

# Practical Guide of Physical Education (1912 Edition) by Georges Hébert

translated into English by Pilou and Gregg

## Pilou's Foreword and Warning

This is an amateur translation of Georges Hébert's *Guide pratique d'éducation physique*, 2<sup>nd</sup> edition, 1912. The original work is over 500 pages, encompasses everything from building training grounds to muscular anatomy, and contains detailed theory and practical information. Faced with such a task, I decided to start translating things I was interested in, namely elementary exercises for building strength and flexibility and practical exercises of relevance for Parkour training. Meanwhile, Gregg started translating other parts of the book, and by encouraging each other we managed to cover almost everything. Gregg put his translations up on the APK forums, but I kept going with this booklet which has been compacted to under 100 pages(!). The original book comes with many photographs, and I tried to keep as many as I could in the text, although I didn't go through the hassle to reference them in the text. The translation is far from literal or complete, and thus contains some bias, although I tried to avoid interpreting or modernizing any of the text. In the very few cases Hébert's work seems at odds with modern knowledge or when extra caution seems needed, I added notes mentioning the differences, but did not change the original text. I included Gregg's more literal translation with some minor smoothing, and tried to indicate who did what.



Now, here must come a warning. Georges Hébert's legacy is much richer than a few guidebooks of physical education, and there is obviously more to the natural method than this. Followers of Georges Hébert are still active in France and Belgium, and one should seek their help and teachings to fully understand the natural method. This book merely offers a first taste of the method, incomplete and imperfect in many ways, and reading it will make no one a true expert of the art. Nevertheless, I hope it will intrigue and inspire traceurs and traceuses to explore Hébert's ideas on physical education, complement their training with some of the exercises described, and seek out Hébert's followers to learn more.

Pilou, November 2009

## Foreword

[translator's note: the following chapters are from Gregg's translation, with a bit of polishing for the French expressions. Apart from the foreword, I have also removed or shortened repetitive sections or other lengthy descriptions, according to my own personal judgment. Some edited parts are indicated, and I recommend that you go to Gregg's m literal online version for more details on the theory part.]

The driving thought behind this Practical Guide of Physical Education was to compose a method, a practical system to reach full physical development through the most effective, fastest and simplest ways. This method is no theoretical essay, it is the result of more than five years of practical, daily teaching and training thousands of subjects of various ages, strengths and walks of life, from school children to French navy officers.

It is important to understand that the exercises of our method are not new: in any culture where physical prowess is valued, such exercises have been used. Progress in physical education does not come from inventing new exercises, but from understanding well the effects of the existing ones and combining them to reach more efficiently the goal of physical improvement. It is mostly a better way of working. Our approach includes:

- an essential part made of eight practical exercises: walking, running, jumping, swimming, climbing, lifting, throwing, and defending.
- a preparatory part made of elementary exercises which target the different parts of the body: simple and combined movements of the arms, legs, and trunk, allowed by the normal play of joints, suspensions, planks, balancing, hopping, respiratory movements;
- a complementary part made of games, sports of all kinds, and the most common manual labor.

The eight practical exercises don't have the same importance. It is evident that the exercises which develop physical endurance by augmenting the power of the heart and lungs are the most useful and practical. Running is the primary exercise in our system. Elementary education exercises develop the body, but don't overestimate their value. They produce many of the effects needed for the practical exercises, but are insufficient by themselves to reach full physical development. You don't get the coordination needed in practical situations by analyzing muscles and organs separately. Games, sports, and manual labor complete the method and provide the means to learn all the branches of physical activity.

Our method of work is very simple and practical. It is appropriate for everyone. It is applicable everywhere: it doesn't require special installations. It depends more on the manner of training, the wise use of the resources, location and terrain we have. Our physical education method includes training against the effects of cold and bad weather. It is done naturally by working bare chested as often as possible, and taking air baths in all seasons. The air bath is a powerful means of hardening the body while maintaining good health. After the excellent results we've seen, we can't recommend it too much. In summary, our method is essentially practical, and tends to form strong beings capable of executing all the practical exercises and possessing a minimum degree of aptitude in relation to their age and constitution. We define this minimum degree in a precise fashion.

One of the most important and original parts of our method is in determining physical aptitude and recording the results. It's indispensable to know at any time a subject's practical value and to have a clear idea of his physical power or absolute general force. We created a form to register the results of twelve classic tests, listed according to a determined level of aptitude. The twelve tests are combined so that together they determine in a sufficiently precise fashion, and evaluate numerically, the general physical worth or degree of physical aptitude of a particular subject. If one considers that the principle elements of physical power, or absolute general force are: endurance, muscular strength, skill and coordination, as well as nervous and moral energy, it is very evident that such a determination or evaluation, presented in numeric form, is a difficult problem to solve. We don't claim to have the solution, nor the defining formula to evaluate the power of the human machine. But this form gives a fairly accurate measure of physical aptitude. Only long experience permits the modification or completion of this form and awards the coefficients of each test.

Examining the tests of the form shows that:

1. force of resistance is evaluated by five tests: the 100 m run [speed], 500 m run [speed and endurance], 1500 m run [endurance]; the 100 meter swim [speed and endurance]; diving under the water [respiratory power]. As well, executing all exercises required by the series of twelve tests in the same day also engages the subject's force of resistance;
2. Muscular strength is represented by the two-handed weight lifting, the throw, and rope climbing.
3. Skill, agility, flexibility, the coordination of movements are indicated by the four types of jumps:

standing high jump, running high jump, standing long jump, and running long jump, and by the running and swimming as well.

4 – The energetic qualities are seen in the execution of the series of the twelve tests without failing and with, on the contrary, giving to each of them one's maximum effort.

The choice of tests is made to give the force of resistance and agility priority over muscular strength. In other words, for equal muscular strength, the more resistant and the more agile of two subjects submitted to the tests obtains a superior total number of points. This is logical and corresponds to our definition of a strong and complete man; strength lives more in the heart and lungs than in the muscles.

Even though it is not a perfect evaluation formula for physical power, the form is, in all cases, a very practical way to control and observe the results. It permits to follow easily one's progress, to direct the work in the needed direction, to uncover all the weak points of one's education. Each subject can not pursue his physical education without periodically submitting to the twelve classic tests which measure the value of his general physical state and the scope of his progress. The form is at the same time the control instrument of the work accomplished and the device to register the results obtained. It is the major guide of the instructor and the student.

In short, the form presents the following advantages:

1. It marks the physical aptitude, which has for immediate consequence to make progress tangible, an essential conditions to keep the instruction interesting.
2. It clearly states the qualities which characterize a strong and complete man, and gives a fair idea of what makes up strength. It removes all the prejudiced points of view, while having practical significance. The subject who succeeds at the series of twelve tests proves at the same time his aptitudes in the most important natural exercises: He can run (and walk), jump, swim, climb, lift and throw.
3. It provides for each test aptitude levels which give valuable indications to students and teachers. The figures given in the rating of performance are established for the average of the weakest subjects.
4. It shows, by age, the minimum degree of aptitude to be possessed to be more than a physical failure.
5. It forces to neglect nothing in the search of the qualities which make up physical development; it prevents all absolute specialization.

Having proposed this, one is all surprised to see champion specialists of all kinds asked to prove their skills through the twelve tests present a low general physical value, often even lower than subjects who only have average skills in all domains. Why be a champion jumper or a special team member in any sport, if you cannot climb or swim?

We differentiate the subjects by giving them an idea of their value, not by a simple sentimental appraisal as is done in almost all gymnastics competitions or examinations, but by executing a series of measurable tests. When several subjects receive equal ratings, from a general physical value, then we use the defense exercises, boxing and wrestling, to differentiate them. In a word, with equal general physical values, the stronger is the winner in the defense exercises. It immediately creates emulation by clearly indicating the concrete goal to achieve, in giving everyone the measure of their value and proving to the weak their uselessness, which excites their self-esteem.

Our method is designed and developed in such a way that with the concepts contained in the book, and without possessing superior physical skills or special knowledge, it is perfectly possible to teach or to conduct exercises in a very rational manner. The role of the educator is certainly difficult: it can only be fulfilled perfectly by people with a profound knowledge of anatomy, physiology, hygiene, and the science of the mechanics of movement. They must be, in addition, skillful and experienced

practitioners. This category of specialists is still extremely rare. They are evidently necessary to take education in an enlightened direction, to make progress and help form professors and instructors. But under the pretext that these are the type of educators we need, we should not assume that physical education presents insurmountable difficulties and remains the exclusive domain of such specialists. We argue, on the contrary, that those who already have care of souls: parents, teachers, professors, officers, directors of companies and so forth., may well, with our book, conduct physical exercises. It is sufficient that they go to the trouble to understand deeply the spirit of the method and that they commit firmly to exercising themselves. They will soon see that there is no need to be an exceptional subject for walking, running, jumping, swimming, etc. and correctly execute most of the exercises. They must also be persuaded that with work first, with care and precautions following, it is possible to achieve excellent results. There is no example of subjects who, having worked with perseverance during the required time, did not come to perfecting themselves, if not completely, at least sufficiently.

Physical education starts at a young age and is pursued manhood. When perfection is attained one does not rest, but trains to stay in shape and maintain health by proper hygiene and a sufficient dose of exercise. There is interest to begin methodical physical education as early as possible, because children who engage in a good time of physical exercise always become robust men. However, even up to an advanced age, one may do physical re-education with success, taking precautions a physician may recommend. The results are obviously less good, but they are no less significant. All the genres of indispensable utility exercises may be practiced by children, as long as the work dose is intelligently regulated and a very gentle progression is consciously observed during the execution and especially during the apprenticeship. An exercise, whatever it is, is not violent if we chose to make it so. We must not show too much fear about teaching practical exercises to young children. Indeed, a child has to learn to handle all the situations his life will bring. He may need to escape from danger, to bring aid to his one of his comrades, defend himself against an aggressor his age, etc. He often even seeks, by instinct, exercises said to be violent. Although the Practical Guide to Physical Education is specially written for male subjects, most of the exercises in this book, particularly the basic educational exercises, can be practiced by girls and women. Understand that training subjects following the principles exposed here should not have infirmities or serious hereditary defects (hernias, heart problems, etc.). In the latter case, doctors should always be consulted and asked what to do.

Finally, we must add that a complete physical education is not limited solely to the teaching and practice of physical exercises of all kinds in our book. It also includes: rules of hygiene and maintenance of good health; and teachings of physical duties, constituting what might be called "natural morality". All these parts of education, important because of their influence over the entire existence, should be the teaching goals of doctors.

Complete physical education includes the development of moral or manly qualities which make true men. We have indicated these qualities throughout this book without examining in detail the best ways to acquire them. But we wish to be very precise on this subject: moral or manly education is inseparable from the purely physical education. The school of physical exercises should be at the same time the school of energy, commitment, courage, composure and daring. The teacher must be an example of these qualities; he must struggle against laziness, softness, inaction and must seed in all a love of work and a healthy competitiveness.

Seek to be strong not only physically but morally. Here is the great duty of man to himself, to his family, his homeland and to humanity. Only the strong will become useful in difficult circumstances of life, dangers, evils of all kinds, wars, etc. When you are in normal physical condition, there is no reason, no excuse to stay feeble when reasoned and methodical work permit you to become strong. There is, as noted above, an individual and social duty to fulfill. We would be very happy if we are able to help this accomplishment in our readers.

## Practical Physical Education Theory

[translator's note: starting from here to the exercises descriptions, the original text is very repetitive as Georges Hébert was fighting hard to defend his views; the following translations have been seriously edited and shortened. Please check Gregg's online translation for the full version.]

Activity is a law of nature. All living beings, obeying the natural need for activity that is in them, come to a complete physical development by the simple use of their organs of locomotion, their ways of work and defense. The man in the state of nature, forced to lead an active life to support himself, realizes a full physical development by doing only useful and natural exercises and executing the most common physical labor.



Development is generally adapted to the conditions and needs of the environment in which the individual is required to move. The value of this development varies depending on the original skills of the individual, his temperament, his constitution, the climate of the place where he lives, and the challenges he encounters to provide for his needs or to ensure his safety.

In civilized countries, social obligations, conventions and prejudices move man away from the natural life outdoors and often prevent the exercise of his activity. His physical development is slowed or halted by these obligations or conventions. Those who have the leisure to exercise sufficiently and regularly can reach, without any method, their complete development by simple practice of natural exercises or their derivatives and by the completion of common manual labor. In this they imitate men living in the state of nature, with the difference that they do for pleasure what other people do out of necessity.

These subjects are obviously the exception. In general, the prejudice and habits of modern life restrain rather than encourage physical activity from childhood on. Ease of existence and comfort encourage physical laziness. We can find examples of subjects who acquired without method an almost complete development, but they generally had excellent natural dispositions and achieved such a result mostly from games and sports involving natural exercises and their derivatives.

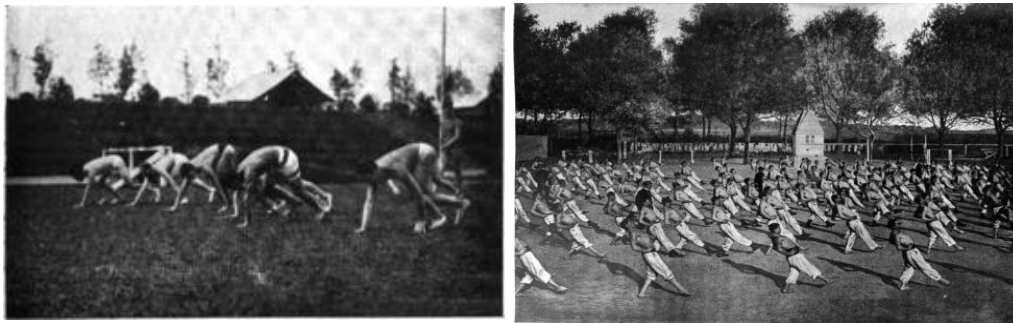
For an average inhabitant of the civilized country to reach a complete physical development while remaining faithful to social conventions and obligations, he must subject himself to two main requirements: to devote enough time daily to the culture of the body, and to make efficient use of that time by avoiding useless activities. The ideal is to produce, within a given time and without harming the organism, a dose of activity roughly equal to a full day of outdoor life in the state of nature.

The culture of the body made in a steady, continuous and progressive manner is physical education. Without order or method, the physical development is acquired haphazard and its final value is highly uncertain. Methodical or rational education enhance accuracy, avoids guesswork, rejects everything that is unnecessary and monitors results. It allows you to walk with confidence towards the goal of full physical development, especially important when activity time is limited.

Choosing exercises according to the knowledge of their effects on the body, classifying and regulating their dose make the method of education. The uncivilized subject perfected himself, first by imitation, then by using his personal experience, mostly instinctively. The method, by contrast, helps from the

outset the civilized subject by showing him the best principles to follow. It avoids a large number of unsuccessful tests or dangerous personal experiences. It allows to save time. It aims to produce in the human machine the maximum performance or, more simply, it seeks to make strong beings, with enhanced health, an energetic character, strong resistance to fatigue and skills sufficient for any natural and practical exercises. Other types of exercises such as fencing, riding, rowing, ... are of secondary utility or limited to certain categories of people; games, sports or acrobatics are also not essential for all individuals, irrespective of profession or class. There is, therefore, a general type of rational method or system of human development, based on progressive training work and the consistent practice of the natural and practical exercises. We can call it the natural method.

## Constitutive Elements of the Method



Any physical education method should include two components: a learning part aimed at educating the body, improving endurance, strength and flexibility, teaching the basic techniques for elementary and practical exercises like walking, running, jumping, lifting, climbing, throwing, swimming and defending; and an application part aimed at developing to the highest degree the practical abilities, putting them to use, and providing the means to cope with many real life situations.

## Work Method

The combination of different exercises makes up the method of education, their classification, their order of execution, the relative time devoted to them, the expense of work required, make the method of work. In physical education, as in all other matters, the results depend not only on the amount of work but, for the most part, on the method of work.

It is not possible to define absolutely clearly and precisely what should be the method of work; one can hardly state the guidelines and general principles. Too many elements come into account to let everything be set in advance. Age, health of subjects, the activity they perform or they are preparing for, the circumstances of time or place are all factors that require changing the way to work. Some details are left to the discretion of the master and the student. It is an art to train how to teach and nothing can replace the value and experience of the master, or the enthusiasm and the care taken by the student.

Physical work is usually set into meetings of a fixed period during which one performs a number of exercises. The meeting is called lesson when the work is set and led by a teacher or an instructor. Giving or conducting a meeting of rational work or a correct lesson is not a juxtaposition, a gathering of exercises which are executed at random without order or method. It is a logical suite of varied and graduated exercises which interest the different parts of the body according to their relative

physiological importance and which have a practical utility.

The order of relative physiological importance of the different parts of the body is:

1. lungs and heart; 2. muscles that set the shoulder back, raise the ribs and straighten the curvature of the spine (trapezius, rhomboid and back); 3. abdominal muscles; 4. muscles of the limbs.

The exercises that have practical use are: walking, running, jumping, swimming, climbing, lifting, throwing and defending. The most important of all is running, both from the practical (development of the ability to move fast or for a long time) and physiological (intense development of the lungs and heart, activation almost complete of the muscular system) points of view. It is the basic or fundamental exercise of physical education by the natural method.

A work meeting or a lesson is considered complete when the execution of the various exercises that comprise it ultimately produce the following effects: hygienic, aesthetic and utilitarian. The hygienic effect is produced, especially by exercises that activate the respiration and circulation, and, in general, the activity during the meeting or lesson. The aesthetic effect is produced by the exercises that develop the muscular system and also by those who address the bad posture of the shoulders, raise the ribs and get rid of the abnormal curvature of the spine. Finally, the utility effect is the result of doing the practical utilitarian exercises.

As a general rule a complete meeting or lesson is a summary, i.e. it must represent all the elements that contribute to physical development. Practically, the ideal and complete meeting consists of all possible types of exercises, educational and practical. If it is not possible, do the minimum as follows: 1. stretching of the limbs and trunk; 2. development of the muscular system, especially the abdominal and back muscles; 3. suspensions and planks; 4. running; 5. jumping; 6. respiratory exercises.

Even in the most unfavorable situations: lack of time, space, material, etc., a session or lesson must never consist of exercises which focus only on parts of the body. For example, a meeting of only suspension exercises would only work the upper trunk. Only swimming, which brings together all the effects of the complete session, is an exception to the rule. Long walks, long distance runs, and some games may also constitute meetings with a sufficiently complete value, in some cases.

The order in which you perform the exercises is not random, but based on the expenditure of work and the violence of successive efforts demanded of the body. The meeting always begins with moderate exercises which warm the body, then goes through exercises that require an increasing expenditure of effort and finally ends with exercises to restore calm in the body. Fatigue resulting from the lesson must come from the general work of the whole body, not only the work of one part.

There is not an absolute order; It all depends on the importance that we decide to give different exercises, even beyond their violence. Some, such as the basic movements of the legs, arms and trunk only produce a low output of work regardless of the energy spent to do them. Their place is at the start of the meeting, or in the course of the meeting as derivatives, to provide a rest after more violent drills. Others, however, such as hopping, racing, jumping, etc. put the important parts of the body into action. Their logical place is therefore after less violent exercises when the "organic machine" is sufficiently "heated". The general rule of work is as follows: gradually increase the effort to produce and stop without abruptness.

The total duration of a meeting or lesson varies depending on circumstances. In principle, working daily for an hour is sufficient for the education of the body, if this time is used wisely. The relative duration of different exercises is necessarily very variable. It depends: on the total duration of the "lesson", on the violence of the exercises or the fatigue caused to the students, on the importance that

you want to give some exercises to produce a particular effect. A meeting or lesson, complete or not, must truly represent a sustained and continuous work. The resting part in the course of the meeting should be kept to an essential minimum. In a perfectly conducted meeting, the sequence of exercises is set so that the rest period is reduced to a few seconds. Often, no rest is required. Only the change from one exercise to another must get the body the rest and relaxation essential to continue the work.

## **Model training session**

To well educate the body, the exercises must be incorporated into training sessions planned to logically and gradually combine the different types of exercises. An ideal session should include the following exercises, in successive groups:

### Group 1.

1. Walks of all sorts
2. Posture-correcting movements
3. Movements to increase flexibility in the legs, arms and core

### Group 2.

1. Elementary exercises of the legs and arms, simple or combined, freehand or with equipment
2. Lifting exercises
3. Throwing exercises
4. Defense exercises: boxing and wrestling

### Group 3.

1. Suspensions
2. Planks
3. Climbs of all sorts
4. Balancing exercises

### Group 4.

1. Hopping exercises
2. Speed races
3. Endurance races on small distances

### Group 5.

Core exercises

### Group 6.

1. Jumping and vaulting
2. Races, as in group 4
3. Swimming
4. Games

### Group 7.

1. Breathing exercises
2. Walks

In the following pages, we present multiple exercises for all the elementary and practical types of exercises. Exercises are roughly ordered in terms of increasing complexity and difficulty within each group.



## Measurement of the results

The periodic observation of the results is essential to have precise indications of the value of the work accomplished, and the efficiency of the method used. This observation is effective for comparison. The difference in value of performances or exercises accomplished in two different times practically gives the value of the results acquired.

The general physical aptitude can be measured by a number of tests set on a scale and that involve, together or separately, muscular strength, skill, and force of resistance. The tests needed to determine this measure of general physical aptitude should at least include the following exercises:

- 1 – Jumps (giving the measure of agility, flexibility, and the power of the lower limbs);
- 2 – Speed and endurance runs (organic resistance);
- 3 – Climbing the smooth rope (muscular strength of the upper trunk, arms and abdomen);
- 4 – Throwing a weight (dexterity, coordination of movements)
- 5 – Lifting a weight with two hands (general muscular strength);
- 6 – Swimming (muscular strength, force of resistance, dexterity and flexibility).

The larger the number of tests, the better is the measure of physical aptitude. To mark this measure, performances for each test are given in points on a scale established in the following fashion: performance corresponding to a number of points, zero indicates a minimum that every adult at least 18 years old of average health should reach to be considered . It is essential that the practice of application exercises lets one attain the minimum as rapidly as possible. Performances corresponding to 3 points characterize subjects developed and trained in a superior fashion. Performances corresponding to 5 points characterize subjects with exceptional aptitudes or specialists who have practiced physical exercises for a long time. Finally, by continuing the indicated scale, the performances of 12 to 15 points correspond approximately with records established by elite subjects, approaching the limits of human power.

To keep the measure of a subject's aptitude and to follow his progress, one needs to make a form for him recording the tests and his scores. The ideal form is made of 12 tests, however a sufficiently accurate indication of one's aptitudes can be obtained with fewer tests. The following table shows the 12 tests and the number of points attributed to each level of performance (this system of measurable tests and the form that we have personally established and put in practice at the School of Marine Riflemen has been officially approved and made regulatory in the French Navy).

Aptitude is given by the total number of points obtained in each test, computed to the hundredth of point. One can give negative points to performances lower than 0, or points higher than 5, by extrapolating the gradation given for each test. The physical aptitude is called: insufficient or null, when the total number of points is less than 0; inferior when it is at least equal to 0; average when it is at least equal to 18; superior when it is at least equal to 36; exceptional when it is at least equal to 60.

By definition, a complete and perfect athlete excels in all the exercises; he must possess an exceptional aptitude in each of the tests of the form. Thus, the number of 60 points must not be attained by the accomplishment of a couple extraordinary performances which compensate for other very inferior ones., but by reaching 5 points in every and all of the tests.

[translator's note: there is a more detailed table going from -5 to +15 in another of Georges Hébert's books also available from Google books.]

**Series of the tests and their ratings**

High jump without run-up <sup>1</sup> 0.80 meter 0 points 0.90 m 1 1.00 m 2 1.05 m 3 1.10 m 4 1.15 m 5	High jump with run-up <sup>1</sup> 1 meter 0 points 1.10 m 1 1.20 m 2 1.30 m 3 1.35 m 4 1.40 m 5	Long jump without run-up <sup>2</sup> 2 meters 0 points 2.10 m 1 2.20 m 2 2.30 m 3 2.40 m 4 2.50 m 5	Long jump with run-up <sup>2</sup> 3 meters 0 points 3.50 m 1 4.00 m 2 4.50 m 3 4.75 m 4 5.00 m 5
Run 100 m 16 seconds 0 points 15 s 1 14.5 s 2 14 s 3 13.5 s 4 13 s 5	Run 500 m 1 m 40 s 0 points 1 m 36 s 1 1 m 32 s 2 1 m 28 s 3 1 m 26 s 4 1 m 24 s 5	Run 1500 m 6 minutes 0 points 5 m 40 s 1 5 m 30 s 2 5 m 20 s 3 5 m 10 s 4 5 m 5 s 5	Rope climb <sup>3</sup> 5 meters 0 points 6 m 1 7 m 2 8 m 3 9 m 4 10 m 5
Weight throw (7.25 kg) <sup>4</sup> 5 meters 0 points 6 m 1 7 m 2 8 m 3 8.5 m 4 9 m 5	Weight lift (40 kg) <sup>5</sup> x 1 time 0 points x 2 1 x 4 2 x 6 3 x 8 4 x 10 5	Swim 100 m <sup>6</sup> 3 minutes 0 points 2 m 48 s 1 2 m 36 s 2 2 m 24 s 3 2 m 12 s 4 2 m 5	Dive underwater <sup>7</sup> 10 seconds 0 points 20 s 1 30 s 2 40 s 3 50 s 4 60 s 5

Notes on the tests:

1. Any height is considered as not passed if any part of the body has touched the indicating rope or bar. Before a standing jump, it is prohibited to move the feet.
2. Distances are measured from the jump line to the heel closest to this line, assuming the jumper does not fall backwards after landing.
3. Departure takes place seated on the ground and the climb is done without help from the legs.
4. Any run-up is done inside a square 2 meters each side; it is prohibited to exit the square. The throw distance is measured from the line marking the square to the center of the print made by the fall of the weight. Take the average of the right and left hand throws.
5. The test counts successive lifts in proper "clean and press", with the legs stiff. Resting time of one second at the shoulders, the arms vertically straight and the trunk slightly forward. The negative scale corresponds to lifting less than 40 kg at the rate of one point per 5 kg difference.
6. The swim must be done without appreciable current.
7. The body must be entirely immersed. The negative scale is established at one point per each two seconds less than 10 seconds.

[translator's note: for those not familiar with the metric system, here are approximate conversions:

1 m = 3.3 ft, 2 m = 6.5 ft, 3 m = 10 ft, 4 m = 13 ft, 5 m = 16.5 ft, 100 m = 109 yd, 500 m = 545 yd = 1/3 mi, 1500 m = 9/10 mi, 5 kg = 11 lbs, 7.25 kg = 16 lbs, 40kg = 88 lbs]

## Goal of physical education

The final goal of physical education is to make strong beings, not specialists who excels in a single type of exercises or extraordinary subjects of acrobatic prowess, but beings developed physically in a complete and useful manner. The value of physical development varies between individuals, depending on their initial potential. There is for everyone a personal level of vitality and a maximum physical power that is impossible to exceed. An easy work for some is a superhuman effort to accomplish for others. The strong being is he, who by methodical work, has arrived to take his power to a degree near his maximum.

A subject gifted by heredity with a vigorous constitution may be relatively weak if, by laziness or for any other cause, the physical power which he possesses has an inferior value to that which his constitution would be able to permit him to attain. On the other hand, a subject with an average constitution, or even weak, is able to be strong if, by work and perseverance, he can attain the degree of improvement corresponding to his constitution. A subject of average constitution, of small size or low weight, without any special natural aptitude, but who is physically perfect, is practically superior in existence to a much better gifted subject, who possesses a more vigorous constitution, but not fully using his natural force and wasting it.

Methodical physical education is not the only way to physical perfection. Certain subjects profit from that which has been passed on through heredity. Without needing physical education, and with very little work, one may arrive to possess an absolute force much superior than the average. But these subjects make up a tiny exception. Many are content to rest on their natural superiority and do not seek to push forward their improvement. Complete physical improvement, resulting from the methodical physical education, translates finally for the acquisition of a certain number of qualities:

- 1- The force of resistance or the faculty to do a considerable amount of work without fatigue and wrestle against sickness. This force, the most important of all to possess, depends entirely on the state of the organs and of the regular accomplishment of their functions;
- 2 – Muscular strength or the faculty to produce muscular efforts of a certain intensity, but of short duration. It depends directly on the development of the muscles (not of their absolute size) and also of the force of the will;
- 3 – Skill or the judicious and economic use of strength in all exercises;
- 4 – Manly qualities: will, energy, courage, boldness, coolness, perseverance, tenacity, firmness, etc.
- 5 – Knowledge and sufficient practice of all the natural and useful exercises;
- 6 – Complete muscular development, in rapport with the bone structure, with a very apparent modeling of the muscles.

One may also add to this list: resistance to cold and bad weather; knowledge of the best ways to care for oneself, feed oneself, etc. When the same subject has all the previous qualities developed to an exceptional degree, he is an athlete. Unfortunately we can not develop all individuals to the highest degree in order to make them athletes. Two things are opposed; on the one hand, the initial constitution of many subjects; on the other hand, the demands of today's society, which leaves a very limited time for physical education.

## Hygienic considerations

Physical exercises must take place in fresh air. Working in the open air is the characteristic of any rational method. Complete physical education can not be done in your room or in a closed gym. There are circumstances such as: beating rain, snow, impassable terrain, extreme cold, very violent winds, etc., where the exercises are forced inside, but this kind of work must still be regarded as an exception. In this case, always be careful to ensure ventilation of the premises as complete as possible, or, preferably working under simple shelters: sheds, covered playgrounds, etc.

Physical exercise should not be done immediately after eating. In the case of moderate work, an interval of one hour is enough for children, but for adults it is better to wait longer. Each time one wants to engage in violent exercise or produce great efforts, it is preferable to wait until digestion has finished, say 3 or 4 hours. One must not do considerably much work in the early morning.

Before work it is essential to remove all unnecessary or cumbersome clothing. The air bath (head, torso and legs bare) is a wonderful training in weather resistance along with the best care of the skin. The best clothes are: bare torso, simple boxer shorts, short or long canvas pants with an elastic belt if needed, light shoes or simply barefoot. Depending on the weather circumstances, the personal aptitude at the moment or the type of exercise to perform, add a knitted wool or cotton shirt. Particularly with regard to basic learning exercises, the clothes are not allowed in order to control the correctness of the movements. The work performed bare torso is essential to learn the movement mechanics; it allows to judge the appearance of the body, to see what parts are weak or poorly developed, to find defects or deformities. In group teaching this kind of work lets the subjects study each other, to see progress in their exterior development and watch on the body itself the role of the different muscles. When one only does basic education exercises, there is interest in working in front of a large enough mirror to be able to control oneself.

It is important to avoid the cold after working out, so we must remove clothes that would otherwise become wet with sweat. Clothing wet from sweat is not only the leading cause of colds and bronchitis, but they give the body a very unpleasant feeling. Anyone who has experienced that feeling naturally searches to avoid it, if he must be too dressed, by working with less effort. Light clothing avoids this inconvenience and stimulates the body to produce more work.

Training against the cold is made: by air, light and sun baths in every season, having at least the torso bare; by cold baths; by washing of all sorts, local or general, and equally by the following procedure which is very effective: walking barefoot in cold water, dew, humid terrain, etc. Resistance to cold is as part of physical education as the gymnastic exercises. It is why the bare torso must be the rule all the time when the atmospheric circumstances are not too unfavorable. One obtains in this fashion a very rapid endurance of the skin, and an extraordinary ability to adapt to all the brusque changes of temperature. It is not necessary to keep the torso bare during an entire training session; during winter air baths of short duration are sufficient.

Never stay inactive during sessions where one keeps the torso bare. As long as the organism works, there is no need to fear the cold, but a chill of the body before or after a workout presents a danger. During the bad season, if the cold is too biting, start the session by warming up the body hopping in place or with runs of short duration.

The skin must be maintained in a perfect state of cleanliness by washing, ablutions, dry or humid rubs, great baths, etc. It is an essential condition of hygiene. The effects of exercise are greatly augmented, from the hygienic point of view, if one finishes each session of work with a shower, ablution, a quick

swim, dry rub, humid rub, etc. The work done bare torso and in open air makes less necessary the treatment of the skin after the exercise, but after a work during which one stays dressed, particularly when one has perspired a lot, a cold ablution is essential.

No work can be sustained beyond certain limits. When one feels a certain difficulty to continue a certain work, it is because the body is suffering the attacks of fatigue. Rest is needed to put the body in a state to start again. We must consider local fatigue; general fatigue; breathlessness. Local fatigue comes from exaggerated work of one part of the muscular system. It produces muscle aches characterized by a certain stiffness in the muscles or a vivid pain during contraction. Experience shows that simple aches usually disappear in forty-eight hours, if one cares to rest the tired muscles about this long. Properly executed massage reduces the duration of the aches. Local ache presents no serious problem; It should be considered as an indication to cease work for a time. It always appears after a new exercise which works muscles that have remained inactive for some time.

General fatigue is felt throughout the body. It has three main stages: weariness, overwork and forcing. Weariness or light fatigue usually disappears after a good meal, a few hours of sleep or ordinary rest. Sometimes there is a low-grade fever, insomnia or loss of appetite. In this case, an extra rest will return the body to perfect condition. Overwork occurs when one starts to work again, while still weary. The body has not had the time needed to return to a satisfactory state and to repair itself. Troubles a bit more serious than fatigue can occur, especially if overwork continues for some time. The body becomes impoverished day by day and offers less resistance to disease. Forcing, the last degree of fatigue, is the result of a final effort of will to perform excessive work, while the body is already in a state of overwork. The muscles are stiff and can no longer obey the action of the will. It generally produces fainting and in some cases the consequences can be lethal.

Breathlessness is a special disorder of the circulation and respiration produced by the expenditure of excessive work in a very short time. In this state, breathing is constricted, the heart beats very fast; there can even be choking with complete inability to breathe. The lungs are saturated with carbonic acid, which they are unable to eliminate. This occurs especially in racing. The runner suffers choking, a beginning of asphyxiation. As soon as the first signs of shortness of breath occur, stop work and restore calm by breathing exercises or walking slowly, preferably on the points of the feet.

The rules on alternating work and rest concern the whole day and not only the special time devoted to physical exercises. The rest periods should be adjusted so that at each return to work all traces of fatigue have disappeared in the body. The general signs one recognizes if one has exceeded the limit of forces are: fever, insomnia or restless sleep, irritation, lack of appetite, digestive disorders, fatigue on awakening, pronounced aches, weakness in the legs, etc. The particular signs, during the work itself, indicating that it is time to stop are: general stiffness, trembling limbs, pallor of the face or extreme redness, repeated shortness of breath. After a day of busy work one should feel a very light sense of fatigue that should disappear entirely after a regular night's rest. General signs that indicate the amount of work is well-regulated are: a good appetite, a deep sleep, a feeling of well-being on awakening and no aches.

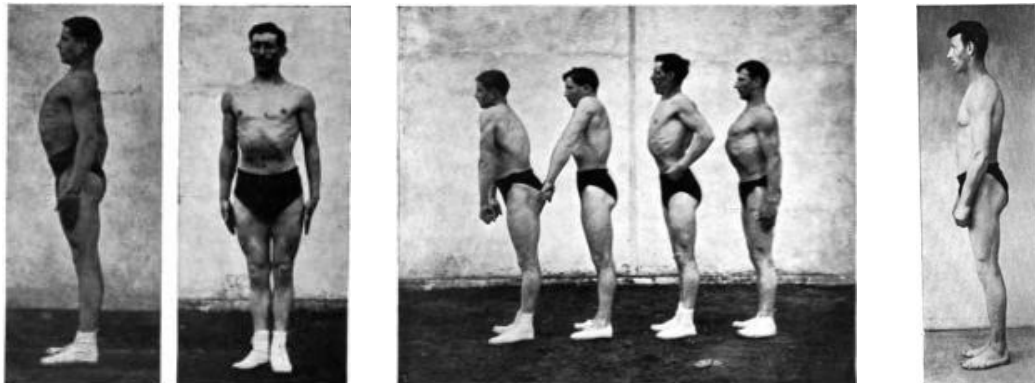
Each subject has a personal level of resistance. One must learn to monitor himself, to know his strength so as not to exceed or waste it in vain. The limits of fatigue such as breathlessness are significantly pushed back by training, work habits, regularity of breathing movements, well regulated eating, well-distributed rest, appropriate pace of work. For the same subject, the resistance differs according to circumstances, for instance fasting, vigils, temperature, or even emotions.

[translator's note: the two following chapters, group instruction and how to organize a training ground have been omitted here. Check out Gregg's online translation for it.]

# Elementary Exercises

[translator's note: from here on, the translation reproduces the full original text, unless stated.]

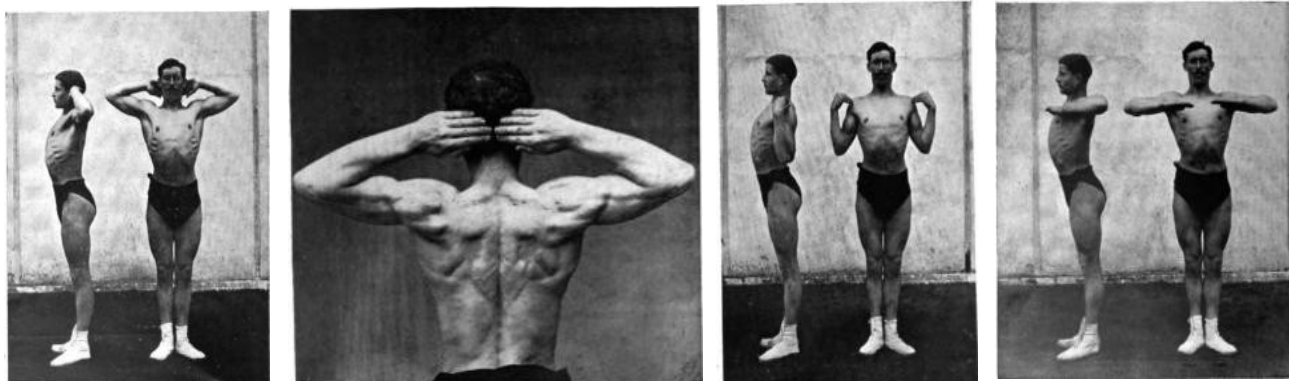
## 1. The straight posture and the fundamental arm positions



**Straight posture:** the neck is vertical; the chin is drawn back to force the neck backward; the shoulders are low and thrown back; the core is tight; the hips go forward; arms are loose, hands extended; legs are joined, feet at 60 degrees (first two pictures).

*To get there:* rotate shoulders backwards, straighten the neck and move the chin back, tighten the belly, straighten the legs, extend the arms and hands down (third picture) .

A poor posture is presented in the last picture.



**The four fundamental arm positions:** 1. hands to the hips; 2. hands to the back of the neck; 3. hands to the shoulders; 4. hands to the chest.

1. Hands to the hips: from the straight posture, bring the palms on top of the hips, fingers facing forward and thumbs back.
2. Hands to the back of the neck (first and second picture): from the straight posture, move arms laterally to bring hands to the back of the neck, palms flat. Bring elbows and chin back to maintain the straight posture.
3. Hands to the shoulders (third picture): from the straight posture, bend forearms without moving arms or shoulders. Hands should curve slightly to touch the shoulders, elbows are back and aligned with the body.

4. Hands to the chest (last picture): from the straight posture, move arms laterally, elbows back, forearms bent, hands flat facing down, thumbs touching the chest.

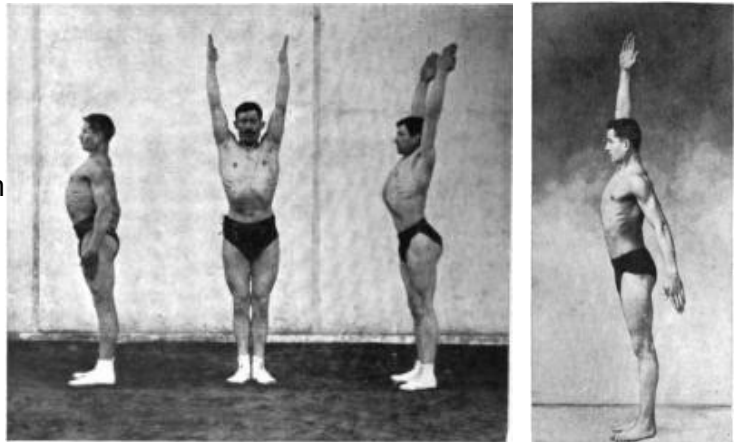
To get there: the arms position derive from the straight posture: rotate the shoulders back and put the hands to the correct position, straighten neck and chin, core and legs, bring shoulders and elbows as far back as possible.

**Straight posture, wider stance:** some moves require starting with the legs separated. Start with any of the four fundamental arm positions, then move left leg further to the side while bending slightly the right leg. Center the body, which should keep the straight posture all along.

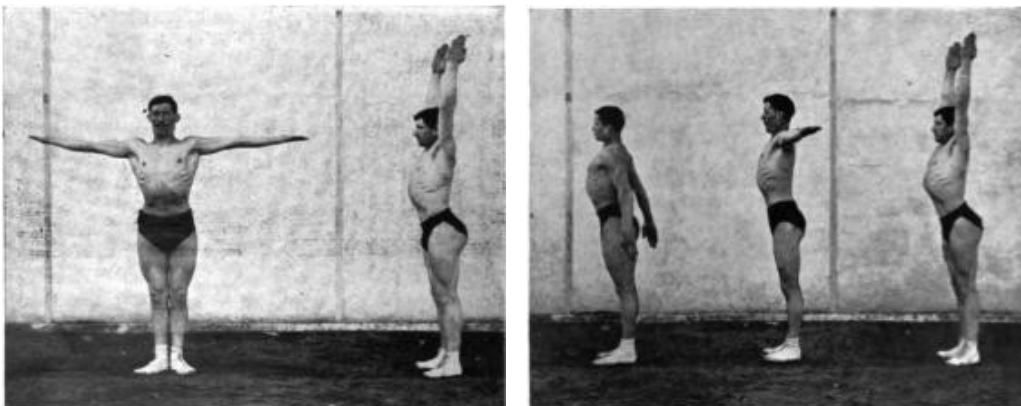
## 2. Arm exercises

Unless stated otherwise, all moves start from the straight posture.

**1. Raising the arms vertically:** *Both arms:* raise both arms forward at the same time, keeping them straight. Arms are parallel, palms facing each other, slightly forced beyond vertical toward the back. Go back to initial pose. *One arm at a time:* raise one arm as before, keeping the other one as far back as possible, palm facing back. Go back to initial pose.



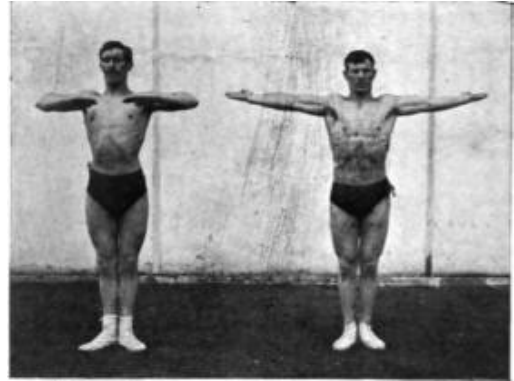
**2. Raising the arms laterally:** raise both arms laterally while rotating the shoulders back to bring the palms up. Continue all the way to vertical position, then back to horizontal arms. Rotate the shoulders to get back to the initial pose. The lateral position of the arms should be slightly forced beyond the line of the shoulders.



**3. Raising vertically and lowering laterally the arms:** bring the arms up as in first movement, bring them down as in second, including the rotation of the shoulders.

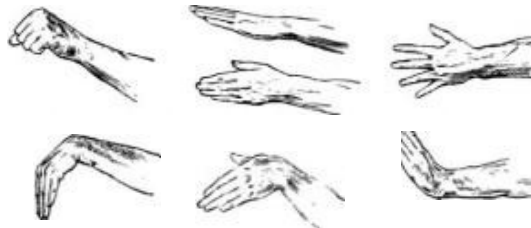
**4. Raising the arms back, laterally and vertically:** bring the arms up and back as far as possible, palms facing each other, move then laterally to a horizontal position while rotating the shoulders to bring the palms up, take the arms straight to vertical, palms facing each other, go back to initial pose bringing the arms down in front.

**5. Vertical extension of the arms:** from the hands to the shoulders posture, *simultaneously* or *alternatively* raise the arms straight and toward the back, then go back to initial pose.



**6. Lateral extension of forearms with outside rotation:** from the hands to the chest posture, extend the arms laterally, palms facing down, as far back from the line of the shoulders as possible, then rotate the arms to bring the palms up, then go back to initial pose.

The arm movements can be done with the hands following the arms, open with joined fingers, but also with open hands, spread fingers, closed hands, thumb on top, hand flexed or extended.



### 3. Leg exercises

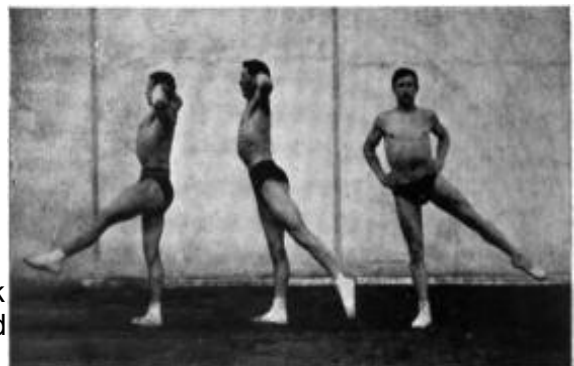
Leg exercises are done with the arms in various positions, by default we are assuming the hands to the hips position.

**1. Heel raises:** raise the body as high as possible keeping the legs straight, going on the toes.

**2. Lifting the leg straight forward:** lift the leg straight in front, with extended foot, bringing the rest of the body slightly back, but keeping the straight posture.

**3. Lifting the leg laterally:** lift the leg laterally, with extended foot, bringing the rest of the body slightly to the other side, still straight.

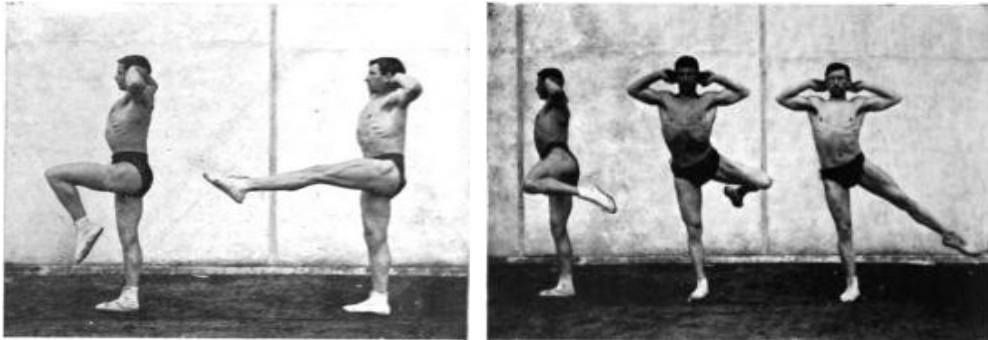
**4. Lifting the leg backward:** lift the leg straight to the back as far as possible, keeping the rest of the body straight and slightly forward.





**5. Lifting the leg forward, laterally and back:** lift the straight leg forward, bring it laterally, then back.

**6. Lifting the thigh and extending the leg:** lift the thigh with bent leg, extended foot, then extend leg, then go straight back or bend the leg again.



**7. Lifting the thigh laterally:** lift the thigh with bent leg, then extend leg to straight, then go back.

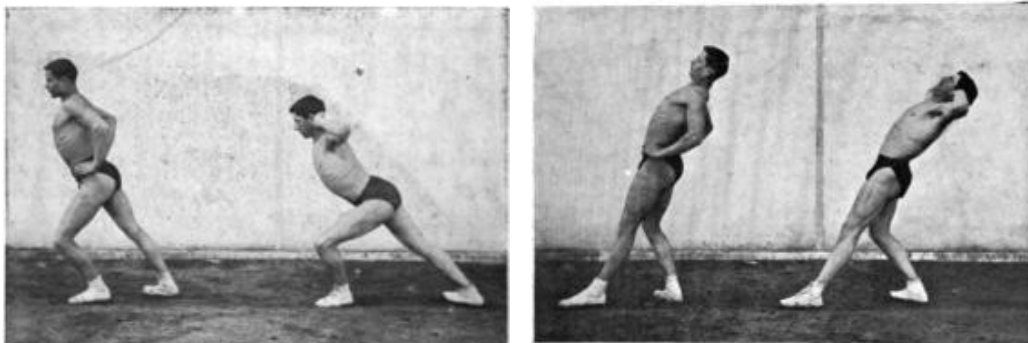
**8. Squatting, feet together:** going on the toes, squat down opening the knees, keeping the rest of the body straight, then back up.

**9. Squatting, feet apart:** going on the toes, squat down opening the knees, keeping the rest of the body straight, then back up.

[translator's note: these squatting postures are very different from modern squats with the weight on the heels, feet separated, butt back, and the knees never bending beyond the toes. These squats work different muscles, and may strain more the knees.]



**10. Leaning forward:** bring left leg in front, both feet facing out, bend left knee forward keeping the right leg straight, bending the whole body forward. Back leg, torso and head make a straight line. Go back and switch legs. The left leg can go obliquely to the left, but shoulders must stay straight.



**11. Leaning backward:** bring left foot behind, both feet facing out, bend left knee backward, leaning backward and keeping the right leg and rest of the body in straight line. Same to the right; the back leg can go obliquely.

**12. Leaning laterally:** bring left foot further left, heels on the same line, feet facing out, then lean laterally by flexing the left leg and keeping the right leg and upper body straight. Same to the right, but no oblique variant.

All the leg exercises can be done with the arms in any of the four arm positions, alternating arm and leg exercises in a single repetition or combining arm and leg exercises simultaneously.



[translator's note: in these moves, be careful to keep the knee straight above the toes, and no further.]

#### 4. Suspension exercises



Suspension exercises are done on various objects: bars, beams, tree branches, horizontal ropes, etc. In all cases, the arms must be further than shoulder width apart; hands can be facing in, out, or one in and one out. In straight suspensions, the arms are fully extended, legs are joined, feet and neck are extended.

**1. Jumping to suspension:** jump up into a straight suspension, breathe a few times, then jump down with a good landing.

**2. Widening the grip:** in suspension, do a half pull-up to widen the grip as much as possible, then another one to go back to normal, both hands at the same time or one after the other.



**3. Pull-up:** in suspension, do a pull-up to bring the head above the bar, keeping the elbows aligned with the body. Go down by slowly extending the arms. This can be scaled down by using a low bar, feet touching the ground in front of the bar.

**4. L-sit:** in suspension, bring the thighs up, legs bent, feet extended, then extend the legs straight into L-sit, then back.



**5. L-sit up:** in suspension, bring the straight legs up from L-sit into a vertical position, then back.

**6. L-sit with wide legs:** in suspension, bring the legs straight into a L-sit, then spread them as much as possible while staying horizontal, then back.

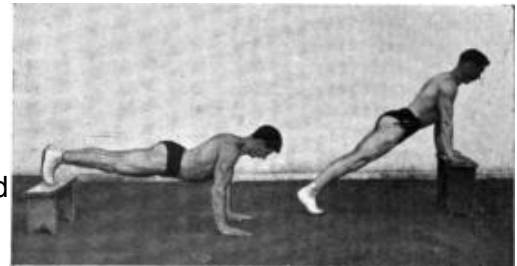
Suspension exercises can also be done moving forward or backward on a long bar or parallel bars. These can be done with extended arms, bent arms, straight



legs, or in L-sit position.

## 5. Plank exercises

In plank, the hands are flat on the ground, slightly beyond shoulder width, fingers pointing forward, arms straight. The legs are extended, toes touching the ground, the entire body straight. Planks can be made easier by resting the hands on an elevated object, or harder on resting the feet on an elevated object.



**1. From standing to plank:** three different methods: a) bend the legs and put both hands on the ground in front of the knees, shoot feet back, shoot feet back in, stand up; b) bend the legs and put both hands on the ground in front of the knees, shoot hands forward keeping the feet at the same place, bend arms and push back, stand up; c) put hands forward and fall straight into plank position, go back using one of the previous methods.

**2. Wide arm plank:** from plank, push up and send the arms as wide as possible, then push up and send them back in. This move can be made harder by sending the arms as far forward as possible.



**3. One arm plank:** from plank, spread out both legs, bring all the weight of the body on one arm, hold the other one to the side of the body or straight above the head.

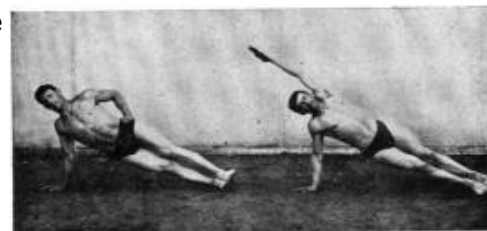
**4. Push-up:** from plank, push down to get as close to the ground as possible without touching, then push back up.

**5. Side plank:** from plank, lift left arm while rotating the body, put left hand in one of the fundamental positions or perform one of the arm exercises. The rest of the body keeps the straight posture. Same on the right side.

**6. Side plank with leg up:** from side plank position above, lift the left leg up on the side, then down.

Plank exercises can include quadrupedal motion exercises as well.

[translator's note: this early edition did not consider quadrupedal motion as a separate subject, thus it is entirely missing. The “quadrupédie” booklet contains much more, as do Hébert's later books on all the fundamental movements.]



## 6. Balance exercises

Like the leg exercises, balance exercises can be done with the arms in any arm positions. By default we assume the hands to the hips.

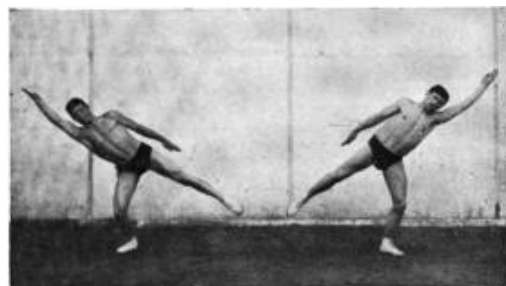


**1. Balancing the leg forward:** from straight posture, extend left leg in front, leaning back and bending the other leg as much as possible, then go back. The left leg, torso and head must stay in a straight line. Same on the right side.

**2. Balancing the leg backward:** from straight posture, extend the left leg backward, leaning forward to maintain a straight line and bending the right leg, then go back. Same on right side.

**3. Balancing the leg to the side:** from straight posture, extend the left leg to the side, leaning to the right with the rest of the body and bending the right leg, then go back. Same on right side.

As with the leg exercises, the balancing exercises can be done with arm exercises, simultaneously or one after the other.



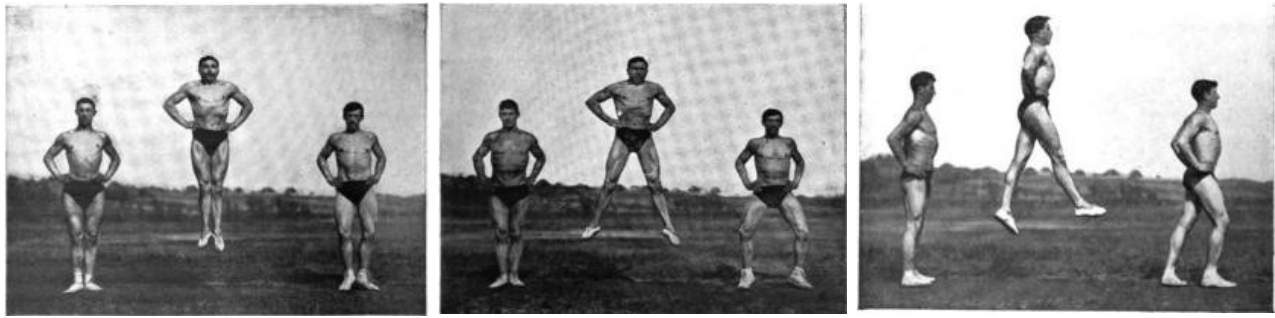
[translator's note: like the legs exercises, balancing can be more strenuous on the knees than it appears. Be mindful of keeping the supporting leg as straight as possible, and never force a movement past your balance point.]

## 7. Hopping exercises

Hopping exercises are done hands on the hips, jumping mostly in place, feet landing on the toes, open. The rest of the body keeps the straight posture.

**1. Hopping on joined legs:** bend the legs slightly to jump up, extending the feet, land on the toes and jump right back up, bending the legs as little as possible and keeping a continuous pace. Work on jumping higher and faster.

**2. Hopping and spreading the legs to the side:** when hopping up, spread the legs slightly while in the air and land with legs apart, then join them back at the next hop.



**3. Hopping and spreading the legs front and back:** when hopping up, bring right leg forward and left leg back before landing, then switch the legs at the next hop.



**4. Hopping with crossed legs:** when hopping up, cross the legs, bent, before landing, then switch at the next hop.

**5. Squatting hops:** go into a squat, then hop while keeping the squat form.

**6. Tuck jumps:** when hopping up, tuck the knees up as far as possible, then shoot the legs back down before landing.

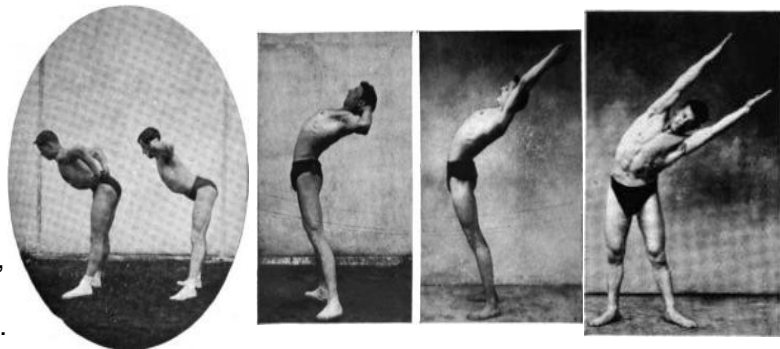
## 8. Core exercises

Like leg exercises, core exercises can be done with the arms in a variety of poses. We assume straight posture, hands to the hips by default.

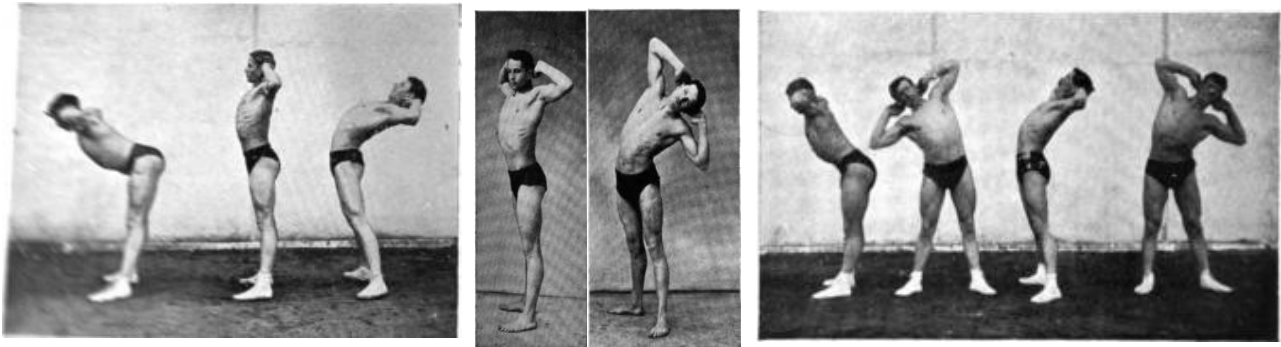
**1. Bending forward:** bend the torso forward at the hips, back straight, legs straight.

**2. Bending backward:** bend the torso back, keeping it straight.

**3. Bending to the side:** with spread legs, bend the torso to the side, keeping everything straight and in the same plane.



**4. Bending forward and back:** with spread legs, bend the torso forward, then all the way back, then straight.



**5. Torsion with bending:** with spread legs, rotate the torso to the left and bend forward, then back straight, then to the other side.

**6. Full rotation:** with spread legs, take the side bending position, then move directly to the backward bending position, then to the other side, then forward. The line of the shoulders should stay parallel to the line of the hips.

Core exercises can also be done with all sorts of arm exercises, but also with varying leg postures, or with the body horizontal in any orientation.



Core exercises can also be combined with head movements: bending forward, backward, to the side, torsions, rotations. As head and core moves are similar, it is good to use the same groups together.

## 9. Breathing exercises

Breathing exercises are done like arm movements, but at a slower pace, breathing in while bringing the arms up and out while lowering them.

**1. Breathing with forward arm motion:** breathe in and out while bringing the arms up and down in front.

**2. Breathing with lateral arm motion:** breathe in and out while bringing the arms up and down laterally.

**3. Breathing with forward and lateral motion:** breathe in and out while bringing the arms up in front and down laterally.

**4. Breathing with backward and lateral motion:** breathe in and out while bringing the arms as far back as possible, then laterally up, then down in front.

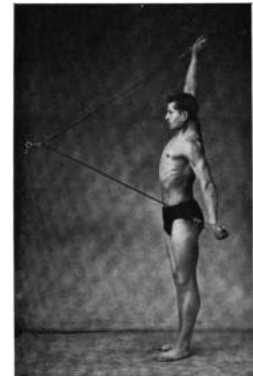
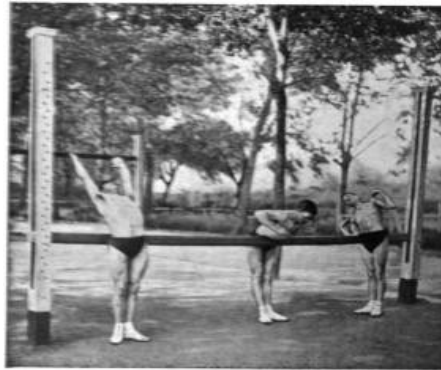
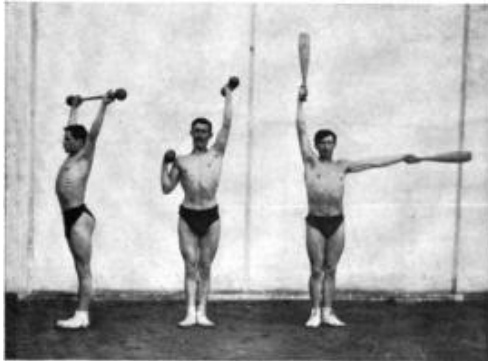
**5. Breathing with vertical motion:** from hands to the shoulders, breathe in and out while bringing the arms up and down vertically.

**6. Breathing with horizontal motion:** from hands to the chest, breathe in and out while extending the arms out and in horizontally.

Breathing exercises are improved by going on the toes when breathing in and back on the flat of the foot when breathing out.

## **10. Exercises done with special equipment**

Movements of the arms, legs and core can be done with special equipment such as weights, dumbbells, elastic bands, clubs, benches, bars, etc. Although these are not necessary, and ample muscular development comes from executing the above motions freehand and to the fullest, they can be useful to bring variety to the exercises, they enhance muscular development in the arms and shoulders (weights), various muscle groups (elastic bands), or the forearms (clubs). Static structures like benches, bars, provide an anchor to fix parts of the body while providing more amplitude or more localization for a given exercise. Using large weights is however not recommended, as it results in an excessive muscle growth not matched by the development of the rest of the body. Weights are not recommended or useful for children.



# Practical Exercises

## 1. Walking

Walking is the most natural means of locomotion, the most economical, improves endurance, leg strength, and promotes good breathing and blood circulation.



Walking is done by moving the legs alternatively, pushing with the foot and extending the leg, one leg after the other. When walking, the body stays in constant contact with the ground with one foot, and with both feet at transition times.

A walk is a succession of steps, the length and the cadence of step determine its speed. At low speed, length of step increases naturally with an increase of cadence, but stops and even decreases when the cadence is too high. Experience shows that the pace where the length of step is the highest corresponds to a cadence of about 140 steps a minute in the adult. The fastest walk is not done at this longest step but at the slightly faster cadence of 170 steps a minute. On the other hand, a pace of 110 to 130 steps a minute is more economical, allowing for more efficient long distance walks.

To improve speed in walking, it is better to work on increasing the length of step rather than the cadence. The mechanics of walking are acquired from natural practice and don't need to be taught. The muscles used in walks can be strengthened by:

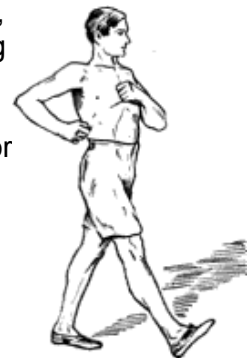
- walks on the toes or the heels,
- walks with very long steps,
- very fast walks on short distances,
- slow walks with elevation of the thigh to horizontal and extension of the leg forward.

Posture is improved by maintaining one of the fundamental arm positions while walking. Breathing is made regular by aligning it with a fixed number of steps, usually 5 or 6, and can be amplified by breathing exercises and songs. Walking should be done on all types of terrain, in cities and on the countryside, over hills, into fields, etc.



**Endurance walks:** long walks will require a slow pace, under 130 or 140 steps a minute. The walking posture should be as follows: the chest is slightly tilting forward; the foot touches the ground without shock, almost flat, heel first; the front leg is slightly bent when the foot reaches the ground; the contact point on the foot travels from the heel all the way to the toes; the rear leg is straight, the upper body straight with the chest open; the arms are slightly bent and swinging lightly, opposite to the legs.

**Speed walks:** faster walks are limited to short distances. Any walking pace about or beyond 170 steps a minute is pointless, as running will then become more efficient, or running and walking in turn. There are two possible ways of walking at a fast pace. The first is the previously described posture, but increasing the forward tilt of the body and the bending of the front leg with the increased cadence. At high speed, a powerful push off the toes of the back leg reduces the time of two feet





contact with the ground, making a move closer to running, the body being very forward, as if falling with each step. The second method is to stay as vertical as possible, with straight legs. The speed is gained from a faster movement of the leg from back to front. The fast motion of the legs and the shock of the foot hitting the ground makes this method very tiring. The first method is practical in all occasions, in particular when carrying something. The second method is very unpractical, and only to be used in races.

## 2. Running

Running is the fastest means of locomotion, and the most important of physical exercises. Running involves many muscles of the body, improves breathing and endurance, and develops strength and agility of the lower limbs. When running, the body is projected forward, each foot touching the ground in turn. There is only one foot on the ground at most, and the body is suspended between steps. Indeed, like a walk is a series of steps, a run is a series of jumps, from one foot to the other one. The running speed is the product of the length of the jump by the cadence. The faster the cadence, the



longer the jumps; unlike in walking there is no decrease of the jump length with very fast paces. Like in walking, there are more efficient cadences in running: about 170 to 200 jumps a minute for a sustained endurance pace, up to 230 for a faster run, and no more than around 350 for very short sprints. Cadences lower than 170 jumps a minute are particularly bad, as the body uses a lot of energy to cover a rather short distance, and the slow pace induces a wasteful vertical jumping motion.



The length of the jump depends on the strength and direction of the impulsion from the leg in contact with the ground, exactly like a one-legged length jump. To improve the length of jump, it is important to limit the amount of vertical momentum while reaching further forward, which is done by pushing the leg back as far as possible. The foot of the leg reaching forward should land flat, with the leg bent, so as to be faster past the vertical position, able to propel the body. By throwing the front leg forward, one could also make a longer jump, but the leg is further from vertical and the heel hits the ground, inducing repetitive shocks. Touching the ground with just the toes reduces the stride and make the calves work harder. A flat contact brings the leg directly to the vertical position while absorbing the shock of the jump.

[translator's note: there is no usual distinction made in French between the toe area and the ball of the feet; instructions to land on the toes in running and jumping are likely to mean to land on the ball of the feet or on the toes and ball of the feet.]

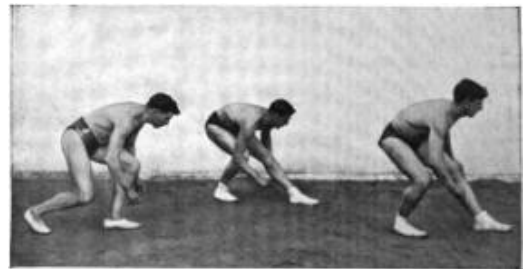
The work of the legs is only secondary in running, the value of a runner depends first on his breathing. A run should be a long succession of deep cyclic breathing movements. At the fastest paces, such breathing is impossible, this is why races at maximum speed cannot last more than 20 seconds, corresponding to about 100 to 150 meters.

Running is a great way to increase endurance, but one must be careful of adapting the exercise to the fitness of the runners, especially limiting the length of faster runs. Like walking, running is a natural

movement acquired by practice. The muscles can be trained further by running on the toes, or by running slowly with long jumps. The breathing is made regular by aligning it with a fixed number of jumps, always the same (about 5 to 8).

**Endurance runs:** runs of medium cadence at 170 to 200 jumps a minute are best for long distances or when it is unnecessary to rush and tire oneself much. The best posture is as follows: the body slightly tilted forward; the foot reaching the ground flat, without shock; the leading leg is bent and vertical; the back leg is fully extended; the arms are bent and swinging smoothly; arms and front leg bending more with increased speed. Breathing is aligned with the cadence, with deep, long breaths. Avoid any vertical hopping motion, overextending the front leg, contacting the ground with the heel, rotating the body, breathing fast or irregularly. In long runs, start and finish always slower, finishing up with walking, core and breathing exercises.

**Speed runs:** faster runs go beyond 200 jumps a minute, and can become sustained only with training. Maximum speed runs can reach 350 jumps, and must be trained on short distances of 30 to 150 meters. The most efficient posture is as follows: the body starts bent forward but go back to vertical after a few steps and stays vertical, even bending backward at the end to slow down the pace; the impulse of the back leg is as strong as possible; the front leg is bent lower, foot still reaching the ground flat; the arms are swinging more vigorously. A great exercise to improve the body's ability for sudden, violent effort is the start of speed races. Races can be done with prepared or unprepared start. For unprepared starts, one can stand straight, sitting or lying down, facing any direction. At the signal, jump to face the correct direction and start the run. In prepared runs, the body is bent forward, legs apart and ready, weight on the front or back leg. Speed runs are the most practical to train as a quick means of transportation or a rescue exercise.

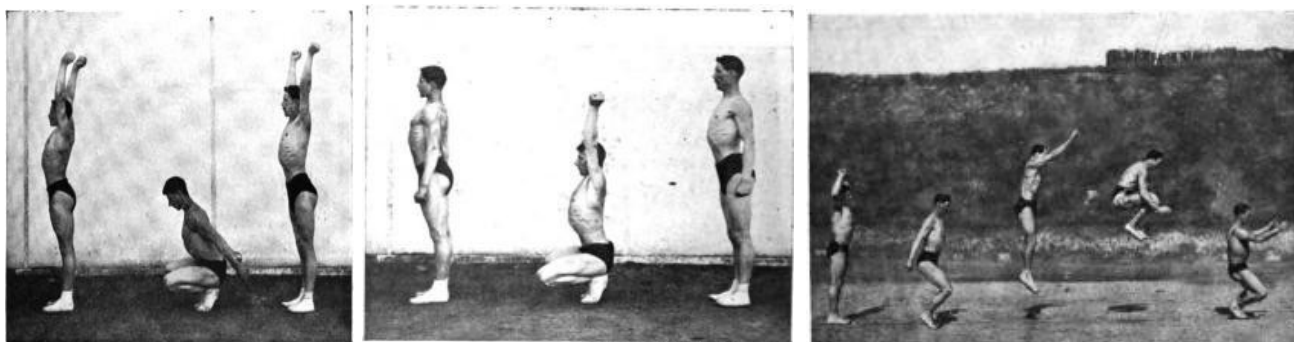


### 3. *Jumping*

Jumping consists in giving an impulse of the body to go over a space or an obstacle in one jump. Jumps strengthen the lower limbs and the core, train the legs to absorb impact, improve agility and balance. Applied jumps over an obstacle also work on fear, improving confidence, focus and readiness.

Jumping can be decomposed into four parts: the preparation, the impulse, the suspension and the fall. The preparation consists in bending and loading the legs while sending the arms back; the impulse is the explosive extension of the legs while bringing the arms up and forward; the suspension starts when the feet leave the ground, the legs are brought to the best position to overcome the obstacle, while the arms go down; the fall consists in absorbing the impact from the jump, when touching the ground, feet reaching and legs bending to absorb, arms used to maintain balance. The movement of the arms is very important in the jump and help get a greater impulsion and regain balance during the fall. Training should start with long jumps and high jumps, first without and then with a run-up. Follow this with a very slow progression into deep jumps, and make sure to work on a soft surface. Applied jumps with real obstacles should only occur when the legs are strong enough and the fall sufficiently trained to be safe.

Unlike walking and running, learning to jump can be decomposed, as in these three preparatory exercises:



**1. Preparation and impulse:** with the arms up and vertical, hands into fists, bend the legs while going on the toes, knees, toes and heels joined, lowering the arms straight to bring them behind. Then explode up (staying on the ground) while bringing the arms back to vertical.

**2. Fall:** bend the legs while going on the toes, heels together, knees and toes open, arms up and vertical, then go quickly back to standing, lowering the arms. In practice, the fall is not decomposed, the arms are only brought up enough to bring balance back. The legs should resist the fall to avoid landing too low, but never land with straight legs.

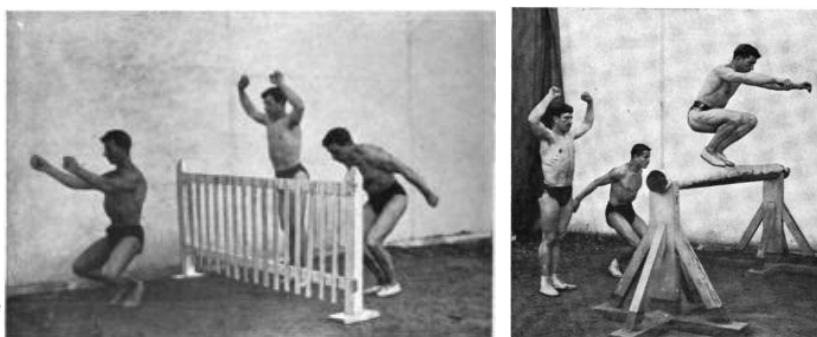
**3. Chain all four movements:** preparation, impulse, then jump up and land as in the first two exercises.

## Jumps with and without a run-up

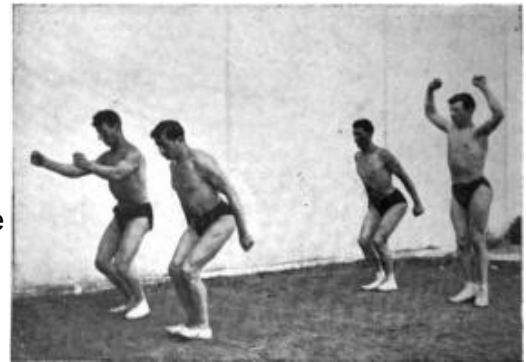
### 1. Standing high jumps

*going over an obstacle:* start facing the obstacle, feet together, at a distance about half the height of the obstacle. Bring the arms in front, hands closed, then bend the legs going on the toes and bring the arms back (preparation). Extend the legs and bring arms up (impulse), go over the obstacle tucking the legs in, keeping the arms up. As soon as the obstacle is passed (suspension), extend the feet toward the ground and lower the arms. Touch the ground with the toes (fall), legs bent without excess, arms balancing.

*going onto an obstacle:* perform the preparation and impulse as above. Land on the obstacle, legs tucked, arms up. In this type of jump, there no real suspension or fall happening, one can arrive fully squatting on the obstacle.



**2. Standing long jump:** start from the edge of the obstacle or open space to pass. Bring the arms in front, hands closed, then bend the legs going on the toes and bring the arms back (preparation). Tilt the body forward, then extend the legs and bring arms up (impulse). Give the impulse at the moment where the body starts to fall forward. Then bring the arms down (suspension). The feet touch the ground together in front of the body, heels first (fall). It is not necessary to tuck the legs as much in long jumps, only the thighs must be bent. Landing on the heels is acceptable as the momentum is mostly horizontal. However, one must be careful if the ground is slippery.



### 3. Depth jumps

*simple jump, facing forward:* start facing forward at the edge of the obstacle, squat to lower the height of the fall and put both hands on the edge (preparation). Leave the obstacle without a jump but bringing the body forward horizontally, so as to avoid falling straight down (impulse). During the suspension, reach down with the legs, and keep the arms lowered. Touch the ground with the toes, resisting with the legs to avoid squatting too low.

*Simple jump, facing backward:* start at the edge of the obstacle, facing backward. Do everything as before, being careful to push away with the hands when leaving the obstacle, and to keep the body tilted forward to avoid falling on the back upon landing.



*Forward jump, sitting:* sit at the edge of the obstacle, legs down. Put both hands on the edge, fingers facing forward, leaning forward. Push away with the arms while throwing the legs forward. If the obstacle allows it, swing the legs a few times before jumping.

*Backward jump, hands pressed:* from a holding position with the hands on the obstacle, bend the arms to get on the stomach, then throw the legs backward. If the obstacle allows it, swing the legs a few times before jumping.

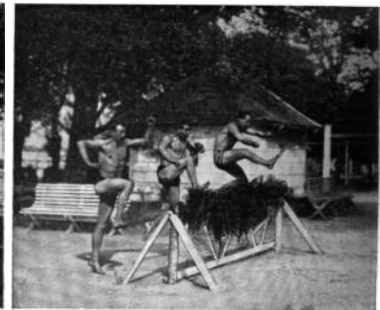
*Vertical jump, from a suspension:* if suspended by the hands to a bar, swing the legs forward, then when they go backward do a small push up with the arms and open the hands right away. Avoid dropping from a static position, as it makes it difficult to regain balance. If swinging already, the best is to let go when the legs are going backward. If jumping when the legs are going forward, send the upper body strongly forward to avoid falling on the back.

*Vertical jump, from hanging to a wall:* take one hand off the wall and bring it at waist level, push strongly with hand and leg away from the wall.

Depth jumps done from a height or on hard surfaces are dangerous for the feet, the ankles and the knees. It is necessary to train progressively from lower to higher jumps. On a hard surface like stone, earth, wood floor, jumps of about 2 meters already put considerable strain on the feet. On a prepared ground like sand or well turned earth, a trained person may jump up to 4 meters without harm.

#### 4. Running high jump

*Jump over an obstacle:* the jump is done on one foot, after a run-up of 5 to 10 meters. The upper body is vertical or slightly back. The arms are brought forward at the time of the jump, then the obstacle is passed either by bringing the legs bent under the hips, feet close to the thighs, or extending the feet in front, keeping the chest forward. Arms are kept up until the obstacle is passed, then lowered as the legs are extended down. Land on the toes, legs bent, arms balancing.



*Jump onto an obstacle:* start on one foot as above, then jump onto the obstacle with the legs bent, feet close to the hips, arms up. This type of jump is useful when what is beyond the obstacle is unknown.

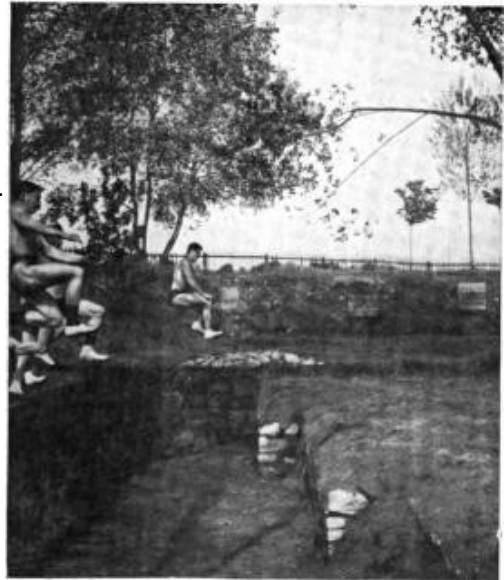


*Jump while maintaining the run:* start on one foot, jump over the obstacle by passing the other leg first, then the jumping leg. The first leg is very bent, knee up, the other leg to the side or under the body. The chest is leaning forward during the jump. Land on the first leg, on the toes, then throw the jumping leg forward to keep running.

## 5. Running long jump

*with a long run:* like the running high jump, this jump is done from one foot after a run. In this case, the run must be long enough to gain maximum speed, as the speed of the run determines the length of the jump. The chest is slightly forward during the jump, the legs are joined but don't need to be tucked. During the fall, the heels touch the ground first, the arms go down and back, and then forward and up again to regain balance.

*With a single step:* bring the left foot forward, bend the right leg and bring the weight of the body on the right leg while throwing the arms back (preparation). Extend vigorously the right leg, then the left, while bringing the arms forward and up (impulse). Bring the legs together during the suspension and land on the heels. This jump doesn't cover more distance than the standing long jump, but is easier.



## 6. Side jump

*standing side jump:* stand close to the obstacle on the side, feet together. Bring the arms up and forward, then bend the legs while throwing the arms back (preparation). Extend the legs vigorously while bringing the arms up and forward and leaning toward the obstacle (impulse). Raise the legs straight one after the other, the one closest to the obstacle first. The knee comes to meet the chest, still leaning toward the obstacle, arms up. After the obstacle, lower the arms (suspension). Land on both legs successively, on the toes (fall).



*Standing long side jump:* bring the arms to the side opposed to the jump, while leaning in the jumping direction with bent legs (preparation). Throw the arms in the jumping direction and extend the legs (impulse), land on the flat of the feet, legs slightly bent, and go back up right away, arms balancing.

*Running side jump:* the run is almost parallel to the obstacle, the jump uses one leg. Assuming a jump to the right side, jump from the left foot, and pass the obstacle first with the right leg extended in front, then the left, arms up. After the obstacle, lower the arms and land on the toes of the feet, first the right then the left.

*Depth side jump:* proceed as in the depth jump forward or backward, far enough from the obstacle pushing away with the hand.

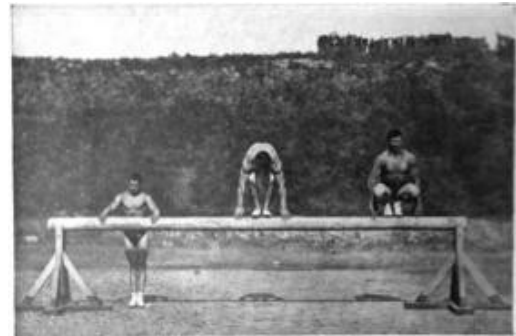
**7. Combined jumps:** any combination of jumps 1-6. Make sure to always land on the toes after any jump, even a long jump, every time the landing point is lower than the starting point. Combinations may include: *high long jump, high depth jump, long depth jump, high long depth jump, long depth jump from sitting or hands pressed, long depth jump from a suspension.*

## Jumps with hands on the obstacle

### 1. Jump onto an obstacle

*from standing:* put both hands on the obstacle, jump while pressing from the wrists, land on the obstacle with both feet between the arms.

*from running:* run up a few steps, jump from both feet, reach to put the hands on the obstacle and proceed as before.

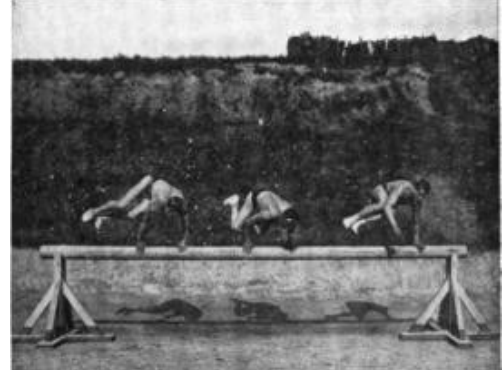


### 2. Jump over the obstacle with legs on one side of the arms

*from standing:* put both hands on the obstacle, jump while pressing from the wrists, swing the legs to one side, remove the hand in front of the body and land on the other side.

*from running:* same move after a quick run-up, jumping from both feet

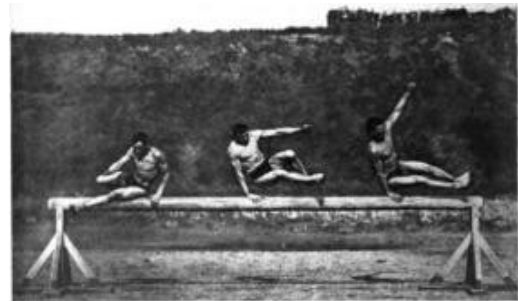
*from a hand hold:* bend the body forward on the hands, arm straight, then swing the legs back and forth and then over the obstacle to the side as above.



### 3. Jump over the obstacle with one hand

*from standing:* stand sideways, one hand on the obstacle. Swing both legs in front as in the side jump, the leg closest to the obstacle first.

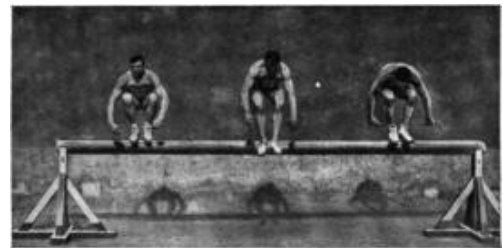
*from running:* proceed as above from a run-up, jumping as in the running side jump.



### 4. Jump over the obstacle feet between hands

*from standing:* put both hands on the obstacle, jump while pressing from the wrists, bring the legs between the arms, tucked in.

*from running:* proceed as above from a run-up, jumping on both feet.



When an obstacle is made of several horizontal bars arranged one above the other, proceed as follows.

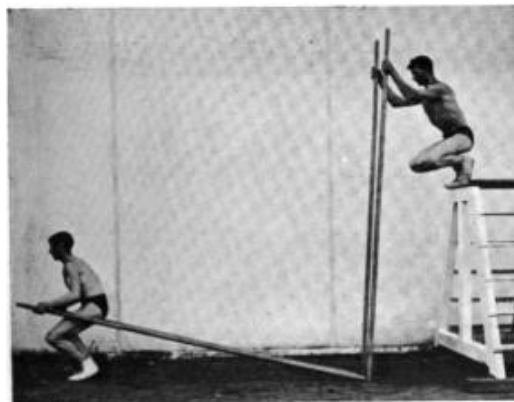
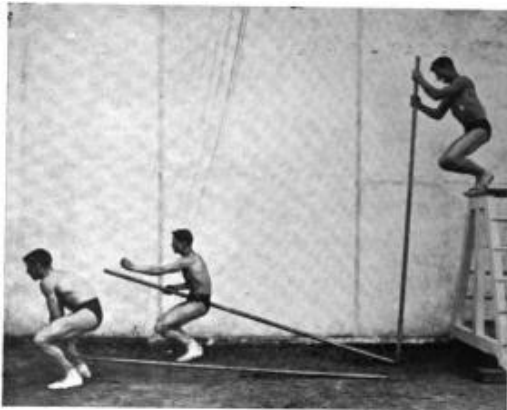
**1. Jump between the bars:** put one hand on the lower bar, one on the higher bar. Jump between the bars, bringing the legs together in front first. Pull the body up with higher hand, push back with lower hand.

**2. Vault over the higher bar:** put both hands on higher bar, going on hand hold, then reach down to the lower bar with the left hand. Rotate the body toward the right above the bar, legs straight, holding and pushing with the lower hand. Let go with the hands and land.



## Jumps with a perch

[translator's note: these jumps are deemed unpractical but included for the sake of completeness, thus translation of this part is omitted].





## 4. Swimming

[translator's note: this chapter being lengthy and mostly unrelated to Parkour, Gregg decided to concentrate on translating the figure captions and providing basic explanations.]

### General considerations

Swimming is the most comprehensive of all exercises. A complete exercise must be hygienic, aesthetic and utilitarian; it must develop muscle strength, force of resistance, skill and moral energy. Swimming meets all these requirements:

1. The hygienic effect is intense: it activates all major body functions, especially respiration; it cleans the skin and hardens it to cold; finally it is done outdoors.
2. Its action is very effective for the opening of the chest and building of the respiratory capacity. In all the types of swim, the arms are constantly brought back beyond the head while the trunk is in extension, which produces the elevation of the ribs and expansion of the rib cage. Moreover, the discomfort produced by the liquid mass and the violence of the muscular work forces long and deep breathing.
3. It also has a very intense action on the development of the whole musculature, because it requires various muscular contractions of the arms, legs, trunk and head. In general, all these contractions, being very extensive, are wonderful exercises for loosening the joints and limbs and have an excellent effect on the spine.
4. To go further and faster requires perfect coordination of movements and an appropriate rhythm.
5. The difficult exercises of diving and lifesaving develop skill, composure, courage and self-confidence.
6. Finally, all the swimming exercises are indisputably practical.

For a swim to be beneficial, it is necessary to proceed in a certain fashion. One must enter the water knowing what he is going to do, otherwise we risk wasting time and no progress is possible. To learn something or just to improve, we must work methodically, have a goal and draw a program. The swimming session or lesson, like the gymnastic session or lesson, should consist of a number of different exercises, performed in a logical order, and be fully regulated as to expenditure of work. A complete session or lesson of swimming should include:

1. One or more brutal immersions (from any height) either head or feet-first, returning immediately to the surface;
2. A course on the stomach of ordinary breaststroke, with a very slow pace to start. This way of swimming is the best to straighten the spine and to acquire or maintain correct posture.
3. A course on the back. The backstroke is a rest after a course of some length on the stomach; this swim is the most essential to know for rescue.
4. A dive under water, starting either from a height, or from the surface of the water. The goal of this exercise is to stay as long as possible under water, the body completely submerged.
5. A motionless position or complete rest, "floating". No movement of arms or legs should be made during this exercise.
6. One or more races using the fastest swimming methods.
7. Lastly, complete the lesson with a few slow front or back breaststrokes, enough to restore calm to the respiration and circulation before leaving the water.

Propulsion in water is the result of a series of impulses produced by the motion of the upper and lower members. Note that all the ways to progress in water are based on the same principle. The impulse is obtained: first by the sudden meeting of the legs and second by the arms acting like an oar or paddle. The sudden meeting of the legs, which produces most of the impulse effort is perfectly comparable to the closure of two branches of a pair of scissors. It can be done in two ways: first legs spread apart,

either laterally (regular breaststroke, etc..) or, in front and in back of the body (Indian breaststroke, etc.. ). The arm movement will also occur in two ways: in a horizontal plane (regular breaststroke, etc..) or otherwise, in a vertical plane (sidestroke, etc..). Finally, the movement of the legs and arms can be simultaneous or alternated.

Swimming may be broken up into four main phases: 1. starting position or preparation of the limbs to produce their effort; 2. impulse effort; 3. resting time, limbs extended, to let the body glide and profit from the impulse; 4. return of the limbs to the starting position. The movements performed between two consecutive returns to the starting position is a complete stroke or full motion. The cadence of swimming is the number of strokes executed in a minute. One must consider endurance swims where we seek to cover long distances with minimum fatigue and speed swims where we seek to attain the greatest possible speed over a short distance.

Breathing is of capital importance in swimming. The inhalation is done at the end of the resting time, at the beginning of the return of the members to the initial position, when the body is raised highest. It is very fast and is usually done with an open mouth. The exhalation is done with a closed mouth; it is very slow and lasts all the rest of the time. The breathing is regulated by the cadence of the stroke. In endurance swims, where the cadence is relatively slow, inhale at each stroke. In speed swims, where the cadence is very fast, inhale once every two, three, or four strokes. The most advantageous cadence for endurance swims is the cadence of normal breathing, 15 to 20 strokes per minute on average.

Swimming exercises have a double goal: teach people to get through crises in all circumstances and to be useful to others by knowing rescue. They include three major categories: 1. the different ways to progress and to hold yourself at the surface of the water; 2. "work" on the water and under water; 3. rescue exercises.

## Basic Strokes



**Breaststroke.** Beginning or preparation position



First part of the impulse effort. Release the lower limbs, the feet always flexed; and extend the arms in front of the head.



End of the impulse effort, after the scissor kick, or closing of the legs, the feet extended; and position of the body during the entire rest time.



Horizontal and lateral arm movement, the palms of the hands facing outwards. Take a deep breath during this movement.



Foot flexed, foot extended, showing the two main movements of the feet: flexion and extension, which have a great importance in the different ways to swim.



**Backstroke.** Initial or preparation phase. Flex the lower members in the same way as the breaststroke, the knees spread as much as possible and the feet well flexed and turned outwards. At the same time, flex the forearms, elbows and body, the palms of the hands flat over the middle of the chest, fingertips meeting.



Impulse effort  
Make extension of the legs by prolonging the thighs and pushing the water with the soles of the feet



End of the impulse effort after the scissors kick or the brusque closing of the legs and the arrival of the arms along the body. The body keeps this position during the entire rest time.



End of the impulse effort: the head and upper body emerge. Take advantage of this instant to make a rapid and deep inhalation.

## Treading water

Treading water consists in keeping yourself perpendicular to the surface of the water. From this position one may stay in place, advance, retreat, move laterally, or turn oneself completely. This way to swim is very useful if one wants to observe what is happening around oneself; let oneself drift with the current; attend to a rescue; maintain oneself in rough water; undress oneself in the water; keep up an object or transport an object without getting it wet; keep a tired person upright, etc.

Treading water is composed of four principal phases, like the breaststroke and backstroke previously described. The lower limbs do the ordinary movements of the breaststroke or backstroke. Movements of the upper limbs are different depending if one wants to stay in place, advance, or retreat.

To stay in place in a vertical position, the movements are as follows:

1. *Initial or preparation position.* Flex the arms, the elbows to the body, the hands flat at about chest height, palms of the hands facing down and horizontal, the fingertips joined together. Flex the lower limbs, knees spread laterally, feet flexed and turned outward.
2. *Impulse effort.* Extend the arms horizontally and lower them extended toward the thighs, palms of the hands always facing down, and horizontal. Extend the legs laterally, the feet flexed, then bring them together by extending the feet.
3. *Resting time.* Keep the arms long and extended, the palms of the hands facing down and horizontal. Keep the lower limbs together and extended.
4. *Deep breath and return of the limbs to the initial position.* At the end of the impulse, inhale deeply at the moment where the body is lifted vertically. Lift the arms in front of the body and turn the palms of the hands vertically, then return to the initial position by returning the palms to a horizontal position. Flex the lower limbs to return them to the initial position.

The impulse effort of the upper and lower limbs is done simultaneously as in the backstroke.

To move forward, backward or sideways in a vertical position, the movement of the lower limbs does not change, but one must use different arm strokes. To go forward:

1. *Initial or preparation phase.* No change.
2. *Impulse effort.* Extend the arms in front of the body, the palms of the hands horizontal. Turn the palms vertically to face the body, and flex the wrists, the fingertips joined. Then bring back the hands to touch the chest, the palms always vertical.
3. *Resting time.* Keep the hands flat over the chest.
4. *Return to initial position.* Simply place the palms horizontal.

To go backward:

1. *Initial or preparation phase.* No change.
2. *Impulse effort.* Extend the arms in front of the body, turning the palms out as much as possible, thumb toward the bottom, fingertips together.
3. *Resting time.* Keep the arms elongated, palms out.
4. *Return to the initial position.* Place the palms horizontal and return them to the chest.

To go sideways (to the right for example):

1. *Initial position.* Right arm is extended laterally, palm flat. Left arm is in the normal position.
2. *Impulse effort.* Movement of the right arm: Turn the palm vertically and bring the hand back flat to the chest. Movement of the left arm: Extend the left arm to the left, palm turned out as much as possible, thumb underneath.
3. *Resting time.* Right hand is flat on the chest. Left arm is extended, palm down.
4. *Return to initial position.* Place the right hand flat and extend the right arm laterally. Turn the left

hand flat and return it to the chest.

To make the movement forward, backward or sideways easier, it is necessary to lightly lean the upper body to the side one wants to move. To move sideways, one of the two arms may be used, the other staying constantly in initial position, palm flat.

The movement of the body results uniquely from the action of the hands which, taking support over the liquid mass, pulls the body toward them, pushes it back, or pulls with one hand and pushes with the other for forward, backward and lateral movements. The position of the hands is very important: for all the preparation moves or the return to initial position, the hands, not having at that moment an active role to fill, have to put up the least resistance possible. The opposite is true during the impulse effort. For example, to stay in place in a vertical position, the return to initial position is done with the hands vertical. The hands turn horizontally to push the body. Moving forward, the hands are carried horizontally to the front; The palms turn vertically to pull back the body.

To turn in place, to the right, start by carrying the head to the right and by advancing the left shoulder and hip. Then make the arm movement as in the lateral progression, by carrying the right arm to the rear of the shoulder line as much as possible and the left a bit in front of the body. Make these movements in the opposite direction to turn left.

Learning to tread water is simple and easy. It is enough, being in breaststroke, to little by little reduce the angle of the body until it reaches a vertical position. The head is kept upright or slightly leaned to the back. Breathing is very easy, as the work of the lower limbs raises the body above the water.



**Position to give the body for floating.** The palms of the hands are horizontal, parallel to the surface of the water, the soles of the feet also. The head is thrown back to make the nose and mouth emerge.



**Balance position of the body in floating training.** The body swings vertically. The flotation line is here above the axis of the ears. The following figure represents the same subject training the float, it is below.

The position of equilibrium has its place under an inclination which depends on the buoyancy of the subject.



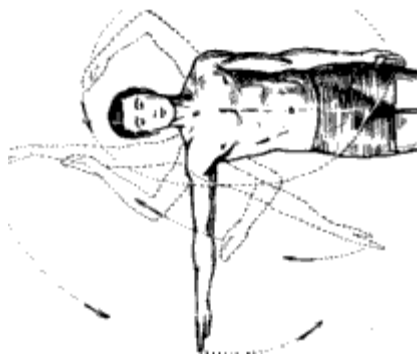
## Various Endurance Strokes



**Sidestroke.** Starting position for the impulse effort:  
 1. to the left with the superior arm under the water;  
 2. to the right, with the superior arm above the water.



**Sidestroke.** 1. left: first part of the impulse effort: release laterally the legs before their reunion at the line of the body; lengthen in front the right arm; draw the left arm to the back. - 2. right: end of the impulse effort and position of the body during the entire rest time.



**Sidestroke** Detail of the movement of the arms, the body being on the right side, and the superior arm works above the surface of the water. During the return movement of the superior arm

to attack position beyond the head, watch well to always project the shoulder forward as much as possible, at the same time as the arm.



**Indian stroke** Starting position for the impulse effort: the left subject with the superior arm under the water; the right subject with the superior arm out of the water



**Indian stroke** Detail of the leg movement, the body assumed to be lying on the right side.

The distance of the the legs is produced to the front and back way and not in the lateral way. The thighs stay in contact. The foot of the superior leg is

flexed, and that of the inferior leg is extended at the beginning of the scissor kick. The effort of the superior leg is made with the back of that leg, and that of the inferior leg with the front.



**Indian stroke** Starting position for the impulse effort: the left subject with the superior arm under the water; the right subject with the superior arm

out of the water

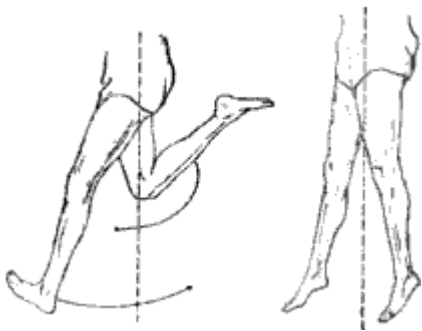


**Indian stroke** Position of the legs and the feet at the end of the impulse effort and during the entire rest time.

The body is supposed to be seen in front view, lying on the right side. The left foot is in this case under the sole of the right foot.



**Indian stroke** 1. left: end of the impulse effort and position of the body during the entire rest time. The closing movement or scissor kick of the legs in the sense of in front and behind the body is finished; the right arm is lengthened in front, palm of the hand is under, the left arm is drawn back and touches the left thigh. 2. right: work of the right arm or inferior and at same time return the limbs to starting position.



**Continuous Indian stroke** (on the left)

1. left: First impulse effort: drawing the left arm back, lengthening the right arm in front, distance of the legs. 2. right: Second impulse effort: closing the legs, return of the left arm in front, descent of the right arm and return to the starting position.

## Various Speed Strokes



**Marinara** 1. left: starting position for the impulse effort. 2. right: end of the impulse effort. The movement of the lateral release and the closing of the legs is finished; the left arm continues its horizontal circular movement, the palm of the hand outside.



**Ordinary cut** 1. left: starting position for the impulse effort. 2. right: 2nd part of the impulse effort: the movement of lateral release and closing the legs is finished; the left arm comes to make a sculling motion from left to right and left hand is found at the height of the right nipple. The left hand continues its effort over the water and comes to touch the left thigh; at the same time, the right arm goes out of the water and places itself beyond of the head in the starting position.



**Indian cut** 1. left: starting position for the first impulse effort. 2. right: first impulse effort. The movement of closing or the scissor kick of the legs is achieved; the left arm finishes its effort and the right arm comes to place beyond the head in position to start the 2nd impulse effort. In this stroke there is a leg movement for two arm movements. During the return movement of the arms to starting position, watch to always project the shoulder forward as much as possible, at the same time as the arms.



**Dog stroke (or ordinary cut with alternative leg movement)** 1. left: starting position for the first impulse effort. 2. right: end of the first impulse effort (left arm stuck to the body, left leg extended laterally, then returned to the line of the body) and starting position for the second impulse effort. This stroke is done by working together the opposite limbs, that is to say, left arm with right leg and right arm with left leg. This way is easier because it is more natural.



**Crawl stroke (or Indian cut with alternating movement of the legs)** 1. left: starting position of the first impulse effort. 2. right: end of the first impulse effort and starting position of the second effort. During the 1st effort the hand returns directly as far as to touch the left thigh; the left leg comes to the line of the body. The closing movement of the left leg is done by bringing the left thigh back, the left knee lightly behind the right knee, then by brusquely extending the left leg, making a strong forward kick. It is not necessary to flex the leg as far as shown in the figure. This stroke is also done by working opposing limbs: left arm with right leg and right arm with left leg.

## Diving underwater and swimming between two waters

Diving involves immersing the body including the head, below the water surface. The swim between two waters is to travel a certain distance or reach a certain depth underwater. The body being submerged, it is obviously impossible to take in any air. The duration of immersion is consequently very limited and its value depends more or less on the tolerance of the respiratory and circulatory functions.



Diving is an exercise of paramount importance. It is particularly useful when it comes to: getting out in case of accidental drowning; maintaining oneself in rough water; rescue a drowning person or one suspended in midwater; search for a person fallen in the water; pick up an object at the bottom of the water, etc..

Diving exercises are always a danger. Follow an extremely mild progression for the duration of stay under water or the depth reached. Once one feels the slightest discomfort or dizziness, ascend to the surface as quickly as possible and leave the water immediately.

The performance scale for diving duration indicated previously ranges from 10s (0) to 60s (5). By adopting the same gradation process, a scale of depth diving performance ranges from 3 meters (0) to 8 meters (5). When one dives for a significant time, it is prudent not to exceed a depth of 3 to 4 meters.

Translator's note: bad scan [...]

Do not assume that because one could make a dive of so many seconds a given day, he can safely do it the next day or another day after that. Everything depends on the particular conditions under which one is located. The body's tolerance is highly variable and the slightest cause may influence it: digestion, nutrition, sleep, temperature, atmospheric conditions, etc..



**Diving feet first** Jump in water like in a long deep jump. Either: 1. jump in a crouched position, the trunk nearly vertical, hold the front of the legs with the hands and take care to lower the toes before reaching the surface of the water. 2. jump in vertical position, the body completely elongated, arms along the body or spread laterally or vertically.



**Headfirst dive** (detail of the first phase).

1. Inhale long and deep, raising the arms (left subject) 2. Drop the arms and carry them back by flexing the lower limbs at the same time, the upper body leaning forward (middle subject) 3. extend vigorously the lower limbs, quickly bringing the arms beyond the head (right subject).



**Diving headfirst** (detail of the later phase)

1. The left subject has arrived at the precise moment where he has toppled forward, has to at that instant vigorously extend the lower limbs and quickly carry the arms beyond the head. 2. The right subject has left the ground: the lower limbs are completely elongated, and the arms are extended beyond the head. The body will enter the water at an angle of about 45°. The chin stays on the chest shortly before arriving at the water's surface.



**Headfirst dive** A correct dive produces little splashing of water, and the body penetrates the water like an arrow. To do this the direction of the velocity which the body is animated at the moment of entry into the liquid mass is, at this precise moment, conformed with the line formed by the body itself.



**Example of a high dive** The greater the height, the less the impulse given by the legs need to be strong. To not enter the water too vertically and, consequently, to avoid diving too deep, "glide" as long as possible by keeping the head higher than feet. Don't let the upper body be more than 1 or 2 meters below the surface of the water.



**Another example of high dive** Model of a ladder with a mobile platform for conducting dives at different heights.

## Rescue exercises

From a utilitarian point of view, swimming exercises should have as their essential goal the work on water and under water, which is not possible without any rescue practice. The following exercises are chosen and classified so they can gradually prepare the swimmer to get by and also to assist a person in danger of drowning. They should be done first in swimwear before we can think of doing them fully clothed.

### *Swim with the arms or legs only.*

1. Swimming on the stomach, back, standing and side, with legs and one arm. Immobilize the other arm by placing the hand on the hip, neck, on top of the head, etc..
2. Swimming on the stomach, back, feet and side, with legs only. Immobilize the arms by placing hands on hips, neck, on top of the head, etc..
3. Swimming on the stomach, back, feet and side, with arms only. Keep legs together and extended in the line of the body.
4. Moving forward with one arm only, the other limbs held motionless in any position.
5. Moving forward with one leg, the other limbs being held motionless in any position.



### *Diving in every way possible.*

1. Diving feet first and come to the surface as quickly as possible facing the direction of departure.
2. Dive and return immediately to the surface in the direction of departure and taking as little water as possible.
3. Dive in all the possible inclinations.
4. Diving, feet first, and as fast as possible face the point of departure. To do this turn around in the water before reappearing at the surface.
5. Dive and turn as soon as possible to face the starting point. To do this turn around in the water before reappearing at the surface.
6. Dive with momentum, feet first. Make a run beforehand and try to jump with momentum as long deep and far as possible.
7. Dive with a running start. Make a run and dive head first as far as possible. Perform the same exercise without use of both feet.
8. Dive without momentum and with momentum facing the direction of departure after a full somersault in water.
9. Fall over backwards in any way, turning in the water facing forward on the belly, or to the back on the back. Never stretch the body completely when falling; instead, flex the trunk as much as possible on the legs once in the air and strongly tuck the head to the chest to avoid a painful flat-back landing.
10. Fall into the water by surprise by being given a push.



### *Transporting objects lighter and heavier than water.*

### *Pick up objects by diving.*

*Rescue carry* [translator's note: there are more variants in the book which were skipped here]



**Help carry a subject who is not in immediate danger.** The person to be helped places a hand or two hands on the shoulders of the rescuer and is towed behind or to the side.



**Help to carry a person who is not in immediate danger.** The person needing help (left foreground) puts his hands on his rescuer's shoulders. The rescuer stays like this or tows in front of him swimming on the belly or, preferably, on the back.



**Rescue carry.** Seize the person to be rescued from behind with both hands, either by arms above the elbow or under the armpits. Tow the person by swimming with the legs only, preferably on the back.



**Rescue carry.** The way which consists of seizing the person to be rescued from behind, by the arm or under the armpit, is the safest and most practical of all. It prevents the rescuer from being caught.

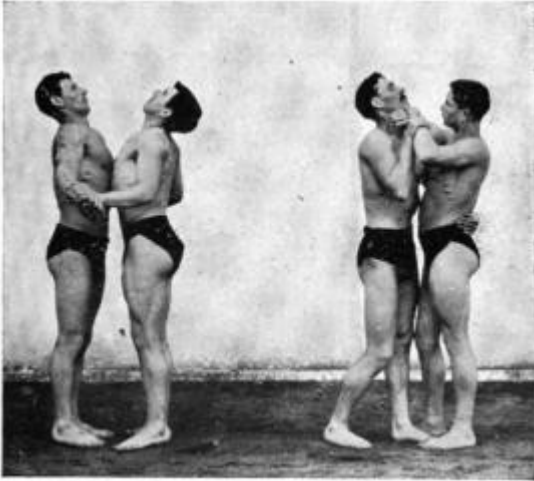


**Rescue carry.** Seize the person to be rescued (left subject) from in front with both hands, either at the arms, above the elbows or under the armpits. Tow the person by swimming with only the legs, preferably on the back, like the subject on the right.



**Rescue carry.** Seize the person to be rescued (right subject) from behind and encircle his neck with the left arm and grab his clothes with the left hand. Swim on the back or side with both legs and one arm. This way permits very easy keeping the head of the rescued person above the water.

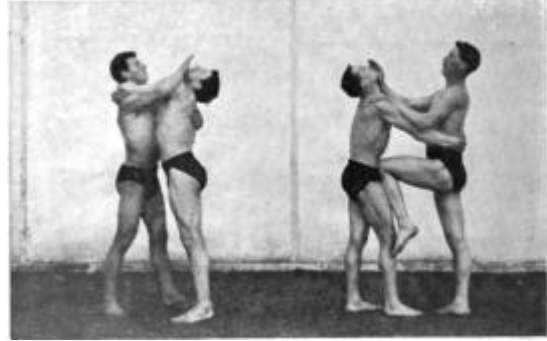
## Defense of a caught rescuer



### Defense of the rescuer caught in the water.

Left group: The rescuer (left) being seized by the wrists, turns his wrists inwards and extends his arms laterally.

Right group: The rescuer (right), being seized by the waist and an arm, frees himself by using the wrestling parry against the front waist hold.



### Defense of the rescuer caught in the water.

Left group: The rescuer (left) being seized by the neck, places his left hand behind the back of the person needing rescue, and with the right hand, vigorously pushes the head of the person backward.

Right group: The rescuer (right) being seized with arms around the body, frees himself by pushing the person's head backward and applying a knee to the person's abdomen.

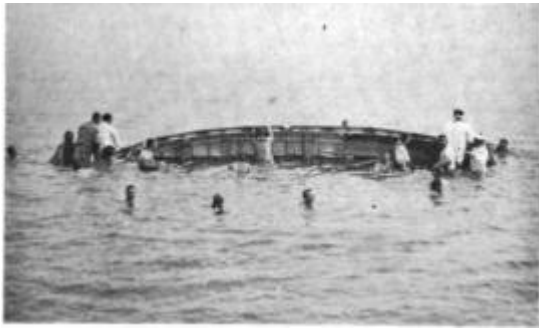
## Rescue e capsized or sinking boat



**Capsizing of a boat.** At the moment the boat capsizes, the boaters escape and move apart as fast as possible, so that they do not stay entangled under it when it overturns.



**Capsizing of a boat.** At the moment the boat capsizes, watch well to clear yourself as fast as possible of objects which may hinder the limbs, primarily the legs.



**Capsizing of a boat.** Once the boat capsizes, the boaters, after they scatter, regroup themselves at the front and rear and try with all their effort to upright it.



**Capsizing of a boat.** The boat which has sunk and capsized is kept upright by the boaters who distributed themselves equally on both sides. In this situation they wait for rescue or swim to tow.

## Crossing running water



A simple makeshift raft is the best way and the most practical to cross a river with persons who cannot swim proficiently. The persons should attach themselves solidly to the raft. When the number of people is too great for them to find a place around or on the raft, it is necessary to make several trips and the best swimmers tow the raft back to its starting point.

If one has a long enough rope, one establishes a “back and forth” between the two sides. When the raft makes its first voyage, it takes one end of the “back and forth”, the other end being held by the people remaining on the shore. The ends of the “back and forth” are then securely fastened on each shore and the tight rope serves as a means of hauling swimmers who bring the raft. Instead of fixing the two ends of the “back and forth” on the banks, you can attach one end to the raft.

Persons who have not yet crossed can easily return the raft back to themselves after the first have landed. If one has two strings of sufficient length, one may establish a “back and forth” on each side of the banks. The raft then performs its passage in both directions, without the swimmers having to tow it. When crossing a river, never try to defeat the current; always land at a point downstream from the point of departure.

## Swimming clothed

Start by simply putting on shorts and shoes. Gradually increase bit by bit the number of clothes until entirely dressed in street clothes. Repeat the previous exercises, in particular the work on the water and under water, being fully dressed.

Swimming, fully clothed, is extremely tiring and at the same time very slow. Firstly buoyancy is less than when swimming in bathing suits, except for a very short period immediately after immersion, when the water has not fully penetrated the clothing. This reduced buoyancy often makes it impossible to float without movement. Also, the movement of the limbs is limited by the discomfort caused by clothing. Finally, pockets of water formed by the clothes provide a significant obstacle to propulsion. Generally, the pace of the movements of swimming fully clothed must be much slower than swimming

in a bathing suit if one does not want to unnecessarily tire oneself.

Being in the water fully clothed, it is possible to undress completely. This exercise is both an application of treading water, floating, diving and swimming with the legs or arms only. The removal of coat and waistcoat is the only relatively easy part of the exercise. It is enough to stay in the vertical position while treading water with the legs only. To remove the shoes, trousers and shorts, it is necessary to crouch and remain submerged long enough to cast off each of these garments. To remove the shirt or sweater, tread water and dive if necessary to pass these clothes more easily over the head.

Apart from the coat and waistcoat, the removal of additional clothing, pants, shorts, shoes and shirt is extremely painful and tiring, sometimes exhausting. Moreover, pants and shorts can stay engaged in the legs and thereby limit the use of lower limbs. A shirt or sweater can remain engaged on the head and cause drowning. In summary, while it is useful to remove some effects, it may be dangerous to undress completely in case of accidental drowning.

## **Accidental submersion**

### **Getting oneself out of danger in case of accidental submersion.**

After an accidental fall, ascend to the surface as quickly as possible and breathe. Keep calm and judge the situation, thinking to save strength and above all not to make unnecessary movements. If a good place for rescue is near, win it as soon as possible while dressed. If it is moving away, swim with the greatest care possible and well regulate the pace to avoid being overcome by fatigue. Get rid of the clothes easier to remove, as the coat and waistcoat. Sometimes there will be interest in keeping the vest to prevent the shirt from forming pockets of water. In all cases, unless you are exceptionally strong, never try to undress completely. It is often better to keep all clothes on than to expose oneself to fatigue or completely exhaust oneself.

When the current is too strong, do not waste your strength trying to beat it, try instead to land downstream from the point where you are, or wait for help. To free yourself from a vortex or the embrace of aquatic plants, do not try to resist, but remain motionless and passive by floating for a sufficient time.

### **Rescuing a person in danger.**

The first duty of a rescuer is to act with extreme rapidity, for any loss of time can be fatal. The rescue is relatively easy if the person needing help is still floating. Just approach and seize the person using one of the methods listed earlier, then wait for help or swim to a favorable place.

In all circumstances the most practical and safest way is to approach from behind and seize the person by the arm or under the armpit without him noticing. In this way, the rescuer avoids being caught. In the case where the person to be helped turns around and tries to seize the rescuer, he should immediately escape and return from behind a few instants later. If the rescuer has been seized, he must free himself one of the ways indicated earlier. As a last resort, if he believes the situation too dangerous for himself, he should not hesitate to choke the person or make him lose consciousness.

The rescue becomes more difficult when the person has gone under, without reappearing at the surface. If he has disappeared from the rescuer's view, the rescuer must look for the air bubbles that indicate the exact location of the submersion. He then dives below or above the bubbles along the direction of the current. If there is no clear indication on the location of the disappearance, he explores

the depths by performing repetitive dives.

The rescuer has no fear of being seized by a completely submerged person, as he has completely lost consciousness or is at least suffocated because he no longer has any force.

When one is surprised fully dressed when rescue is needed, do not lose valuable time to undress completely, especially if the distance to swim is small. Get rid of just the most annoying things: shoes and overcoat. Adjust the trousers well at the belt, so as not to risk having your legs immobilized.

### **Caring for drowned people.**

[translator's note: first aid methods have changed in a hundred years. We omit these here, and recommend looking for more recent guidelines. Gregg's translation includes these out of curiosity.]

## **Requirements and precautions for group swimming exercises**

Swimming should be a regular exercise, subject to the same rules as other gymnastic exercises, and not free swimming. For a group class to proceed, it is necessary that the students who do not know how to swim are able to tread water as soon as possible. Begin by demonstrating, then making them properly do on dry land the movements of the regular breaststroke and backstroke to all students who can not swim. When these movements are well understood and done, in 3 or 4 sessions at most with a capable instructor, the students can start treading water. Students who know how to swim well assist the masters for the first instruction of incapable students. This instruction is done, either along a dock, taking the student by a strap fitted with a rope, or simply taking the student's hand when the water is shallow enough to stand in.



The program of daily work depends on both atmospheric conditions and students' diverse skills.

Typically, a session of collective work always includes the sequence of following exercises:

1. a dive by the head or feet; 2. a dive under water; 3. group exercises together with progressive courses in which one uses the diverse ways to swim, float, etc; 4. one or more other special exercises under the guidance of the master; 5. a final speed race.

Group exercises are very useful for developing assurance and ability of the swimmers. The instructors make them take regular formations, the main ones being the single file line; the parallel line; swimming in circles. They can move from one formation to another, doing a half-turn, facing right, left, either swimming breaststroke, or backstroke, or treading water.



In order to get the students used to swimming with only their legs to help them, have them do many single file lines on the belly and the back (each student placing his hands on the hips, shoulders or under the armpits of the one in front of him); parallel swims forward and backward, each student placing a hand on the shoulder of his neighbor. While working in the water, students should always be in pairs, a strong swimmer with a weaker one.

The exercises must be done before meals or at least three



hours later. Complete provisions and preparations are always taken before the exercises to ensure prompt rescue in case of need.

One puts, in an appropriate place, a sufficient number of monitors equipped with buoys, ropes, poles, etc. They should never lose sight of the students and always be ready to help in the slightest apprehension of danger. Their place is preferably on the shore or in surveillance boats. Throughout the swimming exercises, the greatest silence and most perfect order must be strictly observed. Only the voices of teachers and instructors should be heard. It is the only way to prevent irreparable injuries that can occur almost instantly.

## **Performances of the able swimmer and master swimmer**

These performances, which we established after many experiments at the School of Marine Riflemen were published regulations in the French Navy. By Ministerial Dispatch of April 4, 1907, a certificate of "master swimmer" is given to any sailor who meets the conditions outlined below.

To be considered an "able swimmer", a subject must perform the following minimum performances:

1. A swim of 100 meters in 3 minutes (no minimum time limit);
2. A dive underwater for 10 seconds, the body completely submerged.

These performances correspond to the zero level of swimming tests in the results form.

A "master swimmer" not only knows about the different methods of swimming, but also possesses the physical skills necessary to perform a difficult rescue. The master swimmer must be above all an excellent diver. This is an essential quality to search mid-water for a person in danger of drowning and to keep the head of the person he rescues above water, if necessary by sacrificing his own breathing. Other qualities that the master swimmer should have are: speed, resistance to fatigue and cold, the courage to jump into the water, the ease to move and to recognize in mid-water, the ability to seize and tow a person in danger, and some competence to treat the drowned.

The diving performance of a master swimmer must not be less than 60 seconds to be able to count in an emergency. This performance proves the excellent condition of internal organs: lungs and heart, and a high tolerance of the circulatory and respiratory functions. It gives the certainty that the subject who has reached that at least one time can provide at any time, even if he remained long without exercise or swimming, repeated dives of 15 to 30 seconds on average, which is sufficient in practice. The performance of 60 seconds should be attained after a methodical training of several weeks. It obviously can not usually be provided by subjects in a condition of constant training. Subjects who train to become master swimmers must receive a medical exam with a careful examination of the lungs, heart and ears. One or more master swimmers are essential for monitoring group swimming exercises.

The performances required of a master swimmer are the following (Water temperature is assumed 17 to 18 degrees C, 63 to 65 degrees F):

1. Speed test: 100 meters in 2 minutes.
2. Endurance test: 1000 meters in 30 minutes.
3. Dive from a height of 5 meters, preferably in shallow water (3 meters at most).
4. Stay submerged 60 seconds under water, the body entirely submerged.
5. Being clothed (sweater, shirt, jacket, pants and shoes), to pick up in 3 meters of water a stone or iron weight of 5 kg, preferably in slightly cloudy water.
6. Being dressed (as above) run, with a dummy or a specially appointed man, the rescue exercise of a person in danger of drowning and cross a 25 meter distance.
7. Demonstrate theoretical and practical knowledge of the care to the drowned.

## 5. Climbing

Climbing consists in raising or moving the body using the arms or the arms and legs from a suspension or a holding position. It is one of the most useful practical exercises: climbing is important in many different situations from reaching a high place to passing an elevated obstacle to fleeing from danger vertically. Climbing with the arms and legs recruits the muscles of the entire body, in particular the core and upper limbs. However, climbing can be a detrimental exercise: it requires violent efforts from muscles which physiological function is not the locomotion of the upper body; it can encourage an excessive development of upper body musculature and slow regular growth in teenagers; it requires a posture of the shoulders that compresses the thoracic cage. Climbing can also be very beneficial to the development of upper body strength, but only in moderate amounts and using the legs as much as possible to reduce the strain on upper limbs hold. Exercises to correct the posture of the shoulders should be combined with climbing whenever possible. Among the following exercises, almost none have a deforming effect. However, many of the playful exercises in gymnastics have a deforming effect and should be avoided. Progressive training in climbing starts with simple suspension exercises and climbs on ladders, double ropes or bars where the elbows can be kept in the plane of the shoulders and the chest open. Only then comes climbing on the rope, first using the feet. Finally, train topping out. Being able to climb some distance on the rope with only the arms is a good criterion of climbing abilities: other exercises come easily when this is mastered.

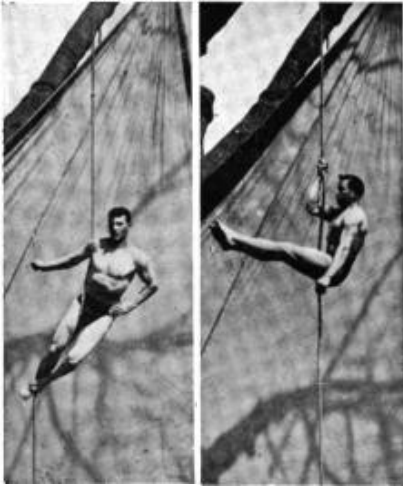
### Climbing vertical ropes, bars, etc. fixed or free standing

**1. Climbing with arms and legs, pinching the rope:** hold the rope as high as possible, put the right knee and front of the ankle behind the rope, the left calf pressing in front of it. Climb up with the arms, bend the legs bringing the knees up high. Press on the rope with the legs, bringing the arms up one after the other and continue. To go down, move the arms below one another in turn, while pressing on the rope with the legs.



**2. Climbing with arms and legs, rope rolled around one leg:** hold the rope as high as possible, pull up, bring the knees up. Let the rope go between the thighs, rolling it around one leg behind the calf onto the front of the ankle. Press on the rope with the sole of the other foot at the ankle. Take the hands off the rope one after the other, reaching up, straightening the legs. Pull up again, letting go of the rope with the legs or letting it slide around the leg. Bring the knees up, and roll the rope as before. When the rope is free standing, bring the legs forward rather than keeping them vertical, to provide a better grip for the feet. To go down, move the arms below one another in turn, while pressing on the rope with the legs. This climbing method requires more work from the legs, but the pose can be held for a longer time, to rest the arms or to free one or both hands; if letting go of both hands, the rope must go behind the back to avoid falling backward.





**3. Climbing with the arms only:** hold the rope as high as possible, reach up with one hand alternatively, keeping the legs bent up, rope between the legs or to the side. Go down in the same way. This method is useful to reach quickly a close height or to momentarily relieve the legs in a climb. It is an important exercise to practice for the climbing muscles.

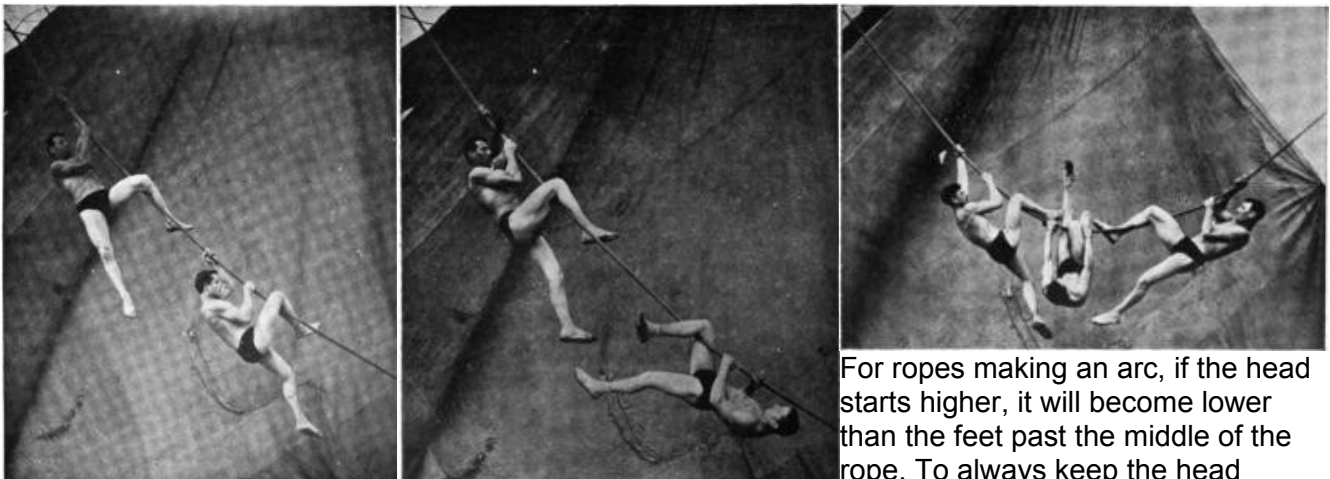
**4. Climbing on two ropes:** grab one rope in each hand, and climb using one of the above methods, rolling one rope around the leg if needed. This method has little practical use, but is a great exercise for practicing, keeping the chest open and the shoulders out.



## Climbing inclined ropes and chains

Inclined ropes are ropes fixed at both ends, having some inclination, even to be horizontal. It is useful for climbing on scaffolds, going down from a window to the ground with a rope in a fire, etc.

**1. Climbing with both hands, rope under the knee:** to go up or down, keep the rope between the legs, folding one or both calves on the rope, or bring the legs with calf on the rope one after the other, moving opposite arm and leg at the same time, or keep the rope on the side, one calf resting on it. Hands are moved one after the other in all cases. This climb should be practiced going up and down, head first or feet first. Keeping the head higher is the most efficient method.



For ropes making an arc, if the head starts higher, it will become lower than the feet past the middle of the rope. To always keep the head

higher, proceed as follows: at the middle, if the right leg is folded above the rope, turn the body to the right and reach beyond the leg with the right hand, then the left while bending the leg to keep it engaged on the rope. Bring the left leg under the rope, then fold it above the rope before removing the right leg. Note that turning to the other side would make the leg go right away.

**2. Climbing with both hands, one heel hooked on the rope:** same method as above, using the heel rather than the folded leg.

**3. Climbing above the rope:** it is sometimes necessary to climb like this to reach an object or free one or both hands. Hold the rope with both hands and one leg, foot hooked on the rope, the other leg straight and balancing. This method is completely unpractical on arc-shaped ropes.

**4. Climbing with the hands only:** being suspended by the hands, move one hand after the other to progress up or down. This method is a good strengthening exercise, and is useful for instance if the legs were to slip from the rope.



## Climbing beams, masts, columns and other vertical bars

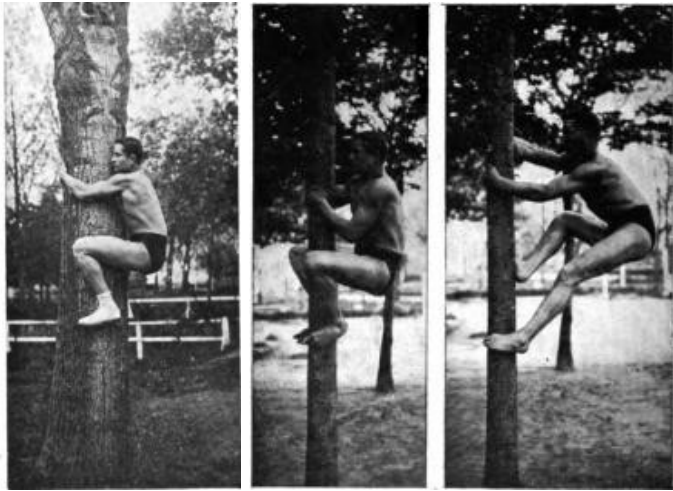
This way of climbing can be useful to reach a ceiling from a side beam, to move around a boat, to climb trees, etc.

**1. Climbing with crossed arms, leg front and back:** grab the mast as high as possible with both arms crossed, hugging the mast, bend up the legs as much as possible, one with the calf around the mast, the other with the front of the foot pressing against the mast. Extend the legs and reach up with both arms, then hug the mast tightly while bending the legs up, etc. To go down, perform the same movements in opposite order. This method is the most effective unless the mast is too thick.

**2. Climbing with crossed legs:** here, both legs are kept around the mast and crossed. A successive pressing of the upper and lower limbs as above allows to go up or down. This method is not very good to go up, but is efficient for going down or staying at some level, on masts of limited width.



**3. Climbing with arms holding the mast, legs on both sides:** this is a method for a mast that is too wide to cross arms or legs around. The lower limbs are used by strongly pressing against the sides of the mast with the feet and the knees.



**4. Climbing with hands and the feet, without pressing the knees:** this method is preferably used bare feet and with masts of smaller width or even a straight rope. It is a harder way, but faster than the other techniques.

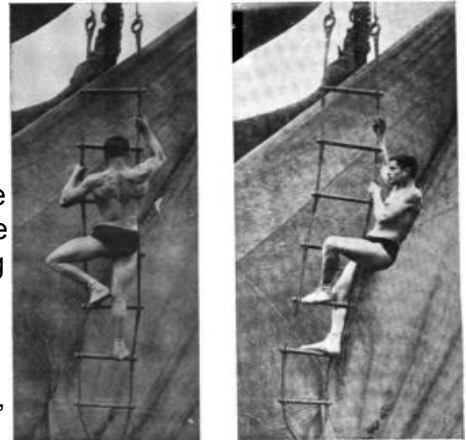
All these climbing techniques have a particularly intense effect on the abductor muscles of the legs.

## Climbing ladders and vertical parallel bars, straight or inclined

There are two sorts of ladders: rope ladders and regular wooden or metal ladders. Climbing on rope ladders can be done as follows:

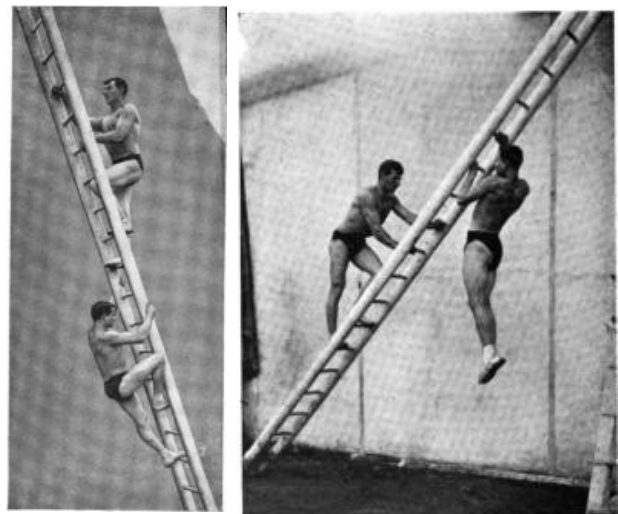
**1. Climbing on the ladder:** grab the sides of the ladder as high as possible, put both feet on a rung, knees open and out, weight on the outside of the feet. Reach up on the side with the left hand while moving the right foot up one rung, and repeat on the other side. Use the same method to go down. To be efficient, move the arm and leg simultaneously while keeping the torso straight, and avoid letting the legs go forward which would require more work from the arms.

**2. Climbing on the side of the ladder:** grab one side of the ladder, put both heels on a rung, feet pointing outside and legs around the ladder side. Climb as above, moving one arm and opposite foot at the same time. This method is much faster and easier than the first one.



On wood or metal ladders, one can use the following techniques:

**1. Climbing on top or under with the hands and feet:** put the feet on the rungs and the hands either on the side or the rungs. Go up moving either the same leg and arm or the opposite leg and arm (better solution) at the same time. When climbing from the underside of an inclined ladder, pushing hard with the legs and keeping the body close to the ladder will lower the work of the arms. Climbing on top of the ladder being easy, this skill must be practiced to increase speed walking and even running on the rungs.



**2. Climbing under the ladder with the hands only (inclined ladders):** put the hands on a rung, go up or down by moving the hands, keeping the rest of the body hanging straight. This method is the most practical one in the case of very inclined or nearly horizontal ladders. It is also a great exercise for the climbing muscles.

It is sometimes necessary to go under the ladder from above, or on top from below, without going all the way up or down. This exercise is easy when the ladder is fixed, but otherwise you must proceed as follows to avoid tipping it: being above and close to the ladder, bring the left foot on the right side of the rung, and the right leg outside the ladder. Bring the left hand to grab the right side, at shoulder height. Then, reach under the ladder with the right hand for the rung just above the left hand, aiming far from the body. Pull hard with the right arm, bring the right foot under the ladder, onto the same rung as the left foot. Finish by bringing the left foot and hand on the underside of the ladder. Use a similar technique to go from under to be on top of the ladder.

A ladder may have broken rungs; one can still climb it using one of the following methods designed for any type of vertical or inclined parallel bars:

**1. Climbing with hands and feet, knees inside or outside (vertical bars):** reach up the bars with the hands, go up by flexing the arms. Bend the legs and press them against the bars, either knees inside and feet outside or knees outside and feet inside. Press in or out with the knees, depending on their position, and reach up with the hands. Bend the legs up, and repeat the motion. Same method for going down.

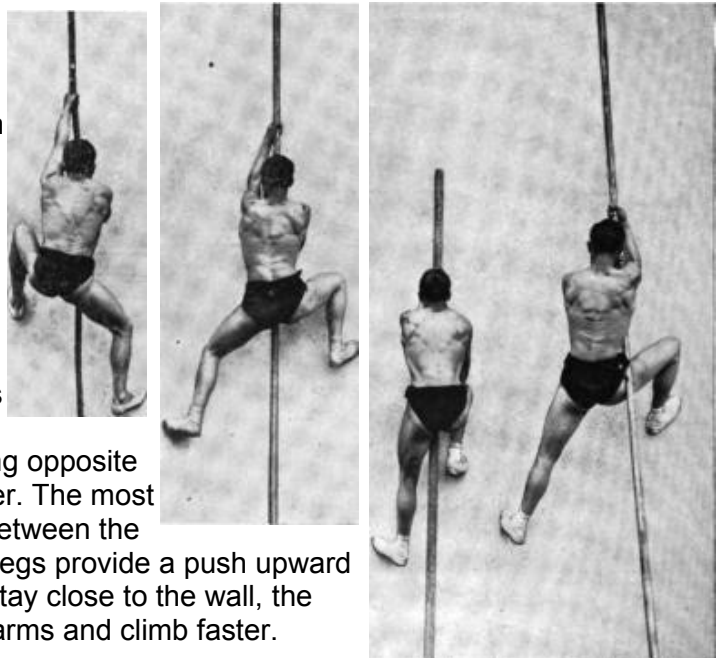
**2. Climbing on inclined bars: from above:** do as in the previous method. *From under:* bring the bars in the fold of the knees or the heels as in the climbing methods for a single bar.

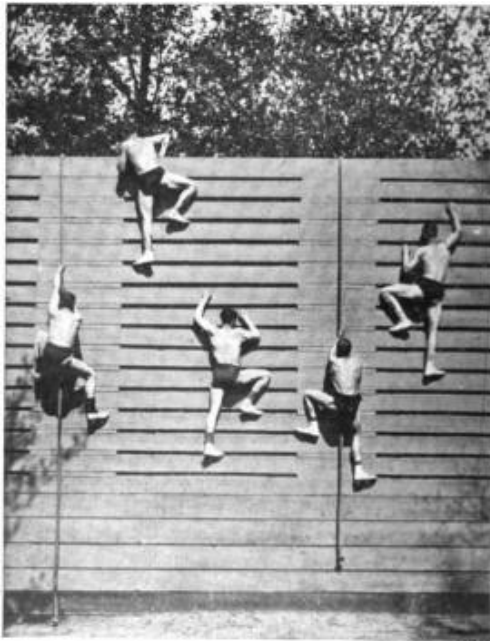


## Climbing along a wall

Climbing up and down walls finds many applications, whether to escape a fire, go down a well, get out of the water, using a rope, a beam or the surface of the wall. The ways to climb up ropes, beams, etc, are as follows:

**1. Climbing with the hands and feet:** grab the rope, pole, beam with the hands and place it between the legs or to one side. Bring the legs up on the wall, knees as open and high as possible, feet pointing outward. Climb by moving hands and feet in succession, or moving opposite limbs together, or moving on side after the other. The most efficient method consists in keeping the rope between the legs and moving opposite limbs together. The legs provide a push upward and slightly away for the wall. The body must stay close to the wall, the knees out and open to reduce the work of the arms and climb faster.





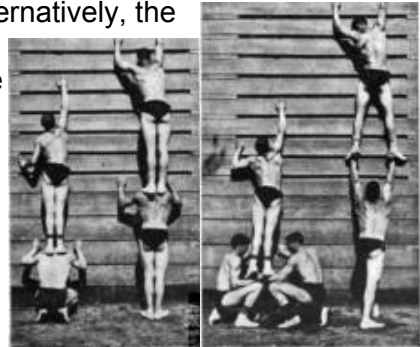
**2. Climbing with the hands, holding the rope between the thighs, feet resting on the wall:** reach up with the arms on the rope, bend arms and legs, press the rope between the thighs, crossing the legs if needed, and use the feet to stay away from the wall. Reach up with hands and repeat. This method is useful when the wall is too slippery for the feet, and the rope can be kept far enough from the wall.

Climbing can also be done without any device, with one of the following methods.

**1. Climbing using the wall surface:** if the wall has an irregular surface, holds, etc, one can climb using these to rest the hands and feet, keeping the body close to the surface of the wall.

**2. Climbing with the help of someone:** the helper squats facing the wall, hands resting on it. Stand and balance on his shoulders, hands on the wall. The helper then stands up with the climber. If needed, he can grab the climber's feet and extend the arms further up. Alternatively, the

helper can stand back against the wall, hands crossed in front, palms up. The climber puts a foot on the hands and walk up, to go further he can put his other foot on the helper's shoulder.



**3. Climbing with two helpers:** the two helpers kneel sideways to the wall, facing each other, closest knee to the wall on the ground. They lock the opposite hands, palms up. The climber steps on the hands and puts his hands on the wall, then the helpers stand up, using their free hand against the wall. Alternatively, the helpers can stand facing the wall, locking the inside hand between them, and the climber steps first on their hands then on their shoulders.

## Pulling oneself up

Pulling oneself up consists in going from a suspension to a hold on the arms, or going from below to above the obstacle. Pulling up is probably the most important climbing exercise, as it is almost impossible to finish a climb without having to get on top of something.

**1. Pulling up by rotating the body backward:** from a suspension under the beam, pull up with the arms, bring the legs as high as possible in front of the beam, then above by bending the body backward, still pulling with the arms. Keep rotating until the stomach is above the beam, then hold straight. Go down by the opposite movement. This method has very few practical applications, as it requires a bar with leg space and small enough to provide a good grip. However, it is a good exercise of the core muscles. To that end, it can be made harder by bringing the legs up high before doing the pull-up with the arms.



**2. Pulling up on one leg and the forearms or wrists:** from a suspension under the beam, pull up with the arms, bring the legs as high as possible in front of the beam, then lean the body to the right and hook the right leg, calf above the beam, on the right side of the hand. Get on top by either bringing the forearms flat on the object, then spreading apart the hands, or using the wrists, bringing the forearms straight up above the beam. In any case, swinging the other leg up and down will provide momentum for the climb just before getting on top. Once up, unhook the leg to go onto a straight hold. Go down by the opposite movement. This method is the easiest for pulling up, but requires a bar or a small beam with good grip and enough space to swing the leg.



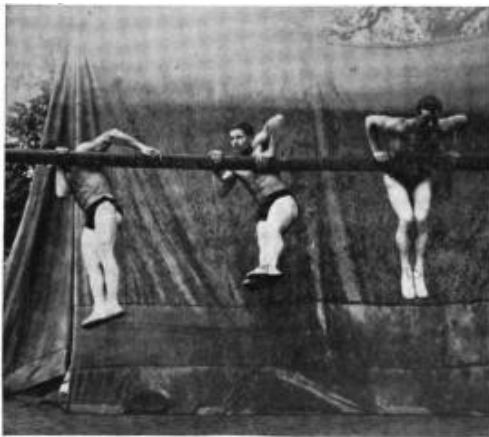
**3. Pulling up on the forearms:** from a suspension with hands close, pull up with the arms while bringing the legs up high. Bring both forearms up on the beam, letting go with the hands, and swinging the legs vigorously up and down to help the tilt of the body forward above the beam. Get above the bar spreading the hands apart, and rest the stomach on the bar before going into the holding posture. Go down with the opposite movement. If climbing a wall or if there are objects behind the bar, the legs can use them to push up and away and help in the pulling motion. This method is the most practical in most circumstances.



**4. Pulling up alternatively on the wrists:** from a suspension, pull up with the arms while bringing the legs up in front. Bring the weight of the body on the left wrist, and make the right arm vertical. Shift the weight to the right side with a slight left torsion of the body, and pull the left forearm above the bar, helping by moving the legs up and down. Push strongly with the arms to rest the stomach on the bar before going into the holding posture. Go down with the opposite movement. As before, if there are objects or a wall under the bar, the legs can use them



to push up. This method is convenient on bars with a good grip, and does not require to let go like the previous method.



**5. Pulling up simultaneously on the wrists:** from a suspension, pull up with the arms while bringing the legs up in front. Engage the wrists above the object with a strong push, bringing the weight on the hands flat toward the back of the palm,

turning the fingers inward if needed. As the wrists are engaged, bend the arms, then vigorously swing the legs up and down





and pull over the bar, keeping the elbows close to the body. From there, reach the holding posture. Go down with the opposite movement. As before, if there are objects or a wall under the bar, the legs can use them to push up. This method is not much harder than the previous one, and depends on the good placement of the wrists and the swinging of the legs. Of all methods, it is the fastest.

## Reaching high places without vertigo

To reach a high place, one must first become insensitive to vertigo. Vertigo is a sort of stunned state where one loses will power and the proper notion of things, caused by feeling the void below or lacking confidence. One can conquer vertigo with gradual exercises meant to improve balance and reduce the fear of the void.



**1. Balancing:** on an elevated object, perform the following exercises: forward raise of the leg; backward raise of the leg; side raise of the leg; forward balancing of the leg; backward balancing of the leg; side balancing of the leg. The hands can follow the fundamental positions or help maintain balance.

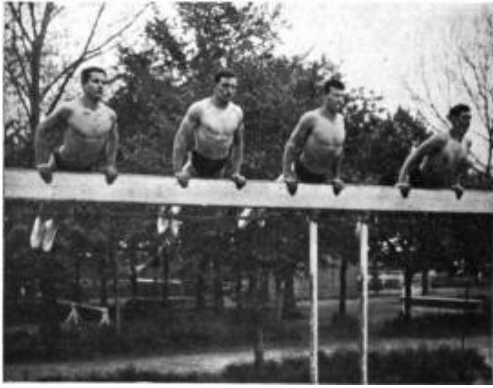
**2. Fighting the void:** gradually go onto higher and higher places, first using safe and easy means: stairwells, ladders, stools, etc. Once up onto a safe location, look down toward the ground. When more assured, climb up with some of the more demanding climbing methods described above.

## Reaching a hazardous spot

One may have to stay on a spot after climbing, to take a break, help someone, recover an object, etc. This is not an issue if the spot is safe, but is harder if there are dangers of losing balance or falling.

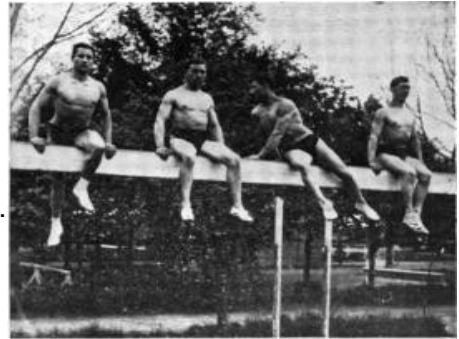
After a climb followed by a pulling up, we find ourselves holding on the arms and stomach, and we seek to leave this posture to sit, straddle or stand on the obstacle depending on the circumstances. The following exercises must be done on a low object first, before trying them on high places.





**1. Sitting from a straight hold:** turn around on one arm, letting go with the other hand and leaning the body forward, or bring one leg over the object, then the other. Do the opposite to go back to a hold.

**2. Straddling from a straight hold:** bring one leg over the object. Do the opposite to go back to a hold.



**3. Standing from a straight hold:** bring the knees one after the other on top of the object, then stand up. Do the opposite to go back to a hold.



**4. From standing, straddle the object and back:** bring the feet together, bend the legs down, put the hands on the object, close to the feet, fingers out. Bring the weight of the body on the wrists and lean slightly forward, move the feet slowly on both sides of the object, sit. To go back up, put the hands close to the thighs on the object, swing the legs a couple of times backward and get the feet on the object, then stand up.

## Passing a dangerous spot

By a dangerous spot we mean a narrow passage, beam, bar from which a fall is possible. Depending on the type of obstacle, use one of the following methods:

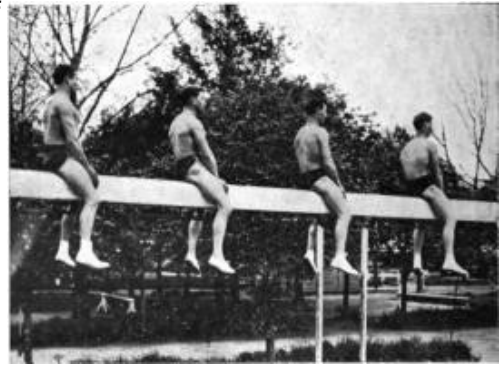
**1. From a hold, move sideways:** to go left, press the stomach and bring the right hand next to the right thigh, fingers forward. Bring the left hand out and pull the body up and toward the left hand, then go back on the stomach. Repeat the move to keep going left, or reverse to go right.

**2. From sitting, move sideways:** to go left, bring the right hand next to the right thigh, fingers forward. Bring the left hand out and raise the body up and toward the left hand, then sit back on the object. Repeat the move to keep going left, or reverse to go right.

**3. From straddling, move forward:** reach in front of the thighs with the hands, thumbs up and fingers out, raise the body with the arms, balancing with the legs and move to sit forward, hands touching the thighs.



**4. From straddling, move backward:** put the hands in front of the thighs, thumbs up and fingers out. Swing the legs forward then back, raise the body backward with a strong impulse from the wrists, bring the hands close to the thighs again and go on.



**5. From standing, walk forward:** bring one foot in front of the other, heel pointing toward the middle of the other foot, arms out for balancing, and keep going with the feet pointing out, eyes looking just in front of the feet. Smaller steps help maintain a better balance.



**6. From standing, walk backward:** perform the same steps as in the forward walk, with extra care.

**7. From standing, walk sideways:** stand sideways, feet together pointing slightly out, arms loose. Bring the right foot to the right followed by the left foot, and so on. Proceed similarly to go left.



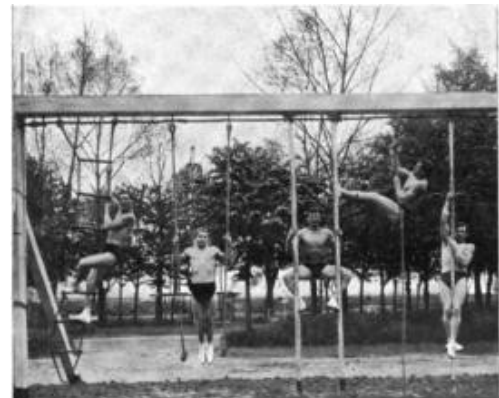
**8. From standing, turn around:** turn on the spot using the arms to stay balanced.

## Climbs of all sorts

Perform climbs and progressions of all sorts on horizontal, vertical or inclined surfaces using the arms and legs or the arms only. Use all sorts of buildings, trees, ropes, beams, etc. Learn to stay in suspension in different ways: using one hand, one hand and elbow, one hand and arm locked at the armpit, both elbows, both arms, head down with hands and calves, head down with calves only, head down with one calf, etc.



Train to maintain the suspension for longer times, using will power to fight muscular tiredness and pain. Such exercises are important for any situation where safety rests on a sure hold from the hand.



## 6. Lifting

Lifting consists in grasping with the hands objects of various size and shape to move them, lift them up or carry them. Often it is not only necessary to be skilled at handling large and heavy objects but also to have the required strength to carry them. In particular, it is important to be able to carry with caution a sick or injured person without a vehicle or a stretcher.

Lifting exercises have an intense effect on developing the muscles of the shoulders and the lumbar region. However, they have little or no hygienic effect, especially when the efforts are violent. It is important, when using lifting as a strengthening exercise, to carefully consider the weight of the objects to lift. Lighter objects are preferred, because the muscular development depends more on the number of repetitions than on the intensity of the effort. For instance, it is better to lift a weight of 20 pounds 20 to 30 times than an object 4 or 5 times heavier just once.

An object is to be considered too heavy if it doesn't allow repeated lifting. To reach the ability to lift heavy weights, one must start with light objects and progressively increase the weight. As in any other exercise, only try to use maximum strength very occasionally.

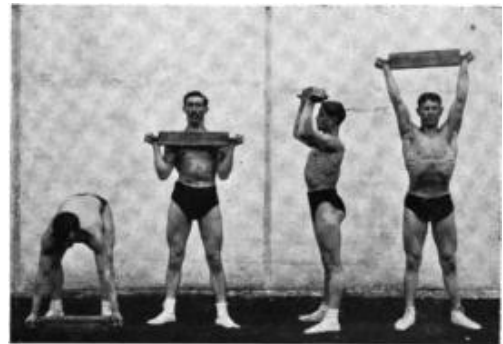
One must be careful with lifting exercises. When done with weights that are too heavy, they have the following drawbacks: 1. they develop muscles very fast, which might be dangerous for persons of insufficient organic resistance; 2. they stop the growth of teenagers; 3. they stiffen the muscles and remove all their flexibility; 4. they tire the heart from the short and intense work they require; 5. they can produce accidents like hernias, forced heart, tearing of muscles and tendons, etc.

In general, the training of lifting skills is done in two ways: with objects like dumbbells, kettlebells, barbells, or stones of known weight, for a methodical gradation of the exercises; with objects of various shape and size requiring to be handled with dexterity, like bags, parcels, etc.

### Lifting with two hands

**1. Clean and press:** place the heels on a line, feet together or slightly apart, flex the legs and bend down and forward. Grab the object with both hands and lift it in one move to shoulder height, without resting it on the chest. Pause at the shoulders, legs straight and arms bent, then extend the arms to bring the object over the head with straight arms.

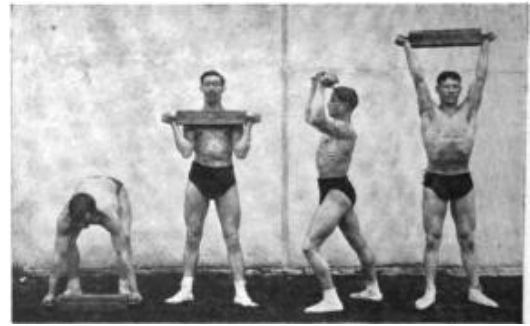
During the extension of the arms, the legs are straight, the feet stay in the same position, the core is tight and the body is not bent backward or to the side. This lifting method has little practical use, it is rather a conventional exercise for developing and measuring strength.



[translator's note: a long description of the timed clean and press of a 40kg weight used in measuring progress in lifting has been omitted here.]

**2. Clean and jerk:** place the heels on a line, feet together or slightly apart, flex the legs and bend down and forward. Grab the object with both hands and lift it in one move to shoulder height, without resting it on the chest. Pause at the shoulders, legs straight and arms bent, then throw the object to

straight arms with a sudden flexing and extension of the legs, staggering the legs front and back or keeping them in the same position. Note that the raising of the object is almost entirely done by the motion of the lower limbs; the extension of the arms must start with the extension of the legs, not their flexing. This method is the most practical to lift any heavy object.



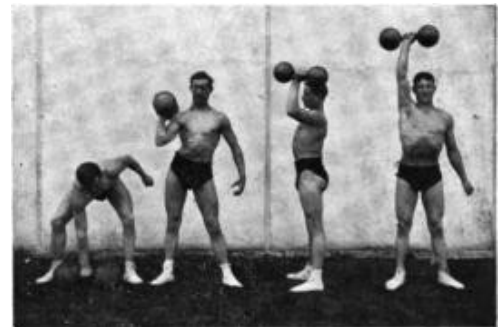
**3. Snatch:** place the heels on a line, feet together or slightly apart, flex the legs and bend down and forward. Grab the



object with both hands and lift it in one move all the way to straight arms, without pausing at shoulder level. Use the legs as much as possible, extending them vigorously and staggering them if needed. Pull the object vertically, as close as possible of the body. Increase its speed before reaching shoulder level, where the wrists are rotated. Straighten the arms before the end of the extension of the legs. This method is nothing more than a throw without a pause at the shoulders. It requires about the same strength as the clean and press, but is a more complete exercise. Like the throw, it has an intense effect on the muscular development of the legs.

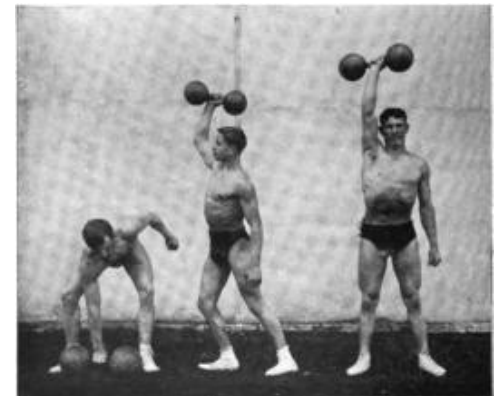
## Lifting with one hand

**1. Clean and press:** same procedure as in the two handed version. Grab the object with one hand, bring it to the shoulder in one move. Pause at the shoulder, then extend the arm up to raise the object above the head, keeping the legs and body straight.

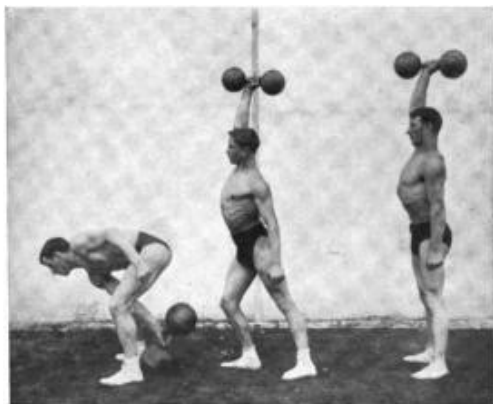


**2. Clean and jerk:** same procedure as in the two handed version. Grab the object with one hand and bring it to the shoulder in one move. Throw it upward to full extension of the arm with a strong flexing and extension of the legs.

**3. Snatch:** same procedure as in the two handed version. Grab the object with one hand, and pull upward to raise it all the way to full extension of the arm in one move, with as much help as possible from the legs.



There are two other classical techniques for lifting with one hand, but with little practical interest:



**4. Press pull:** it is a sort of snatch with the arms kept fully extended. With feet apart, grab the object with one hand and place it between the legs, slightly behind. Raise the upper body suddenly to bring the object above the head in one move, keeping the arm straight.

**5. Bend press:** it is a sort of press without maintaining a correct posture. Grab the object with one hand and bring it

to the shoulder in one move, then pause at the shoulder. Raise the object smoothly above the head to a full extension of the arm, bending the body at will and flexing the legs to help.

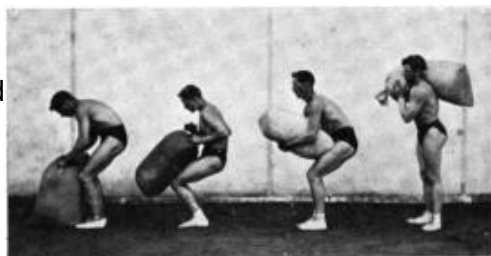


## Lifting and carrying objects and charges of all sorts

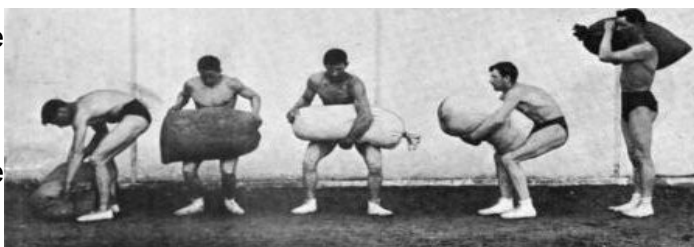
The classical exercises above can only be practiced with compact objects where the hand can have a good grip. They must be complemented with handling, lifting and carrying objects and charges of all sorts, in particular with the following exercise: lifting and carrying a bag on the shoulder. Whatever the shape or size of the object, the technique to use is always similar to lifting and carrying a bag. Start learning and training the proper form first with lighter bags filled with straw, cotton, seaweed or sawdust, then progressively move on to heavier bags by adding sand or earth.

Use one of the two following methods, depending on the weight of the bag. The descriptions are made for carrying the bag on the right shoulder, but carrying on the left shoulder follows the same rules.

**1. Lifting a light bag:** place the bag straight and well balanced, and grab it with both hands near its head. Lift it slightly from the ground while flexing the legs, and turn it around to bring its head to rest on the right thigh, as close as possible from the abdomen. Help the move by pushing vigorously with the right knee, keeping the legs flexed. When the bag flips upside down, grab and hug the middle with both arms. Stand up while placing the bag well balanced on the right shoulder.



**2. Lifting a heavy bag:** place the bag flat on the ground, head to the left and bottom to the right. Grab the head with the left hand and the corner of the bottom with the right hand, close to the feet. Flexing the legs, lifting the bag in one move to rest it on both thighs, as close as possible from the abdomen. Let go with the left hand and



grab around the middle with the left arm, then let go with the right hand to grab the further corner of the bottom. Flip the bag toward the left, in order to bring the bottom up and the head to rest on the

right thigh, close to the abdomen, keeping the legs flexed. Let go with the right hand and grab around the middle with the right arm, then stand up while placing the bag well balanced on the right shoulder.

Two other exercises can be useful when several persons are available: lifting and carrying a beam, branch or tree, and stand a ladder vertically.

To lift onto the shoulder a beam or a long object, the team starts at the heavier end of the object, which is the first to load. They grab it and lift it up, leaving the other end on the ground. A sufficient number of persons bring it on their shoulder, then the others go to the lighter end and load it on their shoulder. The team can finally move to share evenly the weight.

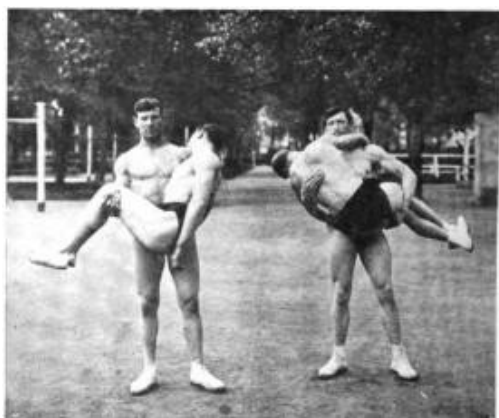
To stand a ladder vertically, start by placing the foot or base of the ladder against a wall or a fixed object. Lift the other end, each person getting under the lifted part of the ladder after one another. Raise the arms vertically to raise the ladder into a vertical position. If there is no fixed object to use, one or two persons stand between the first and second rung, holding the ladder with the arms and leaning to bring their weight back as the ladder is raised. That way, the base of the ladder is constrained by their weight, and it can be raised as described above.



## Transporting sick or injured persons

The carrying techniques depend on circumstances: the weight of the person to carry, the seriousness of his state, the distance to cover, the number of available persons, etc.

**1. Holding the person by the middle under the arm:** grab the person to carry lying down on the ground under the armpits, from the back. Lift him and carefully place him under an arm, his head in front and his legs back. The arm of the carrying person is placed under the belly of the carried one, to keep the chest free. This method is most practical when the rescuer is alone, the rescued man is not too heavy and the distance to cover is short, or one needs to walk up some stairs, in which case the free arm can be used to grab the handrail.



**2. Carrying the person in both arms:** this method conventionally used to carry children is only practical if the person to carry is light and the distance to cover is short.

**3. Carrying the person on the back:** the carrier holds the leg of the carried person, who crosses his arms around the carrier's chest. This method allows to carry for a long distance someone hurt at the leg or the head with enough strength to hold on with his arms.

**4. Carrying the person sitting on one or both shoulders:** place the person on the back, then use the arms to raise him to the shoulders, or squat to let the person sit directly on the shoulders. To move on one shoulder, say the left, bring the right leg up over the head, then the carrier grabs both legs with the left arm while providing support with the right arm. If the carried person can stand, one can start from a squat and lift him directly on the shoulder. Like the previous method, these two are useful to carry over a long distance someone with minor injuries.

**5. Carrying the person on his belly over the shoulder or the neck:** *on the shoulder:* with the person lying down, kneel on his left and put the left knee on the ground. Grab him by the left arm, lifting his body to bring his chest to rest on the right leg. Hold him around the waist, left arm under and right arm over. Stand up and bring the person onto the left shoulder lifting him vigorously, so that his legs go over the left shoulder to the back, the upper body staying forward. Same method for the right shoulder.

*On the neck:* once the person is over the left shoulder, grab his legs with the other arm to bring them on the right shoulder.



**6. Two-person carry by the arms and legs:** one of the carriers lifts the person under the arm pits, and the other by the legs, placing himself between the legs or to the side. Or one person grabs the right arm and right leg, and the other the left arm and left leg. This method works for a person sick, injured or dead if the distance to cover is short.

**7. The simple stretcher (with two carriers):** the two carriers hold hands, left hand with right hand, grasping each other by the phalanges. They squat down to let the carried person sit on their arms and place their arms around each carrier's neck. The carriers move facing forward.



**8. The chair:** two carriers facing each other hold hands, left with right, grasping at the phalanges, and place their free arm on each other's shoulders. The carried person sits on the arms and the carriers move sideways. This method allows to carry over a long distance a person badly injured, unconscious or dead.

**9. The double stretcher:** four carriers in a square hold hands two by two at the phalanges or the wrists. The carried person lies down on this sort of bed, a fifth carrier behind may hold his head and a sixth one in front may hold his legs. This method works in any circumstance, provided there are enough carriers available.



## 7. Throwing

Throwing consists in projecting an object of any shape or size either to a given distance or toward a given target. This exercise has many uses, for instance when defending oneself by throwing an object, helping someone in the water by throwing a life buoy or a rope, reaching a high place by throwing a grapple, giving a tool to someone you cannot reach, etc.

Throwing exercises act on most of the muscular system, particularly on the arms and the obliques. They improve coordination, both for the power and the accuracy of the throw, and develop a good eye and a steady hand. They complement well lifting exercises, without any of the dangers of these previous exercises.

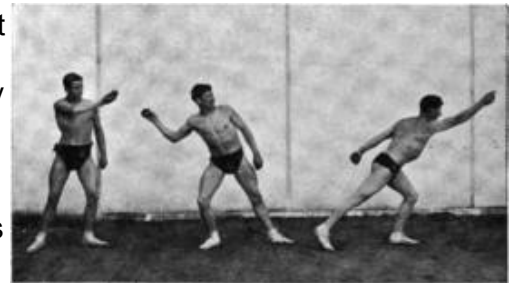
Throwing exercises are both educational and applied, and can be performed at any age, provided that the weight of the objects is limited for children. They must be done on both sides, to develop symmetry on the musculature and ambidexterity.

### Throwing light objects



**1. Throwing by swinging of the arm:** hold the object in the right hand, arm straight along the body. Split the legs front and back, the right leg backward and carrying the weight of the body. Swing the arm back and forth, releasing the object when the arm goes from back to front, while shifting your weight from the back to the front leg, extending the back leg fully and possibly raising the foot. This method is used commonly in the game of Bocce ball.

**2. Throwing by extending the arm:** hold the object in the right hand, split legs front and back, weight on the back leg. Bring the arm flexed toward the back, with a slight torsion of the body to the right. Extend suddenly the arm forward to release the object, while bringing the weight of the body on the front leg and twisting the body toward the left. The arm follows a semi-circular trajectory, horizontal, slanted or vertical. This method is used to throw a small rock, a ball or a light object at a great distance.



**3. Throwing by torsion of the body:** the difference with the previous method is that the object leaves the hand like in a slingshot. The movement of the entire body produces the throw, not the arm alone which remains straight. Split the legs front and back, bringing the weight on the back leg. Swing the extended arm front to back horizontally, twisting the torso in the same direction. Release

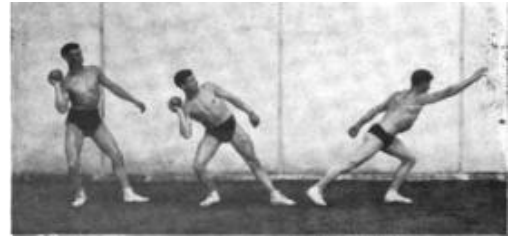
the object when the arm comes back to the front, with a vigorous torsion of the body to the left and a shift of the weight on the front leg. This method is used to throw ropes and life buoys. It is also used in the classical throw of the disc [...].



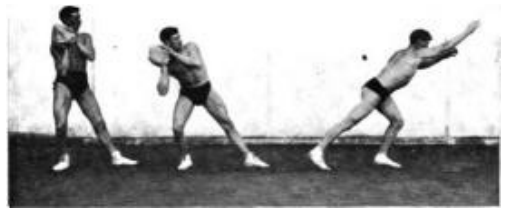
## Throwing heavy or large objects

### 1. Throwing from the shoulder without moving the feet:

hold the object in the right hand, split the legs to bring the right foot back. Bring the right hand to the right shoulder, behind the head, arm bent. Bend the body backward, bringing the weight on the right leg, flexing. Bend immediately forward, shifting the weight onto the front leg and extending the right arm to release the object. The throw is done from the motion of the entire body, not just the arm.



**2. Throwing from the shoulder with a step:** with the object in the right hand next to the shoulder, step back to bring the weight on the flexed right leg as above. Shuffle both feet forward, keeping the weight on the right leg, and throw the object as previously using the momentum gained in the shuffle.



**3. Two-handed throw from the shoulder:** bring the object to the shoulder and throw it as previously, but using two hands to carry the object.



**4. Two-handed throw by swinging:** take a wider stance, bend down to grasp the object, legs flexed. Swing the object back and forth between the legs, then release it forward while straightening the body and extending the legs.

**5. Two-handed throw by side swinging:** stand to face a direction perpendicular to the direction of the throw. Take a wide stance, bend to grasp the object, and swing it side to side, along the throwing direction. Release the object while bringing your weight on the throwing side.



## Juggling exercises

The throwing exercises above are complemented by juggling with all sorts of objects. The following exercises can be done in multiple ways: with light objects, heavy objects, without moving, while moving forward, backward or to the side, throwing higher and higher or faster and faster, using only the arms instead of the whole body to throw, keeping the hands always above or below the shoulders, flexing the legs to throw and catch, flexing the torso forward or to the side to catch and extending it to throw..

Juggling exercises develop dexterity, a good eye and a steady hand. With heavier objects they have an intense effect on the strengthening of the arms, forearms and core muscles. The main juggling exercises are the following:

1. *Throwing and catching an object with two hands.*

2. *Throwing an object with the right hand and catching it with the left.* With a heavy object, bending the torso to the side and catching with the arm fully extended is a great exercise to strengthen obliques, pectorals, and forearms.

3. *Throwing and catching an object with one hand.*

4. *Throwing an object to a friend with both hands.* If the object is light enough, the two persons can face each other, if the object is too heavy they must face the same direction and throw sideways. That way, if the object is not caught it will fall to the ground without hitting the receiver.

5. *Throwing and object to a friend and catching it with one hand.*



## **8. Defending**

[translator's note: as with the swimming chapter, Gregg translated basic information along with all the figure captions, mostly for sake of completeness.]

### **General considerations**

The art of self defense includes all processes to dispose of or gain control of an adversary, either by natural means, or with instruments or weapons. Defense by natural means is the first to know and practice, both because of its usefulness and the excellence and the multiplicity of its effects on the body. All the other ways of defense with instruments or weapons such as baton, cane, epee, saber, guns, etc. should be seen as sports.

Defense exercises by the natural methods are useful when one is unarmed to resist an attack, to control a dangerous individual or get rid of him, to come to the aid of or protect someone, to gain respect, etc.

The main effects of defense exercises are to develop the entire muscular system; increase the strength of resistance; develop the manly qualities of boldness, courage, coolness, energy; give assurance and self-confidence; require calculating, thinking to strike blows with the greatest possible impact; make one clever and flexible; and give resistance to blows and pain.

The natural defense exercises include: strikes with fists and feet; limb or body holds to throw an opponent to the ground; locks and special holds to immobilize an opponent standing or on the ground. Practically, the natural defense exercises can be reduced to boxing and wrestling.

### **Boxing**

Boxing is the art of defending yourself against an opponent or to defeat him, by striking with fists or feet. This kind of exercise is particularly useful to keep an individual at a distance; to get rid of an opponent who has seized you; to fight several opponents at once, etc.

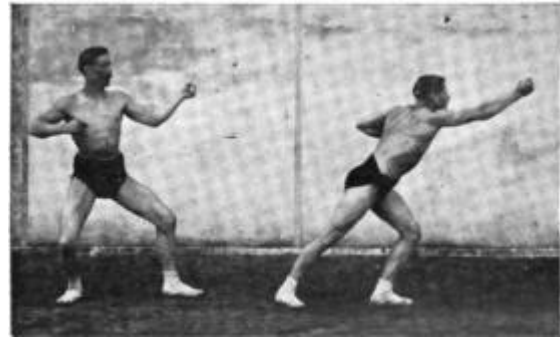
Boxing exercises are done several ways: alone by striking nothing; alone by striking dummies, bags, etc.; by working in pairs; in simple sparring, without a contest; in combat.

From the simple educational point of view, boxing is an excellent exercise. The different strikes of boxing with fists and kicks, done correctly in the air with full range of motion, produce nearly the same effect as the basic educational movements, lunges and balances and have almost all their qualities.

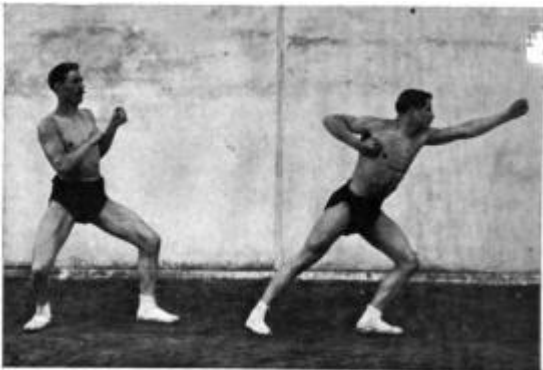
The effects of boxing are: to develop a large part of the muscular system, in particular with a very intense effect of the kicks on the abdomen muscles.; to develops dexterity, flexibility, a good eye; to activate breathing and circulation through leg work and movements that accompany the execution of the different strikes; to improve balance with the various kicks. Exercises performed by striking dummies, bags, etc and assaults and fights let one gain speed in the relaxation of the limbs, quality which can not be attained by striking nothing as one must necessarily slow the rate at the end of movement and contract antagonistic muscles to avoid a painful and sometimes even dangerous shock in the joints. Finally, fights increase the strength of resistance, develop manly qualities and endurance to beatings and pain.



**Right guard position**  
(left foot and fist forward).



**Direct punch with the rear arm**  
1. Preparation. — 2. Release of the body.



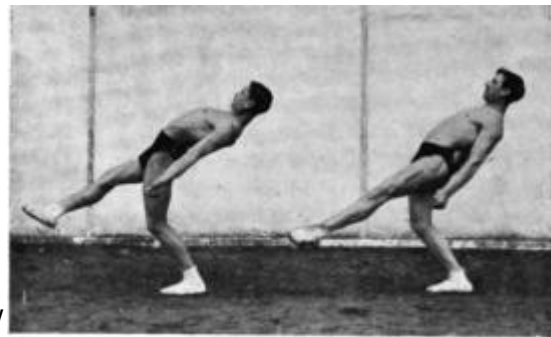
**Direct punch with the front arm**  
1. Preparation. — 2. Release



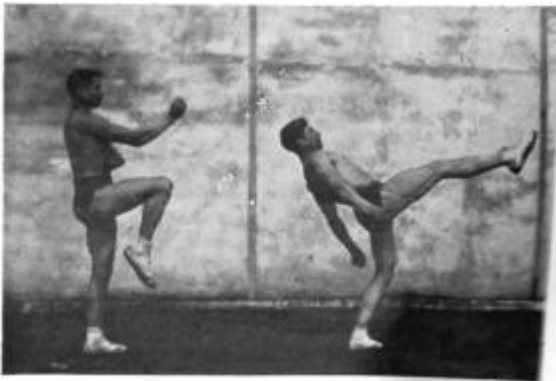
**Hook punch of front arm** to the right corner of the jaw. Preparation (left group) and execution of the punch (right group).



**Hook punch of the rear arm** to the side of the jaw (left group) and the lower ribs (right group). The hook punches are delivered, like the direct hits, with the knuckle bones at the base of the fingers. When fighting close, one must use at the same time the weight of the body by a violent twisting of the trunk, augmenting if needed with a lateral lunge or a burst.



**Low kick.** From right guard with the right leg; from left guard with the left leg.



**Kick from the point of the foot to face height**  
 1. Preparation 2. Release of the leg.



**Flank kick to face height**  
 1. Preparation. 2. Raising the thigh. The thigh is placed in the direction of the opponent, the toes extended. 3. Releasing the leg.



**Shooting kick of the rear leg to face height**  
 1. Preparation 2. Flexing the leg. The thigh is brought as close as possible to the abdomen; the point of the foot contracted 3. Releasing the leg.



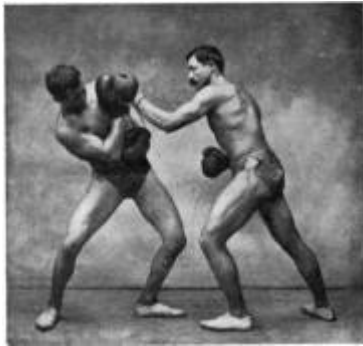
**Shooting kick of rear leg to shin height**  
 1. Preparation 2. Flexing the leg, the thigh as close as possible to the abdomen 3. Release of the leg.



**Shooting kick of front leg to face height**  
 1. Preparation. Bring the thigh as close as possible to the abdomen, and at the same time, change the guard of the arms. 2. Release the leg.



**Study of how to strike with fists and feet**  
 For punches: canvas bag filled with sawdust.  
 For kicks: logs hanging at different heights



**Special study of punch work in pairs**

Practical way to strike at full strength, without inconvenience to the recipient.



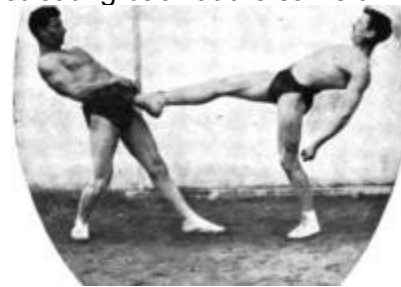
**Parrying a direct punch with the front arm**

The left subject parries by an opposition of the left arm and retreating back at the same time



**Parry of the low kick**

The low kick is given with the sole of the foot or the inner edge of the boot on the tibia.



**Parrying the point kick**

The point kick is given with the point or sole of the foot, in the upper legs, lower abdomen, chest or face.

The left subject parries by retreating the body back and pushing the leg of the enemy down with his arms.



**Parrying the flank kick**

The flank kick is given with the point of the foot to the side, low ribs, chest or face.



**Parrying the front or rear leg shooting kick**

at flank or face height. The shooting kick is given with the sole of the foot or the heel to the shin, upper legs, chest or face.



**Dodge to the left, to the right and ripostes**

Left group: Against an attack of the rear arm of his opponent, the subject on the right dodges to the left. From this position, he can easily riposte to the head or chest of his opponent with his right fist, or the lower ribs with his left fist.

Right group: Against an attack of the front arm of his opponent, the subject on the left dodges to the right. From this position he can easily riposte to the lower ribs of his opponent with his right fist, or to the head or chest with his left fist.



**Dodge back**

For an attack of any kind, lean back or jump back quickly to avoid the blow.



**Examples of parries and ripostes**

Left group: On an attack of the front fist to the head by the right boxer, the left boxer dodges to the right and ripostes by a direct punch of the right fist to the lower ribs.

Right group: On an attack of the rear fist to the head by the boxer on the right, the boxer on the left dodges left and ripostes with a right hook to the side of the jaw.



**Example of a halting strike**

On an attack with the rear arm by the left subject, shoot kick from the rear leg to the chest by the right subject.



**In guard for sparring and fights**

Each of the opponents modify the regular classic guard following his temperament and his abilities.



## Sparring and Fighting

Sparring and fights occur in two ways: complete boxing with kicks and punches, or punches only. This way is preferred over the first, mainly in combat.

In an ordinary sparring, the opponents attack and strike, not to test their strength, but only with the goal to learn to strike correctly, to parry and riposte appropriately. They make these preliminary agreements before attacking. In general, the stronger of the two opponents helps the weaker by giving advice during the work.

In combat however, adversaries seek to assert their skills and prove their superiority. Various precautions are taken to avoid accidents during the fights:

1 - The adversaries are chosen of roughly equal weight.

2 - They are given special padded gloves and light shoes.

3 - The location of the combat is very clear and limited by ropes if needed. It contains no object that may present danger in case of a fall.

4 - The combat takes place in rounds of 1 to 2 minutes, with a rest of at least 1 minute between each round.

5 - A teacher or instructor leads the combat and announces the winner. He stands near the fighters and watches them closely.

6 - It is forbidden for fighters to: kick during a fistfight; use a fast point kick in complete boxing; hit below the belt in a fistfight; hit with an open glove, palm of the hand, wrist or forearm; hit with elbow, head, or shoulder; hit an opponent on the ground; hold the opponent; continue to hit when body to body; fall without a blow; fight in a brutal manner or any other incorrect manner.

7 - When a competitor is on the ground, one must stay at a distance, and wait for the instructor's order to resume fighting, when his opponent has left the ground with both hands and has faced him anew.

8 - The instructor of combat separates the fighters in case of body to body. He stops the meeting as he sees fit, either to avoid an accident, or to reprimand or eliminate a competitor who is boxing unfairly by not observing the requirements above.

9 - Each fighter is always assisted by a comrade who rubs, refreshes and cares for him during the interval times.

These are declared defeated in combat: the competitor who removes himself; the competitor unable to continue fighting after a rest between two rounds; the competitor who fell to the ground and did not get up after a certain number of seconds (decided in advance); the competitor who constantly remained on the defensive; the competitor who has been constantly dominated by his opponent, either by the repetition of his attacks or the precision of the blows he has struck.

## Wrestling

Wrestling is the art of skillfully using some holds of the limbs or body to unbalance an opponent, overthrow, throw or control. This kind of exercise is particularly useful to get rid of an opponent after one has been seized by him, to handle a dangerous individual, etc.

The main effects of wrestling exercises are: to develop both muscular strength and power of resistance, to make one clever and flexible, to teach how to fall down without hurting oneself, to have courage, boldness, coolness and toughness in attack as in defense.

Wrestling exercises are done three different ways: by work in pairs, studying the proper execution of

various strikes and their parries; by sparring, without attempting to test one's strength; or in combat, to decide who is the strongest.

Study work includes proper execution of the various blows and their parries between opponents alternately filling the role of attacker and attacked. For this work, opponents decide by mutual agreement the blow they will perform. They only make the necessary effort, either to execute the agreed strike, or to resist by parrying. When many subjects maneuver under the command of one master or instructor, they are placed in two rows facing each other. The instructor then commands: "This move: 1st row, attack! 2nd row, this parry!" Or "No parry!" Then he repeats the same strike, alternating the rows. In sparring, opponents wrestle simply with the goal to study the different holds or parries; if needed they make preliminary agreements.

In combat, they seek instead to assert their skills and prove their superiority. As in boxing, various precautions are taken to avoid accidents during the wrestling combat. A teacher or instructor is still leading the meeting which takes place in rounds with a certain number of minutes; opponents are chosen to have equal weight; the place of the combat is clear, and contains no object that may pose danger in case of fall, and it is covered with sawdust, tan, etc. or a carpet or a special mattress.

Work in pairs and courteous sparring where one takes every precaution possible without competition are exercises requiring only moderate exertions. They must be regularly employed. Wrestling combat is an extremely violent exercise. Carried to excess, it has all the drawbacks of strength training and can produce accidents: overwork of the heart, hernia, muscle tears, etc. Furthermore, if self-esteem and desire to win are involved in a reckless manner, some courteous conventions, such as that of accompanying the opponent to the ground, for example, are no longer respected. It is then necessary to fear injury: fractures, bruises, dislocations, etc. as a result of falling over one shoulder, an arm held wrong, etc. Children and underdeveloped young people should never engage in combat, but only courteous sparring.

We must distinguish several kinds of wrestling: with the open hand, the most conventional of all, having only simple holds above the waist; ordinary free wrestling which includes the same plus varieties, but which, while less conventional than flat hand wrestling, ignores the most dangerous or painful strikes; free wrestling with the minimum possible agreements.

Wrestling with the flat hand is generally done with a bare torso. The holds are made from head to waist. The fingers of the hands are held together. Using the legs, either to unbalance the opponent, or to ensure a fall, is not allowed. All the dangerous or painful strikes are prohibited and in particular: chokes, the maintained and forced tightening of the neck; reversals and twists of the arms and hands; twisting of the neck; crushing of the cervical vertebrae or forcing of the head to the chest.

Different varieties of free wrestling are done all clothed or with special very resistant clothing: jacket or shirt of heavy canvas. It is permitted to seize, depending on the mode of wrestling, all or part of clothing. The use of the legs is permitted, either to unbalance the opponent, or to guard against a fall. To avoid accidents it is essential that the opponents agree in advance the conventions to be respected during the course of the assault or combat.

In the flat hand wrestling or ordinary free wrestling, the opponent is considered "fallen", defeated, when both shoulders simultaneously touch the ground. The opponent must be escorted to the ground and not thrown or plated brutally, and that in order to avoid a dangerous fall. In free wrestling with the minimum possible conventions, the opponent admits his defeat either by sign, or voice when he can no longer resist or when he is caught in a "key".

The flat hand wrestling and ordinary free wrestling, either simply with leg loops, or with loops and leg holds at the same time, are the two modes of wrestling to be used in preference. Free wrestling with the minimum possible agreements should only be performed in regular study work or simple sparring, opponents taking the utmost precautions to always avoid an accident to be feared with the dangerous holds. This last kind of wrestling is the image of real combat, either to defend one's life or to control a dangerous individual.

The methodical training with wrestling exercises is:

- 1° Start by learning the regular work of blows and parries of the flat hand wrestling;
- 2° Then practice flat hand wrestling sparring;
- 3° When one has enough knowledge of this first kind of wrestling, learn the blows and parries of ordinary free wrestling
- 4° Practice sparring in ordinary free wrestling, first by simply adding the leg passes, then the leg holds to the strikes of ordinary flat hand wrestling;
- 5° Finally, learn the dangerous blows and their parries, but not in combat and using these last blows between experienced adversaries.

### ***Classic holds of flat hand wrestling***

All the following holds are described simply for the side of the body where, usually, they are done the most commonly. In regular study work, they should be done symmetrically on both sides of the body.



**Flat hand wrestling – guard position**



### **Front waist hold**

1. Encircle the opponent at the waist with one's arms. – 2. Lift from the ground and swing to move his upper body to the left.



### **Front waist hold (cont'd)**

1. Place the left knee on the ground and rest the back of the opponent on the right thigh. — 2. Free the right leg and let the opponent drop on both shoulders without releasing the hold.



### **Parry of the front waist hold**

- Push the opponent by placing the forearm on his throat and seizing ones wrist with the free hand.



**Side waist hold**

1. Stand on the right side of the opponent, encircling the waist. — 2. Lift him, swinging him to meet the ground as in the earlier front waist hold.



**Crossed side waist hold**

1. Encircle the opponent on the right side, by passing the left arm in front of his body and right arm at the rear. — 2. Lift and bring him to the ground like for the front waist hold.



**Rear waist hold**

1. Encircle the opponent's waist from behind with the arms. — 2. Lift from the ground, engage the right arm under his right armpit and put the right hand over the neck.



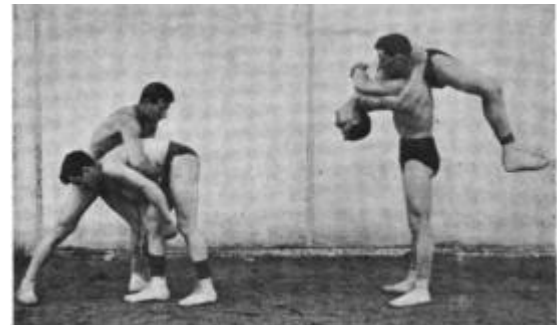
**Rear waist hold (cont'd)**

1. Fall on the left knee and lay the opponent back on the right thigh. — 2. Drop him on the shoulders by freeing the right leg.



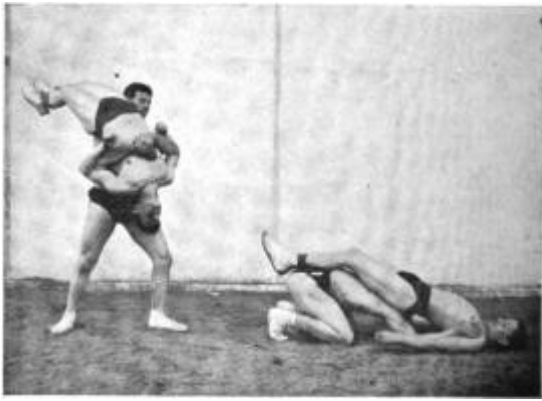
**Two ways to parry a rear waist hold**

1. Lunge deeply forward and push the opponent by seizing the arms above the elbows. — 2. Arching the lower back, extend the trunk and head back and surround the opponent's arms.



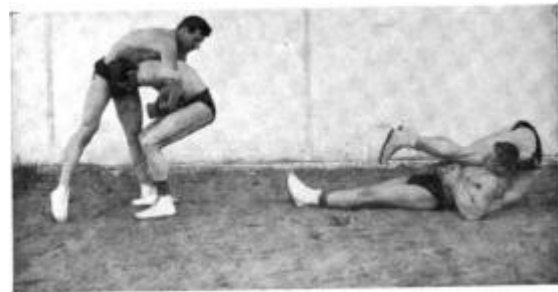
**Backward waist hold**

Seize the opponent and load him on the right shoulder.



**Backward waist hold (cont'd)**

The opponent being raised above the ground, drop abruptly forward by putting the knees on the ground.



**Parry of the backward waist hold**

Drop back to fall flat on the back, causing the opponent to make a complete somersault.



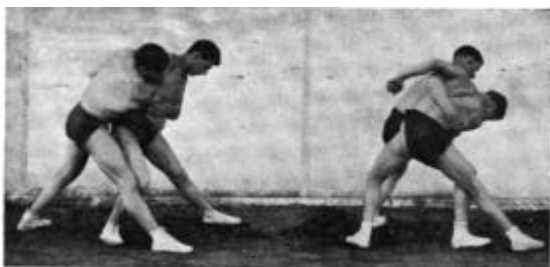
**Hip turn with head**

1. Circle the neck of the opponent with the right arm and at the same time seize his right arm above the elbow with the left hand. — 2. Kneel suddenly to carry along the opponent.



**Hip turn with waist**

1. Seize the opponent at the waist by surrounding it with the right arm and at the same time seize his right arm above the elbow with the left hand. — 2. Kneel suddenly to carry along the opponent.



**Parry of the hip turn with head or waist**

Lunge forward, pushing the opponent with the free arm and resist the forward carry by pulling back strongly.



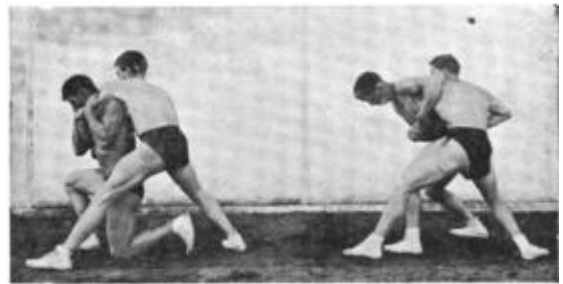
**Arm turn**

1. Seize the opponent's left arm with the right hand and the left hand above the elbow, and engage him over the left shoulder. — 2. Kneel suddenly to carry along the opponent.



### Arm roll on top

1. Seize the left arm of the opponent with both hands above the elbow and engage him with the left armpit. 2. Kneel suddenly to carry along the opponent.



### Parry of the arm turn and roll

Lunge forward, pushing the opponent with the free arm, and resist the forward carry by pulling back strongly.



### Arm roll underneath

1. Pass the head and the left arm under the opponent's right armpit. With the left arm strongly hug his right arm under the left armpit. — 2. Strongly encircle the opponent's right arm under the left armpit (Waist hold parry in reverse).



### Head turn

1. Seize the opponent's neck from below with the right arm and put the left hand on the nape of the neck. — 2. Kneel suddenly to throw the opponent forward.



### Parry of the head turn

1. Make a "bridge", strongly arch the lower back while somersaulting to keep the shoulders from touching ground. — 2. Lunge forward as much as possible bringing one knee to the ground, and push the opponent with one of the free hands.



### Bridge or double bridge (parry of the head turn)

Make a "bridge", strongly arch the lower back while somersaulting to keep the shoulders from touching ground.

The wrestler who does the head turn can try to topple his opponent by himself making the bridge. The wrestlers are then in a "double bridge". One of the wrestlers who made the bridge to parry a head turn, his opponent may try to overturn it by a bridge over him.



### **Shoulder turn**

1. Seize the left arm of the opponent with the right hand above the elbow, and engage the left arm under the right armpit. – 2. Force the opponent to his knees and turn him over towards the right.



### **Examples of ground strikes**

Left group: The kneeling subject tries to take his opponent in a rear waist hold. The latter parries by completing a flat stomach.

Right group: The subject in back passes his right arm under the right arm of his opponent and puts his right hand on the nape of the neck.

With the left hand he seizes the opponent's left arm. By pulling the left arm towards him, and lifting with the right arm, he tries to turn his opponent onto both his shoulders.

### ***Locks of the leg or foot, hooks and holds of the legs in ordinary free wrestling.***

Ordinary free wrestling usually consists of the strikes of the flat hand wrestling, to which are combined or added all positions and holds possible with the legs. In free wrestling the leg work is primarily intended to throw the opponent to the ground in a single blow or using the mass of one's body to unbalance him and overturn him more easily.

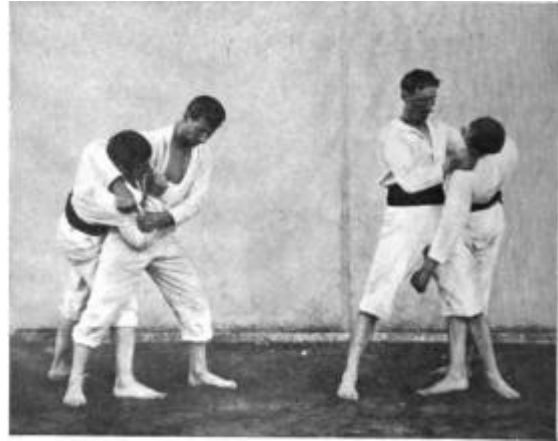
To unbalance an opponent or throw him to the ground in a single blow, either by a lock of leg or foot, or by a leg hold, it is essential that all the body weight of the opponent rests on the leg we want to move or seize. If this condition is not met, lifting or moving the leg doesn't produce any real loss of balance. To parry the locks and leg holds, quickly move the body weight from one leg to another.

Locks of the leg or foot from the outside are the most effective strikes. Holding the legs with the hands are in general impractical, especially in front, as they call too easily for a riposte by the opponent of a reverse waist hold. Breton wrestling, highly regarded in the Bretagne region, is a kind of free wrestling where the leg hooks called "jambettes" play a very large role. Leg holds with the hands are never used, and are even prohibited in competitions. The adversaries hook the clothing from head to belt, including the belt.

With an opponent who wears clothes, the best hand holds are: One hand on each shoulder; both hands at the same shoulder; a hand to the elbow and the other at the shoulder; a hand to the neck or collar, the other at the elbow.



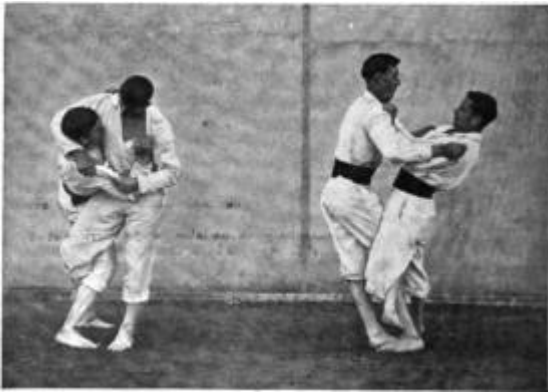
**Practical uniform for free wrestling work**  
 Pants and jacket of heavy canvas. Example of a hand hold on the clothing, at the shoulder (Breton wrestling). Higher holds are the best to unbalance the opponent.



**Outside left hook**

Left group: The subject on the the right, having seized his opponent with a turn of hip and head tries to throw him by passing the right leg from outside.

Right group: The left subject, having secured a hold on his opponent's clothing, tries to knock him off balance over the left leg passed outside.



**Outside foot hook**

Left group: the left subject, having seized his opponent's clothes, abruptly sweeps the opponent's left foot from outside to inside with the inner part of his right foot.

Right group: the left subject puts his heel behind and against the left heel of his opponent and suddenly pushes back with a single arm.

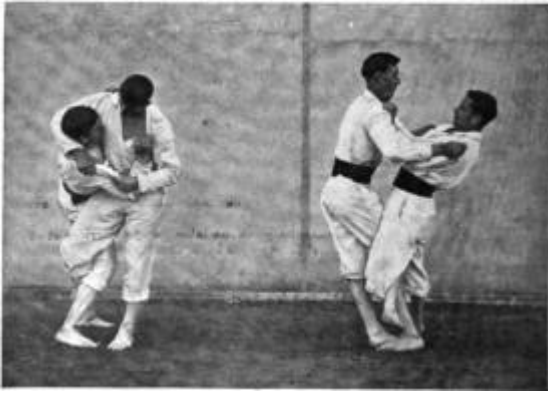


**Inside leg and foot hooks**

Left group: the left subject, having seized his opponent by a front waist hold, tries to knock him down by passing the right leg inside.

Right group: the left subject, having secured a hold on his opponent's clothes, seeks to knock him down by passing the right foot on the inside.





**Example of an outside and inside hook**

Left group: the subject on the right, having seized his opponent with a hip and head turn, seeks to knock him down by making an outside hook with the right leg.

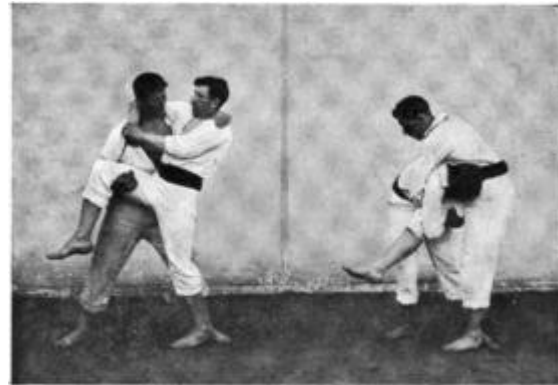
Right group: the left subject, having secured a hold on his opponent's clothes, tries to knock him down backwards by making an inside hook with the right leg.



**Front hook with hand holds at the shoulder and elbow, one arm around the neck.**



**Front hook with hand holds at the belt and elbow**



*FIG. 345.*

**Examples of leg hold**

Left group: The left subject, having been seized by a hip and head turn, ripostes with a one hand leg hold.

Right group: The left subject, having been seized by a reverse waist hold, ripostes with a two hand leg hold.

## Defense against a dangerous individual – ways to make him powerless

There are two cases to consider, either getting rid of an individual who seized you or controlling an individual to prevent harm, drive him back, stop or expel him. In the first case, break his hold by boxing punches or kicks, and wrestling strikes or parries. In the second case, as a general rule, avoid approaching the individual head on. Approach from the side or preferably from behind. Seize him immediately, either with a wrestling hold already described or one of ways indicated below. Act with speed to make a "lock" to hold the individual, so that any attempt at resistance on his part is impossible. Regarding the kind of hold to make, everything depends on circumstances. The hold that is good on a weak subject will be completely ineffective if applied to a strong individual or one who knows self defense. All the "locks" can be done in any position: standing, kneeling, squatting or on the ground. Certain "locks" are dangerous, proceed with caution when doing them.



Encircle the individual from front or back by wrapping him with both arms at the same time.



How to make a "choke". Circle the neck of the individual with the right arm to master him from in front, the side, or preferably in back. Seize your own right wrist with your left hand and squeeze strongly.



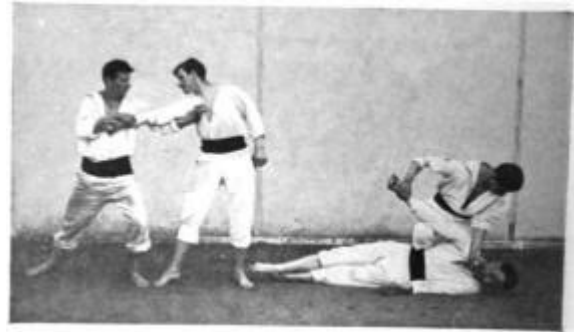
Seize the arms of the individual to master from behind and keep the elbows as close as possible to each other, encircling them with the arms if needed.



Left group: Inside arm twist. — Right group: Twist and reversal of an arm behind the back and bringing the wrist as high as possible.

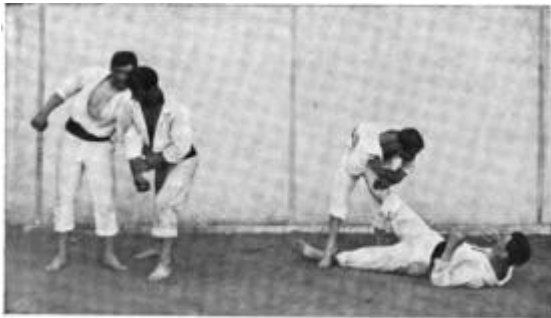


Conducted by two – Seize the wrist and elbow of the individual to master and turn the arms outside or inside. Maintain distance by being careful to always stay to the side, facing the same direction as him.



Arm lever. Left group: The left subject turned over to the outside the right arm of his opponent and forces the articulation of the elbow using his own left arm as the fulcrum.

Right group: The kneeling subject turned over and outside the right arm of his opponent and forces the articulation of the elbow using his own right knee as the fulcrum.



Mechanical forcing of a joint. Left group: forcing the elbow joint. — Right group: forcing the ankle joint. For all the forcings, the way to imprison the joint is always the same.

Note: The two preceding "locks" (arm lever and forcing a joint), especially the latter, are the most effective of all. When the hold is well assured, the individual is reduced to complete powerlessness, and is incapable to make any movement. In the case of legitimate defense or the capture of a dangerous individual endowed with exceptional strength, do not hesitate to use all the dangerous blows banned in courteous wrestling, but part of the art of self defense: kicks and punches, elbows, knees, hitting with the edge of the open hand, in the most sensitive parts of the body: temples, nose, eyes, chin, Adam's apple, neck, stomach, lower abdomen, knee cap, shin, etc; head butts to the face, chest and abdomen; twists and turns of the limbs, twisting fingers, twisting the head, lengthening of the cervical vertebrae, twisting ears and nose; ties, chokes, throat holds, etc.

## Games, Sports and Manual Work

[translator's note: this chapter covers the use of old games and sports for training, unfortunately the games are not described here and many of them have disappeared or changed names. Gregg started the major effort of researching them, but we will not include that material here as it is not included in the original version.]

Physical education is completed by games, sports and manual labor. These exercises are used to augment general physical value and physical knowledge, to break the monotony of methodical exercises, to improve skill, practical sense and ingenuity, to promote freedom of action, to satisfy the need for variety and to highlight the advantages of good physical preparation. One succeeds the best in the different branches of physical activity when one is well prepared by the methodical exercises. In spite of their usefulness and the excellence of their effects, it is evident that one should never sacrifice the methodical exercises. They serve to complement the regular sessions of daily work, but may not replace them.

For these diverse sorts of exercises, it is suggested to add songs. Songs have, in effect, a large importance in the education of scholarly or military groups. Not only do they develop the voice and augment the respiratory capacity, but they also have a very powerful moral effect. There is an interest to use them as often as possible. Preferably choose songs which exalt the domestic virtues, the warrior virtues, or celebrate the acts of devotion and heroism, famous exploits, etc.

Simple games can be played in a limited space, even inside a gym, with only a few individuals. They may include: jumping sheep; the cat and the mouse; the fox and the hen; four corners; the perched cat; the crossing chase; Mother Garuche; jump rope; the bull in the arena or the prisoners in the circle; racing on one foot; racing on two feet at the same time (successive jumps); racing backward; racing to the side; racing on four limbs [QM]; Indian racing [staying close to the ground]; racing with a burden or with a comrade on the back; rooster fighting (in crouched position); the ball in the pot; wall ball; ball hunt; cavalier ball; the bear; the drunken keel; pull wrestling in pairs, with two hands or one hand; push wrestling with arms extended, hands on the opponent's shoulders, with arms extended, hands and wrists engaged; pull wrestling in pairs with a device such as: baton, rope, etc; push wrestling in pairs, with a buttress, a bar, etc.

The different pull and push wrestling, classified here with the simple games, are excellent exercises of muscular development. They may be done in two ways:

- 1 – As reasoned wrestling. Each subject exerts on his opponent a pull or push force proportionate to the vigor of the latter. The opponent opposes this force with a sufficient resistance. This type of wrestling is called muscular opposition exercises. One of the subjects takes the role of the active opponent, and his opponent takes the passive role. All the basic educational movements of the arms and trunk, and lunges to the front, back and side may be done by such muscular opposition exercises.
- 2 – As real wrestling. Each subject tries to prove his superiority, to carry his opponent away or make him lose his footing.

Large games or open air games require a larger space, last a longer time, and require more players to participate. They are always given special sessions, outside of the hours dedicated to methodical exercises. The principals are: the bars; sparrowhawk or the pass; the flag; the large “thèque” or ball to the camp; the stick to the goal; the mallet or ball at the stick; the tambourine ball; the long palm; the Canadian lacrosse; the French ball; the “barette” or foot-ball; the palm to the net or tennis; the Basque ball; the “gouret” or hockey, or sow, or stick-at-the-pot; steeplechase; the rally paper or the hare and the greyhounds; running in open fields or cross-country, etc.

The nautical games of all sorts are equally part of the large games in open air.

One habitually includes under the denomination of sports all the types of physical exercises possible without distinction of any sort. It is more meaningful to reserve this name for all the exercises other than the natural and practical exercises defined by us as essential, divided into utilitarian sports and sports of fantasy and luxury.

The utilitarian sports are those which, without being as essential as the natural and practical exercises described before, yet have some practical importance. The principals are: horseback riding and horse driving; rowing and maneuvering boats; firing and managing firearms; fencing with épée and saber; defending with baton and cane; maneuvering mechanical means of locomotion: bicycles, automobile, etc.

The main sports of fantasy and luxury are: hunting; fishing; excursions of all sorts; mountain climbing; ice skating (except in cold regions where it becomes a utilitarian exercise); runs or hikes in open country; dances of all sorts; etc.

Manual work exercises are made up of the operation of the most common tools, and doing the most every-day jobs. The principals are: gardening and excavating with a shovel, pickax, spade, fork, etc; carpentry with a saw, hammer, plane, adze, etc; iron and metalwork with a vise, file, forge, etc.

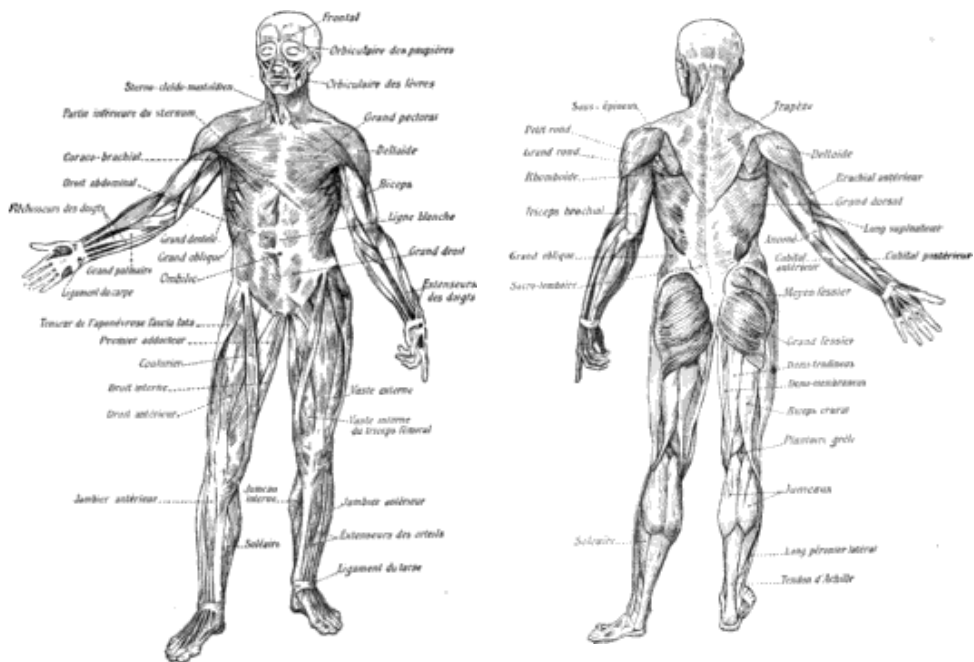
## **Building a workout program**

[translator's note: this chapter is mostly aimed at helping educators build a team training program, and its advice for the individual is mostly repeating earlier chapters. No translation is planned at this time, but curious minds are welcome to give it a try.]

## **Appendix: Classification Tables of the Exercises**

[translator's note: these tables summarize much of the information contained in the book but are not very easy to format properly, so I have left them out.]





Principal superficial muscles (front and back)

### ***Schematic description of the most important muscles***

In the following figures, the bold lines represent the direction of the fascicles of muscular fibers as well as the insertion point of the various muscles. To depict the theoretical action of a given muscle from the drawings, one needs to shorten or elongate in his mind the lines representing the fibers, keeping the relative location of the insertion points. Some muscles are composed of multiple fascicles of different orientation and insertion points (for instance the trapezius muscle).

The general action of such muscle is the result of the partial action of the constituting fascicles. To determine the real action or the effective role of a muscle in a given movement requires to solve a full problem of mechanics. Not only the laws of gravity apply here, but also specific physiological constraints of the muscular system, making such question beyond the scope of this book. The description of the effects of exercises and the content of this appendix should however give to the reader a good appreciation of the mechanisms of the different muscle groups.

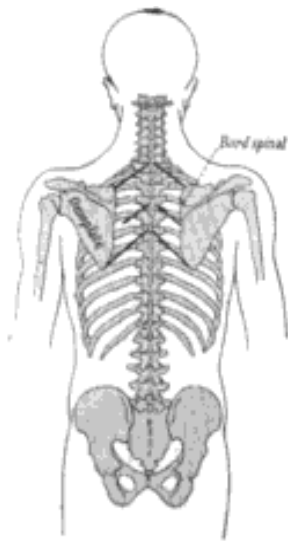


FIG. 10.

**RHOMBOÏDE.**

Ce muscle s'insère au bord spinal de l'omoplate d'une part, à la 7<sup>e</sup> vertèbre cervicale et aux 4 ou 5 premières vertèbres dorsales d'autre part.

Rhomboid

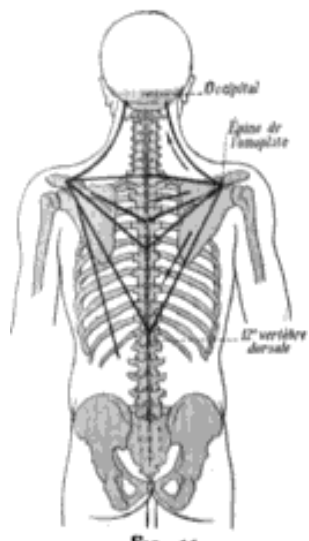
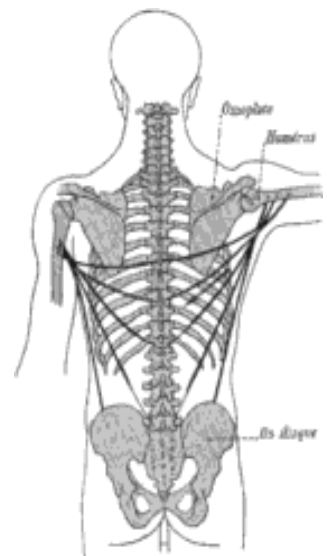


FIG. 11.

Trapezius



Erector-Spinae



Latissimus Dorsi

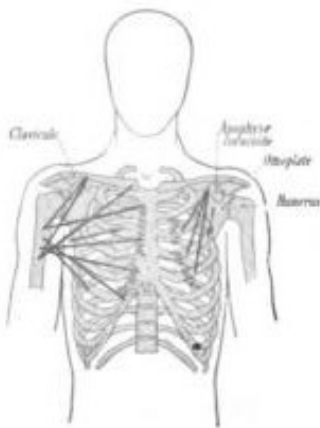


FIG. 14.

**GRAND PECTORAL ET PETIT PECTORAL.**

Le grand pectoral s'insère à la clavicule, au sternum et aux côtes d'une part, à l'humérus d'autre part.  
Le petit pectoral s'insère aux 2<sup>e</sup>, 3<sup>e</sup> et 4<sup>e</sup> côtes d'une part, à l'apophyse coracoïde d'autre part.

Pectoralis Major and Minor

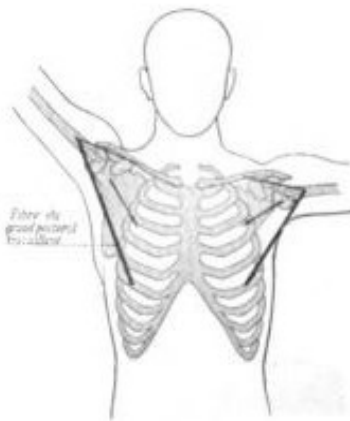


FIG. 14 bis.

**GRAND PECTORAL.**

Figure montrant le travail des fibres extérieures dans les abaissements exagérés et la déformation en surface du muscle.

Pectoralis Major in extension

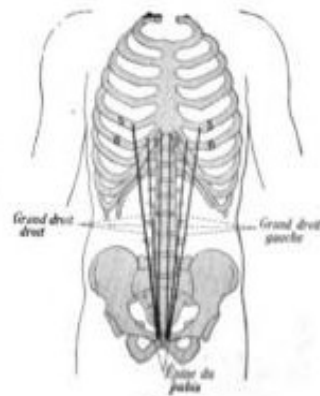


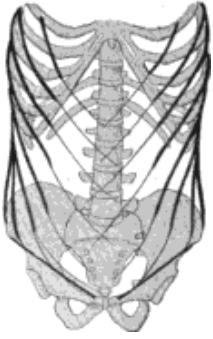
FIG. 15.

**GRAND DROIT.**

Ce muscle s'insère aux 5<sup>e</sup>, 6<sup>e</sup>, 7<sup>e</sup> côtes et au sternum d'une part, à la partie médiane et supérieure de l'arcade pubienne d'autre part.

Rectus Abdominis

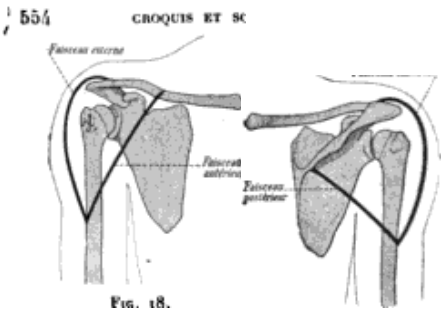
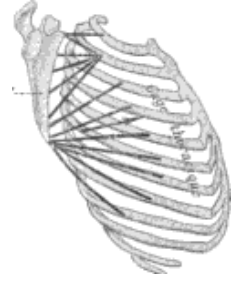




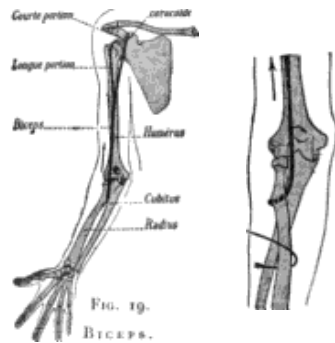
External Oblique  
(side view shows lower insertion points)



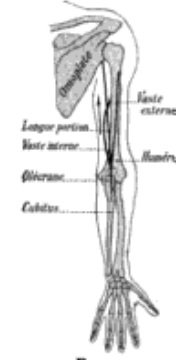
Serratus Anterior



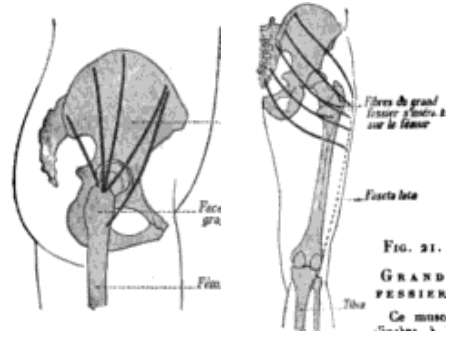
Deltoid  
(front and back view)



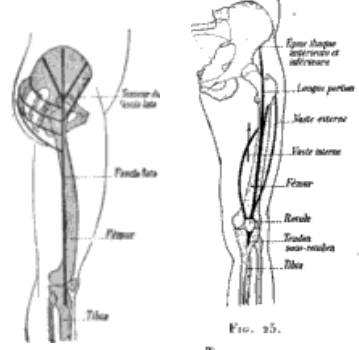
Biceps  
(front view; close-up shows insertion point)



Triceps Brachii  
(back view)

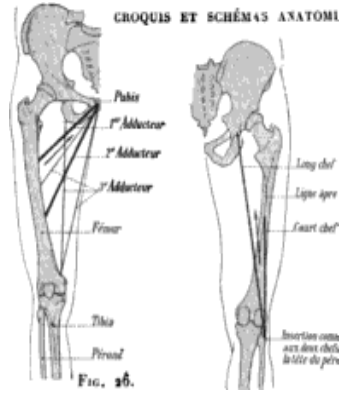


Gluteus maximus  
(side and back views)



Vastus  
(front view)

Ce muscle possède à la partie supérieure trois chefs :  
 1° un long chef, qui s'insère à l'épine iliaque antérieure et inférieure ;  
 2° le vaste interne, à la ligne épée du fémur ;  
 3° le vaste externe, au grand trochanter.  
 Il se termine, à la partie inférieure, par un tendon qui s'insère à la tubérosité antérieure du tibia. Dans ce tendon est incluse le rotule.  
 La figure représente la jambe gauche vue par sa face antérieure.



Abductors (left, front view) and Biceps femoris (right, back view)

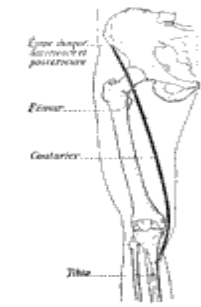
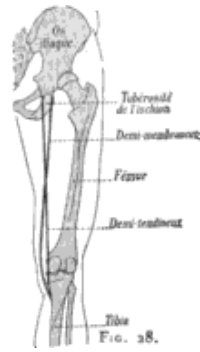


FIG. 24.  
Sartorius.  
Ce muscle s'insère à l'épine iliaque antérieure et supérieure d'une part, à la face supéro-interne du tibia d'autre part.

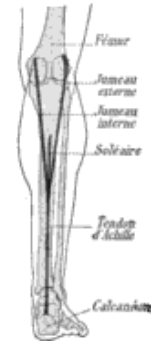
Sartorius  
(front view)



Sartorius (flexed)



Semitendinosus and  
Semimembranosus  
(back view)



Gastrocnemius and  
Soleus (back view)

## Table of Contents

Pilou's Foreword and Warning.....	1
Foreword.....	1
Practical Physical Education Theory.....	5
Constitutive Elements of the Method.....	6
Work Method.....	6
Model training session.....	8
Measurement of the results.....	9
Goal of physical education.....	11
Hygienic considerations.....	12
Elementary Exercises.....	14
1. The straight posture and the fundamental arm positions.....	14
2. Arm exercises.....	15
3. Leg exercises.....	16
4. Suspension exercises.....	18
5. Plank exercises.....	19
6. Balance exercises.....	20
7. Hopping exercises.....	20
8. Core exercises.....	21
9. Breathing exercises.....	22
10. Exercises done with special equipment.....	23
Practical Exercises.....	24
1. Walking.....	24
2. Running.....	25
3. Jumping.....	26
Jumps with and without a run-up.....	27
Jumps with hands on the obstacle.....	31
Jumps with a perch.....	32
4. Swimming.....	33
General considerations.....	33
Basic Strokes.....	34
Treading water.....	36
Various Endurance Strokes.....	38
Various Speed Strokes.....	39
Diving underwater and swimming between two waters.....	40
Rescue exercises.....	43
Defense of a caught rescuer.....	45
Rescue e capsized or sinking boat.....	45
Crossing running water.....	46
Swimming clothed.....	46
Accidental submersion.....	47
Requirements and precautions for group swimming exercises.....	48
Performances of the able swimmer and master swimmer.....	49
5. Climbing.....	50
Climbing vertical ropes, bars, etc. fixed or free standing.....	50

Climbing inclined ropes and chains.....	51
Climbing beams, masts, columns and other vertical bars.....	52
Climbing ladders and vertical parallel bars, straight or inclined.....	53
Climbing along a wall.....	54
Pulling oneself up.....	55
Reaching high places without vertigo.....	57
Reaching a hazardous spot .....	57
Passing a dangerous spot.....	58
Climbs of all sorts.....	59
6. Lifting.....	60
Lifting with two hands.....	60
Lifting with one hand.....	61
Lifting and carrying objects and charges of all sorts.....	62
Transporting sick or injured persons.....	63
7. Throwing.....	65
Throwing light objects.....	65
Throwing heavy or large objects.....	66
Juggling exercises.....	67
8. Defending.....	68
General considerations.....	68
Boxing.....	68
Sparring and Fighting.....	73
Wrestling.....	73
Defense against a dangerous individual – ways to make him powerless.....	82
Games, Sports and Manual Work.....	84
Building a workout program.....	85
Appendix: Classification Tables of the Exercises.....	85
Appendix: Anatomical Drawings.....	86
Schematic description of the most important muscles.....	87