ANDERSON'S

Physical Education

Price, 50 cents

ONE HUNDRED AND TWENTY-FIFTH THOUSAND

ANDERSON'S

PHYSICAL EDUCATION

HEALTH AND STRENGTH
GRACE AND SYMMETRY

ARRANGED AND COMPILED
BY
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Anderson's Physical Education.

PART I.

SECTION I.

INTRODUCTION.

All time and money spent in training the body pays a larger interest than any other investment. GLADSTONE.

Today no apology is needed in making a plea for gymnastic or physical training. Every institution of learning of any importance in America advertises courses for the education of the body, while the buildings devoted to the training of the physique at our colleges and universities are the finest and most elaborate of their kind in the world. Were argument needed to persuade the skeptical that it is well to care for the body, certainly the action of the faculties of our colleges in permitting the expenditures of vast sums of money on "Temples of Health" would be most convincing.

The statement can at once be made that those who go to the universities will receive the benefit, but how about those who are not among the "Elect?" What can be done for the great army of men, women, and children who can neither attend institutions of learning, nor have the time or opportunity to go to gymnasiums?

If there is a desire to keep out of the hands of the

physician, and a wish to enjoy the happiness and exhilaration that comes from perfect health, it is possible to attain this condition, provided there is no organic or functional disorder. It is only necessary to glance at the advertisements of nostrums and quack medicines to understand that a vast amount of "stuff" is taken into the system as curative and preventive remedies for complaints which need not exist at all. It is because the people let these ailments exist that they are common. If the time that is given to taking medicines could be spent on exercise, the results would indeed be different.

In this day of specialists there are opportunities, for those who wish it, to become familiar with the latest and most approved methods of preventing, and in some instances curing, the ailment by gymnastics. The parent who is anxious about the child, can find movements that will widen and deepen the chest, and draw the shoulders back. The young man who is worried about his lungs and stooping shoulders can do much for them in his home. The business man who is on the verge of physical collapse, due to overwork, can draw back and be saved if he will, without going to a gymnasium. The busy editor, lawyer, or minister can rest the active and overworked brain without leaving the office or study.

The society woman, who finds that the adipose tissue is accumulating too rapidly over the abdomen, the housewife who can no longer climb the stairs without losing her breath, the young lady who is troubled about the "bones in her neck showing"—all these can do much for themselves in their own home if they only will, but that which is good involves work.

SECTION II.

A FEW HINTS.

Do not think it necessary to read the whole book through at one sitting.

Read only the portions that will benefit you.

Look at the index.

Do not take the exercises hurriedly.

If you suffer from any special trouble that may be helped by exercise, remember that time will be needed to cure or to help it.

Don't overdo. Stop short of fatigue.

Be patient and persistent. He who is too busy to exercise is like a workman too busy to oil his machinery.

The art of making the most of our powers should be the ambition of each one of us.

Exercise relieves the mind from care by drawing the blood to the extremities.

Exercise will make you feel like a new being.

This system of exercise has been furnished by physicians who make a specialty of gymnastics, and who have had years of actual experience in the training of the body.

"He who has good health is young, whatever his age may be."

SECTION III.

RESULTS OF PHYSICAL TRAINING.

Physical perfection serves to assure moral perfection. There is nothing more tyrannical than enfeebled organism. Nothing sooner paralyzes the free activity of the reason, the flight of the imagination and the exercise of reflection; nothing sooner dries up all the source of thought than a sickly body whose functions languish and for which every effort is a cause of suffering. Then have no scruples if you would form a soul which is to have ample development, a man of generous and intrepid will, a workman capable of great undertakings and arduous labors, first, and above all secure a vigorous organism of powerful resistance and muscles of steel. MARION.

All rational systems of physical training agree as to the results. As Thomas Huxley would say, "The voices raised in favor of the doctrine are distressing in their harmony." If the people could only be convinced that there is more in gymnastics than the execution of a few pretty movements of the body in a pleasing manner, the new science would be more respected.

The following are a few of these results·

BETTER HEALTH.

That all persons wish to be healthy is a fact. That all persons are not healthy is a fact; but that both men and women, by exercise, may overcome in a great measure their predisposition to disease, is also a fact. With a more thorough knowledge of the laws that determine health there will be more general recognition of nature's methods for physical perfection, and the mechanism of the body will

be too thoroughly appreciated for any one of its parts to be either neglected or overtrained.

GREATER STRENGTH.

People are apt to confound health and strength. The terms are not synonymous. The strength of the body is not proportionately distributed. A man may have enormous arms and chest, powerful legs and a weak waist. The strength of a person may be compared to a chain. If one link is defective the whole chain is weak; unless the parts are so strengthened that one will assist the other, the strength is not what it ought to be. A man may have great strength but poor health. It is astonishing that so many of our giants die quickly, and that men who make their living by lifting heavy weights, wrestling, and boxing, go down suddenly, many of them dying of lung trouble.

BETTER PHYSIQUE.

Admitting that the physique is improved by physical training we have not yet reached that position in our science or art where any great change can be made unless the training begins with the child and is permanently continued. The boy is apt to be like one of his parents. If he inherits from the mother a slender, slight physique, he is liable to possess it always. The round-shouldered youth, or one with drooping head, does not often overcome these defects. If the bone growth is established it will be almost impossible to straighten the spine, arch the chest, and overcome the physical defects. Yet it is true that the muscular system is invigorated, the action of the heart strengthened, the capacity of the lungs increased, the muscular coat of the veins and arteries improved, and the whole physical condition bettered by exercise.

GRACE.

All systems claim this to be a resultant. Grace is controlled strength or an evidence of the expenditure of the right amount of energy to produce a definite result. The clumsy person of either sex will become more graceful by exercise; the professional man or woman, the public speaker, the orator, the lawyer, the minister, will gain a good and easy stage presence in a shorter time from exercise than from any other source.

SELF-CONTROL AND SELF-RELIANCE.

While these are not the same, yet they are interlaced. He who never shows emotion, who is calm and self-contained in the face of danger, who curbs his temper, is not cast down by grief, checks an angry word—in short, who can manage himself—exhibits self-control. All emotion is expressed by muscular movement: muscular movement is controlled by will. The control of the muscles by the will is physical training of a certain order, it is physical education in the highest sense. It may be said "That man has never taken gymnastics in his life, yet he never loses his self-control." True, but he has practiced this special form of physical education.

Self-control is the mastery over the restless members of the body. What is the loss of self-control? Visible emotion. How do we express any emotion but by muscular movement? Anger, sadness, joy, fear, jealousy, are all shown in this way. When suddenly confronted with unpleasant news our muscles, like wild horses, at once slip from our control and it is shown by the face, if in no other way, that we are affected.

To quote Prof. E. L. Richards, of Yale University:

"The effect of exercise on the character is felt most of

all on the will. This is very natural, for in all muscular exercise a certain amount of resistance has to be overcome, and the power which acts through the muscles to overcome the resistance is will power. Development of muscular strength is, therefore, to a certain extent development of will. It becomes development of the highest kind of will, that of self-mastery—when to take exercise a man resolutely overcomes the distaste of it."

SLEEP.

Brain workers and those mentally fatigued can frequently bring on sleep by exercising the extremities of the body, thus drawing the blood away from the brain. We advise students, readers, and deep thinkers to spend a few minutes with the Exerciser each night before retiring. If the results are not quickly noticed they will be later.

In addition to the exercise take a little nourishing food after the body movements, as this will demand the presence of blood in the digestive and assimilative machinery.

SECTION IV.

THE MERCHANT OR BUSINESS MAN.

The age from forty to fifty is the period of life during which, according to the best authorities, the need of exercise is the greatest. At no time of life is the necessity so imperative. At that time the circulation becomes defective unless continually quickened by exercise. RALFE.

The business man works faithfully day after day, without rest or recreation, and for what purpose? Principally for the accumulation of wealth and the power accruing through riches. His devotion to Mammon is first, it is blinding; he uses but little judgment in caring for his physical condition. If he would look at his body merely as a simple machine (it is however, most complex), he would know that it must be kept in at least fair condition, but this he does not do. An engine can be made to run even when the parts are clogged, the axles dry, and the mechanism hampered by accumulations of oil and dust, but it requires additional steam power to make it do its usual work. That man who wishes to be wealthy, and has experience and knowledge to assist him, can gain more if he will lubricate the gearing, pack the valves, and true up the body machinery at least three times a week. The cry "I have n't time," "too busy," etc., shows that he is not a good business man, in one respect, at least. He relentlessly drives the machinery, not noticing that the energy required is increasing daily, and ignorant that his success demands greater effort than formerly, until suddenly, although his financial credit

is A No. 1, his physical bank has collapsed and his bodily credit is ruined.

If this practical business man will only apply his good sense to his physique he would no longer say "I have no time," but would take a few minutes at least in some exercise that would not require him to leave his office or change his attire. He can, by a few arm or leg motions, draw the blood from the brain, thereby resting it. He will find he can do without the artificial life to be gained from stimulants.

As a business venture, it will pay any man to exercise. The effort required to throw off the feeling of lassitude and dullness experienced by a busy tired man is greater than that which is needed to make him rise from his desk and exercise for only a few minutes. The throbbing temples, aching head, irritable condition, and flushed face are too well known; they are the unwelcome associates of the hard worker because he allows them to be. He suffers from "Americanitis"; he carries his business home, too much occupied to look after the rearing of his own children, and shoulders the responsibility of their education on others.

If the blood permeates the body when at rest twelve times in an hour, during which time it performs the duties incumbent upon it, and from fifteen to twenty times when the body is in motion, it follows that the quantity of secretion from the various organs is increased in proportion, consequently action is beneficial. Simple bodily exercise will do this. Brisk circulation animates the whole man. Exercise is the best stimulant in the world. Socrates well understood this. "I would have you know," says he, "that neither in any other struggle nor in any kind of practical life will you get on worse because you have brought your body into a good condition. For the body is useful in all pursuits which men engage in, it is of great importance to

have it in the best possible condition. Weakness of memory, low spirits, ill temper, and even insanity often penetrate the mind of many persons so deeply through their bad physical condition, as to cast out and dispossess knowledge itself.'

There is great security on the other hand for those whose bodies are in good condition. Rather it is natural that good bodily health conduces to the very contrary to those evils which arise from bad health. It is disgraceful that any one, through want of attention to these matters, should grow old without seeing what sort of a man he can become by making his body as well developed and robust as possible. And this no one can know who does not pay proper attention to these things, for they do not come of their own accord and unsought.

It makes no difference what the calling of a man may be, he cannot make headway in this busy world without using the body and mind. Whatever his profession, he must use the brain in connection with the servants of the brain, the muscles. A well developed mind that has to do with healthy contractile tissues will accomplish more than the same mind that can call on only poor muscles. The evidence of the most learned and cautious men bears witness to this. We cannot get good work out of tired servants, nor can we build strongly and beautifully with poor material. The business man who wants to accomplish the greatest amount of good with the energy at his disposal can only go so far as his capabilities will permit; one step beyond this dead line and he collapses.

As an investment, a gilt-edged investment, every energetic worker should pay attention to the health of the body and mind.

No stock company will make a greater return for money

invested than will exercise. No dividends will equal those that come to a man who cares for the human economy.

That man will do better work, more thorough work, and make more money, who will keep the machinery of the body in good order, he will live longer, will enjoy life, and be a more agreeable companion to those about him.

Exercise is the great antidote for worry and the blues.

Though I look old, yet I am strong and lusty:
For in my youth I never did apply
Hot and rebellious liquors in my blood,
Nor did not with unbashful forehead woo
The means of weakness and debility:
Therefore my age is as a lusty Winter,
Frosty but kindly. SHAKESPEARE

SECTION V.

THE PARENT AND CHILD.

Boys know well that games conduce not merely to the physical but to moral health—that in the ball fields boys acquire virtues that no books can give them—control of temper, self-restraint, fairness, honor, envious approbation of another's success, and all that give and take life which stands a man in such good stead when he goes forth into the world, and without which indeed success is always maimed and partial. CHARLES KINGSLEY.

"If the mass of grown up people cannot be persuaded to exercise, an attempt at least should be made to mould, like wax, the pliant mind of ingenuous youth, who will, when rising to manhood, retain the bent of boyish years. Absolutely nothing can indemnify the adult for the loss of youthful vigor and health—neither honor, learning, nor wisdom."

BEGIN WITH THE YOUNG.

The usual excuse of the parents, "We have not ourselves been so educated and do not know what physical training to give the children," is a sound argument so far as it goes, but in this day the parent will find opportunity and chance if he will only seek it. What people really want they will get, and should the parents fail to find a gymnasium for their children, they can, at least, procure a simple exercising apparatus for use in the home, with which both parent and child may be developed and strengthened. For the man who takes exercise himself will advocate it for his children. If parents call for careful gymnastic training

in schools they will get it, not the namby-pamby nonsense so frequently offered in many schools, but rational gymnastics.

There is too much mental training to-day, and we naturally ask are the children being educated in such a manner that they will possess those qualities required by the world? Is not too much time given to subjects more for personal adornment and small attainments than the actual good of the child? A child is no more than its body will permit, neither is an adult. Why not have the training begin at home in a simple way? That child is too well educated, if at the cost of its health.

"The reigning propensity of compelling children to extraordinary mental development is the grave of both their health and their talents—it is reprehensible."

The child should be daily trained in those movements that will tend to both widen and deepen the chest, strengthen the action of the heart, and increase the lung capacity. Simple exercise can be given that will draw the shoulders back, keep the head erect, and strengthen the muscles around the waist. If there are tendencies to lung, or any other form of organic trouble, the child should take the exercises mentioned for such defects. Parents should have the family physician examine the backs of children just as the dentists will look at the condition of the teeth. The protruding shoulder blade, the uneven shoulder, and the incipient curve (abnormal) in the spine, may be entirely cured by proper exercise. If it happens that the doctor is not familiar with the special movements necessary to remedy these faults, the parents should at once communicate with specialists, if the exercises here described cannot be taken.

Of course parents are interested in the education of their children. We will agree on this, but the question is

what constitutes "Education?" For ages men have tried to answer the query and the solution is not yet, but there is one point all wise educators agree upon, and that is, that the care of the body is as important as the care of the mind.

It is not the purpose of this work to enter upon a long discussion of the subject, but this much may be said: that boys and girls should indulge freely in out-door exercises. Let them associate pleasure with the care of the body, let them run and jump and climb and shout, let them be merry and happy, let them compete in manly contests in a manly way, and when the weather does not permit out-door exercise, an exercising apparatus should be used.

If parents believe that girls occupy an inferior place in life let them deprive them of the benefits of exercise, do not let them participate in the sports that make their brothers hardy and healthy, keep them much in the house, and make hot-house plants of them—bring them up in such a manner that they will fade away if exposed to a rigorous climate; rear them so that when called upon to fulfill the functions of wives and mothers their lives are miserable by reason of suffering.

Parents are responsible for many of these "states." Fathers and mothers can so educate their daughters that they will derive both pleasure and benefit from out-door games, and yet possess all the sweet qualities that "so well become a woman."

Plato well says "A good education is that which assures to the body all the beauty, all the perfection of which it is capable."


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THE WHITELY EXERCISER.

SECTION VI.

PROFESSIONAL MEN AND WOMEN.

The force of the understanding increases with the health of the body. When the body labors under disease, the mind is incapacitated for thinking. DEMOCRITUS.

Even in ancient times the principles of cultivating the body together with the mind, in order that by preserving the health mental culture might be available, was recognized.

Pliny tells us that "the mind is stimulated by movements of the body."

Men and women of literary and of business habits should have recourse to some means which will preserve them from ill-health and suffering. The brain and nerves are overtaxed to the detriment of another set of functions, which are at first reduced in power, and at last starved out. Exercise will draw the blood from the brain, if it is overtaxed, to other portions of the body. Nothing is gained by too steady mental application. Time will be lost unless one yields to the demand of nature for exercise. When the physical life becomes degenerated by neglect, the power of thought is at once affected. Want of activity not only affects the mental, but all the organs of the body. Exercise, on the other hand, invigorates the body, expands the chest, keeps the form erect, makes the body healthy, strong, and shapely, and gives a new life and energy to the whole being.

When a break-down occurs the only remedy is exercise

and rest; medicine will not cure, but far better is it that man should not go so far before he begins to use the remedy. A few minutes each day will help—will start the heart to beating faster, the lungs to more thoroughly purifying the blood, will assist the scavenger organs in removing waste material, the purveyor organs in building up new tissue. Exercise will make over and keep in fine condition.

If the results are not noticed immediately, remember that the disease came slowly, was insidious and undermining, it secured a firm hold, and there will be a stubborn fight before it gives up. The scheme presented in this book is intended to be not only scientifically beneficial but enjoyable as well.

"Health is a thing," says Carlyle, "to be attended to continually. There is no achievement in the world that is equal to perfect health."

Lawyers, ministers, and speakers of any class understand the value of a "carrying voice." They know it is due to lung power, a good chest, and a set of vigorous expiratory muscles. These physical attainments will come through exercise; some men already possess them, but they are the exception.

Women who enter the professional ranks have, as a rule, weak, high-pitched voices that irritate their listeners. The judicious exercise of the vocal chords, together with the muscles of the throat and chest, will change the character of the voice. If these things are worth having they are worth working for, they will only come through use and practice.

Rev. Dr. Munger, of Yale University, makes this statement:

"When we think, it is not alone the mind that thinks, it is the whole man, and the process begins with the body.

The bodily fiber or quality reaches to the thought. You will never get fine thought out of a coarse body. Nor less will you get sound thought out of an unsound body. The bodily condition strikes through and shows itself in the quality of the thought. A vast amount of the poor, illogical, insipid, morbid, extravagant, pessimistic thought that finds its way into books and sermons and conversation has its origin in poor bodies and bad health. The body lies at the basis of success in all respects. A poor body means a poor life, all the way up, even to the highest stage of spiritual life. Any religious experience that is connected with a weak or diseased body is to be regarded with suspicion. There can be no healthy thought, no moral feeling, no sound judgment, no vigorous action, except in connection with a sound body. Great minds are often shut up in poor bodies—as Pascal and Cowper and Carlyle and Amiel—but in each case we make allowance for what is called the personal equation; their opinions are examined in the light of their physical weakness of disease before they are trusted."

President Elliot of Harvard says: "To attain success and length of service in any of the professions a vigorous body is essential. All professional biography teaches that to win lasting distinction in sedentary indoor occupations which task the brain and nervous system, extraordinary toughness of body must accompany extraordinary mental powers."

SECTION VII.

WOMEN.

The duty of physical health and the duty of spiritual purity and loftiness are not two duties; they are two parts of one duty, which is the living of the completest life which it is possible for man to live.

PHILLIPS BROOKS.

Women are beginning to understand that grace and symmetry can be obtained in no other way than by systematic exercise; the idea which regarded physical training as unfeminine is to-day a thing of the past.

No years in the life of a woman are more important than those which mark the transition from girlhood to womanhood. If at this time the system is developed according to nature's laws, all the organs of the body will be strengthened; but no marked changes in the health of our young women will be seen until a recognition of their physical need is shown by their parents and educators. Every woman should understand that the body is the expression of the soul—she should study the art of graceful motion, of physical beauty, and the science of health. Form, as well as face, reveals the cultivated person, and attitude as much as speech denotes the woman of culture.

It is not our place to deal with the motive that prompts women to look well in dress, feature, and form, but to drop a few hints that will help them to do even more than they now accomplish without adding to their duties or cares.

Life, activity, quickness, and a cheerful disposition go

far with women; the color in the cheeks, the sparkling eyes, and a merry laugh are found oftener in the perfectly healthy woman than in her who depends on the various artificial "knacks" to make her lovely.

If the labor employed and the expense incurred by the women of to-day in using cosmetics and devices for the improvement of the personal appearance were directed to the study of the natural laws by which beauty is evolved, more lasting and satisfactory results would be obtained. It is useless to apply treatment to the face and ignore the body. No cosmetic ever known could beautify a skin deadened by the inactivity of the vital functions of the system.

If the American woman wishes to become handsomer and more attractive she must indulge in gymnastic exercises, must get out of doors more and must be careful about her diet. Nature has no favorite, but will shower her blessings on those who will obey her dictates. Nature demands activity; those who disobey will suffer.

If one hour each day were set apart for the development of the physique, a hardier race of mothers would soon arise to direct the education of coming generations. The character of the apparatus used to give the best possible results should be carefully noted. Heavy weight lifting is incompatible with grace, for it tends to make the muscles sluggish and keeps them rigid, even when in repose; while movements on a light elastic apparatus makes the muscles pliable and quickly responsive.

A perfect figure does not attract so much attention to its size as to the relation of its parts. A healthy, well-developed body is characterized by plumpness—is neither thin nor stout.

Herbert Spencer claims that the superior mental and physical conditions of men are due to their methods of living

more than any natural aptitude they possess, and adds, "Being in a great measure debarred from those vigorous and enjoyable exercises of the body by which boys mitigate the evils of excessive study, girls feel these evils in their full intensity, hence the much smaller proportion of them who grow up well-made and healthy."

The pale, angular, flat-chested woman, so often to be seen in the drawing-rooms, are striking examples of merciless application unrelieved by youthful sports, and this physical degeneracy hinders their welfare far more than their many accomplishments aid it.

Men, as a rule, care little for erudition in women, but very much for physical beauty, good nature, and sound sense.

Every one knows cases where bodily perfection, in the absence of all other recommendations, has incited a passion that carried all before it, but scarcely any one can point to a case where intellectual acquirements, apart from moral or physical attributes, have aroused such feeling. The truth is that out of the many elements uniting in various proportions to produce in a man's breast that complex emotion which we call love, the strongest are those produced by physical attractions.

The oft-repeated question, "What can I do for my neck and chest; how can I fill up the 'hollows' around my throat?" is one of prime importance. Before answering the question it may be well to preface the instruction with this advice. If you want a plump neck and well-developed bust, you will have to work for them: you will have to persist day after day, for many weeks, in the exercises that will develop the contractile tissues in the parts affected. There is not a medicine made that will strengthen and develop the muscles of the neck and chest; exercise alone will do this.

We include under the term "Exercise" proper diet and hygiene. There can be no growth where the blood supply is cut off. There can be no increase in the amount of vital tissue if the arterial flow is small, consequently, as the growth and development of a part depends on a generous amount of this life-bearing fluid, the first thing to do is to send the blood there; but this is not sufficient, we must furnish rich blood; this, in turn, means a demand for and a supply of nourishing food. There must be no restriction of the parts. The respiratory apparatus which furnishes the oxygen must be in the best condition; hence do not cramp the lungs, breathe deeply. The digestive and assimilative machinery furnishes material for the blood, consequently whatever interferes with their action will impoverish the blood; do not therefore, be careless about your eating.

It will at once be seen that to secure the coveted "beautiful neck," several other things besides exercise must be taken into consideration. On the other hand the gain will not be for the neck alone, but for the face and complexion. The eyes will become brighter, the coloring of the face more beautiful, and the step more elastic and springy, the carriage of the body more queenly, and youth will be renewed.

Mrs. Langtry well says: "Woman's beauty is vastly and permanently enhanced by daily exercise."

> Health is the vital principle of bliss,
> And exercise, of health.
>
> THOMSON.

PART II.

SECTION I.

APPLIED PHYSICAL TRAINING.

SYSTEM OF WORK.

As the best mental work is done when the mind is free from hindrance, so the best physical results are had when the mind gives its entire attention to the body.

Take a correct standing position with head erect and chest arched. (See Fig. 50 and 64.)

If the mind has been active there is an over-supply of blood in the brain, and it should be drawn away. This is done by exercising the extremities first, hence we recommend leg work.

Next see that the muscles which assist in holding the head erect are used; then work the arms, shoulders, and chest. This will greatly assist in giving the heart and lungs more room for action, will facilitate the purification of the blood, and will quicken the circulation, thus carrying off the waste material that may have accumulated in the tissues and blood.

By next exercising the muscles of the waist and abdomen, the functions of the organs in those parts are helped, and the increased supply of blood to the contents of the abdominal cavity will aid in the assimilation of food.

By this time the body is ready for the most active or arduous work, namely, the running or hopping exercises

which quicken the action of the heart. This "precipitant work" as it has been called, will strengthen the action of this wonderful pump.

Finally give some slow leg exercises to normalize the action of the heart, and then finish with slow breathing exercises. To recapitulate:

1. **Leg exercise.**
2. **Neck exercise.**
3. **Shoulder and upper back exercise.**
4. **Arm exercise.**
5. **Chest or thorax and breathing.**
6. **Waist exercise.**
7. **Abdominal exercise.**
8. **Heart and lung exercise.**
9. **Breathing.**

NOMENCLATURE.

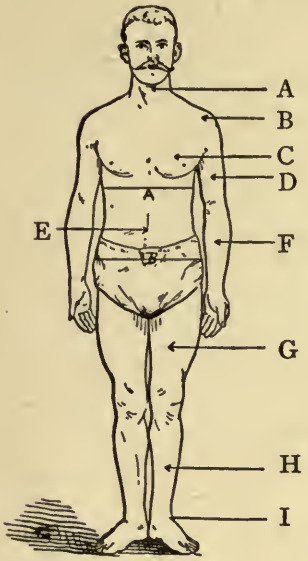


FIGURE 1.

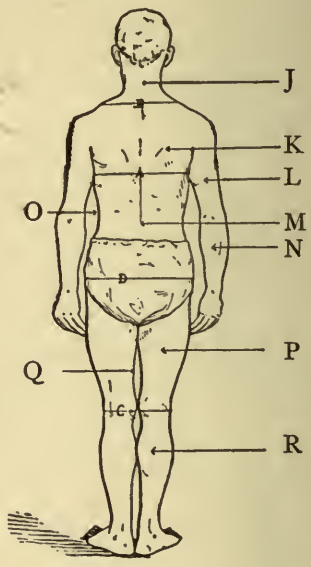


FIGURE 2.

To develop or strengthen any portion of the body refer to the letter mentioned.

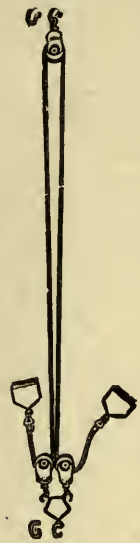
That the text may be clearer the portions of the body are named as follows:

A—Front neck.
B—Round of the shoulder, or deltoid.
C—Chest muscles or pectorals.
D—Front upper arm, or biceps.
E—Front of waist and abdomen.
F—Front forearm.
G—Front thigh.
H—Front leg.
I—Ankles.
J—Back neck.
K—Upper back.
L—Back upper arm, or triceps.
M—Middle back.
N—Back forearm.
O—Sides of the waist.
P—Back thigh.
Q—Inside of the thigh.
R—Back of the leg, or calf.

DIAGRAM OF ARRANGEMENT OF EXERCISING APPARATUS.

For ordinary use the upper hooks can be placed about 6 feet 6 inches from the floor, and the lower hook 6 inches.

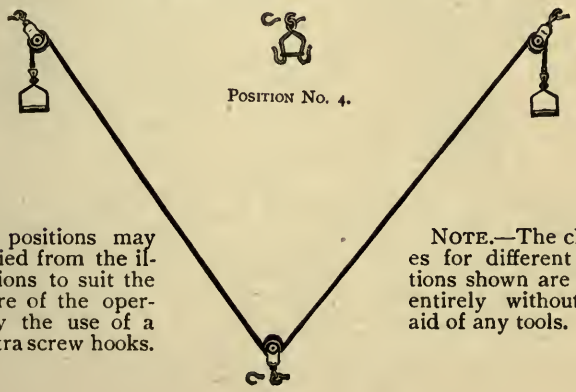
POSITION No. 1.



POSITION No. 2.

POSITION No. 3.

POSITION No. 4.



The positions may be varied from the illustrations to suit the pleasure of the operator by the use of a few extra screw hooks.

NOTE.—The changes for different positions shown are made entirely without the aid of any tools.

SECTION II.

THE LEG AND THIGH.

FIGURE 3.
Raise on toes. Action: Muscles of the toes, under feet, ankles, and calves.

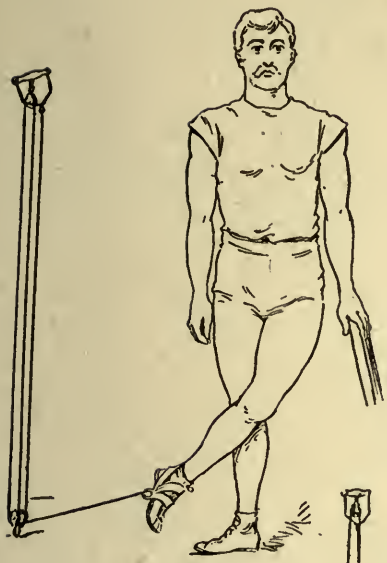
THE CALF. Practice rising on the toes while using the Exerciser. (See Fig. 3.)
Running on tip toes.
Hopping and jumping.

FRONT LEG. Flex the foot, using the Exerciser.
Rapid walking.
Practice raising the balls of the feet.

FRONT THIGH. Use the Exerciser, lowering and raising the body. (See Fig. 9.)
Practice running, jumping, hopping, hurdling.

BACK THIGH. (See Fig. 8.) Practice flexing each leg as far as possible.
Running in place and striking heels against back upper thigh.

INSIDE THIGH. Use inside thigh attachment. (See Fig. 6.)

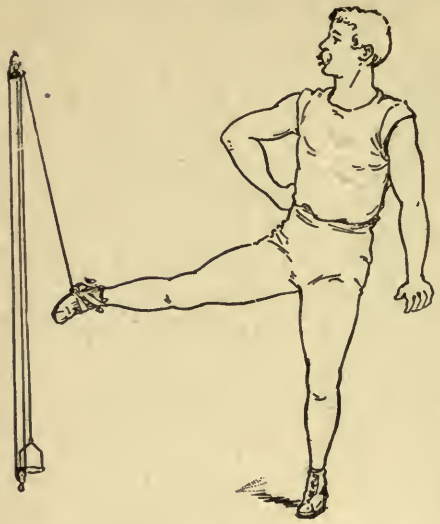


Side to Exerciser. Pull leg out to side.
Action: Outside thigh muscles.

FIGURE 4.

Position, back to Exerciser. Pull leg forward and back.
Action: Front thigh muscles

FIGURE 5.



Side to Exerciser. Bring leg down past front of shin. Action. Inside thigh.

FIGURE 6.

Face to Exerciser. Pull leg back and return. Action: Back thigh muscles.

FIGURE 7.

EFFECTS OF ACTIVE LEG WORK ON THE HEART.

If the heart is weak in its action but otherwise normal, the active movements of the leg mentioned on page 36 will be beneficial.

The quick destruction of so much tissue, as in running, calls for immediate repair, hence the heart and lungs are called upon for greater effort.

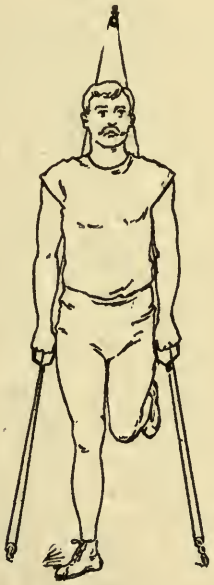


FIGURE 8.

Raise heel back and up.
Action: Muscles on the back of the thigh.

NOTE.—When taking the running exercise, keep well on the ball of the feet and land as lightly as possible.
In every drill keep the chest well arched.

FIGURE 9.

Crouching position. Action: For the front thigh, the calf of the leg, for ankle, and joints at knee and hip.

ANKLES.—The turning of the ankle is a bad habit that both sexes have acquired. It may be conquered by developing the muscles and ligaments of the leg and ankle.

All exercises for the thigh and leg will tend to so strengthen the ankle that the "turning" will disappear.

In addition to the movements shown in Figs. 3, 7 and 9, skating, running, hopping, and for young men and boys tumbling, are recommended.

It is taken for granted in mentioning these exercises, that ordinary judgment will be used by the one exercising.

NOTE.—The movements referred to in *italics* may be taken without apparatus, but if practiced in connection with the Exerciser will be found specially advantageous.

SECTION III.

THE NECK.

It is a mistake to suppose that the development of the muscles on the back of the neck will cure a drooping head.

To get a good position of the head the upper spine must be in its normal condition, and consequently one must exercise more than the portion usually included in what is known as the neck.

When the head is carried forward, and this is a very

FIGURE 10.

Back of neck. Action: Muscles that hold the head erect.

common defect, it is necessary to strengthen the muscles across the upper back and to keep the chest arched.

There are results coming from the development of the neck muscles that are quite as important as the mere carriage of the head, namely: the strengthening and enlarging of the blood-vessels of the neck, whereby the circulation of blood is greatly improved and the congested states of the brain, due to continued mental activity, are more quickly relieved.

The weight of the brain is about one forty-fifth of the body, while the amount of blood used up in the brain is about one-eighth or one-ninth of that required by the whole body.

Thus it will be evident that the supply should have free and ready access to the interior of the skull.

All exercises for the neck will tend to help the circulation to and from the brain, consequently certain forms of headache will be relieved by slow and steady movements of the head, neck, and upper trunk.

Brain workers are more in need of slow head movements than manual laborers.

See the exercise on page 83 for headache and nervousness.

A special exercise for the back of the neck may be made by placing the handles on top of the head, and while holding them there with the hands, let the head go forward and compel the muscles to draw it back; r peat the movement until the muscles on the back of the neck are slightly fatigu d. Be careful not to assist the movement with th arms, and to hold the rest of the body perfectly still.

FIGURE 11.

NOTE.—Take all head and body movements slowly.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SECTION IV.

THE SHOULDER.

Among the physical defects that are first to be noticed are round shoulders. In nearly all families where there are growing children the command "stand up and throw your shoulders back" is common, but if the time spent in reprimand could be devoted to gymnastic movements instead, more boys and girls would have good shoulders. Attention should also be directed to uneven shoulders, or one higher than the other—usually the left is higher in right-handed people; stooping shoulders or drooping forward of the head and upper spine, and lastly sloping shoulders. The above are too frequently seen, but in the majority of cases they can be prevented if attention will be paid to them in time. In treating these defects we must first of all look for the cause of the trouble and remove that.

If a boy or girl is required to take movements daily for the defective shoulders, and in addition to this is taught to stand and sit properly, and this training is made as much a part of the routine life as the care of the hair or teeth, a precedent will be established that will encourage a personal pride in their own physical perfection.

FOR STOOPING SHOULDERS.

NOTE.—While taking the movements grasp the handles. Assume tha best possible standing position, with head erect, chest arched hips back. (See Fig. 12.)

1. NECK WORK. Clasp the hands back of the head, bend head backward, but pull head with hands 8 to 16 times. (See Figs. 10 and 11.)

2. SHOULDER WORK. Swing the arms forward and upward, then force them back and down 6 to 8 times.

3. BACK WORK. With the arms up bend the body well forward, keeping the arms at the side of the head, 8 times.

4. Same as No. 3, but in the kneeling position. Also bend the body backward.

5. NECK WORK. Lie face downward on the floor or mat, resting the forehead on the folded arms. Raise head as high as possible 8 to 16 times.

6. UPPER SPINE. With the neck firm, position Fig. 53, lying face down, some one holding the feet, raise the shoulders as high as possible, 1 to 10 times.

In cases the exercises are too severe, take each one only a few times and omit No. 6.

FOR ROUND SHOULDERS.

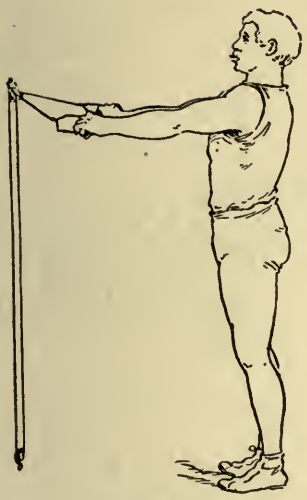
1. From the starting position (see Fig. 12), swing the arms shoulder-high to the side, as in Fig. 13.

2. From starting position swing the arms to the letter "Y" position seen in Fig. 61.

3. Finally swing the arms up over the head as in Fig. 46.

To elevate the shoulders take the exercise seen in Fig. 26.

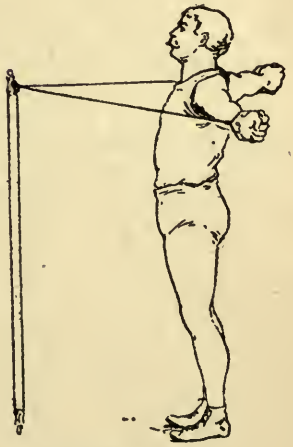
To depress the shoulders take the exercise seen in Fig. 33.



STARTING POSITION. FIG. 12.

From front horizontal, swing arms back to side horizontal.
Action: Arms and shoulders.

One of the best exercises for straightening the shoulders and keeping the body erect.



FINISH POSITION. FIG. 13.

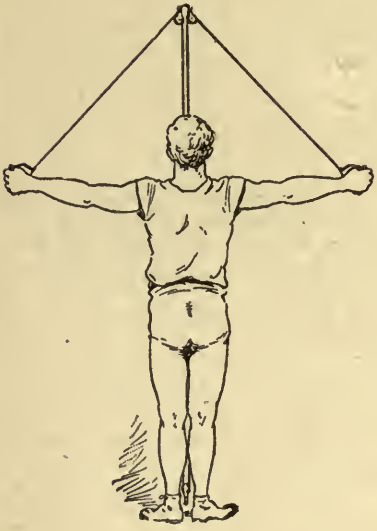


FIGURE 14.

An excellent exercise for round shoulders. In addition to this, practice swinging the arms to the letter Y position. (See Fig. 61.)

Back to Exerciser. Lift arms alternately over head, but do not move the body.

Action: Arms, chest, abdominal and intercostal muscles.

FIGURE 15.

From the front horizontal, swing arms to position shown, and return.

This is one of the best movements for helping and preventing round shoulders.

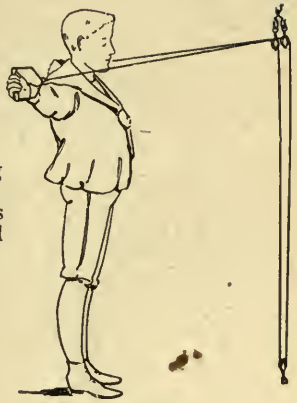


FIGURE 16.

FIGURE 17.

Take rowing movement as illustrated, swinging body well forward and back with each stroke.

This movement develops the arms, chest, *shoulders*, and back.

SECTION V.

THE ARM.

FRONT UPPER ARM. (See Fig. 1—D, page 34.)

Face the Exerciser, and, while keeping the upper arm rigid, flex the elbow and bring the hand to the shoulder. Any movement of the upper arm will detract from the value of the exercise.

BACK UPPER ARM. (See Fig. 2—L, page 34.)

With the back to the Exerciser, keeping the upper arm rigid, extend the elbow and stretch the arm to its fullest extent.

Figures 18 and 19 show exercises that are principally for the front upper arm or biceps. When the upper arm is moved, it is by the muscles of the trunk, hence keep it still when localizing the movements for the front or back upper arm. The best results for the back upper arm or triceps is to keep the upper arm extended to the front and motionless, but bend the elbow only. (See Figs. 20 and 21.)

FRONT FOREARM. All movements that call into action the hand or fingers will develop the front forearm. The closing of the fist, grasping the handles, and the flexing of the wrist are forearm movements.

The muscles of the palmar surface of the hand and forearm are stronger than those on the back of the hand and forearm.

Back Forearm. (See Fig. 2—N, page 34.)

All the movements that require the extension of the fingers or the over-extension of the hands will develop the back forearm. For instance, if the hands are tightly closed and are drawn in as far as possible towards the palmar surface of the forearm, and are then extended to their utmost, the muscles on the back of the forearm and hand are doing the work.

The Deltoid.—Round of shoulder. (See Fig. 1—B, page 34.)

This muscle is developed by any movement that will swing the straight arm to the height of the shoulder, or when it is at the height that will swing it from the side to the front. Another exercise is to let the handle and cord pass back of the body, then swing the hand down, out, and up to the height of the shoulders.

For the right deltoid, stand with the left side to the Exerciser. (See Fig. 23.)

Writers', typewriters', and telegraphers' cramp is a disease that it difficult to cure when it once seizes a person. It should be prevented, and this can only be done by taking time each day to develop the muscles of the entire arm, chest, and upper back. The clerk who has no time to attend the warnings given by an overworked set of nerves will later pay very dearly for this negligence. The premonitory symptoms demand that more attention be given to the adjacent parts of the body, but our advice is do n't wait for these premonitory symptoms.

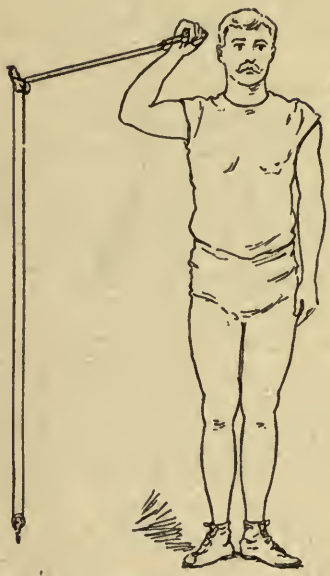


FIGURE 18.
FRONT UPPER ARM.

From front horizontal, curve both arms to top of shoulder.
Action: Biceps.

From side horizontal, curve arm and bring hand to top of shoulder.
Action: Arm, shoulder, and forearm.

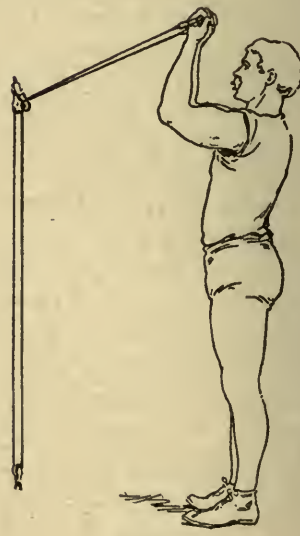


FIGURE 19.
BICEPS.

From position push both hands out to front horizontal, and return.

Action: Chest, *back arm*, and forearm.

FIGURE 20.
BACK UPPER ARM,
START.

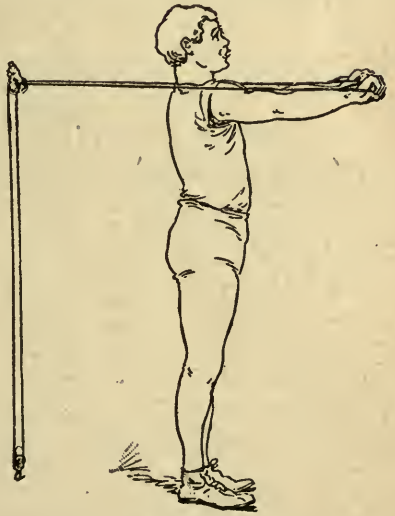


FIGURE 21.
BACK UPPER ARM, *FINISH.*

FIGURE 22.
FRONT FORE-ARM.

Curl arms up to shoulder, return and carry arms back as far as possible.

Action: Biceps, triceps, and deltoid, and *forearm.*

Stand side to Exerciser. Curl arm back of body, then extend and swing it shoulder high to the side. Repeat on opposite side.

Action: The deltoid

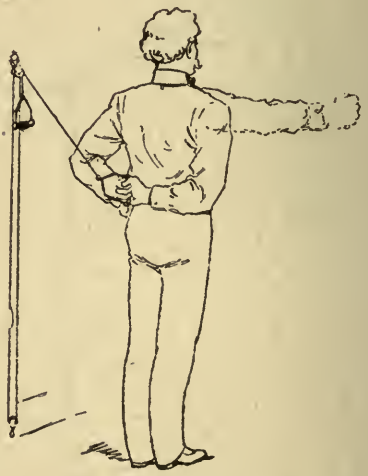


FIGURE 23.
DELTOID (ROUND OF SHOULDER).

SECTION VI.

THE CHEST (THORAX).

The thorax, which contains the heart and lungs, is the portion of the body needing the most attention. One cannot give too much time to it.

By developing the thorax the arms will be strengthened.

The best results are to be obtained by:

1. Assuming and holding the correct sitting and standing position.
2. Removing the causes of a defective chest.
3. Avoiding exercises or positions that will cramp the thorax.
4. Strengthening the muscles of the neck and spine.
5. Elevating the shoulders.
6. Regular and continued breathing exercises.
7. Active leg work. Running. Bicycling.

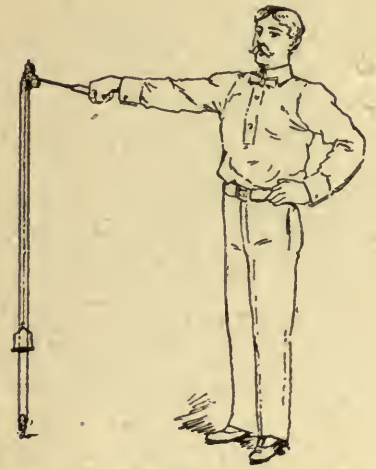


FIGURE 24.

Side to the Exerciser. Right arm down past front of thigh, and return.
Action: Chest and forearm.

Back to Exerciser. Hands on chest, elbows level with shoulders. Open arms slowly. Action: Muscles of the chest.

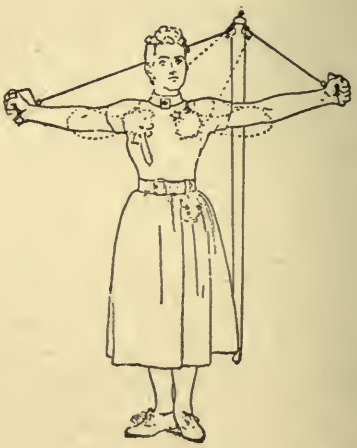


FIGURE 25.

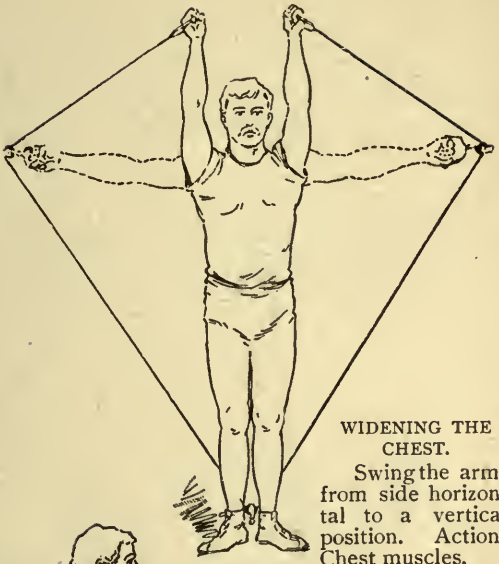


FIGURE 26.

WIDENING THE CHEST.

Swing the arms from side horizontal to a vertical position. Action: Chest muscles.

FIGURE 27.

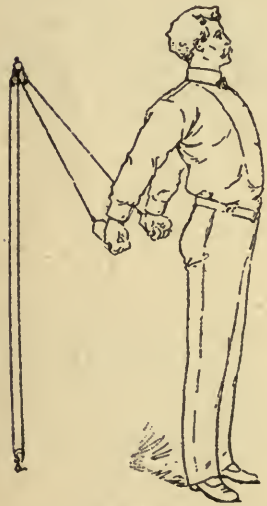
UPPER CHEST.

From position, both arms brought to a front horizontal, and return.

Action: Chest and front arm muscles.

Back to Exerciser. Hands from side in half-circle overhead.
Action: Lifting of the chest walls.

FIGURE 28.



Back to Exerciser. Bring arms up to front horizontal, and return.
Action: The arm, chest, and front shoulder.

FIGURE 29.

In developing these muscles do not confound the Chest or Thorax, which contains the heart and the lungs, with the Chest or Pectoral muscles.

TO WIDEN THE CHEST.

Lying on the floor with feet toward the machine, pull the cords over the head sideways, keeping the arms and hands close to the floor, elbows stiff. Inhale as the arms swing sideways over the head; exhale as they return.

FIGURE 30.

TO DEEPEN THE CHEST.

Lying on the floor, feet toward the machine (ropes through lower pulleys), swing arms forward and over the head (not sideways) as far as possible. Keep elbows rigid. Inhale as the arms swing forward over the head; exhale as they return.

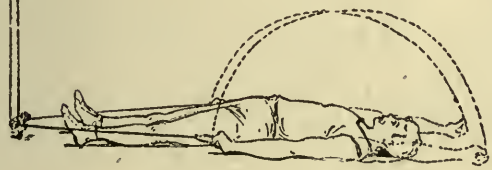
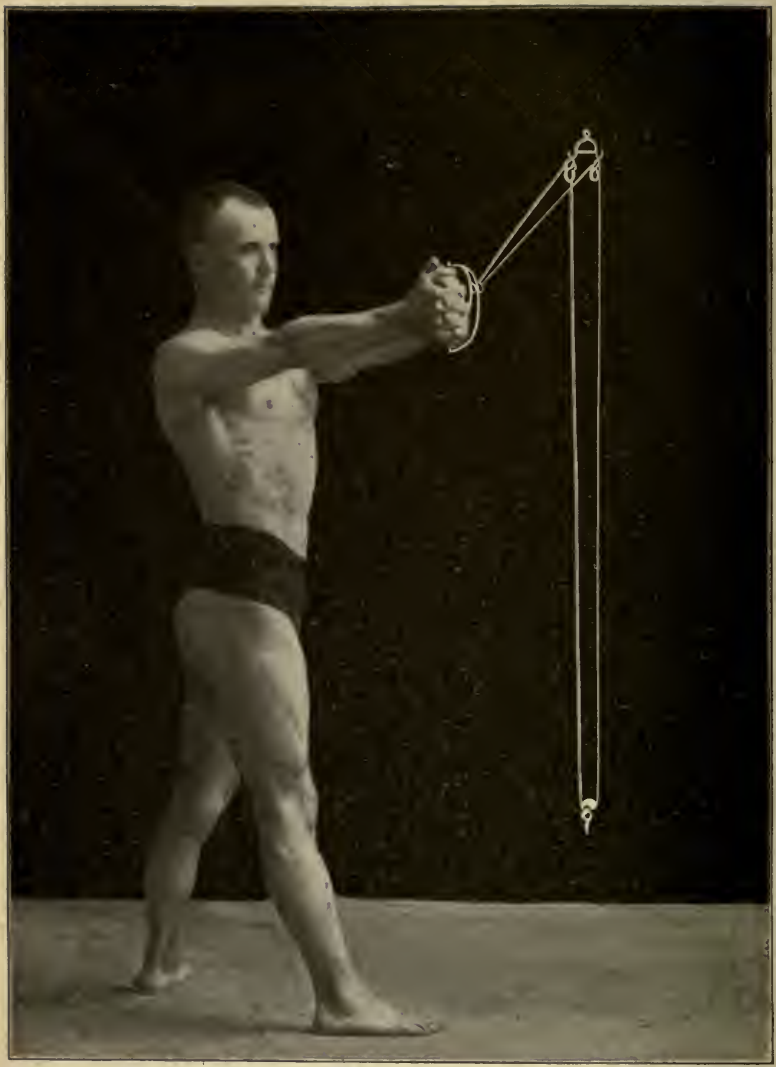


FIGURE 31.

Few, if any, of the exercises with the apparatus are so important as those which widen and deepen the cavity of the chest or thorax. Too much attention cannot be given to this part of the body.

Read the article on the Thorax, on page 55.



SECTION VII.

THE WAIST.

The parts of the body which usually need strengthening are the front, side, and back of the waist.

In addition to the movements described take the Exercises under the head *Abdomen.* (See page 66.)

The bending of the trunk to right and left with the hands on the hips (Fig. 52) is comparatively easy, but the movements may be made progressive by taking the "Neck Position" (Fig. 53) or the "Stretch Position" (Fig. 55) and bending the body in each direction.

As the last exercise is severe, caution must be used.

With the arms and shoulder high to the side, twist the trunk to right and left.

All movements for the waist and abdomen are irksome and therefore generally slighted, but they are productive of much good if persisted in.

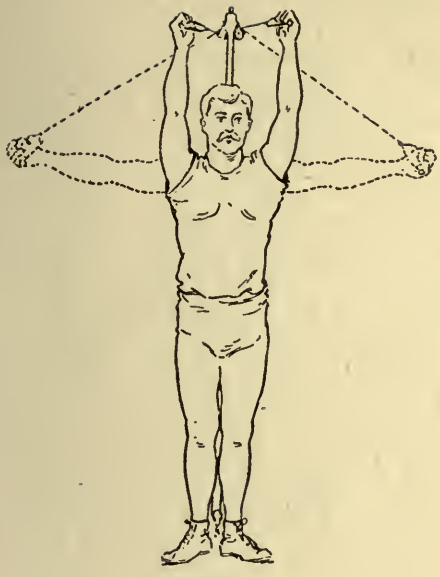


FIGURE 32.

SIDE WAIST.

1. Lower to front horizontal.
2. Back again.
3. Swing to side horizontal.

1. Raise hands to side horizontal.
2. Swing to front horizontal.
3. Back to side horizontal.
4. Down to sides

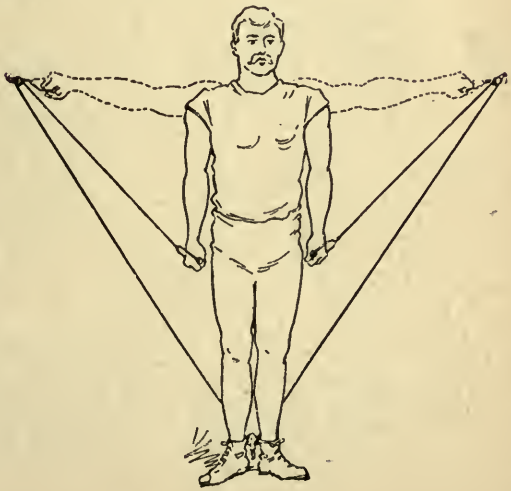


FIGURE 33.

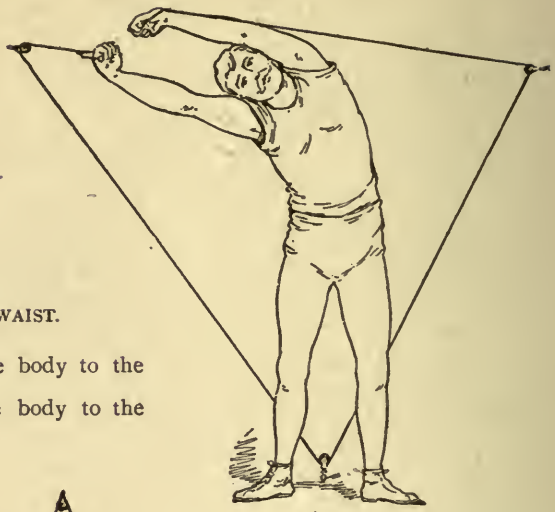


FIGURE 34.

SIDE WAIST.

1. Sway the body to the right.
2. Sway the body to the left.

FIGURE 35.

1. Push the left hand to a vertical, at the same time striking the floor beside the right heel with the right hand.
2. Back to position, top of shoulders.
3. Repeat on left side.

NOTE.—The above are excellent exercises, but are drastic, and those whose side waist muscles are weak should be careful about indulging too freely at first.

FIGURE 36.

SIDE WAIST.

Right side to Exerciser.

1. Arm over head, bend to left.

2. Left side to Exerciser, bend to the right.

Action: Side muscles of waist.

OBLIQUE WAIST.

1. From front horizontal swing both arms alternately to right and left side horizontal.

Action: Side, waist, chest, arms, shoulders.

NOTE.—The two movements shown above will develop the muscles on the front of the chest and on the side of the back.

FIGURE 37.

SECTION VIII.

THE ABDOMEN.

The abdominal, or front waist muscles, are strengthened by exercises taken with the back to the Exerciser. The movements seen in Figs. 38, 39, and 40 are especially good for the abdomen If these exercises are too difficult, stand with the feet apart, as in Figs. 52 and 57, in the walk or stride-stand positions.

The muscles in this part of the body may be developed while lying down with the head to the Exerciser as in Fig. 41.

The Exerciser can be so easily changed that one can go through the exercises while lying on the bed.

In addition to the movements mentioned, raise the legs alternately a few times each day.

When taking the last named exercises, if the muscles of the front waist are quite weak, raise one leg at a time with the knee bent, then slowly replace it on the couch. Take the same exercise with the other leg, and finally use both at the same time.

Persons having indigestion and stomach troubles should pay particular attention to the muscles of the abdomen.

Persons in danger of accumulating adipose tissue over the abdomen should take these exercises.

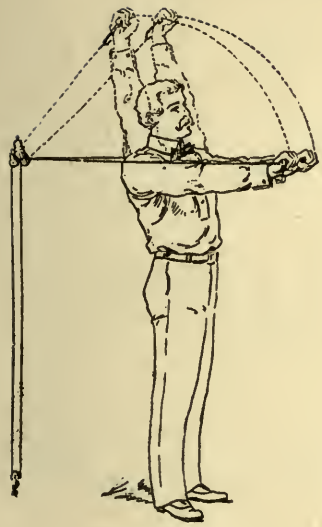


FIGURE 38.

For the chest, the abdomen (part), side of abdomen, front upper arm, front forearm.

Back to Exerciser. Action very strong on the abdominal muscles.

FIGURE 39.

FIGURE 40.

Lie down on floor. Feet to Exerciser. Lift hands straight over head, touch the floor and sink to hips. Raise body to sitting position without lifting feet from the floor. Effect strong on abdominal muscles.

FOR THE ABDOMEN.

Lie down on the floor. Head to the Exerciser. Lift hands straight over head, touch the floor forward and return. Raise body to sitting position without lifting feet from the floor. Action: Strong on abdominal muscles.

1. Lie down on the floor, raise legs up to a vertical, knees extended. Action: Abdominal muscles.

2. Bring arms up over and down to side of thigh. Action: Front arm, abdomen, and chest.

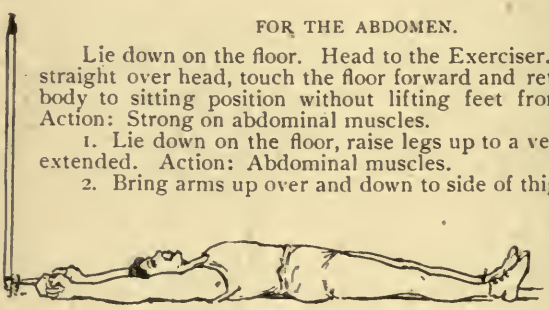


FIGURE 41.

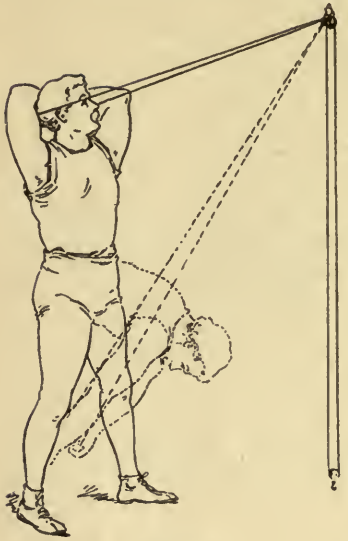
3. Raise arms about two inches from the floor, then swing outward and down to side of thighs. Action: Shoulder, under the arms, side, and chest. Use breathing exercises.

FIGURE 42.

Face to Exerciser. Bend slightly forward and make a swimming movement. Action: Abdominal and side muscles.

From front horizontal, down to ground, back over head. This movement is particularly intended to reach the large muscles on the front of the chest and abdomen.

FIGURE 43.



1. Swing between feet.
2. Swing to back of head.
3. Swing between feet.
4. Swing to a high vertical.

Action: Muscles of abdomen, small of back, and front wall of chest.

FIGURE 44.

Face to Exerciser. Arms straight over head, backward bend, upward raise, forward bend, knees extended. Action: Abdomen and back.

FIGURE 45.

The above is especially good for the muscles of the abdomen, and is recommended to those who suffer from indigestion or poor assimilation of food.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SECTION IX.

THE BACK.

THE BACK OR SPINE.

The exercises mentioned are for those who are not afflicted with any spinal curvature beyond the slight lateral curve, which is so common that some anatomists believe it to be normal, and also for correcting the bending forward of the spine from between the shoulders, producing what is known as kyphosis, or stooping shoulders.

A strong set of muscles along the spine will greatly assist in keeping the chest arched and the head erect. In fact, if one is anxious to stand well, he must use the muscular bands that run along both sides of the spinal column from the hips to the head.

The general exercises for this group are these:

All straight arm movements of any kind taken when the face is to the Exerciser.

All backward bending movements of the body.

When the body is bent forward and downward the muscles of the back raise it to a normal position.

The movements illustrated by the following figures will strengthen the back.

FIGURE 46.

For the full upper back, back of forearm and back upper arm.

At the finish of the exercise the arms should be extended above the head, the chest arched, and the hips back.

If the above is properly taken it will help the defect known as "stoop shoulders." (See page 46.)

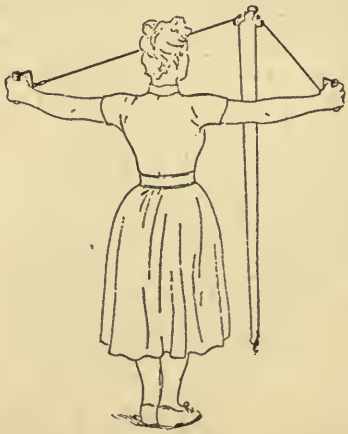

FIGURE 47.

FIGURE 48.

Face to Exerciser. Arms over head, backward bend, forward bend.

Action: Abdominal and back muscles.

From standing position down to floor and back overhead.

Action: Muscles of entire back.

FIGURE 49.

SECTION X.

THE HEART.

The heart being a muscular organ may be strengthened by certain exercises.

It may be weak in its action but otherwise normal. Gymnastics are indicated in this case.

If the extremities are habitually cold, strengthen the action of the heart and increase the lung capacity by exercise.

The exercises given for widening and deepening the chest are helpful in treating the heart.

If the occupation, position, or dress cramps the chest it will affect the action of the heart.

Before attempting to strengthen the action of the heart, remove any cause of interference with its working.

The breathing exercises will help the heart.

See work for the legs, thorax, and lungs.

To strengthen the action of the heart, and to normalize the circulation, practice quick leg work, as in running, hopping, etc.

SECTION XI.

THE LUNGS.

It is not the intention of this work to treat consumption or to deal with any of the serious lung troubles. If a person is afflicted with phthisis "go to a physician."

The simplest and wisest way to strengthen the lungs and increase their capacity is: "*Use them.*"

If people will not of their own accord do more than ordinary breathing then they should be made to breathe deeply. How? By quick leg work, by running and leaping, by the exercises that demand a great expenditure of force in a short time.

Bicycling, riding, lawn tennis, baseball, and all in and out of door sports that call for quick movement, will both increase the capacity of the lungs and strengthen them.

When using the Exerciser take the movements shown by Figures 30 and 31, for widening and deepening the chest, breathing deeply when raising the arms from the side, and exhaling when lowering them.

As the lungs depend for their nourishment on the blood, try to furnish a good quality of blood—this means good food and proper digestion. Blood is purified in the lungs, hence there must be no obstruction in the breathing apparatus.

PART III.

SECTION I.

REMEDIAL GYMNASTICS.

"When I see about me in the field of intellectual attainment and culture, in the walks of business, and in the family life, so many disasters and tragedies long drawn out, of failing health and collapse of nerve, brain, and muscle, I feel that health is the only bulwark upon which everything we prize can ever be reared."—HALL.

Persons who enjoy ordinary health will find the common movements with the Exerciser sufficient to keep them in good condition, but those who suffer from some organic or functional disorder will need special movements to help them.

It has been said, "Why will not the daily occupations around the house and store be sufficient." Because these movements soon become automatic and only affect certain portions of the human economy. Better is it that persons who suffer should take movements that are termed gymnastic, because of the special value attached to them. A motion is gymnastic in contradistinction to ordinary every-day movements when it has for its object the amelioration of the body.

The exercises following are specific, and have for their object the betterment of abnormal conditions.

The only way to be benefited is to persist in exercise. Spasmodic effort will amount to little. If the disease has been a long time making itself known the remedy will take many weeks to cure or alleviate.

Patience is a virtue here.

SECTION II.

FIGURES USED IN DESCRIBING EXERCISES.

FIGURE 50.

Attention.

FIGURE 51.

Wing position, hands on hips.

FIGURE 52.

Stride position, feet separated sideways.

FIGURE 53.

Neck position, hands clasped back of neck.

FIGURE 54.

Bend position, arms bent.

FIGURE 55.

Stretch position, arms up.

FIGURE 56.

Reach position, shoulder high to the front.

FIGURE 57.

Walk position, one foot forward two-foot lengths, the weight equally divided.

FIGURE 58.

Prone position, body bent forward slightly.

FIGURE 59.

Bow position, body bent backward slightly.

FIGURE 60.

Crouch position.

FIGURE 61.

"Y" position.

NOTE.—The "half crouch position" is with the knees slightly bent, Fig. 60.

SECTION III.

FOR DYSPEPSIA, INDIGESTION, STOMACH TROUBLE, HEARTBURN.

1. Leg Work.—Flex each thigh 8 to 16 times. Swing each leg forward 8 to 12 times after connecting the foot with the Exerciser as seen in Fig. 5.

2. Arm Work.—Standing with the back to the Exerciser, the arms in "bend" position as in Fig. 54, incline the body slightly forward and thrust the arms forward as in Fig. 56, upward Fig. 55 to the letter "Y" position, Fig. 61. Take the movements 8 times in each direction.

3. Waist Work.—Holding the arms as seen in Fig. 33, turn the body to right and left (slowly) 8 to 15 times.

4. Leg Work.—Lying down as in Fig. 41, raise each leg 8 to 12 times.

5. Lower Back.—From the neck position Fig. 53, with the face to the Exerciser, bend the body obliquely forward right and left in each direction 8 times. (See, also, Fig. 11.)

6. Abdominal Work.—With the hands in neck position, Fig. 53, bend the body forward 4 to 12 times. (See, also, Fig. 44.)

7. Waist Work.—From the starting position. (See Fig. 12.) Twist the body to right and left 8 to 12 times as in Fig. 37.

8. Side Waist Work.—With arms up as in Fig. 32 bend the body to right and left 4 times each as in Fig. 34.

9. Leg Work.—Rising on toes 16 times. (See Fig. 3.)

10. Abdominal Work.—While lying on the back practise raising the body from 4 to 12 times. (See Fig. 40.)

Note.—Avoid eating all salt or smoked fish or meat, milk, peas, beans, nuts. All milk compounds, pastries, pickles, tea, gin, brandy, cheese, indigestible foods generally.

In addition to the above exercises, see work for the waist and abdomen. The exercises mentioned will normalize the circulation of blood in the region of the stomach and intestines.

If the movements are too severe take them a fewer number of times.

SECTION IV.

FOR HEADACHE AND NERVOUSNESS DUE TO CONTINUED MENTAL ACTIVITY.

1. ARM WORK.—Swing the arms slowly, shoulder high to the sides, from there up over the head (Fig. 55); then front, shoulder high. Then out to the side again, and finally down. Repeat from 4 to 6 times, making a continuous motion.

2. LEG WORK.—Rise on toes 8 to 16 times slowly (Fig. 3). Flex right leg 8 to 16 times (Fig. 8); same with left. Swing each leg forward (as seen in Fig. 5) 8 to 16 times.

3. ARM WORK.—Flex and extend the arms 12 to 32 times. (See Figs. 54 and 55).

4. LEG WORK.—Repeat the movements described under No. 2.

5. With arms out, facing the exerciser, slowly turn the shoulders to right and left; alternate 10 times. Lower body by bending the knees 8 times as in Fig. 9. A similar attitude is shown in Fig. 60.

6. SHOULDERS AND CHEST.—Facing Exerciser, swing arms out (Figs. 12 and 13) and up (Fig. 16) 8 times each.

7. NECK WORK.—Slowly bend head backward and forward 4 to 6 times. (See Figs. 10 and 11.)

8. ARM WORK.—Same as No. 1.

These exercises should be taken slowly.

Rest after the exercises by lying down with the head elevated.

The drill brings into action the extremities, thereby relieving the blood pressure in the brain.

SECTION V.

FOR FLAT AND NARROW CHEST AND THREATENED LUNG TROUBLE.

1. Leg Work.—Lower the body by bending the knees 4 to 12 times. Crouch, Fig. 9; if too severe take exercise seen in Figs. 3 and 8.

2. Arm Work.—Swing the arms out and up, 12 to 16 times as in Fig. 55 and 26.

3. Head Work.—Neck firm and head backward bending, 8 to 12 times, Figs. 53 and 11.

4. Chest Work.—Lying on the back, take the exercises seen in Figs. 30 and 31. Arm-raising sideways and up; inhale. Lower and exhale 8 to 12 times as in Figs. 55 and 26.

5. Arm Work.—Same as No. 2. Swing the arms out.

6. Side Waist.—Feet separated, arms up, bend the body from right to left, Fig. 34.

7. Heart and Lungs.—Hop lightly on the ball of each foot 16 to 64 times, Fig. 8.

Quieting Exercises.—Rise on toes slowly 8 to 12 times, Fig. 3.

Breathing Exercises.—Swing arms forward and up; inhale. Force arms backward and down; exhale; 4 to 10 times.

SECTION VI.

COLD HANDS AND FEET.

For the rather common complaint of cold hands and feet something more than a strong heart is needed ; there must be plenty of healthy blood and a perfect system of "pipes" to carry this fluid to the extremities.

Healthy blood means that only flourishing food is eaten and that the digestive apparatus is normal.

A city that possesses a large reservoir into which is forced the purest water by powerful pumps, would derive little benefit from this supply if the pipes that carried the water were small, so in the body the extremities will get little benefit from the blood if the veins and arteries are small and weak.

There is no medicine that will strengthen these ducts or enlarge the canals.

Exercise is the only cure.

It will be readily seen then that in addition to exercise the remedy for cold hands and feet depends not only on the amount and kind of food taken into the body, but also on the condition of the digestive and circulatory apparatus.

(See exercises for Waist, Abdomen, Indigestion, pages 63, 66, and 82.)

SECTION VII.

FOR LADIES WITH SMALL CHESTS AND BUSTS.

Instead of investing in the various drugs which are advertised to develop the chest and bust, and whose principal virtue lies in the massage which must be taken when they are used, we would recommend as far superior the development of the large muscles on the front of the thorax, more commonly called the chest.

Spend a few minutes daily taking the movements seen in Figs. 24, 27, and 15.

A good bust development depends on the presence of healthy muscles on the front of the thorax. If a woman will practice persistently she will get better results from the use of the exerciser than from the drugs so often recommended.

SECTION VIII.

TO INCREASE THE WEIGHT.

Exercise all muscles daily. Avoid excess in mental or physical work. Rest after meals. Do not worry. Avoid great fatigue. Do not hurry. Sleep well and long.

If the brain is too active at night, take exercises on page 83.

If you do not sleep well eat a few graham wafers before retiring and apply cold water to the head and back of neck.

The following foods may be eaten with safety: Sugar, syrups, fats, fat meats, soups, corn starch, tapioca, cakes, candies, nuts; chocolate and cocoa diluted with much milk and well sweetened; cream, new milk, butter, eggs, and condiments. All other foods may be indulged in to the extent of the inclination. Avoid haste and excess in eating.

TO REDUCE THE WEIGHT.

Exercise vigorously. Dress warmly while exercising. Induce profuse and prolonged perspiration. Try running and fast walking. Take a great deal of exercise for the waist and abdomen. (See pages 63 and 66.) After exercise take a cold bath; rub the body vigorously.

Be careful about your diet. Eat beef, mutton and chicken broth, consommé, fish of all kinds, lean beef, lean mutton, chicken, game, eggs, asparagus, cauliflower, onions, celery, cresses, spinach, white cabbage, tomatoes, radishes, lettuce, greens, squash, turnips, stale bread, gluten, biscuits, grapes, oranges, acids, fruits and berries. You may drink water plentifully if excretion of urea is deficient; tea or coffee without sugar or milk.

Avoid fats, thick soups, sauces, spices, hominy, oatmeal, white and sweet potatoes, macaroni, rice, starches, beets, carrots, parsnips, puddings, pies, cakes, all sweets, milk, alcoholic drinks, malt liquors, water in excess; avoid variety of food at meals.

SECTION IX.

FOR WOMEN TOO LARGE AROUND THE HIPS OR OVER THE ABDOMEN.

The Exerciser is attached to the wall in the usual manner.

1. Begin the exercises while seated on a stool or chair without a back, but with the back to the machine. Assume a correct sitting position, the head erect, the chest arched. With the arms in bend position, (See Fig. 54) the handles in the hands and the cords running back over the shoulders. begin by bending the body well forward and downward ; keep the chest arched. Take this exercise until slightly fatigued.

2. With the body and arms in the same relative position, turn the right side to the Exerciser and take the bending motion to the left. This will bring the muscles on the left side into action.

3. Turn the left side to the Exerciser and bend to the right.

4. Turn the back to the Exerciser, hold the arms shoulder high to the side and swing them forward to the "reach" position. (See Fig. 56.)

5. With back to the Exerciser and the arms in "stretch" position (Fig. 55) swing them to "reach" position (Fig. 56.)

6. While standing and with the arms extended to the side, rotate or twist the trunk from right to left.

7. Stand with the right side to the Exerciser, arms in

NOTE:—When taking exercise Nos. 4 and 5, keep the arms straight. Take, also, exercises from 1 to 5 while standing.

reach, but hands touching, and twist the body to the left. Take a similar exercise to the opposite side.

8. Stand with the right side to the Exerciser but with the arms in "stretch" position (Fig. 55) and bend the body to the left. Same on opposite side.

9. While lying down with the head to the Exerciser take the motion illustrated by Fig. 41.

In addition to the exercises mentioned in this list, see work for the "Abdomen," and read the short article on the reduction of fat on page 87. Women who have hereditary tendencies or who have permitted the fat to accumulate must exercise patience as well as muscle, if they wish to reduce their weight or size. Exercise will accomplish this, if anything will, but it must be kept up day after day.

A woman who is becoming fleshy will find that she derives much benefit from her work, not only in the reduction of weight, but in the improved condition of health and spirits.

The time invested by women at the Exerciser will repay a hundred-fold. If, in the effort to reduce weight, it is possible to ascertain the cause of the accumulation of adipose tissue, remove this cause immediately. It may be due to dress, to food, or to some functional disorder.

The presence of an abundance of fat is generally a sign of disease.

SECTION X.

FOR THIN NECKS.

To secure a strong, well moulded neck, it is necessary to develop more than the muscles which are usually included under the heading "neck muscles."

Strengthen the pectorals or chest group; this can be done by taking the exercises shown in Figs. 26 and 27.

Next widen and deepen the thorax. (See Figs. 30 and 31.)

Pay some attention to the upper back by taking the exercises seen in Figs. 46 and 47.

Now spend quite a little time with the neck itself. Fig. 10 will show a simple method of using a head strap which can be easily made, while Fig. 11 will show another method of putting the work on the neck without the use of the strap.

Bend the arms as in Fig. 54, then thrust the arms upward.

Take the exercises for the neck described on page 41.

It will be better to sit down while developing the muscles of the neck, thereby localizing the work, In the figures the model faces the machine, but the person who wishes to build up all parts of the neck must turn both sides and back to the Exerciser and work all portions.

In addition to the exercises, practice deep breathing and massage. The latter is valuable. The delicate rubbing helps, but a thorough kneading of the parts is needed.

PART IV.

SECTION I.

MEASUREMENTS.

Daily hygienic exercise is the safest stimulant in the world to wake up the powers of body, mind, and soul. Use it every day of your life.—ROBERTS.

One of the first questions asked by people who become interested in physical training and who are anxious to take up some form of exercise is, "Am I well built, and do I compare favorably with the average man of my age, height, and weight?" This neophyte may turn to the tables generally given in the little manuals issued by manufacturers of gymnastic apparatus, where he finds the following figures:

TABLE SHOWING THE PROPER WEIGHT, HEIGHT, AND MEASUREMENT OF A FULLY DEVELOPED ADULT.

HEIGHT.	WEIGHT.	NECK.	CHEST.	WAIST.	BICEPS.	FOREARM.	THIGHS.	CALVES.
5 ft.	103–107	11⅛	32–33	29	Same measurement as for neck.	8⅞	15	Same measurement as for neck.
5 " 1 in.	107–111	11½	33–34	29½		9¼	16	
5 " 2 "	111–116	12	34–35	30		9⅝	17	
5 " 3 "	116–121	12½	35–36	30½		10	18	
5 " 4 "	121–127	13	36–37	31		10⅜	19	
5 " 5 "	127–133	13½	37–38	31½		10¾	20	
5 " 6 "	133–140	14	38–39	32		11⅛	21	
5 " 7 "	140–147	14½	39–40	32½		11½	22	
5 " 8 "	147–155	15	40–41	33		11⅞	23	
5 " 9 "	155–164	15½	41–42	33½		12¼	24	
5 " 10 "	164–174	16	42–43	34		12⅝	25	
5 " 11 "	174–185	16½	43–44	34½		13	26	
6 "	185–196	17	44–45	35		13⅜	27	

If he applies the tape to his own body he is at once impressed with the great discrepancy that he will most surely find between the measurements of his own limbs and those of the adult of the "proper weight, height, etc." This discrepancy is discouraging, but let the enthusiastic beginner bear in mind that few men indeed show the proportions that are indicated in the above table

SECTION II.

RULES FOR MEASURING THE BODY.

These rules are taken from the list prepared and recommended by the American Association for the Advancement of Physical Education. The complete list contains directions for taking about fifty measurements.

WEIGHT.—The weight of the body should be taken without clothes. Where this is impracticable the weight of the clothes should be deducted.

HEIGHT.—The height should be taken without shoes and with the head uncovered. The head and figure should be held easily erect and the heels together. This position is best secured by bringing the heels, the buttocks, the spine between the shoulders, and the back of the head, in contact with the measuring-rod.

GIRTH OF NECK.—With the head of the subject erect, pass the tape around the neck half-way between the head and body, or just below the "Adam's apple."

GIRTH OF CHEST.—Pass the tape around the chest so that it shall embrace the scapulæ, or shoulder-blades, and cover the nipple. The arms of the subject should be held in a horizontal position while the tape is being adjusted and then allowed to hang naturally at the sides. Take the girth here before and after inflation.

Where it is desirable to test the elasticity or extreme mobility of the walls of the chest, a third measurement may be taken after the air has been forced out and the chest contracted to its greatest extent. To test the respiratory power, independ-

ent of muscular development, pass the tape around the body below the pectoral or chest line, and the inferior or lower angles of the scapulæ, so that the upper edge shall be two inches below the nipples. Take the girth here before and after inflation.

GIRTH OF WAIST.—The waist should be measured at the smallest part after a natural expiration.

GIRTH OF HIPS.—The subject should stand erect with feet together. Pass the tape around the hips over the trochanters and glutei, or hip muscles. (See Fig. 62.)

GIRTH OF THIGHS.—With the feet of the subject about six inches apart, the muscles set just enough to sustain the equilibrium of the body, and the weight distributed equally to each leg, measure around the thigh just below the nates, or hip muscles. (See Fig. 62.)

GIRTH OF CALF.—With the heels down and the weight of the body supported equally on both feet, the tape should be placed around the largest part of the calf.

GIRTH OF UPPER ARM.—With the arm of subject bent hard at elbow, firmly contracting the biceps and held away from the body in a horizontal position, pass the tape around the greatest prominence. If desirable to find the girth of the upper arm when the biceps is not contracted, the arm should be held in a horizontal position and measured around the most prominent part.

GIRTH OF FOREARM.—Taken around the largest part. The fist should be firmly clinched and the palm of the hand turned upward.

GIRTH OF WRIST.—With the hands of the subject open and the muscles of the forearm relaxed, measure between the styloid process and the hand, or around the small part that connects the arm with the hand.

SECTION III.

MEASUREMENT CHART—MEN.

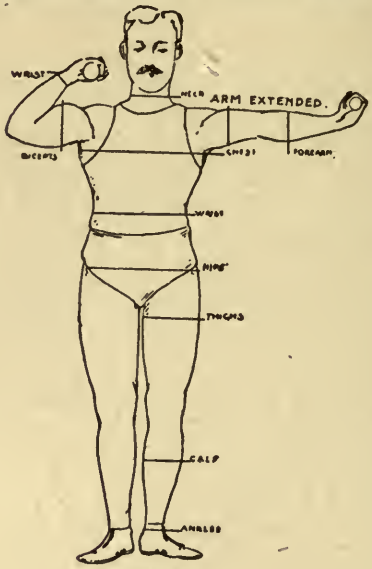

FIGURE 62.

Showing how and where to take your own measurements.

NAME_____ AGE_____ HEIGHT_____

DATE.	NECK.	BICEPS.	ARM.	CHEST.	FOREARM.	WRIST.	WAIST.	HIPS.	THIGHS.	CALF.	ANKLES.	DATES.	WEIGHT.

MEASUREMENT CHART—WOMEN.

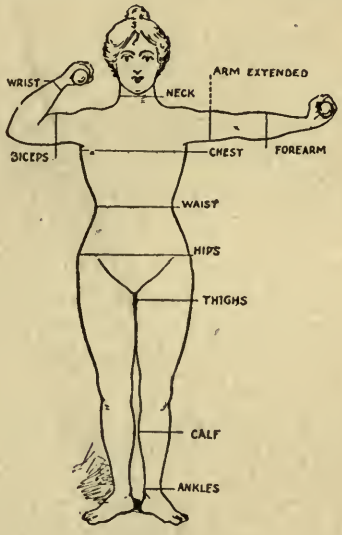

FIGURE 63.

Showing how and where to take your own measurement.

NAME_____ AGE_____ HEIGHT_____

DATE.	NECK.	BICEPS.	ARM.	CHEST.	FOREARM.	WRIST.	WAISTS.	HIPS.	THIGHS.	CALF.	ANKLES.	DATES.	WEIGHT.

SECTION IV.

TABLE OF MEASUREMENTS OF A WELL-FORMED MALE BETWEEN THE AGES OF 17 AND 27.

Adults between the ages of 27 and 37 will be somewhat larger.

These figures are from the Anthropometric Chart, compiled by Dr. Seaver, the Associate Director of the Yale University Gymnasium, after measuring over 2,000 students

They represent the *typical* American student — not the ideal.

They show development as it is found, but do not indicate what it may be.

Height.	Weight.	Girths.										
		Neck.	Chest Normal.	Chest Inflated.	Waist.	Hips.	Biceps.	Upper Arm Extended.	Forearm.	Wrist.	Thigh.	Calf.
5 ft. 2 in -----	100	12¼	29	31	24½	31¼	9½	8¼	8¼	5½	17¼	12
5 " 3 " -----	108	12½	30	32	25	32	9¾	8½	8⅛	5¾	17¾	12¼
5 " 4 " -----	113	12¾	31	33	26	32½	10	8¾	8¾	6	18½	12½
5 " 5 " -----	122	13	32	34	26½	33½	10½	9¼	9¼	6¼	19	13
5 " 6 " -----	126	13¼	32½	34½	27½	34	10¾	9½	9½	6¼	19½	13¼
5 " 7 " -----	131	13½	33	35	28	34½	11¼	9¾	10	6½	20	13½
5 " 8 " -----	140	13¾	34	36	29	35½	11½	10	10¼	6½	20½	14
5 " 9 " -----	149	14	35	37	30	36	12¼	10½	10½	6¾	21	14¼
5 "10 " -----	160	14½	36	38	30½	37	12½	11	11	6¾	21½	14½
5 "11 " -----	164	14¾	37	39	31	37½	13	11¼	11¼	6¾	22	14¾
6 " ----------	170	15	38	40	32	38½	13¼	11½	11½	7	23	15

SECTION V.

MEASUREMENTS OF AMERICAN COLLEGE YOUNG WOMEN.

After examining the Anthropometric Chart from several of the institutions for the higher education of women these figures have been prepared:

Height.	Weight.	Neck.	Chest.	Chest, Full.	Waist.	Hips.	Thigh.	Calf.	Arm.	Fore-Arm.	Wrist.
5 ft.	100	11½	27	29½	22¾	32¼	19½	12¼	9½	7¾	5½
5 " 1 in.	106	11¾	27¼	30	23	33	20	12½	9¾	8	5½
5 " 2 "	112	12	28	30½	23¾	34	20¾	13	10	8¼	5¾
5 " 3 "	118	12¼	28¾	31½	24½	35	21½	13¼	10½	8½	6
5 " 4 "	125	12½	29½	32	25¼	36	22¼	13¾	10¾	8¾	6
5 " 5 "	132	12¾	30½	32½	26	37	23	14	11	9	6¼
5 " 6 "	140	13	31¼	33½	26¾	38	24	14½	11½	9¼	6½
5 " 7 "	156	13¼	32¾	34¾	28	40	25	15	12	9½	6½
5 " 8 "	166	13½	33½	35½	29	41	25½	15½	12½	9¾	6¾

The upper arm is measured with the elbow extended.

SECTION VI.

TYPICAL MEASUREMENTS.

The figures in the table below show the measurements of young women who are exceptionally well built. The data from which the figures were selected was collected by Miss Richards and Miss Little of the Anderson Normal School of Gymnastics in New Haven, Conn., while the measurements of the Venus were given by Prof. Weir of the Yale University Art School.

Height.	Weight.	Neck.	Chest.	Chest, Full.	Waist.	Hips.	Thigh.	Calf.	Arm, Extended.	Fore-Arm.	Wrist.
5 ft. 3 in.	105	12¼	30	32	23	34	20½	12½	9½	8½	5¾
" "	115	12½	31	33	24	35	20¾	13	10	9	6
" "	120	12½	32	34	25	36	21	13½	10¼	9½	6
" "	125	12½	32	34	20	37	22	14	10½	9½	6
" 4 in.	110	12¼	31	33	24	35	20½	13	10	9	6
" "	120	12½	32	34	25	36	21½	13	10¼	9	6
" "	130	12¾	32½	34½	25½	37	22	13½	10½	9½	6
" "	140	13	33	35	26	38	23	14	10¾	9½	6
*5 ft. 3 in.		12.3	33.6		27.3	36.6	21.1	14	11.4	10.6	6.5

*Measurements of the Venus De Medici.

SECTION VII.

CORRECT STANDING POSITION.

FIGURE 64.

By permission of DR. J. H. KELLOGG, Battle Creek, Mich.

The drawing shows side profile of a woman 29 years old, a perfectly natural figure, and doubtless very nearly represents the *ideal* female form.

SECTION VIII.

QUESTIONS ANSWERED.

If possible take exercise daily.

Exercise *at least* three times a week.

Exercise from twenty to sixty minutes each day.

Follow some regular plan. Exercise some part of the body until it is slightly fatigued. Do not tire out a muscle.

Execute movements slowly rather than rapidly.

Use light exercises at first. Do not handle heavy weights.

Give plenty of time to the left side of the body.

Avoid unequal development.

Do not spend too much time on the work that you excel in.

In gymnastics the results are not always speedy.

Never exercise in a corset or with a tight belt.

THE WHITELY EXERCISER is to-day acknowledged the standard exercising apparatus of the world. It has no rival—designed originally as a Home Gymnasium for all members of the family, it has gradually worked itself into the business man's office, stores, laboratories, into club-rooms, schools, colleges, universities, and benevolent and religious

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