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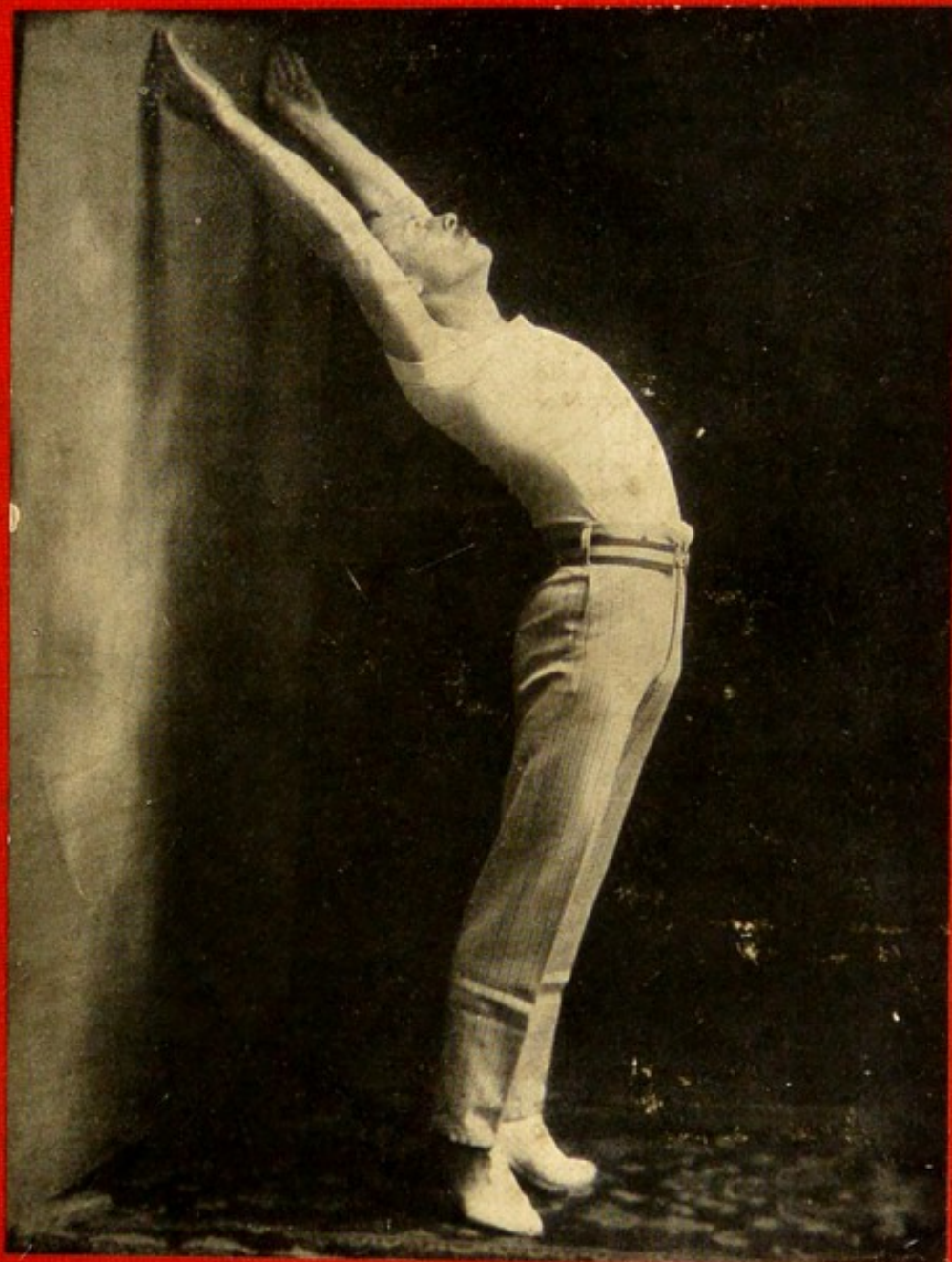
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HOME EXERCISES FOR HEALTH & STRENGTH



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SYLVAN



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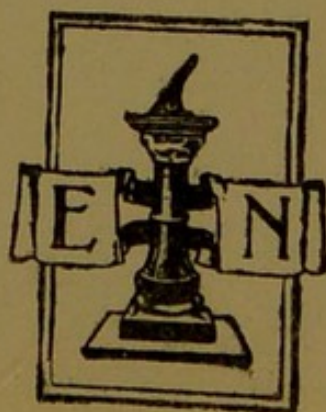
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HOME EXERCISES

FOR HEALTH AND STRENGTH





HOME EXERCISES

FOR HEALTH AND STRENGTH

BY

FILIP SYLVAN, M.D. BERLIN

"Mens sana in corpore sano"

LONDON

EVELEIGH NASH

FAWSIDE HOUSE

1909

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HOME EXERCISES FOR HEALTH AND STRENGTH

PART I

GENERAL PRINCIPLES

IN primitive times, when mankind lived chiefly by the products of hunting and fishing, the manner of life was natural. Then there was no predisposition to disease. Only when civilization made its appearance did a more artificial mode of existence begin. Then men became self-indulgent, and immediately a sure commencement of degeneration took place. Far-seeing people soon observed this, and were careful to take measures to prevent such degeneration.

Thus among the Greeks physical exercises were first introduced as a means of strengthening the human race. At the same time the Greeks desired by this means also to promote beauty of physique. The delightful games which were yearly held in ancient Greece proved how firmly convinced the whole population was of the high value of physical exercises.

Physical
exercises
among the
ancient
Greeks.

That not only the general public took great

interest in such exercises, but that also the wise and learned attached extreme importance to them, is shown by the following conversation between Solon, the wisest of all the wise Greeks, and a Sythian tourist, who was visiting Greece. I give an extract from their conversation.

Anacharsis, the Sythian, inquired of Solon the object of these gymnastic exercises which were so ardently carried out.

“Now I should like very much to know what good all these (gymnastics) can do ; to me this performance seems more to resemble the behaviour of lunatics, and it will not be so easy to make me believe that people who practise gymnastics are quite right in the head.”

Solon : “What thou seest here is not the result of insanity, but these things afford much pleasure, and also make the bodies of our young people strong and healthy ; they are red and bronzed by the sun, manly in appearance, and show the fulness of life, warmth, and manhood. They enjoy the best of health, are neither stiff, nor lean, nor too stout, but symmetrically built : for the useless and superfluous flesh is got rid of, and they retain all that gives strength and growth, unmixed with injurious matter.

“Gymnastics do for the body just what the winnower does for the wheat, they blow away the husks and the chaff, and separate and collect the pure corn. The necessary consequence is health and power of endurance. An experienced gymnast does not quickly get into a perspiration, and he is seldom found to be weary. If you place fire

amongst wheat itself, and then amongst the chaff (to continue my previous simile), the chaff, I think, will be much more quickly consumed in the flames, but the wheat will invariably, without much flame, and not with a blaze, but glimmering gradually less and less, be only after a long time finally consumed. Just so neither overexertion nor sickness, when they attack such a body, can easily injure or overpower it. For internally it is in too fine a condition and externally too strongly protected against every ill."

Thus Solon already perceived what great value physical exercise possesses, not only for bodily development and strength but also for the development of the mental faculties. But at the present time the mental faculties are much more important than in the time of Solon. We ought, therefore, to consider the value of physical exercises more especially from that point of view.

And at the present time there are many persons who, like Anacharsis, do not understand the utility of gymnastics, and who look upon it as something useless and silly when other people take part in sports and gymnastics. If ladies occupy themselves in this way they at once consider it unbecoming and unwomanly. How pleasant, on the contrary, are Solon's beautiful expressions regarding the great use of gymnastics, as to their rendering the body strong and beautiful to the eye; how they bring about the enjoyment of the best health; how they keep the body flexible; how they prevent scragginess, because such exercises produce good appetite; yet

Importance
of physical
exercises
at the
present
time.

also they prevent undue size, because all superfluities are carried away! We know how highly developed the sense of beauty was with the Greeks, and even to this day their statues are the unattainable models for the art of all nations. The Greeks chiefly owed it to their physical exercises that they reached so high a condition of physical beauty. We will not forget this important point, although we must give the first place to the mental capacities.

Good effect
upon the
muscles
and nerves.

Physical exercises make the body in every way more capable. It becomes stronger and more enduring in mental as well as in physical labour. It is proved by experiments that a muscle increases in strength and size by exercise. But also other organs profit by these exercises, and more especially the nervous system. The muscle cannot work without the co-operation of the nervous system. Grace is brought to the muscles from the brain by means of the nervous system. Thus every muscular movement is connected with an action of the brain and nerves. In these neurotic times, when almost everybody is complaining of delicate nerves, it is most important to have some means whereby one can strengthen them. Yet it is also important how one makes use of these means, as the least excess soon does real harm, therefore they must be employed with the greatest caution. No one, unless very strong, should suddenly take part in any kind of sport, because a strain easily follows. One should first accustom oneself to less fatiguing exercises. In the first and second groups of the exercises given further

on, each person will find the suitable preparation to enable him later to take part in sports.

As I have already said, the strengthening of the muscular system at the same time serves to strengthen other organs. This is the case, however, only up to a certain stage. An excessive development of the muscles takes away strength from other organs. Thus we notice that athletes usually die young. By temperate muscular exercises the heart is strengthened ; by such exercises in excess it is, on the contrary, weakened. This same remark applies to the brain. Moderate muscular effort makes it stronger and more capable. Excess produces strain to the brain also, and does much injury. The accomplishments of athletes do not further the general well-being, but moderate muscular exercise is most conducive to health. With these facts in view I have arranged the following groups of exercises. Each person will find in them what is suitable and desirable for himself. The delicate must use easy exercises (Group I.). Those who are stronger and more experienced must use the stronger exercises (Groups II. and III.).

An overdevelopment of the muscles, as in the case of athletes, is also no use in practical life, unless one is intending to train for the arena. What most people desire is not rude muscular strength, but rather a well-developed and active brain. Not only with all who work exclusively with the brain—with them it is self-evident—but also with the majority of all others, is this the case nowadays. Consider the work of the artisan, for

example : all the complicated motions of the hand which his work requires are directed from the brain ; the better his brain can work, so much the better will his hand obey his brain and so much the more skilful will he be in his trade.

Careful
choice of
Exercises.

The chief aim of every rational sport and of every good gymnastic exercise must be the improvement of the general health, as well as the strengthening and developing of the brain. To attain this aim the gymnastic exercises must be so chosen and so adapted that they are advantageous to every one, *i.e.* not too severe, and yet sufficiently so to ensure a real improvement in nervous strength. As the same exercises cannot be really helpful to the weak and at the same time to the strong, I feel it necessary to arrange three separate groups of exercises, in order to have a group suitable for each person. In the directions for the use of these exercises I have given all the necessary explanations so that each person can find out which group is most suitable for him.

Causes of
degener-
ation.

Of late a great deal has been said about the degeneration of the human race, to the effect that our generation cannot compare in health and strength with our forefathers. Further, that there is danger that in the future our posterity will be even less strong. When one sees how many children at the present day look pale and miserable, how everything possible is done to rear these tuberculous, delicate, and anæmic children, how these in their turn, on reaching marriageable age, bring still more delicate children into the world, one must admit that such a danger really exists.

If, however, we consider the causes somewhat more closely, we find that we live much more artificially than our forefathers. Skill and science have created for us a long list of comforts and conveniences which save us much trouble, but also result in our taking much less exercise. How important muscular movement is for the circulation of the blood and consequently for complete health, I will show later on. In consequence of the pitch which, in our time, specialization has reached, *i. e.* that each worker only has to execute one special kind of work, the work executed by each individual has become very partial, and certain bodily participations in it are no longer at all, or very insufficiently, needed. But, just as a muscle develops, *i. e.* becomes larger and more powerful, by practice, just so it degenerates through disuse or insufficient practice, and becomes smaller and weaker. In time this degeneration reaches the neighbouring organs and constitutes a danger to the general health. The best way to counteract such degeneration and to regenerate the body is by means of physical exercises.

Now one might suppose that in physical exercises only such parts should be exercised as are not brought into use in the daily life. This is not so, however. In the so-called automatic movements, such as writing and so forth, the muscles are not developed, only kept in their usual condition. They will therefore benefit just as much by gymnastic exercises as the other parts of the body which are not used in the daily life. Consequently, for example, arm exercises are

equally as important as leg exercises to writers ; they must carry out the one just as conscientiously as the other.

Ill effects
alcohol.

Among other important causes of degeneration must be mentioned the use of drugs which, when taken regularly, bring about chronic poisoning, as for example alcohol, opium, and morphia. For us the most important to consider is alcohol. I will not here enter upon the question as to how far alcohol is or is not harmful for people in general. I will only mention one action of alcohol which is admitted by all medical authorities. Alcohol acts upon the generative organs in such a manner that what they produce is not of the best. We find that children who are begot under the influence of alcohol are always degenerates. We have countless examples that such children have been idiots or epileptics. A smaller quantity of alcohol might not have so disastrous a result, yet, at any rate, the children will be less gifted. As I may be assured that all parents desire healthy and gifted children, I will therefore commend this fact to their earnest consideration.

Alcohol is especially injurious to the nervous system. Small quantities of alcohol may not be of much consequence where the nervous system is fully developed, but for the tender nerve membranes of those who are still growing the very smallest quantity is harmful. Of course this holds good even more in the case of the unborn child. In this state mother and child have blood circulation in common, and all harmful substances which find their way into the blood of the mother

affect the child still more perniciously, its tissues being so much more tender and less able to withstand obnoxious matter. Thus ever so small an amount of alcohol, even though not affecting the mother, is injurious to the unborn child. Therefore pregnant women should under no circumstances take alcohol in any form, neither as spirits, nor wine, nor even beer, for even this contains always sufficient alcohol greatly to injure the growth of the child.

The same still holds good with reference to the newly-born infant. It is scientifically proved that alcohol taken by nursing mothers enters into the composition of their milk. I must give special prominence to this point as a strong reason against the custom in many places of mothers and nurses taking beer or stout in order to strengthen themselves. This is a serious error, for although beer and stout produce some fattening substances, *i. e.* they make the drinker stout, they produce no strength, and are, as already stated, injurious to the infant. Beer and also stout render the mother's milk thin and less nutritious. Every nursing mother or nurse should drink milk, and follow a light diet, be in the open air as much as possible, take a moderate walk daily, and carry out every morning the exercises given in my first group. If any one objects to this advice on the ground that a nursing mother should not fatigue herself with gymnastics for fear of disturbing the collection of milk, I must point out that gymnastics in accordance with my first group of exercises would be no overexertion even for a nursing mother.

On the contrary, gymnastics, combined with good simple food, will improve the quality of the milk and thus further the healthy growth of the child.

It follows then naturally that alcohol in no form, nor indeed tea nor coffee, should ever be given to little children. It is best to restrain children from all alcohol, also from tea and coffee, till they have quite completed their growth.

Gymnastics
for mothers.

In case a nursing mother is inclined to commence gymnastics without having previously done anything of the kind, she should not begin all at once with the entire first group of exercises, because that might disturb the secretion of milk just at first. Consequently she will do better to take only the first three exercises of the first group on the first day. The second day, the first four, and the third day the first five, and so on. Thus by the eighth day she will have become accustomed to all the exercises of the first group. As long as a mother is nursing she must not go beyond the first group, only when she is no longer nursing should she go on to the second.

Hitherto we have heard all too often the opinion expressed that pregnant women should spare themselves in every way, should not exert themselves at all, should rest a great deal and so forth, though certainly many are in favour of such women walking a good deal. We know that pregnancy brings with it a few little disorders, which mostly tend to a disturbing of the circulation. Now in gymnastic exercises we have a simple and very efficacious method of relieving these. Only, now as ever, these exercises must be restricted to the

proper amount. Every such woman, except in special cases of illness, can carry out the exercises of Group I., and continue to do so during the whole period of pregnancy, yet she must be cautious that there should never be any perceptible strain.

The advantages of these exercises during pregnancy are as follows—the difficulty of digesting becomes less, the muscles of the stomach are strengthened, the whole mechanism connected with the birth of the child becomes more supple, so that as a natural consequence the actual advent of the infant will be a much easier affair. There will be less laceration, and, above all, the use of instruments can be avoided. The child comes into the world stronger and better developed, and consequently thrives so much the better. The mother recovers more quickly after the event, and the susceptibility to diseases which so often follow childbirth, is minimized. Also the commencement of that well-known misshape of the figure, which so frequently follows childbirth, will be prevented.

I might here insert a few words as to the rear-
ing of infants. They should remain lying quite
quietly as far as possible during the whole of the
first year, and not be disturbed nor tossed about.
One often notices that children are taken up as
soon as they begin to cry, carried about or rocked.
This is very bad for the child. It injures the
nervous system, which at this tender age is very
susceptible. If the child cries, one must find out
what is the cause, and remove that cause. Some-

Treatment
of infants.

times even infants have their little tempers ! If it is quite certain that the child is healthy and well, let it exercise its lungs a little ! When an infant is used to this treatment it will rarely cry without reason.

Another very bad, but unfortunately very usual, habit is to play with an infant, and to be delighted at every indication of its increasing intelligence. Till the infant is at least a year old this kind of thing is hurtful, for the brain is too tender and is strained with even a little excitement, and thus retarded in its proper development. Every mother must therefore take the greatest care that the infant is quite undisturbed, that no inquisitive relations or acquaintances come to look at it and admire it, and so to excite it. The nervous system of infants is extraordinarily tender and sensitive, and must therefore in every possible way be shielded from everything which might injure it. The child should, during the whole of the first year, only be taken up just as much as is absolutely necessary for its natural functions, and should only be fed at stated hours, and at other times rest as much as possible, and never see strangers. At the same time plenty of fresh air is important for infants, and those who cannot send their children out of doors can at least leave them every day, for about two hours, in a room with open windows ; of course so placed that they are not in a draught, and naturally sufficiently covered not to allow of their taking cold.

God created man, in contrast to all animals, with a straight and upright bearing. Unfortunately, however, one sees nowadays too many persons who neglect their God-given upright carriage, and with bent head, contracted chest, and relaxed limbs, present a bearing which characterizes apes rather than men. The bearing of the whole body depends on the action of the muscles. An upright, straight carriage is produced by the equally correct movement of the muscles both in the front and at the back of the spine. If the movement is unequal, as for example when the muscles on one side are too weak, then the carriage is bad. When this is very much the case special medical treatment is necessary, and parents should immediately consult a medical man, as a cure is quite easy in the beginning, whereas it becomes seriously more difficult when a real curvature of the spine has set in. A good carriage.

The spine has, however, two physiological curvatures (the dorsal and the lumbar), which must be taken into consideration in the choice of gymnastic exercises. These curvatures easily become too large, and thus the carriage becomes bad. On that account I have selected special exercises which correct this tendency, and so improve the carriage. In such cases the sixth and tenth exercises in the first and second groups are valuable, and therefore the instructions which I have given regarding these exercises should be specially observed. Three

Another exercise is also specially beneficial for a crooked bearing, *i. e.* the second exercise in all

three groups, "The bending backward of the head." Here not only the head but the entire neck and the upper part of the back should bend backwards as far and as strongly as possible. Not only are these exercises important for a good carriage, but all the exercises in their collective use produce this result.

In order that they completely carry out this object they must be done carefully. One must take care that during the whole time a good bearing is maintained, while each exercise is being carried out. I have given special instructions on this point with each exercise, and these must be exactly followed. It is decidedly helpful towards the correct carrying out of the exercises to perform them in front of a mirror, in order that one may be sure of keeping a good position throughout. The head must be held high, the chest well expanded, the shoulders drawn back, and the abdomen somewhat drawn in. If one always takes up this position during the exercises, one will retain in ordinary life, without effort, this same good position.

Benefit of
sports.

More and more one comes to the conclusion in these days that a sedentary life is extensively the cause of bad circulation, and that this in its turn is likely to bring about all sorts of diseases. The natural consequence is that the interest in physical exercises increases more and more among all classes of persons. An instance of this is the numerous sport clubs which have been started of late years.

Unfortunately, nevertheless, in most instances

only healthy and strong people engage in sports, whereas it is just the weak who most need physical exercise. Also sporting competitions are often organized through which many a competitor sustains injury to his health. In spite of this, however, I would urgently commend every kind of sport. It would be most desirable that every one should cultivate some special sport. This goal, unfortunately, is not likely to be reached within our time, therefore I should like to give a guiding hand to those who for one reason or another cannot, or do not wish to follow any sport, by showing them how they may at home in their own houses obtain the physical exercise necessary for the maintenance of health.

Notwithstanding the large number of persons who take a lively interest in games and gymnastics, there are still many who do not comprehend the great value of exercise for the preservation of health. From such, one often hears such remarks as these, "I am healthy enough, and need no gymnastics." This idea is fundamentally false.

In the first place it is almost too late only when one is already ill to start gymnastic exercises. Secondly, every one who goes in for gymnastics or games always has more mental and physical freshness and cheerfulness than he who gives his body none of this willing labour. Others again say, "I move so much, I am running about all day." To them the following answer may be given. Running about at home or in business is absolutely worthless in a gymnastically healthy sense. Only when the running is brisk enough

to accelerate the circulation and to deepen the breathing has the movement any value from a health standpoint.

How many regret when, as the result of an indolent life, bad circulation and all the consequent suffering has settled upon them, that they have not sooner done something to preserve health. Also the highest state of mental power can only be attained when one goes through a certain amount of definite exercise every day in order to prevent an overflow of blood to the head.

It is true there are numerous books upon chamber gymnastics, but almost all have the usual fault. They give only one class of exercises. In addition to this, the exercises are in many cases mischievous, and in hardly any book are the physiological effects of the exercises kept in view. The sound and strong person should perform quite different exercises to those suitable for the weak and delicate. Every one must, however, begin with simple exercises, in order to avoid the least strain, though the sound person may very soon get on to more resultful and stronger exercises.

Three
groups of
exercises.

On this account I have arranged three separate groups of exercises. The first is quite easy, suitable for all beginners, and especially for ladies. Any one already accustomed to games and gymnastics can always proceed to the second group after about two weeks. I advise all ladies, however, to confine themselves for at least a few weeks or months to the first group, and only to proceed to the second after some considerable

time. For although the exercises seem easy and produce no noticeable fatigue (which they never should do), yet the after effect is greater than one would expect and may easily lead to a strain. In one or other of these three groups everybody will find the suitable amount of physical exercise requisite for the maintenance or the building up of his health.

The first group is especially suitable for ladies who are not very strong. The second for gentlemen, strong ladies, and children, but all must begin with the first group. The third group is intended for strong men who have well-developed muscles. Yet I should advise them also, first of all, to keep to the second group only, for a short time.

All who are used to taking part in sports or gymnastics can also make use of these exercises with great advantage, especially on those days when they are not engaging in any sport. Such men can, of course, begin with the second or third group.

All muscular movement assists digestion, and consequently produces an agreeable effect on most of the organs of the body.

In order that the exercises shall be beneficial to health and produce no fatigue but, on the contrary, an agreeable sensation of refreshment, some important physiological facts must be borne in mind.

Facts to
remember

The first we shall endeavour to point out is an acceleration of the circulation of the blood, and an equal partition of the blood in the various parts of

the body. We know that the blood vessels which carry the blood to an organ in action distend, by which means a considerable amount more blood is conveyed to this organ than if it were in repose. So now on the one hand the internal organs (stomach, intestines, digestive glands, liver, etc.) perform their tasks regularly, and so become over-supplied with blood, so to speak. On the other hand the muscles, in the case of a sedentary life, are but poorly supplied with blood. If this mode of life is continued for a long time it may easily result in a chronic overflow of blood to the internal organs, and consequently a susceptibility to various diseases.

The only means of counteracting or preventing such susceptibility is a rational gymnastic course. Muscular exercises convey the blood to the muscles, and relieve the internal organs. To relieve these still more one must so increase the muscular effort that the body becomes warm and begins to perspire. Thus the blood vessels of the skin also distend and carry off a large quantity of the blood. All exercises, however, do not relieve the internal organs. There are, in fact, a whole class of exercises which carry the blood to them. Therefore I have selected such exercises for the daily gymnastics which have the desired result.

Every mental effort brings more blood to the brain than it receives when in a state of rest. If the blood is not carried away from the brain again by muscular effort, an overflow of blood results in time, with an after feeling of weight in the head or perhaps headache. Side by side with an over-

flow of blood to the head goes also a deficient circulation. The blood flows more slowly, and the absorption of nourishment by the nerve cells and the carrying off of useless matter by the blood, proceeds more slowly. The consequence is that the brain cannot work so well, one needs a longer time for thinking, and the entire mental work is done with greater difficulty. By judicious muscular effort the brain is relieved. By deeper breathing more oxygen is taken in; the change of needful and needless matter in the brain is livelier, and therefore the mental power is enormously assisted.

In the choice of exercises the breathing must be carefully attended to. Almost everybody is inclined to make an effort to hold the breath while going through them, which is very bad for both lungs and heart. Therefore I have especially selected such exercises as permit of easy and unimpeded breathing. Also one must be careful that one *does* breathe, and breathe correctly. Only by deep breathing is the body able to take in a sufficient quantity of oxygen to carry on the process of combustion which both physical and mental work produce. It is therefore most important that one should breathe properly during the exercises. I wish, therefore, to draw special attention to my remarks as to inhaling and exhaling, for the inhaling must take place when the chest is most expanded, as thus the lungs can receive the greatest amount of air. Inhaling should always be through the nose. This stimulates the nerves and the circulation of the blood in the nose, and

Importance
of correct
breathing.

also in the adjoining parts, especially in the front portion of the brain, and is therefore of much importance for strenuous mental labour.

By the quickening of the circulation of the blood in the brain the nerves of the brain are improved and their power increased, and mental efforts become less arduous.

Accompanying this is a general sensation of health, for every one who can do his work easily feels better and more content. Exhaling is most effective when it produces a blowing sound.

Deep and thorough breathing also gives the lungs a greater resisting power, and so enables them to withstand the encroachments of any ailments.

When the breathing is superficial, the lower portions only of the lungs become well inflated, the apex being insufficiently supplied with oxygen, and thus rendering that portion of the lung acutely susceptible to diseases which only too readily develop into consumption. Therefore it is of supreme importance by deep breathing to fully inflate the whole lung.

Benefit to
gouty
persons.

Gout and rheumatism belong to the list of complaints which are caused by a sluggish circulation. The surest protection against these painful and inconvenient maladies is a regular plan of gymnastic exercise.

Even those already subject to gout and rheumatism may obtain great relief by the stimulation of the blood circulation caused by a discreet use of gymnastics, and until the circulation is thus improved no remedy will dispose of this class of ailment.

Such exercises during the years of growth have great influence upon the development of the figure and upon the carriage of the body. For this reason I commend the following exercises, especially to ladies. At the same time, I once more draw attention to the fact that all ladies should begin only with the first group, and must keep to this for at least a few weeks, and only then gradually proceed to the second group. To assist the development of a fine figure gymnastics must be practised quite in youth. For if the body is once full grown, hardly anything in this way can then be done. But even then by gymnastic exercises an unnecessary corpulence can be reduced, and thus an improved figure attained.

Benefit to
the figure
during
youth

So with the carriage, a full-grown person may still improve that. A good carriage is characterized by a straight back, a head held high, and shoulders thrown back. To obtain this one must carry out the exercises well and thoroughly, and be careful to maintain a good position in the mean time.

In the case of delicate children the greatest attention must be paid that they go through all exercises in an upright position and do not lean to one side. If this is attended to then gymnastics will be the best means to make such children healthy and strong.

Up to the present time the extraordinarily good effect of gymnastics upon the nervous system has been but little realized. Every muscular action necessitates also a nervous action, and this also ex-

Benefit
of these
exercises
to the
nervous
system.

ercises the intellect, *e. g.* if the exercises are carried out with precision and in the correct position.

Gymnastics are therefore of great value in the treatment of neurasthenics. How few persons are there nowadays who do not suffer with nerves? Certainly most ladies do!

A principal cause of neurasthenics is undoubtedly insufficient movement. In every case of neurasthenics gymnastics have a good effect. The nerves are strengthened by the exercises and they will be better nourished by the consequent simultaneous hastening of the blood circulation. In cases of neurasthenics, however, I must especially warn my readers against excess. The neurotic person is very likely to go to excess, and often imagines he could stand much more than is really good for him, because the exercises do not appear to be too much. He will without doubt suffer later on for any overexertion, and therefore I must here more especially strongly accentuate the rule that all neurotic persons must dwell longer over the first group of exercises, perhaps even from one to three months, or, if need be still longer, even if the patient is apparently strong and well, and he should only slowly and gradually proceed to the second group. Also such persons must linger several months over the second group before passing on to the third, if they propose *ever* to reach the third group. The majority of ladies must be content with the second group, and only such as are especially strong and sound should by degrees pass on to the third. I also draw attention to the fact that neurotic persons feel better and

stronger even when they have only practised for a short time, and they immediately feel convinced that they are able to go on to more strenuous exercises. This is the dangerous point in the treatment of these cases. Here they must not be allowed to go their own way, but must unconditionally keep to the first group during the time just specified. For a strain comes all too easily which, though merely slight, may have evil consequences which will be felt for weeks afterwards. Also all neurotic people have days when they feel ill and lifeless, when they feel disinclined to exert themselves at all, when they think the exercises are doing them no good, and so forth. In spite of all this they must persevere, as this condition soon gives place to a more satisfactory one.

The stomach, intestines and all adjacent organs are upset in their functions by a sluggish circulation. Chronic costiveness is frequently caused by a sedentary mode of life, and if it is not extremely severe nor of long standing, then also in such a case gymnastics can produce relief.

As gymnastics are the best means to preserve health so also are they the best means to obtain beauty. About beauty as shown in a good figure and a fine shape I have already spoken in another place. I will here add a few words with regard to beauty of face. This depends upon three things : the shape, the expression, and the complexion. The shape is given to us, and we can do little to improve that, but more for the expression and the complexion, which, after all, are the most important. We have all heard that those who suffer from

Effect of
gymnastics
upon the
appear-
ance

stomach complaints have a unique expression of face. But almost all illnesses, especially all those which cause pain, produce a suffering look on the face which is incompatible with beauty. Hence we perceive how closely allied are health and beauty. But the facial expression does not depend only on the state of the health. As gymnastics make the entire personality stronger they also strengthen the muscles of the face, and the expression becomes more decided, more dignified and calm than the sad expression of the weakling.

To obtain a beautiful complexion we must take great care to regulate the activity of the skin. As soon as this becomes abnormal a number of unimportant but ugly skin diseases are pretty sure to show themselves ; for example, pimples, black-heads, wrinkles, etc. How now to avoid these ? In the first place the circulation is of primary importance. The skin can normally take up one-third of the whole quantity of blood in the body. This alone shows how extremely important it is that the skin should do its work properly. The most important function of the skin is to regulate the temperature of the body. The skin gives out heat by transmission, by refraction and evaporation. When the temperature is raised the blood vessels of the skin dilate and more heat is given out. When the temperature falls the blood vessels contract, and less heat is given out. Now, if the skin does not act properly, too much heat may easily be thrown off and a chill is the result. What should be done to guard against this ? Make the skin hardier by a better circulation of the blood,

by which the nourishment will also be increased. Also by treatment with cold water, as I shall indicate.

If the circulation is bad the skin assumes an unhealthy pale colour, which is not beautiful and is only a proof of weak health. If this colour continues a good while unpleasant excrescences generally make their appearance upon the skin, which, once established, defy almost any external remedy. This is not surprising, for salves and such things have no effect upon the source of the mischief, which is a bad circulation. All so-called purifying mixtures are very good for the manufacturers, but of very little benefit to the sufferer. The sole real relief for this class of ills is fresh air and exercise. It can easily be observed that people who are much in the open air and who take much exercise have much better complexions than such as lead a sedentary life in shut-up rooms.

How many expensive beauty specifics are bought and sold though the desired result is not obtained ! and yet the best specific is at the same time the cheapest, viz. nature itself. We must give back again to the skin its normal function. This can be done by gymnastics and by hardening with cold water. Gymnastics improve in the first place the circulation, and through that also the nourishment of the skin. Then, should a course of medical treatment eventually become necessary, its effect will be much facilitated. Secondly, by gymnastics the skin becomes more supple and elastic, and such skin allows no wrinkles to disfigure it. The little wrinkles on the face are the

first signs of approaching age, and every lady will welcome information as to how to prevent the first little wrinkle. With this view, instead of making use of all sorts of doubtful cosmetics, which are often injurious to the skin, one should so nurture the body that it is always sound and in good order, then the complexion will also remain fresh and beautiful.

Effect upon
the hair.

A skin trouble against which all possible means are taken in vain is the loss of hair, and here in most instances gymnastics can be useful. If one has already lost one's hair and the head is bald certainly nothing can be done, for then the roots of the hair are already dried up and have no longer any life in them. But in the beginning when the hair falls out, and one notices every morning that the comb is full of hair, then gymnastics can do good. By a stimulated circulation, the roots of the hair are better nourished and the hair can grow again.

Gymnastics
conducive
to restful
sleep.

Another thing which is very important for the complexion is sufficient and sound sleep. Sleepless nights soon bring furrows on the face. In an ordinary way seven or eight hours' sleep is enough, but this must be regulated according to the individual concerned. If we sleep well and soundly it is not necessary to sleep so long as if we sleep badly and lightly, and perhaps wake frequently. To sleep badly is always a sign of weak nerves and poor circulation. Both troubles are cured by gymnastics. However, no one must imagine that sound sleep will follow at once upon the commencement of these exercises. It may be needful

to carry out the first group for some little time in order to obtain the wished-for sleep.

Judiciously performed every outdoor game is a healthy exercise for lungs and heart. If we are careful in the mean time to breathe deeply and expansively, then the power of the lungs may be increased, and we shall be in a condition to accomplish much more still. It is scientifically proved that the lungs emit about twenty times as much carbonic acid during muscular movement as when the body is passive. The taking in of oxygen is correspondingly increased. From this it is palpable of what enormous value the power of the lungs is for success in any sport. For every effort the power of the heart depends upon the breath. That is why it is important to take heed to the breathing, because the heart has less strain when the breathing is correct. Simultaneously with the increase in strength of the muscular tissues, the heart also gains strength, and with increase in power of lungs and heart, the power of all other organs increases also.

Method of
performing
exercise.

The way to obtain the utmost benefit from gymnastics is by regular training. Begin slowly and proceed gradually. We must not here forget that everybody cannot stand the same thing, and what seems quite a little for one may be too much for another. At the commencement of any sports or games one must only undertake quite a small task, and increase that little by little. One does not notice exactly how much one can bear during the exercise, but only after it is over. Therefore it can easily happen that one

undertakes too much the first time, and a strain is the consequence. Every experienced sportsman should caution the beginner, because very often a first strain induces him to give up sports altogether.

But just as the beginner may easily overstrain himself, so also may the experienced sportsman injure himself by too much exertion. In the course of a long training one finally reaches a condition when the baneful results of strain become marked.

Therefore we should not carry our training too far, but now and again make a restful break. This is conducive to health and to the satisfactory carrying out of our ordinary avocations.

Swimming. Swimming is a most excellent exercise, and occupies decidedly the first place among all sports. All the muscles of the body are brought into use by it, especially when one swims alternately on the back and on the front.

The various limbs are also exercised in proper proportion—the arms and legs chiefly, they have the strongest muscles; but also the muscles of the loins have sufficient practice to enable them to develop well. Thus a slender yet strong figure is produced, and just on account of this even development of the various parts of the body is swimming the best sport for the production of a handsome as well as healthy body.

This holds good naturally only so long as it is done to a proper extent. Beginners should not swim too long, because this is too trying for the heart. To begin with a short distance and gradually swim farther and farther is best for the health.

Every swimming competition is undoubtedly full of danger, on account of possible strain, but otherwise there is hardly any sport which is less likely to lead to injurious overexertion.

It is suitable for everybody, men and women, old and young.

Swimming under water makes enormous demands upon heart and lungs, and must therefore be considered as less healthful.

The water also has a pre-eminently good effect upon the nerves of the skin, though one should not bathe in extremely cold water, as it extracts too much heat from the body.

Tempera-
ture of the
water.

When the temperature of the water is less than sixty degrees Fahr., one should only remain in it quite a short time, and only quite sound and strong people should bathe in a lower temperature.

I need hardly point out that epileptics or persons with brain or spine complaints should not swim, as should they have an attack in the water this would be fatally dangerous.

Anæmic persons must be very cautious in cold water, as it takes too much heat from their bodies. They should first ask the advice of their medical man as to whether it would be advisable for them to swim. For such persons it is especially wise to take quite a considerable time over the first group of exercises, and later to go on to the second, and then only to take baths in the house before they start going to a swimming bath.

Persons who suffer from weak nerves or from headache, sleeplessness, palpitation of the heart,

general nervousness, or similar complaints, should first of all remain over the gymnastic exercises a long time, and only take hip baths at first, and later on complete baths, before they attempt swimming.

Running.

Running is equally an excellent exercise, must be entered upon with care, however, otherwise it will do harm.

A proper amount is a very valuable exercise for the lungs. But other organs also are influenced, as for example the skin, which is excited to a very lively activity. Those who are just beginning to run should only go a very short distance the first time, say perhaps a hundred yards, then walk gently about a hundred yards, and then again run the same distance.

They must, however, breathe deeply and regularly the whole time, and as soon as they get out of breath or notice any sign of palpitation of the heart, lessen their speed, or go on again a little later. Those who suffer from palpitation of the heart or similar weaknesses must take special precautions, and should not run as far as a hundred yards at first, but at the most fifty. Those who feel comfortable while running, and experience neither palpitation nor other symptoms of over-exertion afterwards, can, if they please, increase the one hundred yards, and by degrees run two or three hundred yards, or even a further distance. Running is, like swimming, an excellent cure for corpulence, but must be undertaken with discretion. Begin slowly and each day swim or run a little further, and so reduce the corpulence,

and this is both better and more healthful than all other methods put together of reducing superfluous fat. Only one must again use great care in breathing, expand the chest and breathe deeply, for the body needs about twenty times as much oxygen when running as when in repose. As this oxygen must all be taken in through the lungs, it is clear that enormous importance attaches to deep and extended breathing.

Naturally running must not be taken up as the only sport, as then it is frequently overdone, but should be practised together with gymnastics or some other kind of sport. Every morning in conjunction with one of my sets of exercises, and then twice or three times a week, swimming or running will preserve the health and greatly increase the strength and general powers. Only all those who have not a perfect circulation must be very cautious about running.

Rowing is also a very highly valuable exercise. Rowing.
In correct rowing, especially in racing-boats with a movable seat, the entire muscular system comes into action—arms as well as trunk and legs. Time spent in the pure air on the surface of the water is supremely beneficial for the lungs. A judicious training in rowing broadens the chest and increases the power of the lungs, from which follows the strengthening of the whole body. Consequently rowing is especially suitable for persons with weak chests. Yet such persons must of course be very cautious at first only to begin modestly and above all to take heed to expansive breathing. Rowing is less exacting than running,

and therefore is more suited for persons whose heart is not quite strong. Those with slight affections of the heart can obtain great advantage from rowing, if only they will be cautious and not do too much of a good thing.

Cycling.

Cycling is a sport which almost everybody may take up. It is not very exacting, even delicate people may patronize cycling without injury—of course cautiously and without excess, and then even those suffering from slight heart complaints can cycle with advantage, and with practice can, in time, safely undertake moderately long journeys. The lungs, again, are benefited by cycling, especially so when the rider keeps a fairly upright position. The handle-bars must be up high enough to prevent the necessity of stooping. Under such circumstances cycling can considerably strengthen a weak chest. In addition, cycling has a beneficial effect upon very many nervous systems, such as slight headache, nervous dyspepsia, also upon complaints which are more or less imaginary.

Cycling is also especially valuable in that it necessitates attention, concentration and balancing power. The cyclist must take ceaseless care as he goes in order to avoid possible obstruction behind and before. In order to keep a balance a vast collection of muscles must respond most exactly to the will of the rider. The least carelessness may cause a fall.

At the same time presence of mind is cultivated more than in other sports.

Skating.

Skating is one of the most popular sports, and

at the same time one of the healthiest. The stay in the pure air is priceless, the exertion is not severe ; for which reason delicate and nervous persons may go in for this sport. Like cycling, skating cultivates the power of balancing. The outlay in strength can be greatly varied. The simple movement requires little exertion, and persons with slight heart or lung affections can usually stand it very well. On the other hand, elaborate skating may be very hard work, and only sound, strong people should attempt it. The fresh, frosty air also is very invigorating, especially for neurotic persons, and I should wish strongly to recommend skating for neurasthenics as well as for persons at all disposed to hysteria.

On the other hand skating seems less suitable for elderly ladies, or those suffering from a tendency to asthma or to fatty degeneration of the heart, as such ladies are peculiarly susceptible to catarrh of the lungs, and might in this way easily fall victims to chronic catarrh.

Tennis has great value from the standpoint of ^{Tennis.} health, and deserves to be encouraged in every way. Not only is it good practice for all the muscles, but also attention and directness are cultivated. The whole body is taught to obey the will promptly, and by the simultaneous running about and striking out the result of various exercises is reached all at once. The muscular effort is considerable without being fatiguing. Tennis playing may therefore be recommended to every one, but especially for slight cases of overcorpulence, as well as for those who suffer from

imperfect digestion, showing itself in chronic catarrh of the stomach and intestines. Also this game is of great value for nervous and hypochondriacal persons. Yet again such must be very careful at first, and at the most only play for half-an-hour at a time. At first tennis is particularly trying to the nervous system, but very soon neurotic people can bear it very well, but they should never play longer than from half-an-hour to an hour in one day. A nervous player will also be wise to play only with inferior players, because in that case he exerts himself less.

Bath after
exercise.

As soon as any group of my exercises has been gone through, a cold bath should follow. As, however, a cold bath may do a great deal of harm if it is not taken in the right way and at the right temperature, I will give here a few instructions on the point. Of course all those who are in any way out of health must first consult their medical man as to whether the cold bath is advisable.

The bath should be taken immediately after the exercises, but one must not enter the water while "out of breath." So it is prudent to breathe deeply several times before entering the water, which should not be very cold, as that would be bad for the nerves though it might seem pleasant. The temperature of the water should be 75–60° Fahr. At first it should be about 75°, and later may gradually be reduced to about 60°. Only very sound and strong people should bathe in water at a lower temperature than this, and even

in such cases the temperature should not be lower than 55° . I advise no one to bathe in colder water than this, though there are strong persons who can bear to be in even colder water for a considerable time without receiving any injury. While in the bath it is a good plan to rub the body a little with the bare hands ; in that way the water improves the condition of the skin. One should remain only a few seconds in the water, then get out quickly and gently dry the body. Then one should rub the whole of the body vigorously with the bare hands, which produces a useful reaction, imparts an agreeable feeling of warmth, and makes the skin elastic. But one should not rub with a towel, as this is bad for the nerves, though it may appear to many to be pleasant. It causes, however, too great a reaction, and in time the nerves would be weakened by such treatment.

Another kind of cold bath valuable after exercise is the so-called hip bath. The bath is filled to one-third of its capacity with water at the above-named temperature. The person sits in this and bathes the upper part of his body with a large sponge.

This method of taking a cold bath is chiefly preferable for somewhat neurotic persons, as it is less of a shock.

Those who have not the convenience of a bath can substitute a cold rub-down in the following manner. Dip a sheet in a pan of water at the above-named temperature, wring it out slightly, and wrap the whole body in it, then rub *on* the

sheet, not *with* the sheet. Then dry quickly and rub with the naked hands. Instead of the sheet an ordinary towel may be used to rub first the chest, then the back, and lastly the arms and legs, but the towel must in this case be repeatedly dipped in the water.

The effect of cold water depends on the powerful stimulus which it exerts upon the surface of the body, and by which circulation, respiration, and assimilation are quickened. The breathing becomes deeper, the reception of oxygen and the giving forth of carbonic acid both increase.

I will now explain why the bath should be taken after and not before the exercises. The principal sources of warmth to the body are the muscles. Every muscular exertion produces warmth. Cold water draws a supply of warmth from the body, and if at the time of bathing the body has not sufficient heat it will lose too much heat, and a chill may follow. During the night hardly any muscular exercise takes place, therefore in the morning the body has least natural heat, and the danger of a chill from a cold bath might be somewhat serious. The exercises produce considerable heat in the body, and when the entire group of exercises has been gone through and the patient has become warm, he can safely get into cold water. Care must be taken, however, that there is no sign of palpitation of the heart at the time, and that he is not out of breath ; that might be dangerous on account of a possible shock to the heart. So it will be wise to take a few deep breaths before entering the bath.

As already indicated, cold water extracts heat from the body. In order that too much may not be extracted, which might cause a chill, one should only remain a few seconds in the water. In summer, when it is hot, and the temperature of the water is higher, one may remain longer. It will be well to take a cold bath every day, as it invigorates the nerves of the skin. A hot bath should only be taken once a week in order to open the pores ; then it should be fairly warm, perhaps 103° Fahr., and one may remain in it about fifteen minutes, though one must come out immediately if only the smallest sign of palpitation is observed. Neurotic persons, or those who have any heart complaint, must not have a higher temperature than 97° Fahr., and should only stay in the water ten minutes. A warm bath should not be taken oftener than once a week, because by more frequent use the nerves of the skin become relaxed.

The best time for the performance of gymnastic exercises is early in the morning, immediately after rising. Let me distinctly assure those who are a little afraid lest they should thus become fatigued, so that the carrying out of their duties might be more difficult, that by a correct performance of these exercises fatigue never should and never can arise. On the contrary, the patient will feel strengthened, refreshed and generally comfortable, and even afterwards during the day will less easily become fatigued. As to costume, the exercises can be done just in a shirt or in light underclothes, in any case no tight-fitting

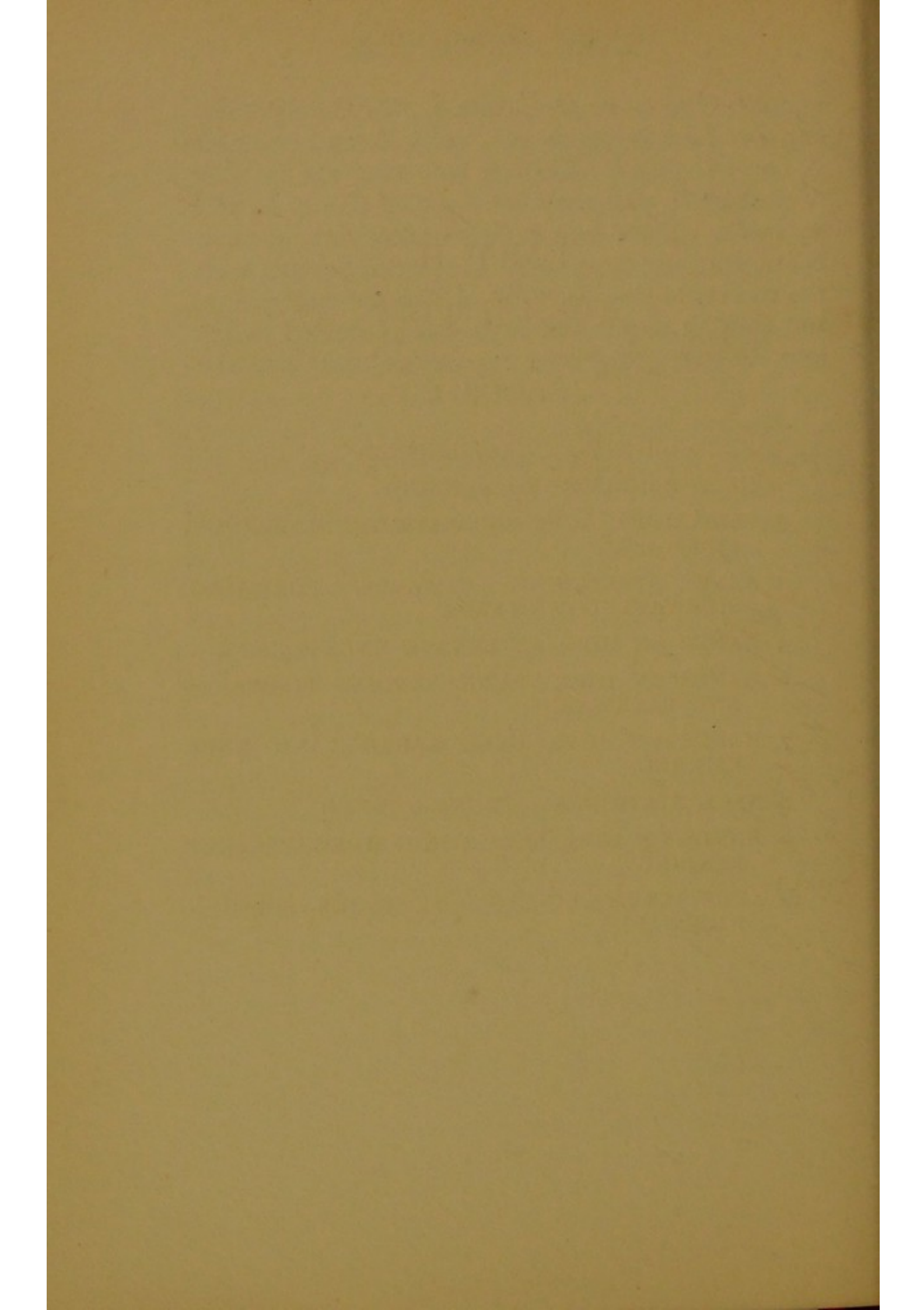
Best time
to use the
exercises.

clothes should be worn. Corsets or other supports, which occasion ever so little pressure, are actively hurtful, and must be dispensed with. If it is possible to do the exercises in the open air, then so much the better. In summer, at any rate, the windows can be opened, though then a draught must be avoided.

Use
exercises
as directed.

Each group of exercises is so arranged that it is complete in itself, and that by means of the exercises it contains all the muscles of the body come into play and are sufficiently practised. The exercises must be taken in the order in which I have given them, so that the various sets of muscles are in turn in activity. Each exercise is to be repeated as often as directed. If any one feels particularly strong and well and desires to do more, he can add slightly to the number of each exercise. But if he does this, the number of *all* the exercises should be augmented in the same proportion—one exercise must not be increased at the expense of another, for some muscles are small and need less work than others which are larger and stronger. It is a good plan towards the end of the time, before beginning the next group of exercises, to increase the number of each exercise more and more. The best procedure is, however, this: Every day to attach a new exercise belonging to the coming group on to the exercises of that group at present in hand. As the first two exercises of the first and second groups are the same, in proceeding from Group I. to Group II. one may do on the first day the first three exercises of Group II.

and exercises 4-10 of Group I. On the next day the first four exercises of Group II. and exercises 5-10 of Group I. The day following the first five of Group II. and exercises 6-10 of Group I., and so forth. Thus one replaces every day, in exact order, just one exercise of the former group with the corresponding exercise of the coming group, and thus in about ten days one is landed safely into the new group by a regular and easy process.



PART II

THE EXERCISES

GROUP I.

1. HEEL-RAISING AND TOE-RAISING.
2. HEAD BENDING AND TURNING.
3. FEET APART, ARMS SIDEWAYS, TRUNK BENDING SIDEWAYS.
4. ARMS STRETCHING UPWARDS, FORWARDS, SIDEWAYS, DOWNWARDS.
5. HANDS ON HIPS, ALTERNATE KNEE RAISING.
6. HANDS ON HIPS, TRUNK BENDING FORWARDS AND BACKWARDS.
7. HANDS ON HIPS, HEEL RAISING AND KNEE BENDING.
8. NECK STATIONARY, TRUNK TURNING.
9. HANDS ON HIPS, LEGS RISING SIDEWAYS, FEET BENDING.
10. ARMS STRETCHED UPWARDS, TRUNK BENDING BACKWARDS.

GROUP I. No. 1.

HEEL-RAISING AND TOE-RAISING. (FIGS. 1 AND 2)

First take up the proper position. Heels together and feet at a right angle. The head high, shoulders back, chest well expanded. Then slowly raise the heels as high as possible, and thus the whole body (Fig. 1). Remain in this position two seconds. Then slowly lower the heels again. While raising inhale and while dropping exhale. *This exercise to be repeated from six to ten times.*

Immediately afterwards follows the toe-raising. In this both heels remain on the floor. Raise first the right toes (Fig. 2) as high as possible, and drop again. Then the left also as high as possible, and down again. *This exercise to be repeated six to ten times.*

Both these exercises must be carried out thoroughly. A stretching of the calf of the leg must be experienced.

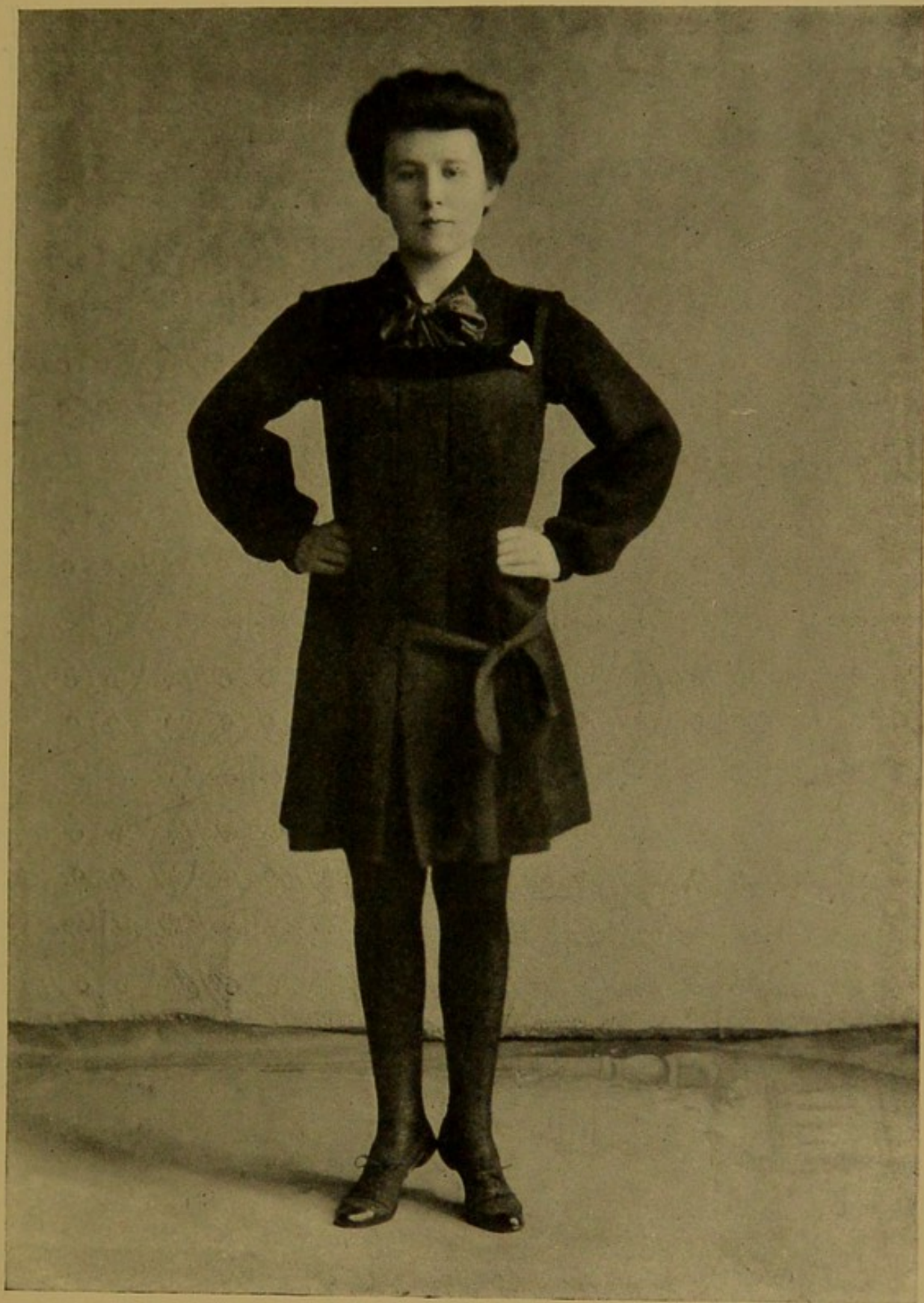


FIG. 1.



FIG. 2.

GROUP I. No. 2

HEAD BENDING AND TURNING (FIG. 3)

First bend the head and neck as far down in front as possible, till a stretching of the muscles of the neck can be felt. Then raise the head again and bend it backwards. Though be careful first slowly to bend the neck backwards as far as possible, and then the head (Fig. 3). In doing this the shoulders must be drawn back slightly. This exercise is an excellent preventive of a crooked figure, but must be carried out very thoroughly ; though it must not be done quite to the fullest extent just at first, or with those unused to it headache might be caused. Only in the course of a few days this exercise should be performed more and more courageously. *Repeat it three or four times.*

Attached to this is the turning of the head. Hold the head high and turn it first to the left as far as possible, and then to the right. This exercise can be done somewhat quickly as soon as the patient is a little accustomed to it. *It should be repeated four to five times.*

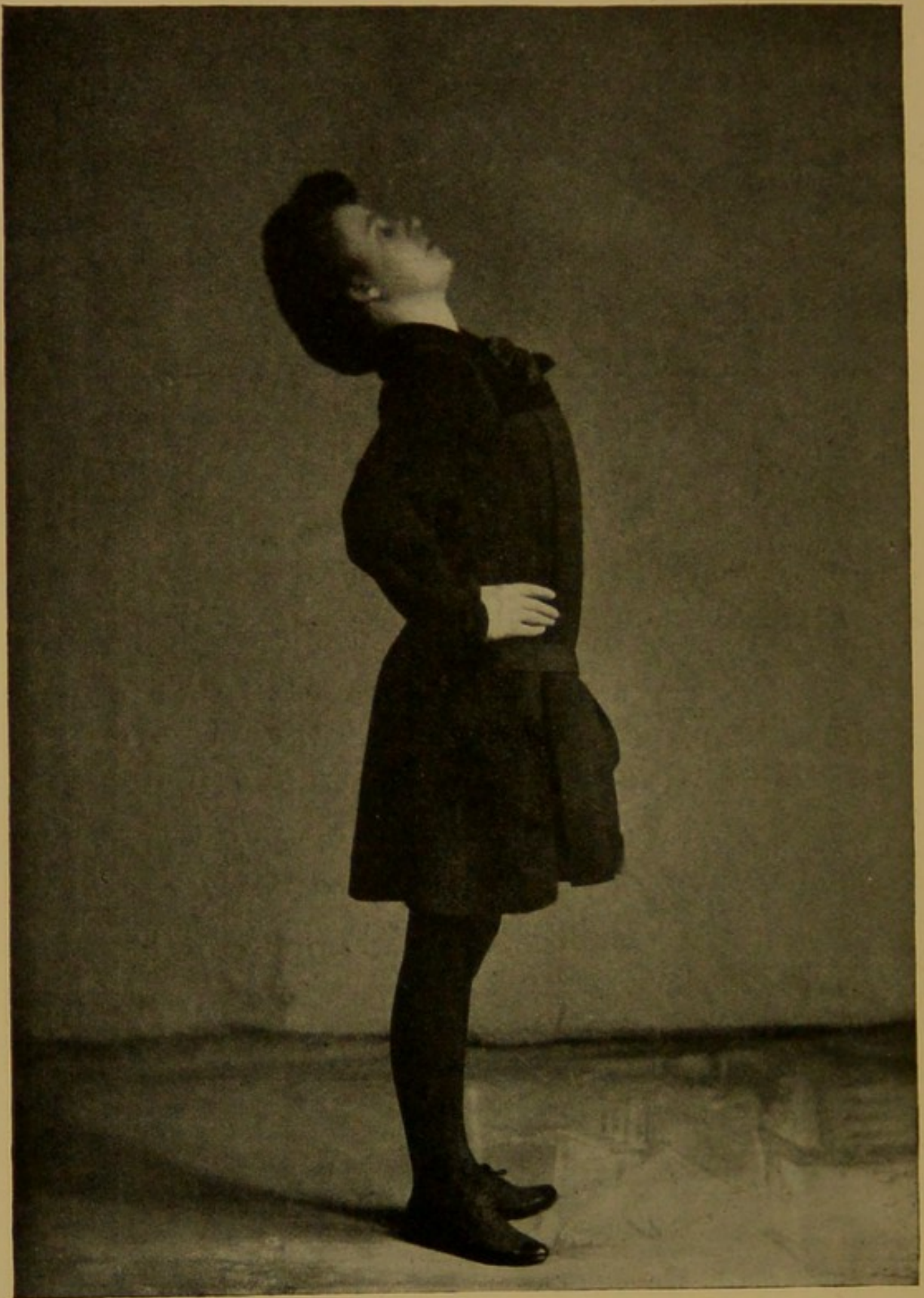


FIG. 3.

GROUP I. No. 3

FEET APART, ARMS SIDEWAYS, TRUNK BENDING
SIDEWAYS (FIG. 4)

Place the feet so far apart that between the heels there is a distance of two foot-lengths (twice the length of the individual foot). Stretch the arms out horizontally, and in this position bend the trunk from the hips sideways towards the left as far as possible (Fig. 4), and then towards the right. It must be observed that the bending must be only in the direction already indicated, and not at all to the front or back, just as the arms must not be moved in their sockets, but the whole movement must be from the hips : and the knees kept straight the whole time. *This exercise should be repeated from three to six times.*



FIG. 4.

GROUP I. No. 4

ARMS STRETCHING UPWARDS, FORWARDS, SIDEWAYS,
DOWNWARDS (FIGS. 5 AND 6)

This exercise must be done firmly and powerfully if the desired result is to be produced. First bend the arms (Fig. 5) with the finger-tips to the shoulders, the elbows kept close to the sides. Remain thus from one to two seconds, then stretch the arms upwards quickly and vigorously (Fig. 6, A), while by the same movement well stretch the elbows, also hand and finger-joints. Keep this position a moment, and then bend the arms again as at the beginning (Fig. 5). In this position stretch the arms quickly and vigorously forward. Then again bend them (Fig. 5), then stretch firmly outwards (Fig. 6, B), and, lastly, vigorously downwards. *This exercise should be repeated from two to five times.* The effect of this exercise will only be complete if every movement is well and vigorously carried out. The stretching out as well as bending must be done quickly, so that the arms remain in the bent as well as in the extended position from one to two seconds each time. Breathe gently and deeply throughout the whole exercise. Those who are very weak should naturally not go through this exercise, nor any of the others, too violently.



FIG. 5.

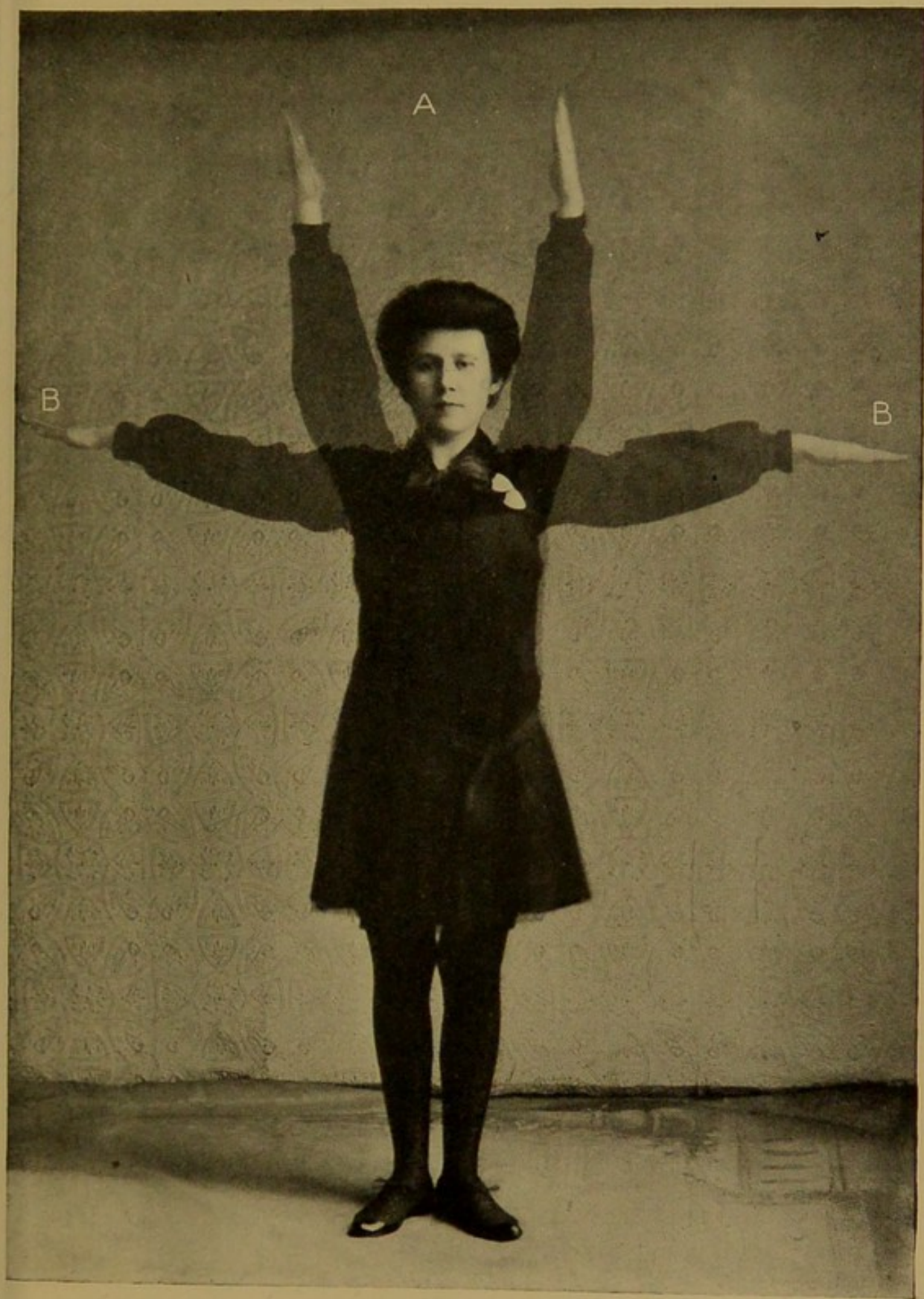


FIG. 6.

GROUP I. No. 5

HANDS ON HIPS, ALTERNATE KNEE RAISING
(FIG. 7)

Place the hands on the hips and raise the right knee to the height of the hips or a little higher. Let the lower part of the leg hang perpendicularly (Fig. 7), the left knee stretched. Then place the right foot again on the floor and go through the same exercise with the left leg. Take care that the knee reaches at least the height of the hip, and also that the other knee remains straight. *This exercise must be repeated from five to ten times, and may be done pretty quickly.*



FIG. 7.

GROUP I. No. 6

HANDS ON HIPS, TRUNK BENDING FORWARDS AND
BACKWARDS (FIGS. 8 AND 9)

Place the hands on the hips, the thumb to the back and the fingers to the front. The feet remain at a right angle, heels together. First bend to the front, and this will cause the hip-joints and the lower part of the back to bend. The upper part of the back and also the head, however, remain upright and slightly drawn back (Fig. 8). The knees remain stretched the whole time, and the bending of the hip-joints must be decided if any benefit is to be derived. This exercise is very valuable to ensure a good carriage, and consequently must be especially well attended to. After the forward movement comes the backward bend of the body. Now the hip-joints and the lower part of the back remain stationary, and the backward bend is from the upper part of the back (Fig. 9): it must be done very energetically and thoroughly, then it is the best of all the exercises for producing a good carriage. *Repeat three to six times.*



FIG. 8.



FIG. 9.

GROUP I. No. 7

HANDS ON HIPS, HEEL-RAISING AND KNEE-BENDING (FIG. 10)

Place the hands on the hips, the heels together and the feet at a right angle. Then raise the heels (and at the same time the whole body), bend the knees till the knee-joint forms a right angle (Fig. 10). Remain thus from one to two seconds, and then stretch the knees again and drop the heels. *Repeat this exercise three to six times.*



FIG. 10.

GROUP I. No. 8

NECK STATIONARY, TRUNK TURNING (FIG. 11)

Place both hands on the nape of the neck, so that the tips of the fingers touch each other. The joints of fingers and hands must be stretched. Take care that both head and elbows are well drawn back. One is disposed in this exercise to hold the elbows too much to the front, but this causes an undesirable carriage, and must therefore be carefully avoided. In this position now turn the body first to the left as far as possible (Fig. 11). The feet must remain still. The turning must be somewhat energetic, so that it may do the most good and produce the required result. Then turn in the same way to the right. If the chest is well extended and the head and arms well held back this exercise has a most satisfactory effect upon the carriage. *Repeat three to six times.*



FIG. 11.

GROUP I. No. 9

HANDS ON HIPS, LEGS RISING SIDEWAYS, FEET
BENDING AND STRETCHING (FIG. 12)

Place the hands on the hips, heels together and feet at a right angle. Raise first the left leg slowly sideways—directly to the side, not in the least to the front nor back. At first this need only be slightly attempted, but as soon as the patient begins to get used to it the leg must be carried as far as possible to the side (Fig. 12). In this position bend and stretch the foot once. The knees remain stretched out the whole time. Then bring the leg slowly back again. Afterwards do the same with the right leg. *Repeat three to six times.*

This exercise is excellent for learning to balance oneself. It also teaches the body to respond to the will. Take care to keep the whole body straight, and not to allow it to totter too much. The most important aim of this exercise is just to preserve the equilibrium. This may be somewhat difficult at first, and delicate persons should not worry themselves too much with it. Later on, when the patient is accustomed to it, it no longer presents any difficulty.

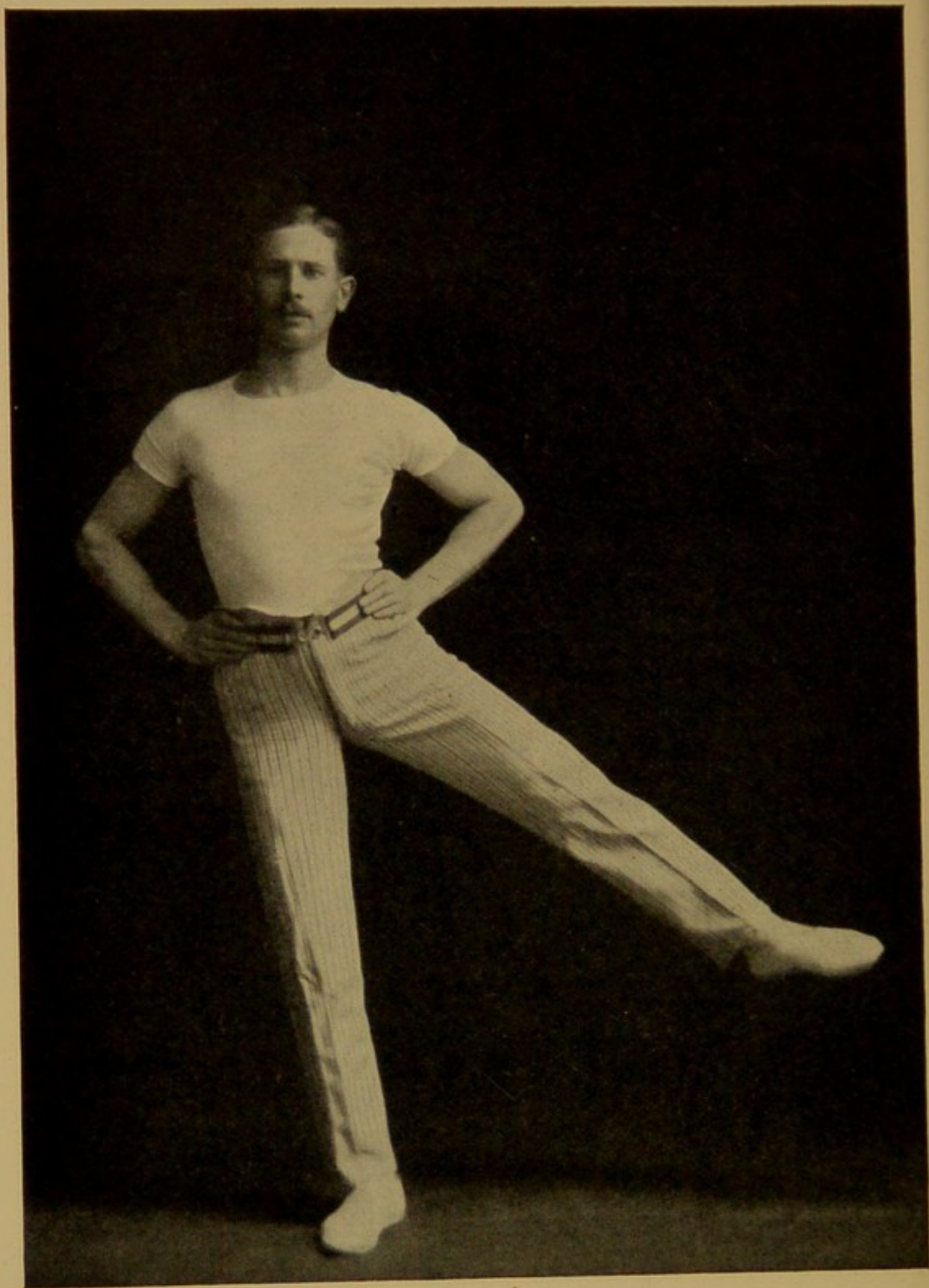


FIG. 12.

GROUP I. No. 10

ARMS STRETCHED UPWARDS, BENDING TRUNK
BACKWARDS (FIG. 13)

Stretch the arms upwards, the feet being two foot-lengths apart. Now bend arms, head and shoulders slowly backwards. While bending the spine must be quite stiff. Thighs and hips left perfectly motionless. There is a great inclination in this exercise to bend from the waist, but that is wrong and would bring about the wrong result, so bear this in mind. Properly done, this exercise is first-rate for counteracting a stooping carriage, and has also a good effect upon the development of the chest. Inhale during the backward bend. It is a good plan to go through this exercise in front of a mirror to be quite sure that the movements are from the right parts. *Repeat four to six times.*

At first it will appear difficult to many people to do this exercise correctly and well; with practice it soon becomes easier, and for those who have naturally a bad carriage or a weak chest it is especially valuable.

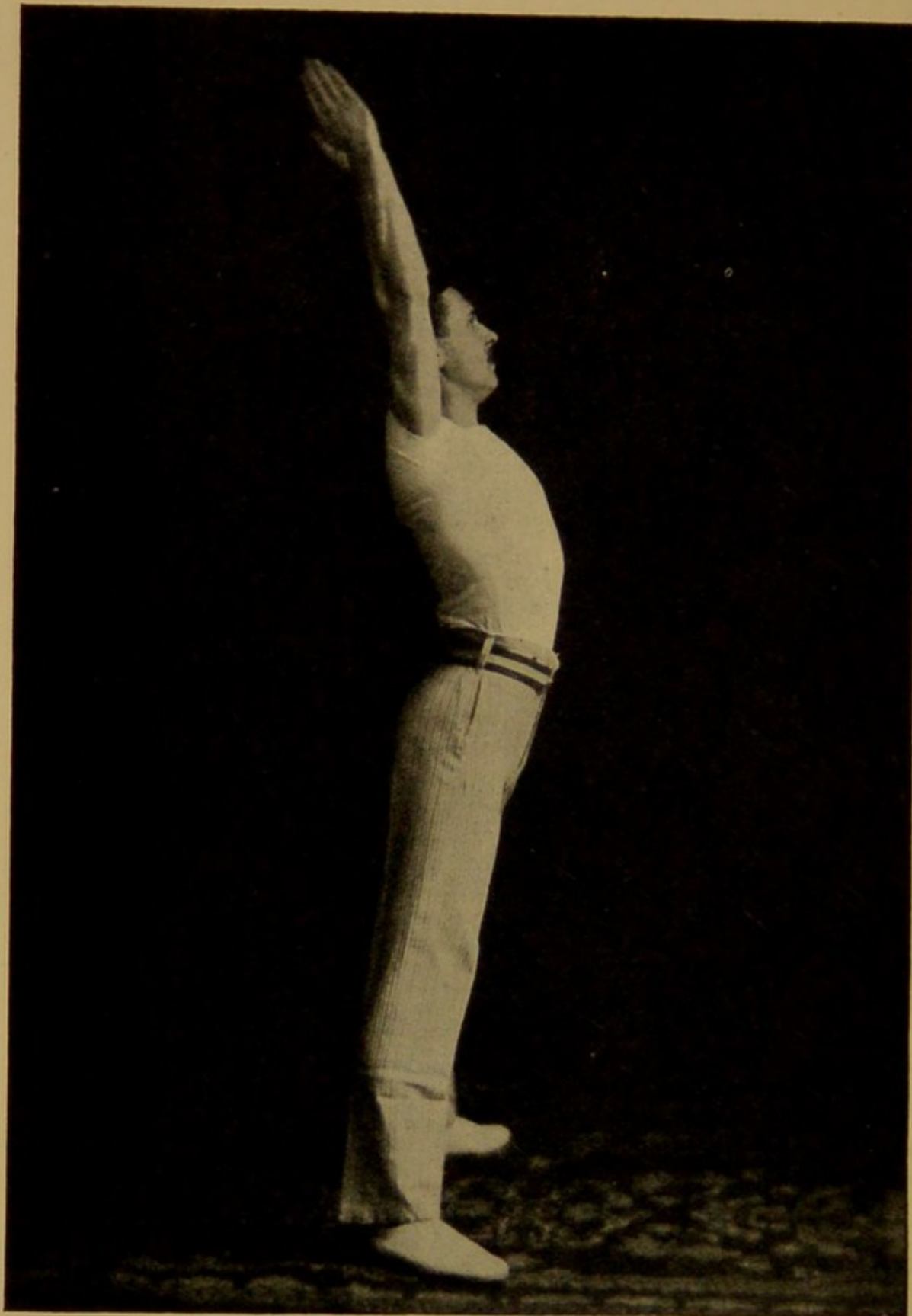


FIG. 13.

GROUP II

GROUP II

1. HEEL-RAISING AND TOE-RAISING.
2. HEAD BENDING AND TURNING.
3. NECK STATIONARY, FEET APART, TRUNK BENDING SIDEWAYS.
4. LUNGING FORWARD WITH ARMS STRETCHING, TRUNK BENDING FORWARDS AND DOWNWARDS.
5. HANDS ON HIPS, KNEES BENDING AND STRETCHING FORWARDS.
6. ARMS STRETCHED, FEET APART, TRUNK BENDING FORWARDS AND DOWNWARDS.
7. HANDS ON HIPS, HEEL-RAISING AND DEEP KNEE-BENDING.
8. ARMS STRETCHED, FEET APART, TRUNK TURNING.
9. HANDS ON HIPS, HEELS RAISED, WHIP JUMP.
10. ARMS STRETCHED, ARCH-STANDING, HEEL-RAISING.

GROUP II. No. 1

HEEL-RAISING AND TOE-RAISING (FIGS. 1 AND 2)

This exercise is the same as in the first group, but must not be neglected here, as it is very important for the sufficient circulation of the blood in the feet. It is also a great preventive of cold feet.

GROUP II. No. 2

HEAD BENDING AND TURNING (FIG. 3)

This exercise is exactly the same as the second of the first group. It must be very carefully brought in here, as it is so important for a good circulation in the head.

GROUP II. No. 3

NECK STATIONARY, FEET APART, TRUNK BENDING
SIDEWAYS (FIG. 14)

Place the hands on the nape of the neck, so that the tips of the fingers touch, and keep the elbows well back. Place the feet two foot-lengths (twice the length of the individual foot) apart. In this position now bend the body from the waist, first to the left as far as possible (Fig. 14). Head and arms still well drawn back, and not in the least coming forward. Knees must be stretched throughout the exercise. Then bend slowly to the right in the same manner. Breathe gently but deeply all the time. *Repeat three to six times.*



FIG. 14.

GROUP II. No. 4

LUNGING FORWARD, WITH ARMS STRETCHING, TRUNK
BENDING FORWARDS AND DOWNWARDS (FIG. 15)

Place the left foot a decided step in front, and bend the left knee, while the right leg remains stretched. The body and the right leg must be in a straight line with each other. In this position bend the arms as in the fourth exercise of Group I., the finger-tips being to the shoulders and the elbows touching the sides. Then extend the arms firmly upwards (Fig. 15, A). In this position bend down the body towards the front (Fig. 15, B), and back again (Fig. 15, A). Then vigorous bending and stretching upwards and outwards of the arms, again bending down of the body to the front, and so on. *Repeat two to five times.* Take care that the right leg keeps straight, and that the body and right leg form a straight line, while the arms are in motion. Now place the right foot a good step in front, and go through the same process. This exercise is important as it has a far-reaching effect on the arms as well as upon the back and legs. It may possibly appear a trifle hard at first, but with a little practice this difficulty will be hardly noticeable.

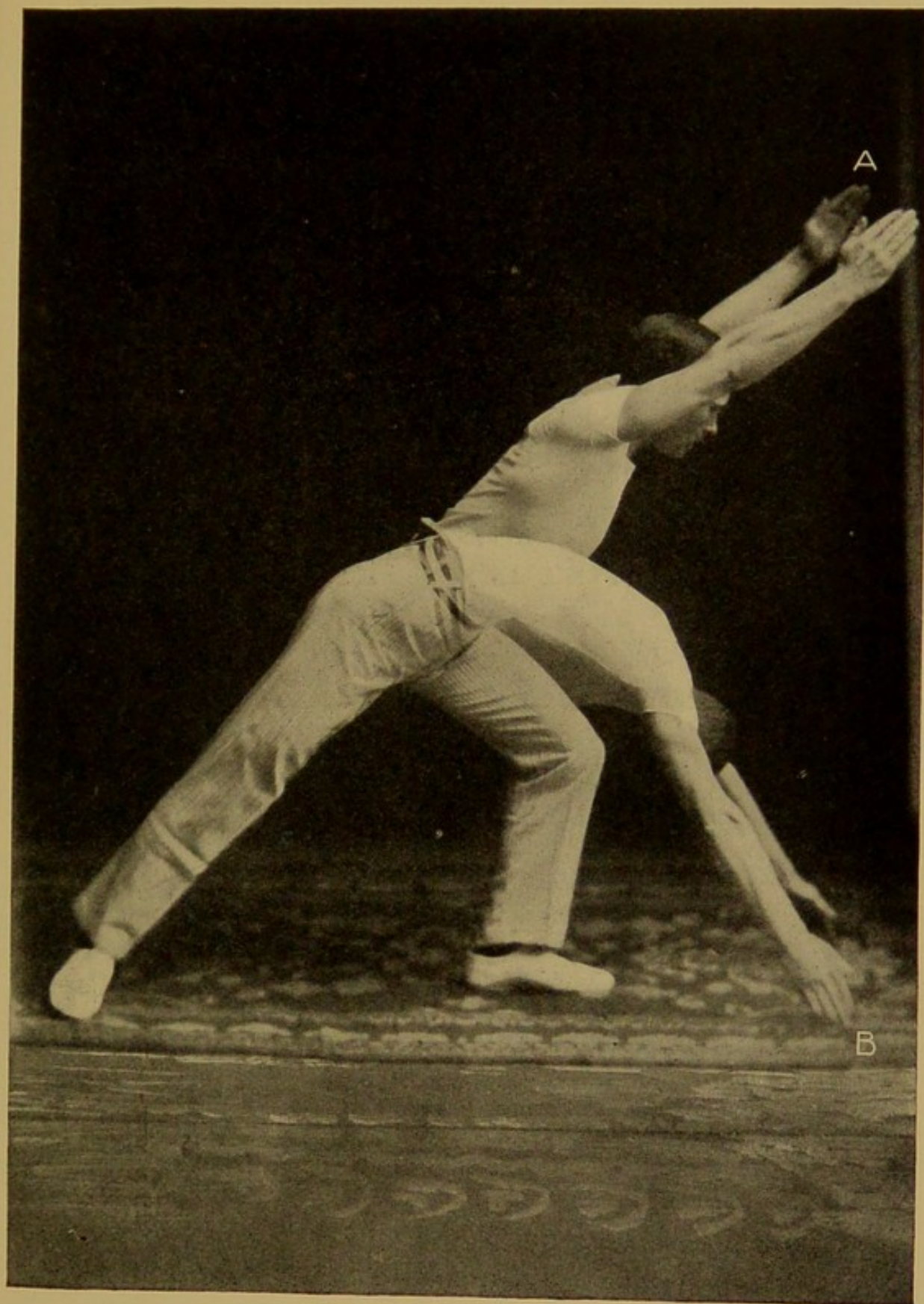


FIG. 15.

GROUP II. No. 5

HANDS ON HIPS, KNEE-RAISING AND STRETCHING
FORWARDS (FIG. 16)

Place the hands on the hips, heels together and the feet at a right angle. Raise the left knee to the height of the hips. Stretch out the knee (Fig. 16). Bend again, and put the foot down again. Be careful in stretching out the knee that it remains at the same height, and the right knee must remain quite stretched. Then raise the right knee and stretch it out in a similar manner. *Repeat three to six times.*

To carry out this exercise correctly is somewhat difficult at first, but in time any one may learn it. It is a splendid exercise for balancing, and renders the legs supple as well as strong.



FIG. 16.

GROUP II. No. 6

ARMS STRETCHED, FEET APART, TRUNK BENDING
FORWARDS AND DOWNWARDS (FIG. 17)

Stretch the arms upwards and place the feet two foot-lengths apart (Fig. 17, A). Now bend the body first to the front as far as to bring the back into almost a horizontal position (Fig. 17, B). The bend must be chiefly from the hip-joints and the knees must remain stretched. Head and arms must be held high, and in this position inhale and exhale once. Then bend down till the finger-tips touch the floor (Fig. 17, c), knees still kept stretched. From this position bend up again into the former position (Fig. 17, B). And then inhale and exhale once deeply. Then stretch the body quite upwards, and in the mean time take care that the head and arms are well drawn back. *Repeat four to six times.*

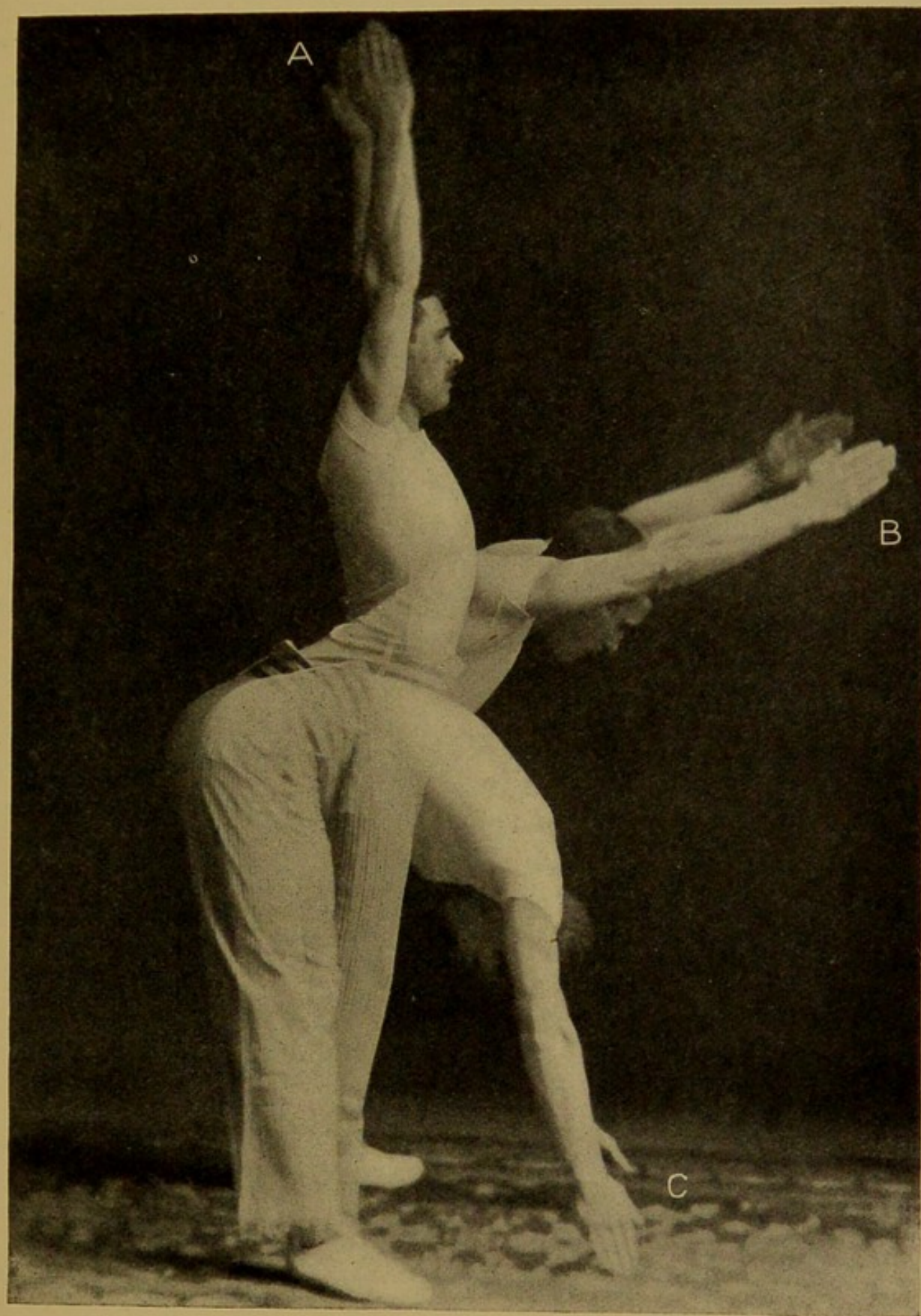


FIG. 17.

GROUP II. No. 7

HANDS ON HIPS, HEEL-RAISING AND DEEP KNEE-
BENDING (FIGS. 10 AND 18)

Place the hands on the hips, heels together, and the feet at a right angle. Then raise the heels as high as possible and bend the knees till the knee-joints form a right angle (Fig. 10). Remain thus one or two seconds, and then bend the knees slowly and as deeply as possible (Fig. 18). Then stretch the knees again till they form a right angle (Fig. 10). Remain like this again one or two seconds, and then stretch the knees quite straight and drop the heels to the floor. Take care that during this exercise the trunk remains quite perpendicular. It is easy here to make the mistake of bending the head and upper part of the body towards the front. That must not be done, however. Breathe freely all the time. *Repeat three to six times.*

The one or two seconds' pause when the knees are at a right angle makes this exercise very much more serviceable than an ordinary bending of the knee.



FIG. 18.

GROUP II. No. 8

ARMS STRETCHED, FEET APART, TRUNK TURNING
(FIG. 19)

Stretch the arms upwards and keep them well back. The chest well expanded. Feet two foot-lengths apart. Now turn the trunk, chiefly from the waist, as far as possible, first to the left (Fig. 19). Then inhale and exhale once. Then turn again to the right. Breathe again once, and turn back to the front. Take care that the head and arms are well held back, the chest well expanded. The abdomen slightly drawn inwards, so that the lower part of the back remains straight. *Repeat three to six times.*

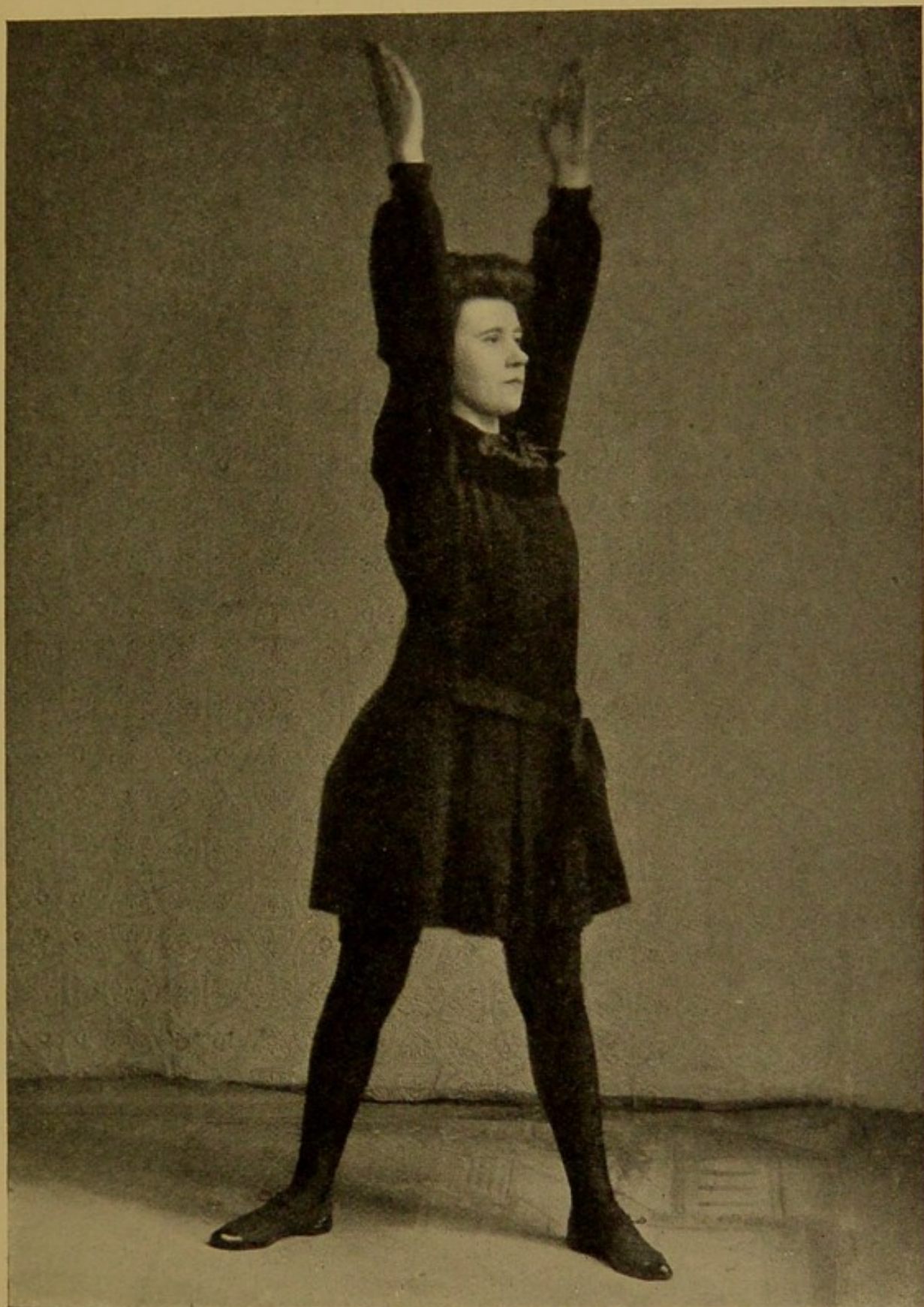


FIG. 19.

GROUP II. No. 9

HANDS ON HIPS, HEELS RAISED, WHIP JUMP

Place the hands on the hips, heels together, and feet at a right angle. Now raise the heels, bend the knees a little, then give a little jump upwards, separate the legs quickly, so that the feet are about two foot-lengths apart when they again reach the floor. Yet the heels must not touch the floor. Then quickly give another little jump into the air, bring the legs together, and return to the original position. *Repeat this exercise, in march time, twenty to thirty times*, and take care to breathe properly throughout. The knees must be loose throughout the entire exercise.

GROUP II. No. 10

ARMS STRETCHED, ARCH-STANDING, HEEL-RAISING
(FIG. 20)

Stand one step away from the wall, with the back against the wall. Stretch the arms upwards. Heels together, and feet at a right angle. Now bend the arms, head, and the upper part of the body so far back that the tips of the fingers touch the wall. Then raise the heels as high as possible (Fig. 20). Remain thus two to three seconds. Drop the heels again to the floor, and *repeat the exercise four to seven times.*

Observe that the arms and shoulders are bent back as firmly as possible, but the elbows must be extended. The knees must be stretched throughout, the chest well thrown out, and during the whole exercise the patient must breathe freely and deeply.

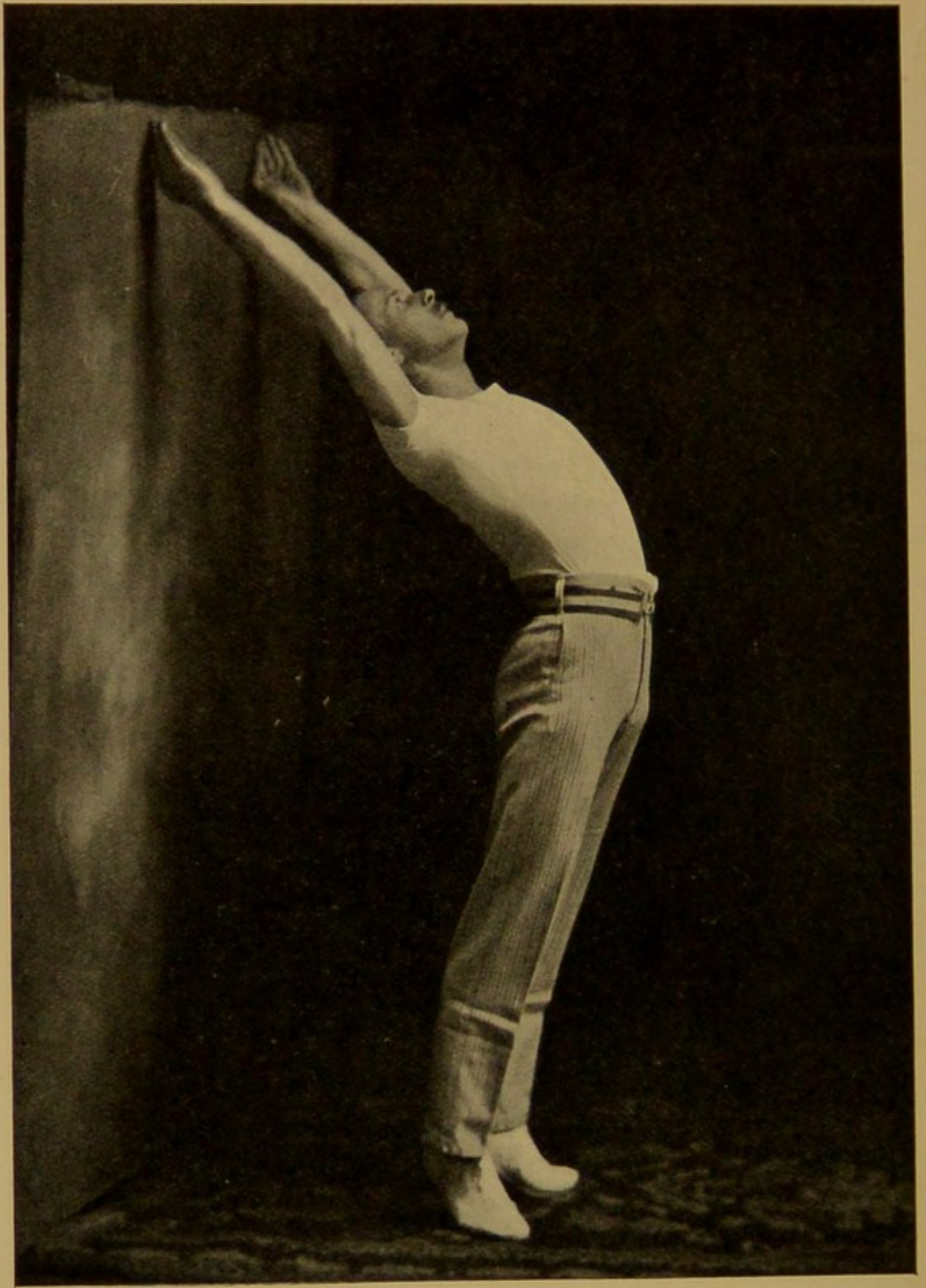


FIG. 20.

GROUP III

GROUP III

1. HEEL-RAISING ON ONE FOOT.
2. HEAD BENDING AND TURNING.
3. SIDE-FALLING, LEG-RAISING.
4. NECK STATIONARY, FEET APART, TRUNK TURNING AND BENDING.
5. FEET APART, TRUNK BENT FORWARD, ARM-STRETCHING.
6. UPWARD JUMP.
7. STOOP-FALLING, ARM BENDING AND STRETCHING.
8. STRETCH HORIZONTAL, BALANCE STANDING.
9. STRETCH PRONE LYING.
10. STRETCH LYING ON THE BACK, LEG-RAISING.

GROUP III. NO. 1

HEEL-RAISING ON ONE FOOT (FIG. 21)

Place the heels together and the feet at a right angle. Raise the right heel only. At the same time lift the left foot from the floor, taking care that the right foot only supports the weight of the whole body (Fig. 21). Rise slowly, remain a second, then drop slowly down again. Rise then upon the left foot in just the same way. *Repeat ten times.*

This exercise is more exacting than that in which the heels of both feet are raised, and every one who carries it out thoroughly will feel the effect in the calves of the legs.

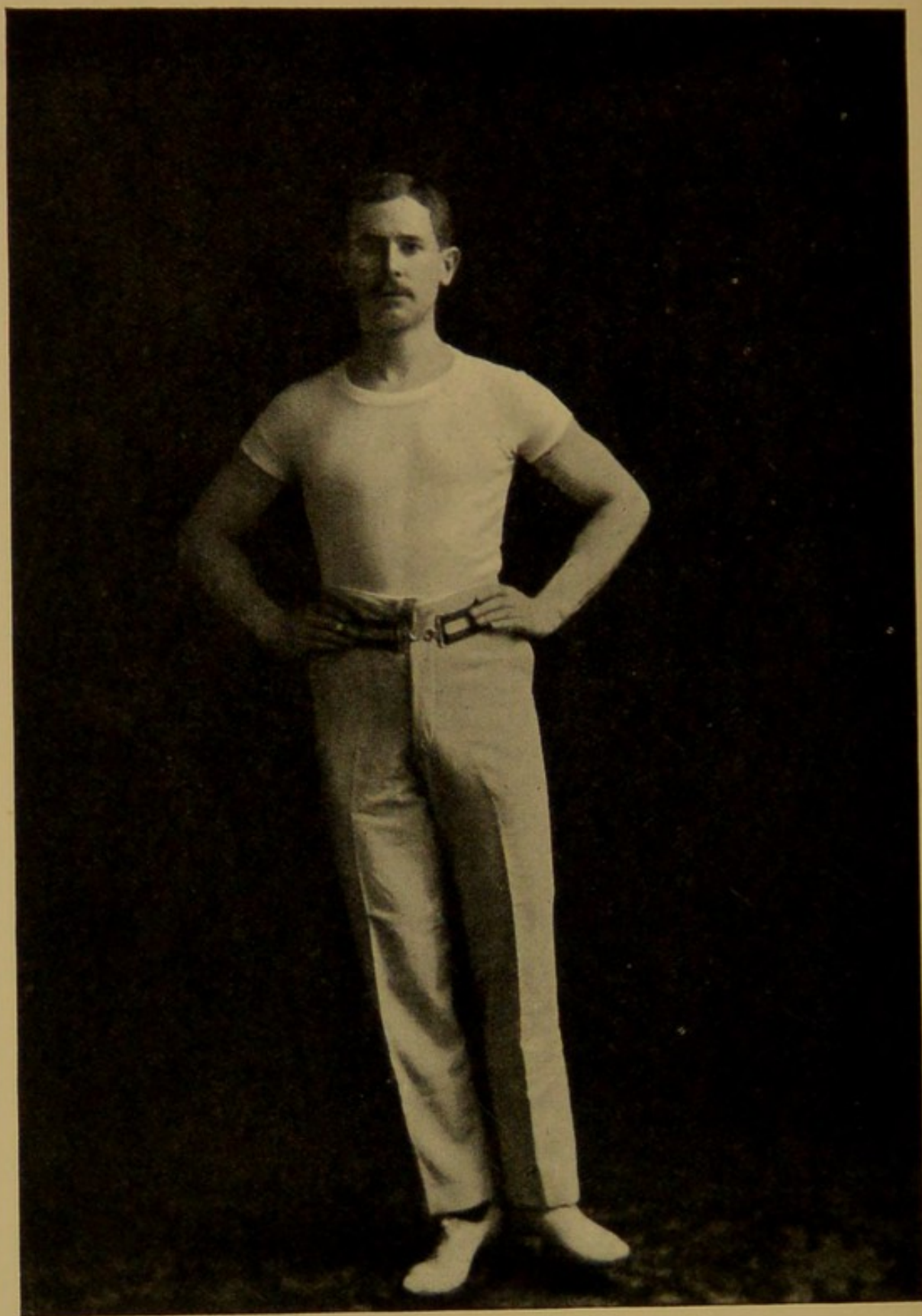


FIG. 21.

GROUP III. No. 2

HEAD BENDING AND TURNING

This exercise is the same as in the first and second group, but it is too important to be passed over here.

I can recommend no stronger exercise for the head and neck, as it might produce congestion. This exercise is above all important for flexibility and pliancy of the muscles of the head and neck, and also for the proper circulation of the blood in the brain.

GROUP III. No. 3

SIDE-FALLING, LEG-RAISING (FIG. 22)

Take up the position indicated in Fig. 22, A: the body stretched out and resting on the right hand and on the right foot; the left hand on the hip (Fig. 22, A). The body must be stretched out straight. Then lift the left leg slowly as high as possible (Fig. 22, B). Pause one to two seconds, and drop the leg down again slowly. *This should be repeated three to six times.* Then change. Let the body rest on the left hand and left foot, and raise the right leg *three to six times*. Take care to breathe properly throughout.

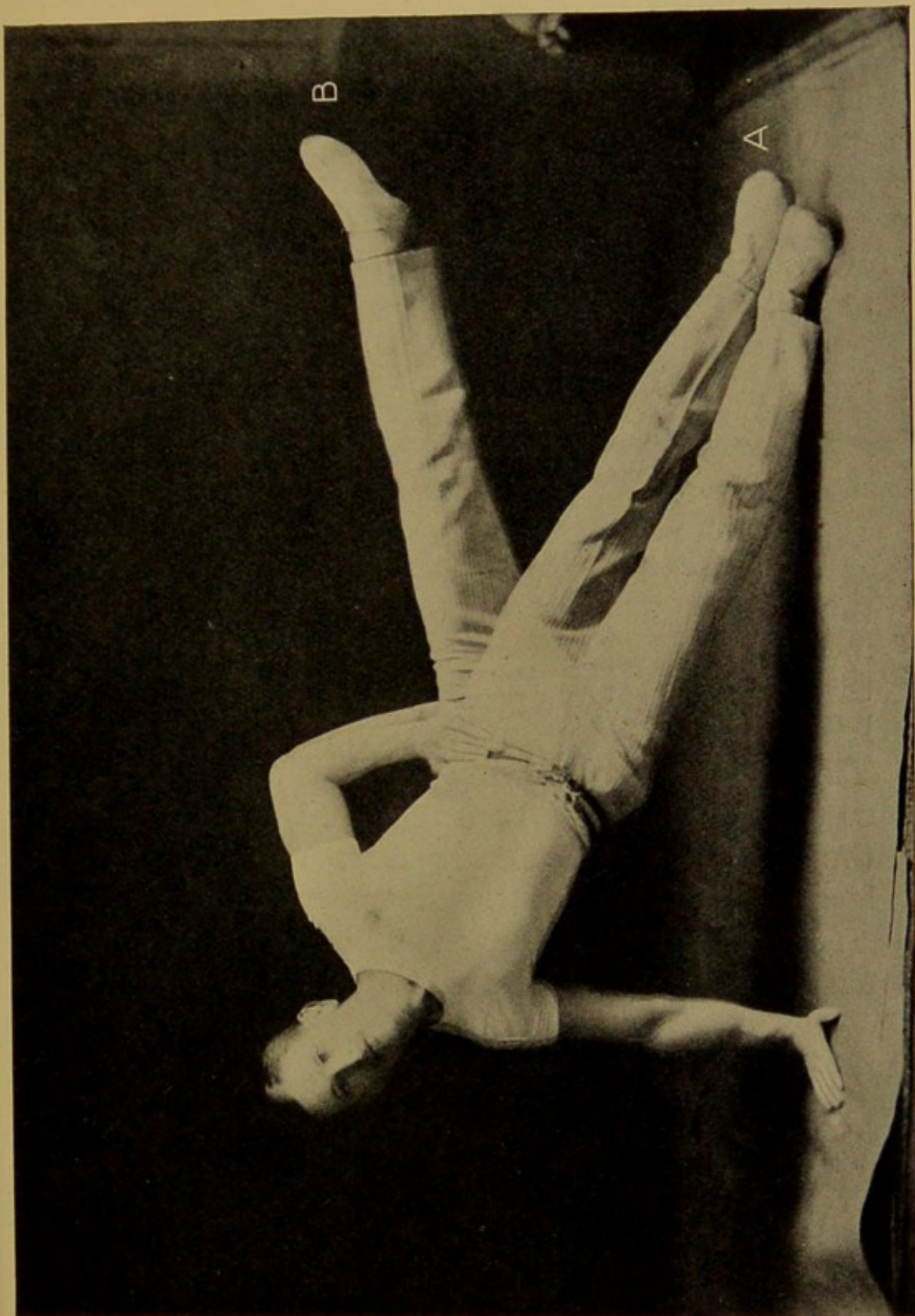


FIG. 22.

GROUP III. No. 4

NECK STATIONARY, FEET APART, TRUNK TURNING
AND BENDING (FIG. 23)

Place the hands on the nape of the neck, and the feet two foot-lengths (twice the length of the individual foot) apart. Now turn the trunk first to the left as far as possible, and then bend to the left, from the waist, as far as possible (Fig. 23). Then stretch again slowly upwards and turn again to the front. Then turn to the right and bend to the right. Again slowly stretch upwards, and again turn to the front. *Repeat three to six times.*

Be careful that the arms and head are well drawn back and that the breathing is easy.

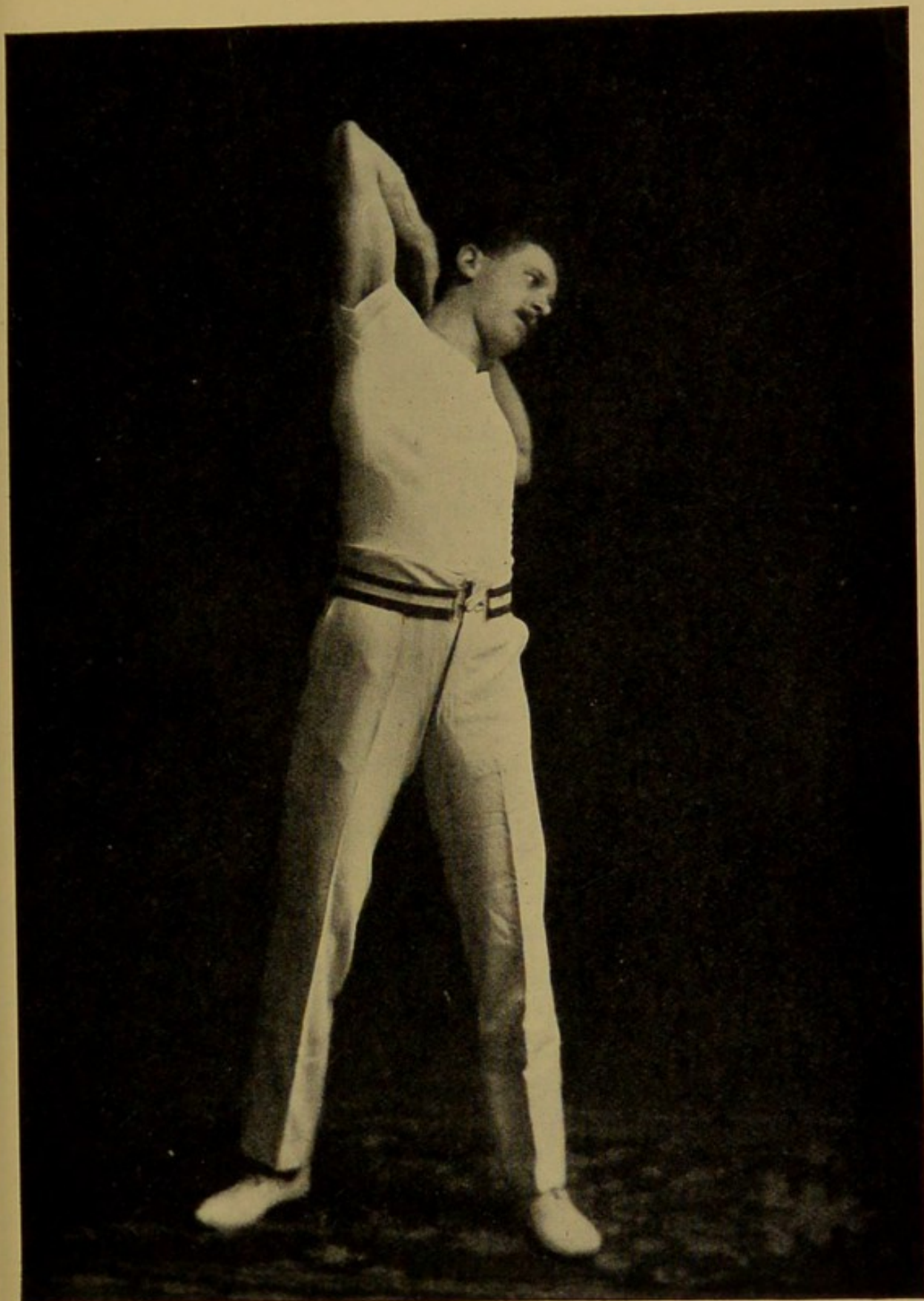


FIG. 23.

GROUP III. No. 5

FEET APART, TRUNK BENT FORWARD, ARM-
STRETCHING (FIGS. 24 AND 25)

Place the feet two foot-lengths apart. Bend the body forwards but only from the hip-joints (Fig. 24). Now bend the arms till the finger-tips touch the shoulders. From this position stretch the arms upwards (Fig. 25) in front, sideways and downwards, returning to the original position between each. Repeat two to five times. In this position the arm-exercises are very much more exacting than in the upright position, as in the fourth exercise of the first group.

Be careful throughout to breathe gently and deeply. Especially bear in mind that in stretching the arms upwards they should reach up as high as possible.



FIG. 24.

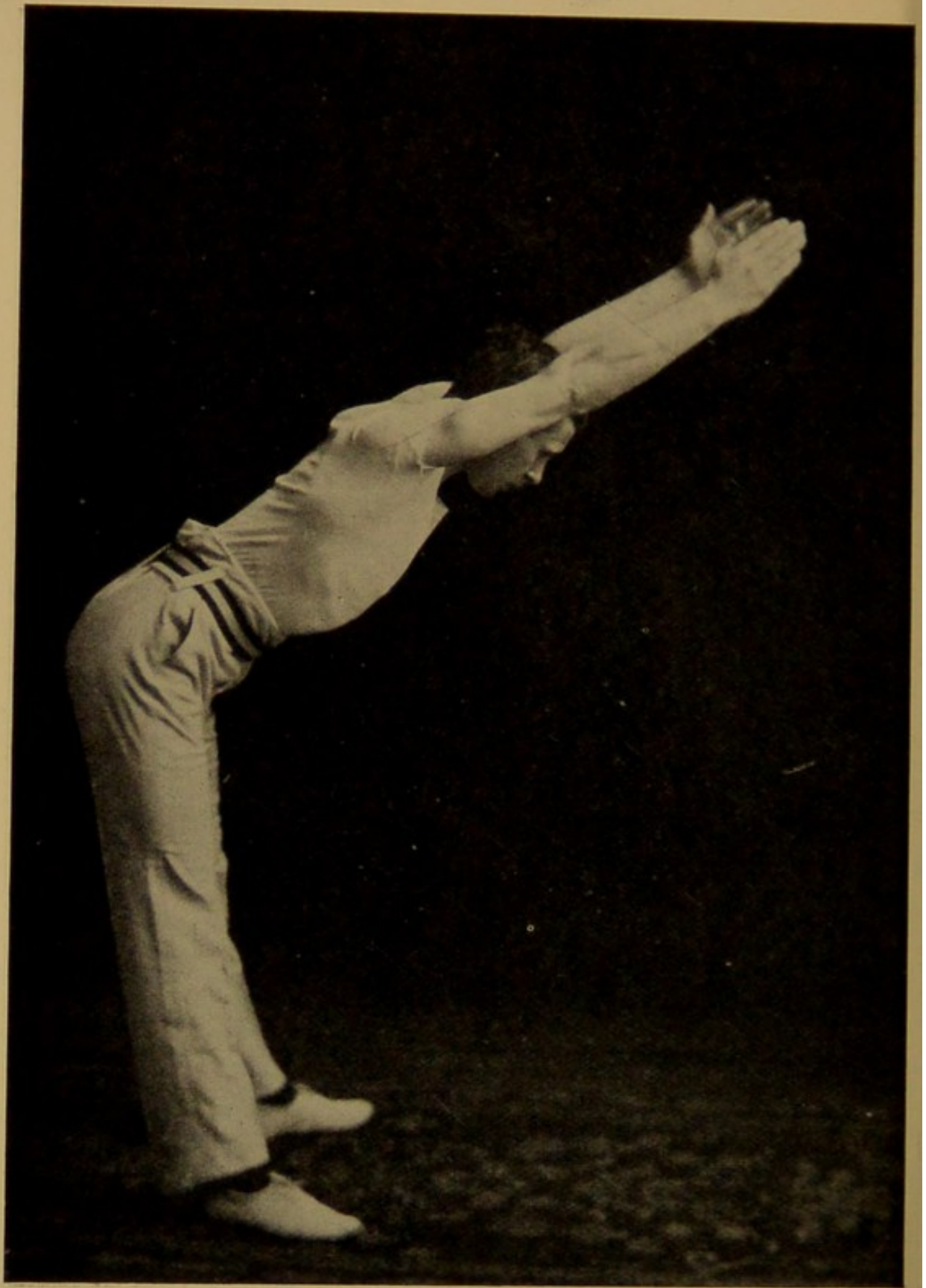


FIG. 25.

GROUP III. No. 6

UPWARD JUMP

Place both hands on the hips ; heels together and feet at a right angle. Now raise the heels and bend the knees, and in this position spring vigorously into the air, and come back on the same spot, upon the toes. Then stretch the knees and drop the heels. *Repeat three to six times.*

Take care to keep the upper part of the body straight throughout, not bending to the front. Also take care to land back on the toes, not on the heels. It is important to spring high, as only then is the proper and sufficient result obtained.

GROUP III. No. 7

STOOP-FALLING, ARM BENDING AND STRETCHING
(FIG. 26)

Place both hands on the floor as far apart as the breadth of the shoulders. Then stretch the body out straight and support it on the toes (Fig. 26, A). Now bend the arms slowly till the body is near the floor, without touching it however (Fig. 26, B). Remain in this position one to two seconds, and then stretch the arms again. *Repeat three to six times.*

Take care that the body remains stretched the whole time. It is easy to fall into the error of keeping the middle part of the body either too high or too low.

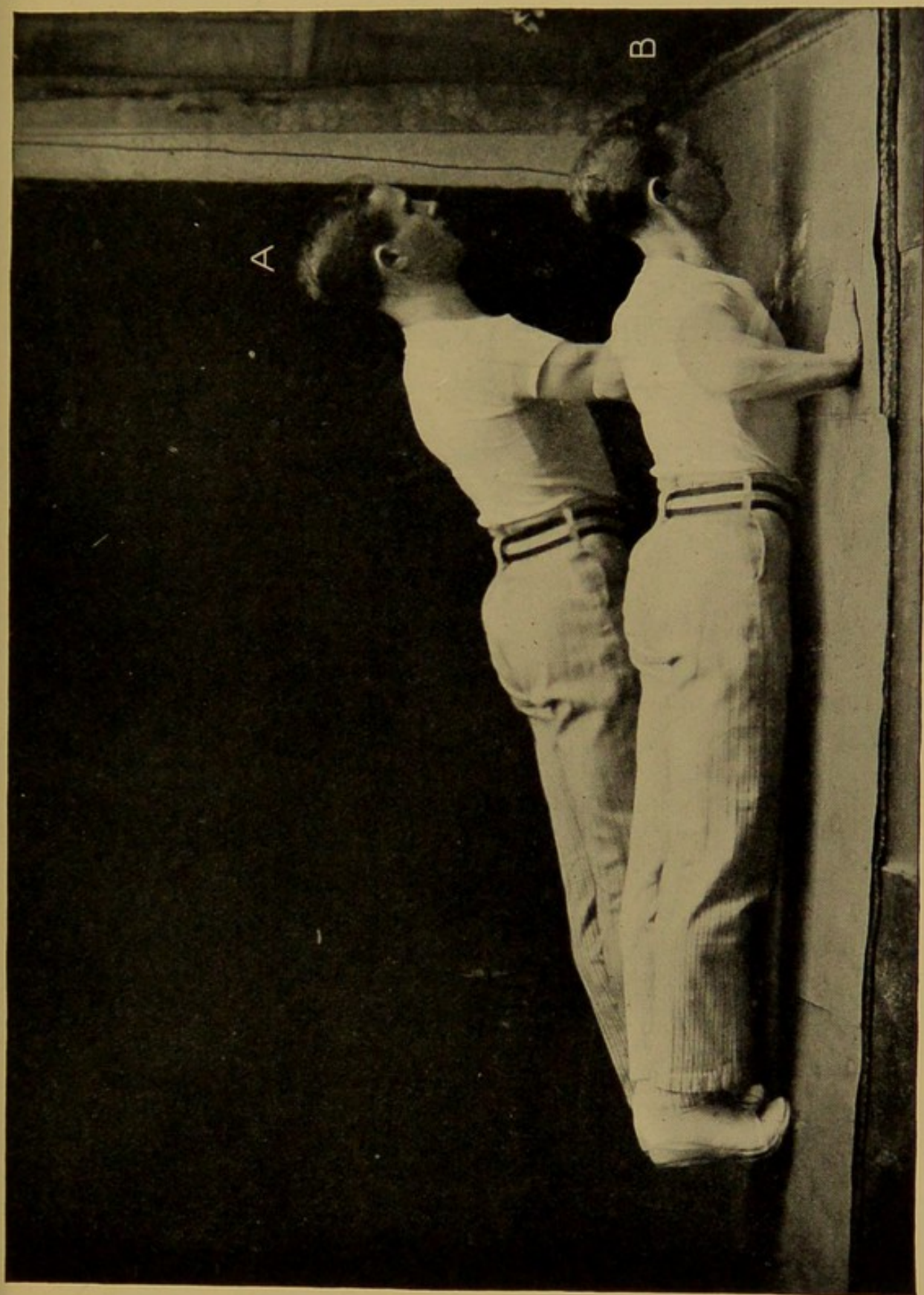


FIG. 26.

GROUP III. No. 8

STRETCH HORIZONTAL, BALANCE STANDING
(FIG. 27)

This is an excellent exercise for balancing, and imparts great strength and dexterity, if well and thoroughly done. Stand up straight; heels together and feet at a right angle. Now slowly bend the body forward and at the same time the left leg to the back, so that the left leg and the body remain in a straight line. At the same time raise the arms slowly upwards to the front, so that the arms, body, and left leg are in a horizontal line. The right leg must remain stretched. Remain thus quietly two to three seconds, and then return slowly to the normal position. Then repeat the same process with the right leg to the back (Fig. 27). *Repeat three to six times.*

This exercise must be done very evenly and smoothly, breathing deeply and freely throughout.

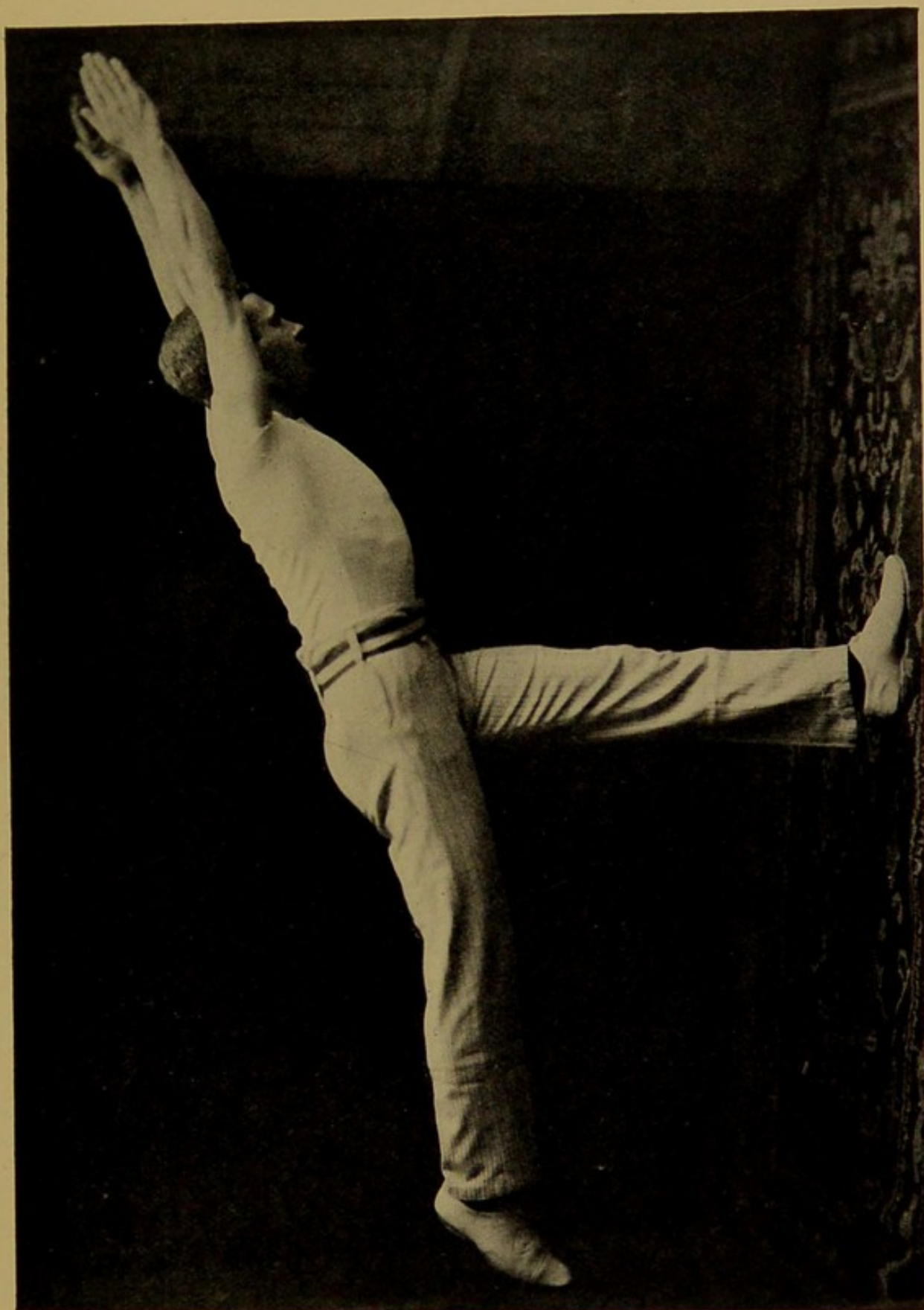


FIG. 27.

GROUP III. No. 9

STRETCH PRONE LYING (FIG. 28)

Lie upon the carpet or some substitute, stretched out to the full upon the front of the body, and stretch the arms upwards. Now at the same time raise the arms, head, and the upper part of the body, also the legs, as high as possible (Fig. 28). Remain thus two seconds and then go slowly into the original position. *Repeat three to six times.*

Take care that the head and arms come up quite high, and that the breathing is free and deep. Inhale while rising and exhale while dropping again.

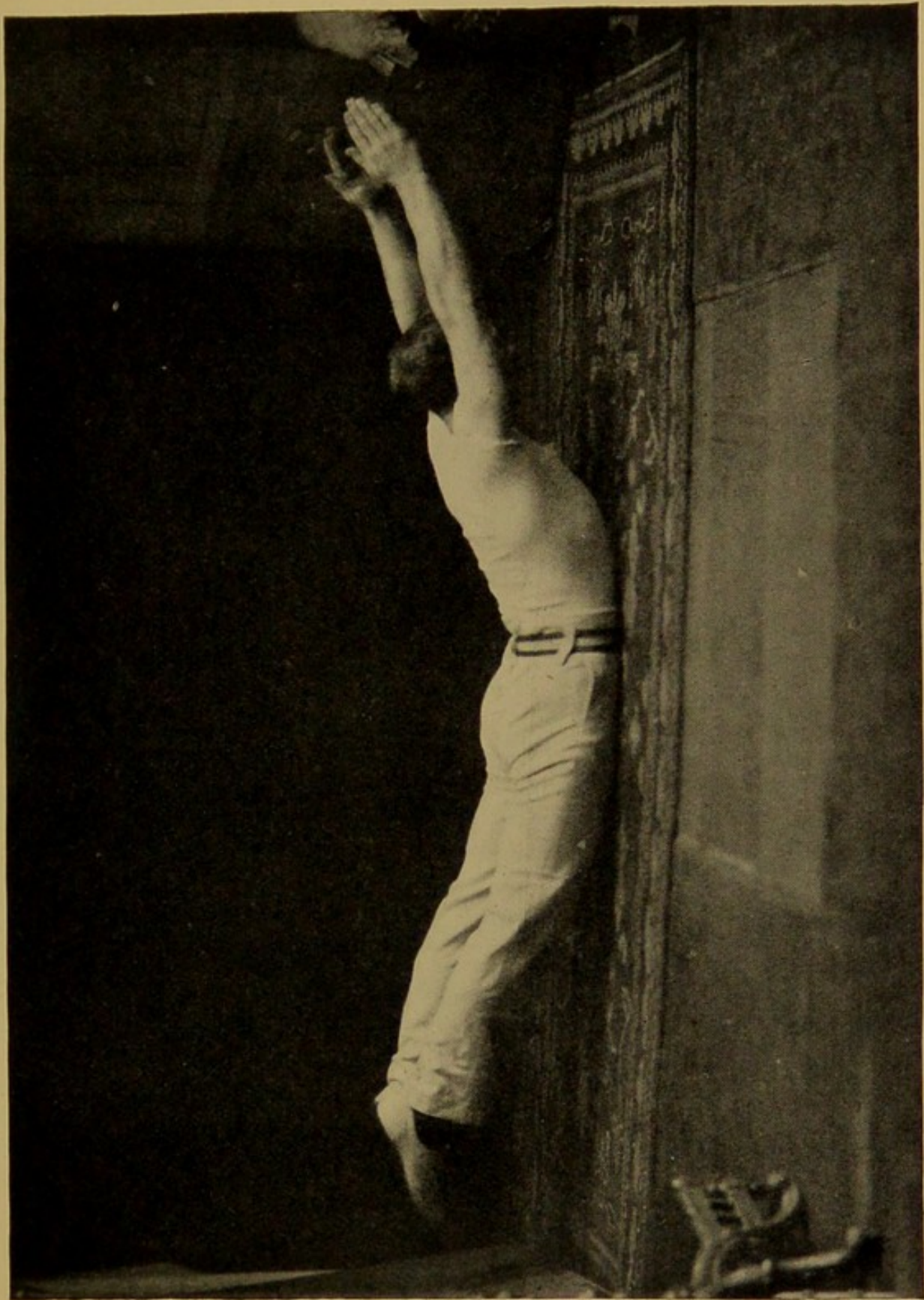


FIG. 28.

GROUP III. No. 10

STRETCH LYING ON THE BACK, LEG-RAISING
(FIG. 29)

Lie on the back stretched out full length, with the arms stretched upwards (Fig. 29, A). Now slowly raise the legs to an angle of 45° from the floor (Fig. 29, B). Remain thus one to two seconds, and then raise the legs upwards (Fig. 29, c). Here inhale and exhale once, and then let the legs slowly drop. *Repeat three to six times.*

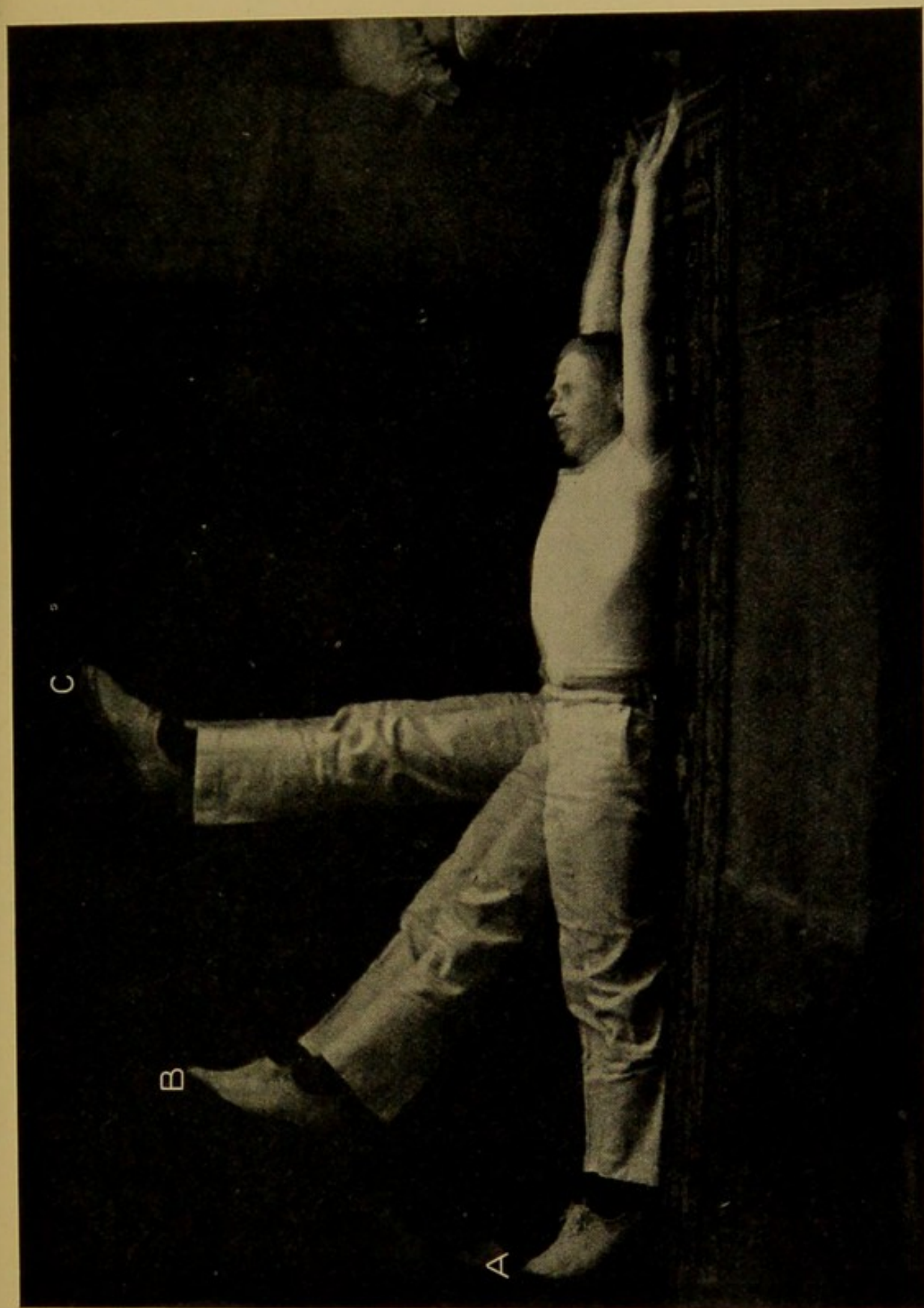


FIG. 29.

PART III

EXERCISES FOR THE CONVALESCENT

Exercises
during
convales-
cence.

It is very often difficult for persons who are weakened by reason of long illnesses to recover their strength. It is difficult to decide when convalescent persons may begin to use gymnastic exercises, as under such circumstances quite a slight strain may easily lead to disastrous consequences. Therefore I will here describe a few quite particularly easy exercises which are suited for the majority of convalescent persons, as soon as it is advisable for them to get about again a little.

Yet even these exercises, though so simple, must be started with great caution ; before starting them patients should consult their medical men. Even the very simplest exercise may cause an overstrain in the case of delicate persons, and is so much the more dangerous in a state of convalescence, while the body still has but little power of resistance. Therefore on the first day only the first exercise must be undertaken, and even this only gone through once or twice. The second day the first two exercises may be taken, and on the third day the first three : on the fourth day the first four, and so on, adding each day one exercise till on the

seventh day all are accomplished, but each exercise repeated only once or twice. After a little while, when the patient feels stronger, each exercise may be repeated three times ; again after a while longer four times, and so on till each is gone over six times. Naturally great attention must be paid to the breathing and other similar matters which I have indicated in the case of each exercise.

When the patient considers himself sufficiently strong to make it advisable to begin the first group of ordinary exercises, he must relax no caution, but begin and proceed only slowly and carefully and in the following exact manner.

Do not go through the whole group at once, but only the first three exercises and each exercise only twice. After two days the first four exercises of Group I. and every two days one exercise more, till in something like fifteen days all the exercises of Group I. are reached. Then, if the patient is feeling perfectly well, he may after a short time slowly begin to repeat each exercise three times, and then follow the further instructions given with the first group.

CONVALESCENT EXERCISE. No. 1

RAISING THE ARMS WHILE SITTING
(FIG. 30)

Sit comfortably on a chair, but as far as possible upright and in a good position. Now raise both arms slowly, sideways upwards (Fig. 30, A), and breathe deeply once simultaneously. Then drop the arms again and exhale once while doing so. Any one who is very weak need not at first raise the arms quite upwards, only horizontally (Fig. 30, B), and gradually each day higher. Instructions have already been given as to how often this exercise should be repeated.



FIG. 30.

CONVALESCENT EXERCISE. No 2

STRETCHING OF KNEES WHILE SITTING (FIG. 31)

Sit on a chair or high seat, so high that the feet do not touch the floor. Place the hands on the hips and take up a good position, then slowly stretch the knees (Fig. 31).

Remain a moment thus, and then drop down the feet again slowly.



FIG. 31.

CONVALESCENT EXERCISE. No. 3

BENDING THE HEAD WHILE SITTING (FIG. 32)

Sit on a chair with the hands on the hips, and bend back the head and neck, inhaling deeply all the while (Fig. 32). Then bend the head again to the front, while exhaling. If this exercise is done roughly it may cause a slight giddiness, so that some caution must be used, but the patient will soon get accustomed to the exercise and no longer experience any feeling of that kind.



FIG. 32.

CONVALESCENT EXERCISE. No. 4

RAISING THE TRUNK WHILE SITTING (FIG. 33)

Sit on a chair with the hands on the hips, and the feet on the floor, somewhat to the front. Now inhale deeply, and then bend the trunk forward, at the same time exhaling (Fig. 33). Raise the trunk again while inhaling deeply, and take care that the head and shoulders are well held back.



FIG. 33.

CONVALESCENT EXERCISE. No. 5

KNEE-RAISING, SUPPORTING WITH THE HANDS
(FIG. 34).

Stand upright, supporting yourself by placing the hands on the arm of a chair, or in some similar way. Now raise slowly first the left knee as high as possible (Fig. 34), and let it slowly drop again. Then raise and drop the right knee in the exact same manner. Take care to breathe well and deeply throughout.



FIG. 34.

CONVALESCENT EXERCISE. No. 6

TURNING THE TRUNK WHILE SITTING (FIG. 35)

Sit on a chair, both hands on the nape of the neck, so that the tips of the fingers touch. Head and elbows well back. Now turn the trunk first to the left as far as possible (Fig. 35), then slowly to the right, also as far as possible. Take care to breathe well and deeply the whole time. If it is too hard for a very delicate patient to hold the arms to the nape of the neck, he may at first place the hands on the hips, and only after some practice again try to keep the hands on the neck.



FIG. 35.

CONVALESCENT EXERCISE. No. 7

HEEL-RAISING (FIG. I)

Stand upright, and slowly raise the heels, and thus the whole body, as high as possible, inhaling meantime. Then drop the heels again while exhaling.

THE END



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