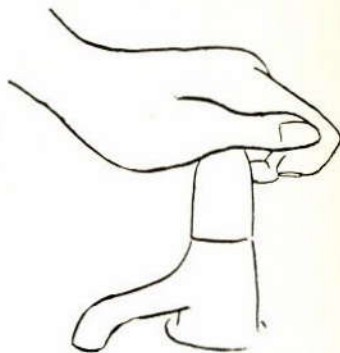


Fig. 22. Use Base of Thumb

Figure 22 illustrates the more effective use of the palm of the hand and the base of the thumb. Learning to hold objects with the palm of the hand or bases of the fingers would help to prevent the troublesome "knobs" which develop only too often in the fingers of middle aged women.

Figure 23 demonstrates the correct way to use the palms of the hands in lifting a box from a table. One foot should be advanced and the knees relaxed before taking hold of the box, so that the abdomen moves forwards and upwards towards the end of the box, figure 24.

When lifting in this way the weight of the box is resting on the abdomen, so shoulders and arms are not strained while carrying it. Note the diagonally placed hands which give better control.

Figure 25 shows a common method of holding a kettle, in which there is needless strain in arm, shoulder and neck. Whenever possible, the hands should take hold from below an object to be lifted or carried, figure 26. If steam is likely to escape under the lid of the kettle the bases of the fingers can be used. In this way the same parts of the fingers are nearest the lid as when the kettle is held from above.

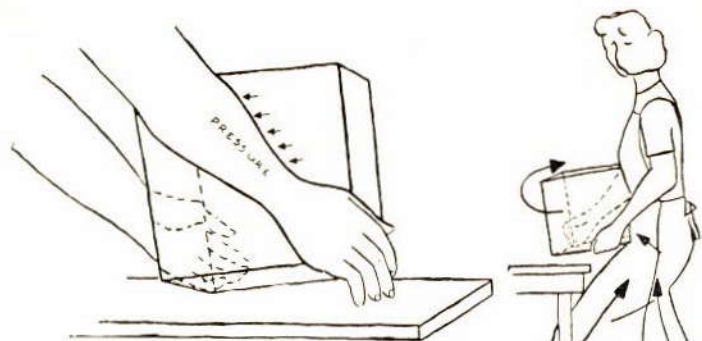


Fig. 23

Fig. 23. Ease Up with Forearm

Fig. 24. Ease Up with Hips

Fig. 25. Elbows Out—Shoulder Strain

Fig. 26. Elbows In—Reduced Arm and Shoulder Strain

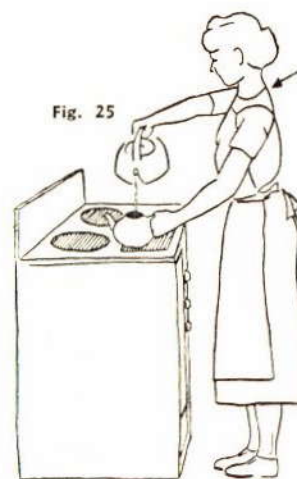


Fig. 25

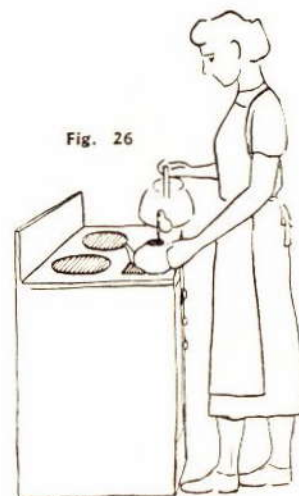


Fig. 26

When the finger ends are holding objects there is a tendency to have the elbows out from the sides, so that shoulder and neck muscles are stiffened. This is most obvious in the action of knitting, when there is also a tendency to bend the head in looking down at the work. When performing actions like knitting, a cushion should support the "small" of the back and the elbows should lie by the sides, figure 27.

Having the elbows "in" is equally important when carrying a loaded tray. The handles of trays are always placed exactly opposite each other and when they are used the elbows are likely to be out. This strains both arms and shoulders.

It is better to ignore the handles and carry the tray with the forearms *below* it, figure 28. The edge of the tray should be lowered to rest on the abdomen. In this way strain in shoulders and back is reduced.

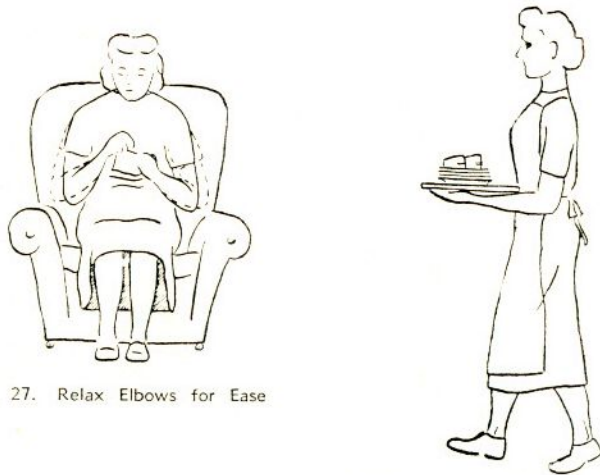


Fig. 27. Relax Elbows for Ease

Fig. 28. Tray Resting on Body,
Forearm Below Tray

USE OF BODY WEIGHT :

Especially when pushing, pulling or lifting heavy objects, body weight should be employed instead of sheer muscular effort. Again there are important factors which make this possible :—

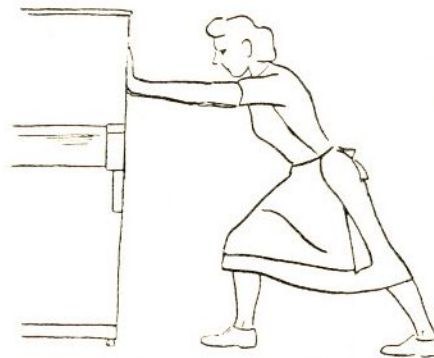


Fig. 29. Correct Use of Body
Weight in Pushing



Fig. 31. Correct Action for
Moving End of Couch



Fig. 30. Correct Use of Body
Weight in Pulling



Fig. 32. Good Positioning for
Lifting Clothes Basket

(a) Proper placing of the feet, (b) Relaxation of the knees *before* taking hold of the object and (c) A straight back resulting from raising the top of the head *before* the load is taken by the hands.

Figure 29 illustrates how to make use of body weight when pushing a heavy object. One foot is well advanced to safeguard balance. The rear foot points straight forward to give good thrust. Both knees are relaxed *before* the hands take position. Arms are straight so that no muscular effort is wasted in stiffening the elbows.

When using body weight one foot must always be placed to safeguard balance, otherwise muscles of the lower limbs and back stiffen and much effort is wasted. In the correct method of pulling, shown in figure 30, the rear leg acts as a safeguard for balance and, at the same time, increases the body weight. The front knee is bent before the pull begins to give effective thrust.

Figure 31 illustrates the correct way to lift the end of a couch over the end of a carpet. This involves considerable risk of back strain if the feet are together. The knees must be relaxed before taking hold, so that the hands are moving upwards as they take hold. Even with the feet properly placed, the back *must* be straightened by raising the head in this type of lift if strain has to be avoided.

Lifting a clothes basket is one of the most awkward lifts normally carried out by housewives. *Avoid the need of lifting from the floor when possible*, by placing the basket on a chair before filling it. Because they are placed directly opposite each other the handles should be ignored when one person is lifting a clothes basket.

The hands should encircle the basket, so that the *arms* are holding it instead of the hands alone. If the edge of the basket is lowered *down* on to the abdomen there is less shoulder and back strain while carrying it.

Figure 32 shows the correct way to lift a clothes basket from a chair. After lifting it this way the basket should be raised too high and then lowered down against the abdomen, figure 33.

The actual lifting of heavy pieces of furniture should be avoided when possible. For example, when moving a heavy chair clear of a mat that has to be lifted the chair can be swung round on one leg, figure 34.

Figure 35 shows how the feet and legs should be used when lifting or lowering the mat.



Fig. 33

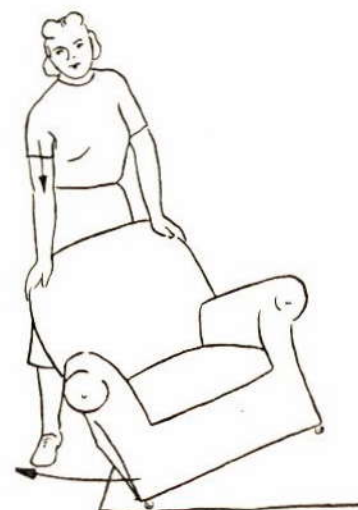


Fig. 34

Fig. 33. Correct Hold for Carrying Clothes Basket

Fig. 34. Moving Heavy Chair the Easy Way

Fig. 35. Correct Action for Lifting Mat



Fig. 35

BENDING :

Constant bending is one of the main sources of needless fatigue among housewives. This is usually accompanied by an "elbow out" position of the arms, as in this action in baking, figure 36. How much more easy the job can be when one foot is advanced, knees are relaxed and the elbows are in front of the body, figure 37.

It is literally true to say that the average housewife spends almost 24 hours per day bending, so it is not surprising that back strain is so common.

Figure 38 illustrates how bending causes compression of the thick discs of cartilage, or gristle, between the spinal bones. These discs normally have soft pulpy centres which act as shock absorbers to protect the spinal nerve centres.

Constant bending results in the front parts of the discs being gradually flattened and the back parts are compressed backwards. When this happens muscles controlling the joints contract strongly to fix the part. The general tension thus created may actually cause pressure on the nerves which pass through the opening between the spinal bones, giving rise to the condition known as "slipped disc."



Fig. 36. Position of Strain



Fig. 37. Position of Ease

Excessive backward bending, likely to occur when lifting an article overhead with feet together, may bruise the discs and cause the same condition.

If the back is straight when a load is being carried, pressure on the discs is properly distributed between the *whole* surface of each disc and the bony parts at the back of the spine, figure 39.

Human beings are born in a bent position and always tend to "double up" when tired. This encourages development of premature old age, due to compression of the spinal discs and tightening of the spinal muscles. Vitality in spinal nerve centres, abdominal and chest organs is reduced. Muscles and joints become less elastic and bones get brittle, so that they are more easily injured.

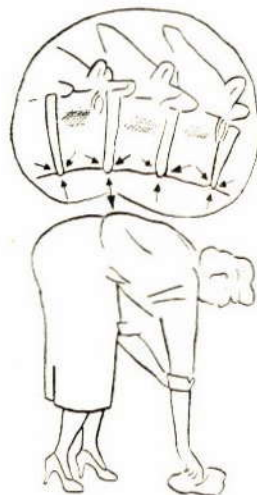


Fig. 38. Bending of Back—
"Disc" Compression



Fig. 39. Straight Back—Diffused
Pressure on "Discs"

SITTING :

When resting the bending muscles tend to pull the body into a curled up position, so that recuperation of spinal tissues, abdominal and chest organs is retarded. This should be avoided when sitting or lying.

When sitting a great deal depends upon *how you sit down*. If your feet are together as you sit down you go off balance and your hips take the weight as they are moving backwards,

figure 40. This causes flattening of the lower spine after you sit down. Trying to keep erect after sitting down in this way only tires the back muscles.

To sit down gracefully and so that sagging of the spine does not take place, one foot should be forward to help balance. The hands should press on the seat (or the arms of the chair), so that the hips are carried well back before they take the weight, figure 41.



Fig. 40. Wrong Method of Sitting Down



Fig. 41. Correct Method of Sitting Down

When sitting down the correct way the hips are moving *forward* as they take the body weight. In this case the lower part of the hip bones are being pressed *backwards* and the upper parts are pressed *forward*. This prevents flattening of the lower spine quite automatically.

SLEEPING :

Sleeping positions are particularly important as the average housewife spends 7-8 hours per day in bed. One may at first feel warmer curled up as in figure 42, but the spinal muscles are not relaxed and blood cannot circulate freely to facilitate proper rest. The high pillow causes neck and spinal tension

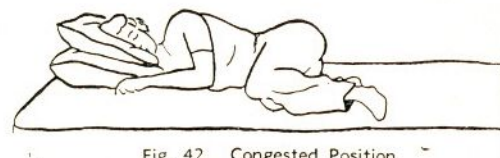


Fig. 42. Congested Position

and the curled arms restrict breathing. At the same time there is excessive tension in important nerves at the back of the shoulders and hips.

If you prefer sleeping face down, a good method of relaxing the spine, make sure that your chest is raised as high as possible before it touches the bed. This allows breathing to take place with less restriction. To avoid straining the neck the side of the head should lie against the end of a pillow, so that the neck muscles can be relaxed.

While it is good that you should change position during sleep, you can acquire the habit of lying stretched out by adopting the position shown in figure 43.



Fig. 43. Healthy Sleeping Position

The single pillow should give adequate support to the *neck* as well as to the head. It should be obliquely placed so that one shoulder is supported. The other shoulder should be tucked forward before settling down, so that the muscles attaching it to the body are properly relaxed. When resting this way, spine, shoulders and hips can be relaxed and tension on shoulder and hip nerves reduced.

STRETCHING :

To keep young one must prevent spinal and other muscles from becoming shortened and stiff. To this end we must

perform everyday movements in the correct way and avoid bending the upper part of the body with the lower limbs stiffened. At the same time bending muscles must be stretched regularly. A most effective method of general stretching in the upright position is illustrated in figure 44—A & B. This exercise is best done while walking slowly and only halting when the full stretch is being introduced. When such exercises are done standing in one position muscles of the lower limbs and back gradually tire in maintaining the fixed position, so that stretching is less effective.



Fig. 44a. Raise Head and Points of Shoulders Before Straightening Knees

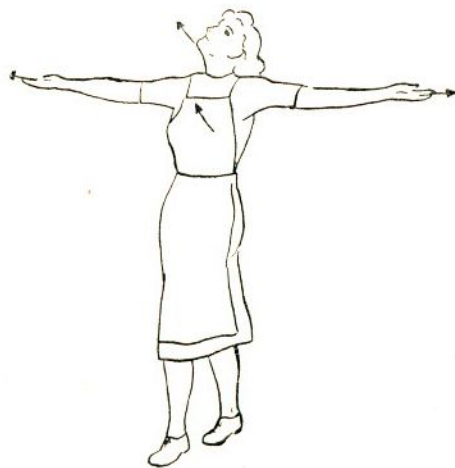


Fig. 44b. Upward and Forward Stretch

The procedure is as follows :—

- (a) While walking slowly, allow knees, shoulders and spine to relax, then . . .
- (b) slowly stretch top of head and points of shoulders as high as possible with arms still at sides, figure 44A ;
- (c) then slowly raise hands up in front of face, overhead and then out to shoulder level ;
- (d) relax shoulders without dropping arms (at this stage stop walking with one foot in front of the other) ;

- (e) simultaneously, *slowly* press shoulders and hands (with fingers spread) straight out from the sides as far as possible, raise chin and chest forward and as high as possible for a few seconds, figure 44B, before relaxing and continuing slow walking with arms at sides.

There should be no tension or stiffness while getting into position for the final stretch and the chin and chest should be pressed *upwards* to pull the body weight right up on to the toes of the front foot. The shoulders and hands should be pressed *outwards* not backwards.

This exercise can be carried out repeatedly during the day, but never less than three times on any one occasion. If it creates any discomfort, then movements are being carried out too quickly or too vigorously. In either case the muscles will only tighten instead of stretching properly.

All exercises should be based upon similar principles and bending exercises should be avoided, unless for some specific purpose.

CONDITIONING FOR REST :

Sleeping or resting during the day, should not be considered periods of mere inactivity. On the contrary, proper rest is or should be a very *active* period during which body tissues are repaired and revitalised.

To make this possible, the tissues should be conditioned for effective recuperation by reducing physical tension or stiffness built up during the day. In this way blood can circulate freely to carry waste material from and nutrient material to the tissues.

Without this preliminary “conditioning” muscles and bloodvessels take a long time to relax properly, so that the amount of recuperation is limited.

Try the following general stretching movements before settling down for the night. It is worth while doing them on a couch or on the floor during the day also. Be thorough in their detailed performance, but do them slowly and “softly.”

- (a) Lie flat on your back without a pillow, raise one shoulder off the bed then tuck it up as high as possible, with arms by your sides. Repeat with opposite shoulder, so that the skin below both shoulders is stretched.

- (b) Now raise both forearms overhead and rest in this position for a few minutes, then . . .
- (c) after your left shoulder is stretched up as far as possible, slowly press left heel down to stretch the whole left side, figure 45.



Fig. 45. Conditioning for Sleep

Hold this position for a few seconds then relax for a minute before repeating with the right side. Do the movement 3-4 times to each side, then settle down, stretched out as in figure 43.

NO COMPROMISE:

Many housewives will perform some of the correct actions described quite naturally and others will *think* they are doing so. The difference between needless stiffening and free movements is often very subtle.

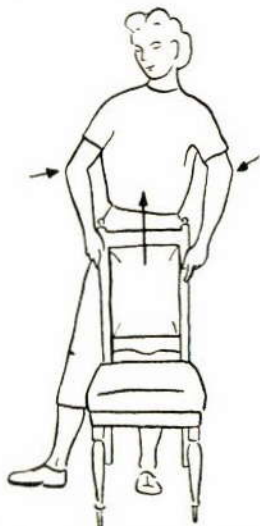


Fig. 46. Compromise — Dangerous

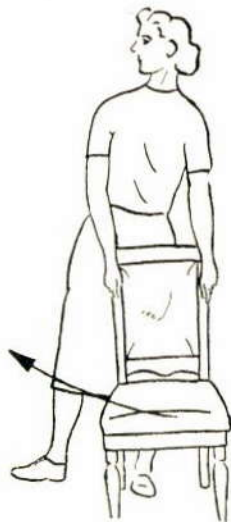


Fig. 47. Correct Application of Principles

Mere imitation of correct actions is sometimes dangerous. In figure 46, for example, we see a housewife with her feet in the correct position for moving a chair, but she is using her arms in the *usual way*. *Compromise* between two opposing methods sometimes *increases* the amount of strain and the risk of injury.

This will be appreciated by moving a chair in the correct way, figure 47, and then trying the compromise shown in figure 46 by contracting the arm muscles while the feet are placed for the correct method.

CORRECT METHOD:

(a) Knees are relaxed *before* taking hold of the chair, so that the hands are moving upwards as the grip is taken; (b) one foot moves in the direction in which the chair has to be moved *while* the hands take the load; (c) the head is turned to look in the direction in which the chair has to be moved, (*before* the chair moves).

In this way the body is moving *away from the hands* as they take the load, so that the arm muscles are actually *stretched* instead of contracted. If the chair is lifted by contracting the arm muscles while the rest of the action is done in the correct way, strain in the lower back is greater than if the wrong method of bending is employed. If the chair is a heavy one there is a risk of injury to the lower part of the back.

CONCLUSION:

It may appear useless asking housewives to learn "new ways of performing old tricks." It is depressing, however, to see so many women suffering from various forms of "rheumatism" and other related disabilities, knowing that these can be prevented by basic adjustments in using the muscles.

Physical actions performed regularly cannot be changed easily. Even when attempts are made to do so, old habits will assert themselves for a time and new methods may be misapplied. To avoid confusion, attention should be focused upon physical sensations arising in the key areas of the body, feet, knees, lower back, neck and shoulders. If undue tension is experienced in any of those areas then the methods recommended in this booklet are being misapplied.

There is less risk of this happening, however, if the Key Factors are properly regulated :—

1. Feet properly placed
2. Knees relaxed before looking down
3. Head up to straighten the back
4. Proper hold with palm or bases of fingers
5. Use of body weight when dealing with heavy articles.