

SYSTEM '76
THE TRAINING PROGRAM
FOR THE UNITED STATES OLYMPIC
FENCING SQUAD

- Part 1. Stretching Exercises - 15 minutes.
- Part 2. Aerobic Training - 12 minutes.
- Part 3. Anaerobic Training - Intervals - 20-30 minutes.
- Part 4. Footwork I - 20-30 minutes.
- Part 5. Technical Preparation.
- Part 6. Squad Competition.
- Part 7. Footwork II - 15 minutes.

THE STRETCHING PROGRAM

1. Pre-Warmer
 - A. Wear warm-up suit (discard if 80° or over).
 - B. Jog in place one minute (just lift feet).
 - C. Run in place one minute (feet 12" above floor).

2. Jumping Jack (2 count)
 - A. Clapping hands over head 10X slow to medium.
 - B. 10X increase speed.

3. Neck Stretch

Standing - head erect (do not tilt).

 - A. Look over right shoulder as far as possible. (Feel resistance.) Then, against resistance, slowly turn rotating head forward, chin down, to finally raise head looking over left shoulder, etc. Reverse. 5X.
 - B. From same position (over right shoulder) tilt head back and rotate to left. Reverse. 5X.

4. Arm Swings
 - A. 10 great circles forward.
 - B. 10 great circles backward.

5. Wrist Twirl
 - A. Standing, arms forward, rotate wrists at limits of range of motion. 10 left circles. 10 right circles.
 - B. Later on in training, do with a weapon, then still later, with a 2-lb. dumbbell.

6. Tree Bend I

Standing: Feet 1-2 feet apart, hands over head, thumbs locked together. Two pushes to right. Bend, circle forward to left. Two pushes to left. Circle backward and up. Repeat 3X and then 3X reverse.

7. Tree Bend II

Standing: Feet 2 feet apart. Right arm over head against ear, palm facing left. Left arm alongside stripe of pants. Head straight ahead. Bend trunk left laterally reaching with lower hand toward knee, upper arm pushes to left. 5 counts. Reverse 5 counts.

8. Calf Stretch

A. Standing. Front foot 2-3 feet in front of rear, both feet parallel. Lock rear leg at knee. Keep feet flat. Bend front leg and control to feel pressure in rear leg just below knee. Hold for 5 count.



Maintain position and bend back knee to feel stress shift to Achilles tendon. Hold for 5 count. Reverse. Repeat.



B. Toe raises on a raised board -- stand with balls of toes on the edge of a raised board, then do a toe raise as high as you can go, then go as low as you can push your heels down. This will also stretch out your calf muscle.

9. Ankle and Hip Stretches (pliés)

A. Standing, feet flat on floor, 180°, heels together or up to 3 feet apart, as you wish, bend knees as far as possible, recover. 10X.



B. Right heel to left toe, feet parallel, bend knees 5X. Reverse 5X.

10. Half Knee Bends

Stand on one foot, support if necessary, half knee bend, return upright. 25X. Reverse, 25X. Hold #25 for 5 counts.



11. Eagle Jumps

Half knee bend, hands at sides, jump into air, legs spread, arms 45° over shoulders. Land in original position. 20X. Start slow, increase speed, making recovery quickly.

12. Sit down, relax 10 seconds13. Hamstring and Back Sequence

Sitting, legs forward 90° between them, arms out, stretch past right toes as far as possible. Push, recover, 5X. Repeat halfway to front, 5X. Straight ahead, 5X. Halfway, left, 5X. Past left toes, 5X. (Note: partner can help you by pushing from behind.)

14. Abductor Stretch (groin stretch)

Sitting, soles of feet together, pull as close to crotch as you can with hands on ankles. Press knees apart with slow count to 5. Relax. Repeat 3X.

15. Abductor Exercises

Lying flat on side, head down. Keep lower arm stretched over head for support. Keep upper arm palm flat on floor in front of chest for support. Without rotating ankle, lift top leg as high as you can. Recover. 10X. Reverse 10X.

16. Quadriceps Stretch

Leaning to right side, supported by right arm, right leg forward locked at knee, left leg bent at knee 90°. Move left leg back as far as possible. Then pull ankle toward you to feel tension in quadriceps. Relax. Repeat 3X. Reverse, do 3X.



17. William Flexion Exercises

Alternate knee hug -- lie flat on floor, knees bent, feet flat on floor, bring right knee to chest, pull down, hold, return to floor, bring left leg to chest, pull down, hold, return. 5X each leg.

18. Double knee hug -- lie flat on floor, knees bent, feet flat on floor, bring both knees together up to chest, hold, then spread knees apart and pull down more, return to floor. 5X.

19. Pelvic tilt -- lie flat on back, knees bent, feet flat on floor. Make an arch in your lower back so you can put your hand underneath, then rotate your hips forward to press your hand against your back, hold for 3 seconds. 5X. You should feel the stretch in this area, and in some cases it might hurt when you draw your hips up. Remember to use your lower back when making the arch and not your upper back.

20. Relax on back 10 seconds.

A. Sit-ups (upper abdomen). Lying down, legs bent, do sit-up 1/3 way up, return to start. Repeat 20X.

B. Leg-ups (lower abdomen). Lying down, legs out, flat, flex knees against chest. Extend legs and hold 12" above floor, hold to count of 5, flex knees to chest. Repeat 20X.

21. Back Stretch

Prone. Arms extended, thumbs locked. Arch back as far as you can go, recover. 10X, then rest. Then 10X again.

22. Push-Ups

Arms out wider than shoulders. Do 25 in one minute OR hands under shoulders, push up, clap hands, recover. 20 in one minute.

23. Relax 10 seconds on belly

Sit up, bend forward to stretch back muscles.
Relax 10 seconds sitting.

24. Ankle Twirl

- A. Sitting, rotate ankles clockwise, 10X.
Reverse, 10X.

Point toe as far as possible, 5 count.

Lift toe as far as possible, 5 count.

- B. Get up. Shake loose.

25. Reciprocal Lunges

- A. Take lunge position. Back upright, force rear hip down, use hands to help. Reverse without getting up, 5 cycles.

26. Split Exercise

- A. Try to do split with arms on either side supporting weight. (Careful.) 10 seconds. Reverse, 10 seconds, repeat once.

- B. Stand up. Shake loose.

27. Further Split Exercise (optional)

- A. Ankle on support waist high. Lock right knee. Bend rear knee and feel tension in hamstrings. Count 5. Relax. Repeat. Then reverse.

28. Jump for Height

- A. Start with half knee bend. Jump as high as you can (reach for sky). Land on right foot, sink to half knee bend. Jump to land on left foot, sink to half knee bend. Repeat 10X.

- B. Stand up. Shake loose.

29. Hip Extension (optional)

Lie face down with legs up and over a chair or small table. Have someone hold by sitting on your legs. Place hands behind head, try and raise your body to 180° then return to starting position. Do this in 3 sets of 10 every other day.



AEROBIC TRAINING

This phase is based on Cooper's basic program. The key is to raise your level of performance to the following:

Men - 1-3/4 miles in 12 minutes

Women - 1-5/8 miles in 12 minutes

Refer to the Cooper manual with which you have been supplied. Remember, runs of more than a mile and a half are better for your aerobic build-up. These goals are minimum for the team.

For your information, below are the average pulses for Pan Am participants at the start of the program and six weeks later.

	<u>Start</u>	<u>After</u>
Pulse at 10 seconds	195	156
3 minutes	110+	90
5 minutes	110	88+

Note: Swimming is an excellent replacement for a running program.

LENOX HILL HOSPITAL
INSTITUTE OF SPORTS MEDICINE AND ATHLETIC TRAUMA

WEIGHT TRAINING PROGRAM

UNITED STATES 1976 OLYMPIC FENCING TEAM

Alexander Sapega, Athletic Trainer,
Research Associate

Jeffrey Minkoff, M.D.; Consultant

WEIGHT TRAINING PROGRAM

UNITED STATES 1976 OLYMPIC FENCING TEAM

Alexander Sapega, Athletic Trainer,
Research Associate

Jeffrey Minkoff, M.D., Consultant

The exercises in this program cover the 12 muscle groups that were tested in your CYBEX evaluation. There are 12 exercises, each one specific to one of these muscle groups. The CYBEX testing dealt with 3 muscular performance factors: (1) strength, (2) endurance, and (3) power (energy) output. You can train to increase each one of these factors in any given muscle group with the same exercise; you simply perform that exercise in different ways. This will be explained shortly.

You have been given an analysis sheet and an individual recommended weight training program, as well as this general exercise booklet. With regards to your recommended program, the amount of work (sets) prescribed for each exercise-factor has been analytically determined from your CYBEX data, and the program should be followed exactly. Changes should be made only after you are retested on the CYBEX, and any alterations must be determined by the Institute staff.

Look up (in this booklet) the exercises indicated on your program sheet. Note the equipment required and the basic technique of each exercise.

THE "RM" CONCEPT

Before we go into the different exercise methods, the concept of the "RM" must be introduced. "RM" stands for repetition-maximum, which denotes the maximum amount of weight that you can lift some specific number of times (repetitions). Thus, your "1-RM" is the highest amount of weight you can lift once, in whatever exercise you are referring to. The 1 indicates one repetition. Presumably, the maximum amount of weight that you could lift twice would be less than that which you only needed to lift once. Your "2-RM" would therefore be less than your "1-RM". Taking this further, your 6-RM is less, your 10-RM even less, and so on. The RM is a way of determining the optimum amount of weight to be lifted, and a way of telling athletes of varying strength how much to lift.

For each of the prescribed exercises for endurance or power output, you will need to determine your 1-RM, which, as we've said, is your maximum weight capability for a single lift or repetition. Do not "cheat", use jerky motions, or generate momentum by swinging the weights when you make any RM determination. Lift with a slow even speed, and you must lift through the entire range of motion of each exercise. You should make all of these determinations via trial and error; it is usually a quick procedure but be sure to give yourself adequate time in between trials or else you may become fatigued, and then not be able to reach your true, full 1-RM.

r strength exercising, you must determine your 6-RM. By experi-
nting with different amounts of weight, you must find that amount
ich you can just barely lift six times. If you can do 7 or more,
u are not using enough weight. If you cannot do 6, then you are
ing too much weight. Here it is extremely important to avoid
tigue from one trial to the next, so make sure you allow plenty of
me in between trials. You can spread the entire self-testing pro-
dure over a weeks time, and then begin your program. Write down
l of your RM determinations, as these dictate the amounts of weight
be lifted in each exercise.

ce you have started your program, you should maintain 3 workout
essions" per week, running through the entire program in each session.
u should allow at least one day of rest between sessions. If you
ve a long program, you may want to divide your training time into
x sessions, working on upper and lower body on alternate days, six
ys per week. If you can manage six sessions per week and you
ve a lot of endurance and power output training prescribed, it
ll prove advantageous to run through your strength and power exercises
oth upper and lower body) in 3 of those sessions, and your endurance
ercises in the other three, alternating strength-power and endurance
om day to day. This provides more than enough rest between the
wer and endurance exercises, which are rather tiring.

WEIGHT TRAINING FOR ENDURANCE

The units of work prescribed for your endurance training are termed "maximum-repetition sets". The basic method here is one of low weight, with high repetition. The number of repetitions in each set is determined by your own limitations. The amount of weight to be used in any endurance exercise is $\frac{1}{3}$ of your 1-RM for that exercise, which as you remember, would be $\frac{1}{3}$ of your maximum single-lift capability. The repetitions should be done at an even pace, with no more than 1 second in between repetitions. For each maximum repetition set, you must exercise continuously until exhaustion, that is, until you cannot do another repetition. Up to 3 of these maximum repetition sets per session are prescribed. Since each set pushes you to your limit, if more than one set is prescribed, you should give yourself an adequate amount of recovery time in between sets (at least 5 minutes). It is good to run through your program in a "circuit" arrangement, going on to exercise other muscle groups, coming back later to start another round of endurance sets.

Your progress is measured simply by the increase in the number of consecutive repetitions you can do before you become exhausted. If you are also strength training for the same muscle group, your 1-RM will be increasing with time, so you must redetermine your 1-RM every week (on a non-exercising day) and raise your endurance training weight accordingly.

WEIGHT TRAINING FOR STRENGTH

When increases in strength are desired, the basic method is one of low repetition with high weight. Your program prescribes strength exercises in "sets" of six repetitions each. The amount of weight you should lift in each set is your 6-RM. The concept of the RM has been explained previously. Your program sheet specifies which leg or arm is to be exercised, (sometimes both). The number of 6 repetition sets to be performed for any given strength exercise is indicated on your program sheet by number, with 3 being the maximum number of sets for any one session. Each lift should be performed at a slow, even speed, without "swinging" the weight to its desired end-position. One to three seconds should be allowed between repetitions, and about 1 minute in between sets, if more than one set is prescribed. In each workout, you should perform all strength exercises before you do any endurance or power exercises.

As you become stronger, you should be increasing your 6-RM workout weight. For each strength exercise, you should determine your 6-RM every week (on one of your non-exercising days), and as it increases, you should raise your workout weight along with it. Your workout weight should always equal your most recent 6-RM, and the rising 6-RM values will be a record of your strength gains.

to ascertain the amount of weight to use. The same goes for your endurance training.

The goal in power training is to perform as many full repetitions as possible in the 30 second time period. The emphasis is therefore on speed, minimizing the time between repetitions. Make sure that you go through the entire range of motion on each repetition, otherwise you are "cheating". Try to go fast, but smoothly, avoiding jerky movements as much as possible. Each bout should be at a full 100% exertion level throughout the 30 second interval. Progress is measured simply by the increase in the number of repetitions you can perform within the 30 second time period. You can improve by increasing either your force (and thus speed) or by increasing your "muscle sprint" endurance. Usually both will increase, providing you with a resultant gain in power output capability.

Up to three 30 second bouts per session are prescribed. Make sure that all strength training has been done beforehand. You must allow yourself adequate recovery time between bouts, (at least 5 minutes), if more than one is prescribed. A "circuit" training arrangement is very good for this. You should plan your circuit to allow a good deal of time between endurance sets and power bouts (performed by the same muscle group), if you are doing both types of training in the same session. Strength exercises should always be done before power and endurance work.

If you are training for strength and endurance in the same workout session, make sure you do all strength training before you do any endurance training; otherwise you will be too tired to lift the higher weight required for the strength exercises.

WEIGHT TRAINING FOR POWER OUTPUT

The goal here is to increase your maximum energy output per unit time, specifically in a "30 second interval bout". These "bouts" are the units of work prescribed in your weight program. Power output contains elements of both strength and endurance, but is different than either alone. Speed becomes a factor in energy output. Performing each repetition requires some discrete amount of energy, and the more repetitions you can do per unit time, the higher your power output. In a way, each bout is really a 30 second "sprint" for the involved muscle group. This measure does not truly represent either strength or endurance, but something related to a combination of the two factors, sometimes more of one than the other.

For each 30 second bout you should use $1/3$ of your 1-RM in that exercise, which is the same amount used for endurance training. If you are strength training in the same exercise, you must redetermine your 1-RM every week (on a non-exercising day). As it increases, you must raise the amount of weight used for power training accordingly. For each exercise, always use your most recent 1-RM determination

SITTING KNEE EXTENSIONS

INVOLVED MUSCLE GROUP:

Knee Extensors (Quadriceps)

EQUIPMENT:

- (1) A high table or bench to sit on.
- (2) A "weight-lifting boot", with appropriate dumbbell bar and lock-rings.
- (3) Enough weights to determine your 1-RM and/or 6-RM
- (4) Optional - a standard "quad-lift" machine, if available.

STARTING POSITION:

Sit on the table or bench with your knees hanging over the edge at a 90° angle. Ideally, the weighted boot should be just touching the floor. (See Fig. 1A). Grasp the front edge or sides of the table.

EXERCISE:

Extend the leg to the fully straightened position (Fig. 1B), and then lower the leg back to the starting position. This constitutes a single repetition.

Note: If you have a quadriceps machine available, use it according to directions. This should be a very similar exercise motion to that used with the boot.

Fig. 1A

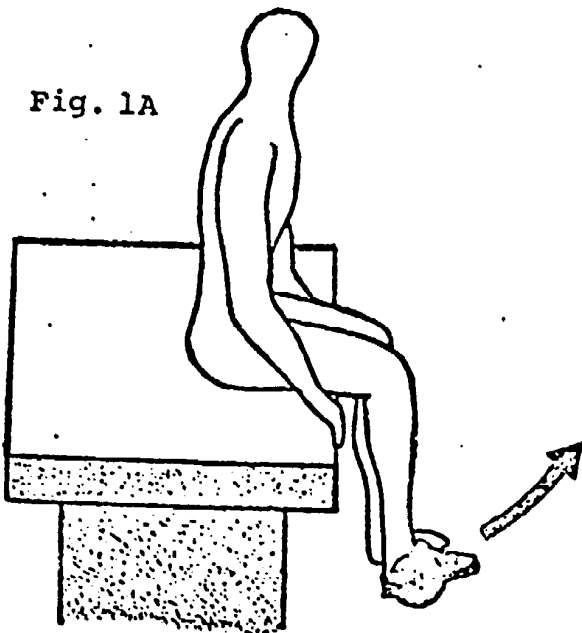
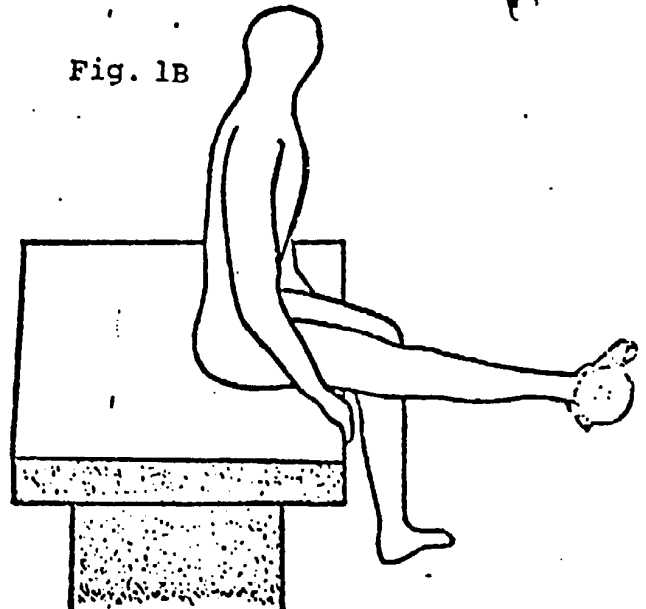


Fig. 1B



A. JAFEGA

PRONE KNEE CURLS

INVOLVED MUSCLE GROUP: Knee Flexors (Hamstrings)

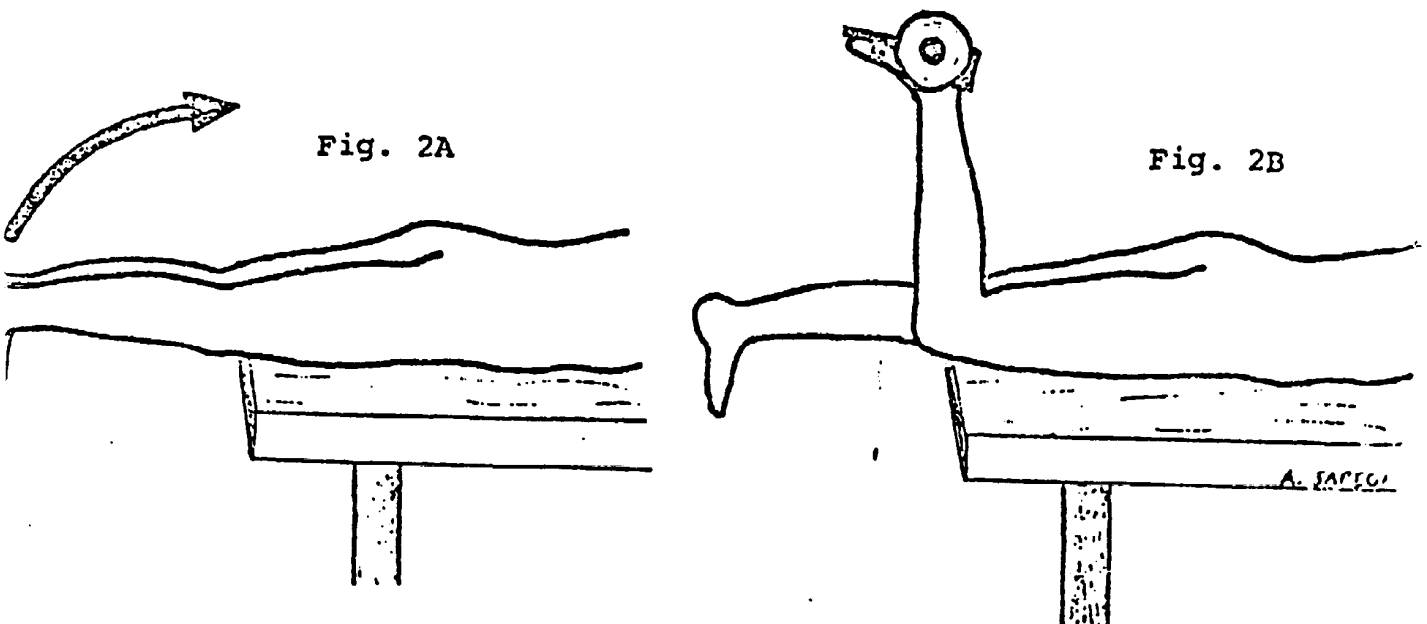
EQUIPMENT:

- (1) Table, bench, or firm bed.
- (2) A "weight-lifting boot", with appropriate dumbbell bar and lock-rings.
- (3) Enough weights to determine your 1-RM and/or 6-RM.
- (4) Optional: A standard "hamstring-curl" machine, if available.

STARTING POSITION: Lie prone (face down) on the bench or table with the knee fully extended. The kneecaps should be just beyond the table edge. (Fig. 2A) You may set up a separate resting support for the boot, to support the weight in between repetitions when the knee is fully extended.

EXERCISE: Bend the knee, bringing the weighted boot up to a position directly above the knee (Fig. 2B). Lower the leg to the starting position. This is one repetition.

Note: If a knee-curl machine is available, use it according to directions. This should entail a similar exercise motion to that described here.



STRAIGHT LEG ABDUCTOR SIDE LIFTS

INVOLVED MUSCLE GROUP: Hip and Leg Abductors

EQUIPMENT:

- (1) Long bench or table, a firm bed, even the floor is acceptable.
- (2) A "weight-lifting boot", with appropriate dumbbell bar and lock-rings.
- (3) Enough weights to determine your 1-RM and/or 6-RM.

STARTING POSITION:

Lie on your side with the leg to be exercised above the non-exercising leg. Keep the upper leg straight, and your body in a vertical plane perpendicular to that of the supporting surface (Fig. 3A). The lower leg should be bent at the knee slightly, placing the foot rearwards out of the way.

EXERCISE:

Keeping the upper leg straight, lift the weight as high as you can without bending that knee or tilting the body to either side. (Fig. 3B). Return to the starting position. This represents a single repetition.

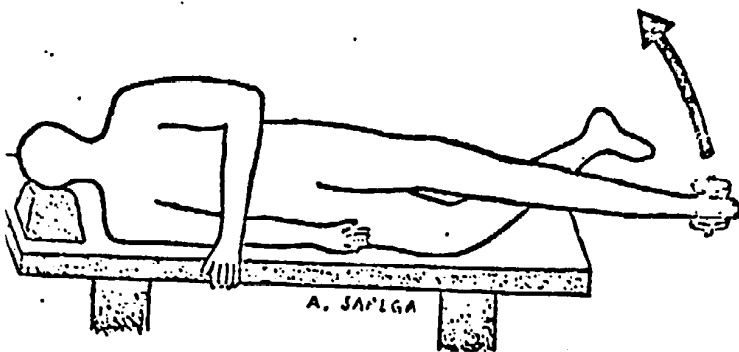
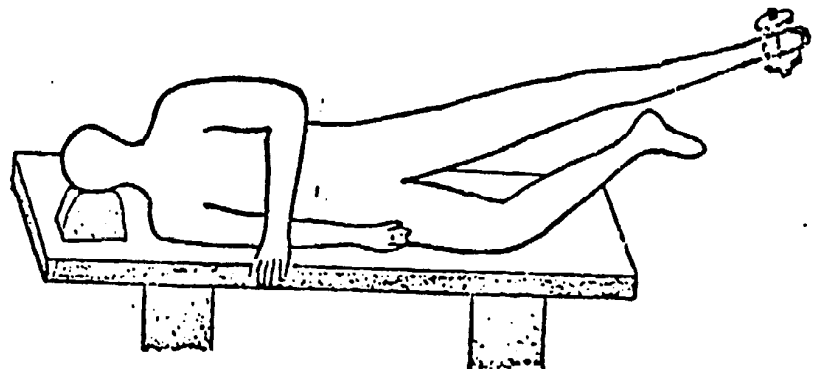


Fig. 3A

Fig. 3B



STRAIGHT-LEG ADDUCTOR SIDE LIFTS

INVOLVED MUSCLE GROUP: Hip and Leg Adductors

EQUIPMENT:

- (1) A supporting surface for your trunk, elevated approximately 1 ft. from the floor.
- (2) An overhanging table-top support for the upper leg, (see Fig. 4) approximately 2½ feet above the floor.
- (3) A "weight-lifting boot", with appropriate dumbbell bar and lock-rings.
- (4) Enough weights to determine your 1-RM. 6-RM.

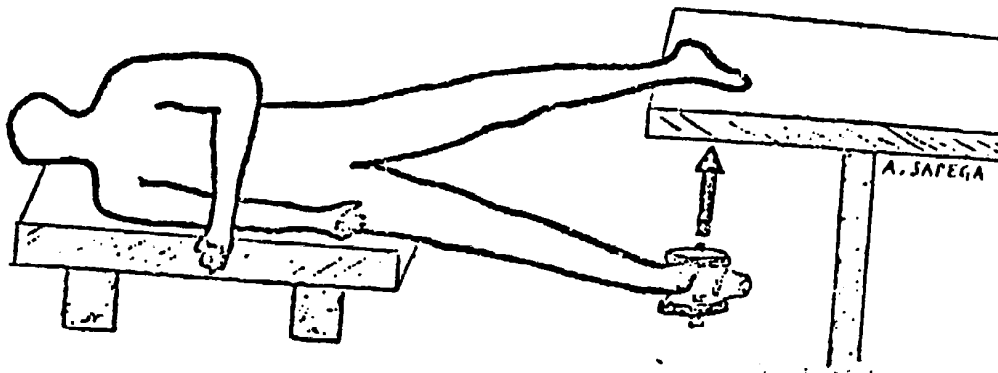
STARTING POSITION:

Refer carefully to diagram 4. Lying on your back on the trunk-support surface, rest the upper leg on a higher overhanging surface, (most likely a table top.) The lower leg is the one to be exercised, and should be fully extended with the weighted boot resting on the floor.

EXERCISE:

Keeping both legs straight, raise the lower leg up to the undersurface of the table top, just under the upper leg's foot and ankle. Lower the weight to the starting position. This constitutes a single repetition.

Fig. 4



SINGLE LEG TOE RAISES

INVOLVED MUSCLE GROUP: Ankle Plantar Flexors

EQUIPMENT:

- (1) A forefoot block 2 - 2½" high to support the toes and metatarsal arch of the lifting leg.
- (2) A box or stool about 1 foot high to support the non-lifting leg. (for balance).
- (3) Enough weights to determine your 1-RM and/or 6-RM. (The weights can be put on a barbell held across the shoulders, or on a dumbbell held in the lifting side hand).

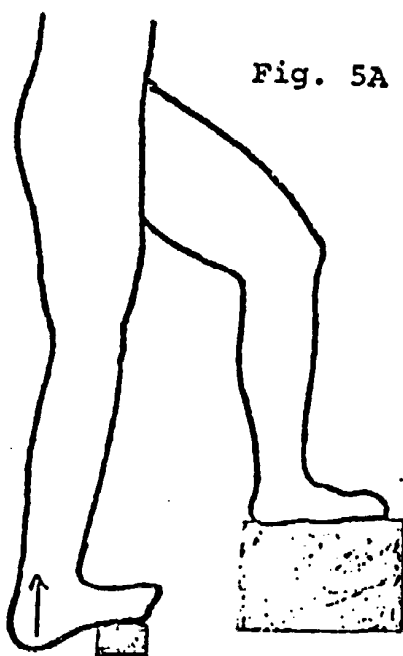
STARTING POSITION:

The forefoot of the leg to be exercised should lie on the small foot block with the heel resting on the floor. The opposite foot should be placed on the box or stool about ½ arms length in front of its side of the body, (Fig. 5) The forward leg is for BALANCE ONLY, and you must not lean forward or support any significant amount of weight with it. To increase the weight being lifted above body weight, you should use either a loaded barbell or dumbbell as described under EQUIPMENT, above.

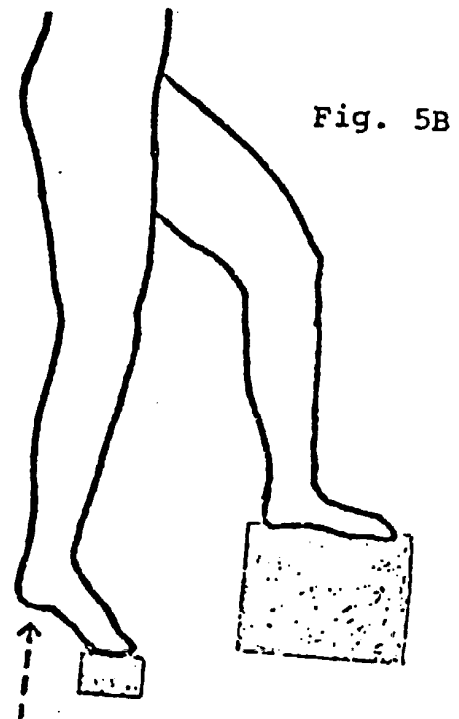
EXERCISE:

Without leaning forward, raise up onto the forefoot of the lifting leg as high as possible. (Fig. 5B) Return to starting position. This constitutes one repetition.

Note: Lift slowly, without any ballistic (jumping) motion.



A. SAPEGA



ANKLE LIFTS

INVOLVED MUSCLE GROUP: Ankle Dorsiflexors

EQUIPMENT:

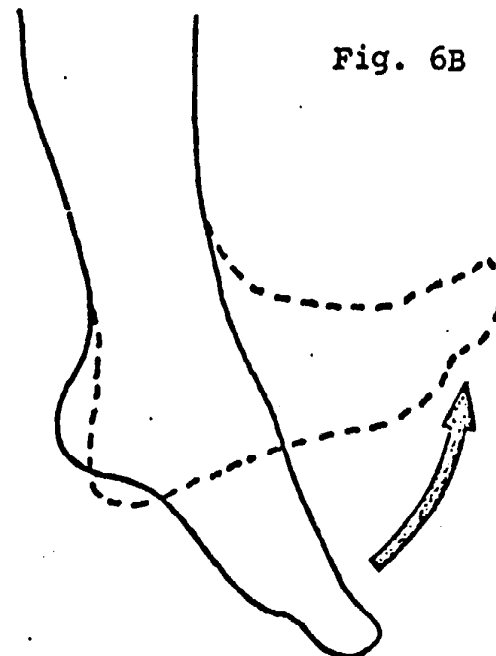
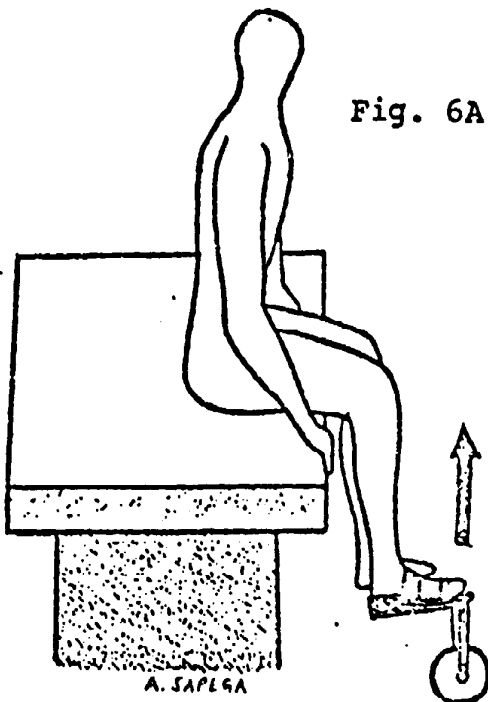
- (1) A high table or bench to sit on.
- (2) A "weight lifting boot".
- (3) A 2' section of clothesline or an old belt.
- (4) Enough weights to determine your 1-RM and/or 6-RM.

STARTING POSITION:

As seen in Fig. 6A, the weights should be secured to the weighted boot as far forwards as possible. The belt or rope should be used for this purpose. You should be sitting with your legs hanging over the edge of the table, bent at the knee. You should be high enough so that the weights just touch the floor, pulling your toes down towards the floor when you are relaxed and letting the foot hang freely. (See lower position of ankle in Fig. 6B).

EXERCISE:

Lift the forefoot up as high as possible. (See upper ankle position in Fig. 6B) All lifting motion should be at the ankle joint, with the leg remaining motionless. Return to starting position. This represents a single repetition.



ARM CURLS

INVOLVED MUSCLE GROUP:

Elbow Flexors

EQUIPMENT:

- (1) A dumbbell bar with accompanying lock-rings.
- (2) Enough weights to determine your 1-RM and/or 6-RM.

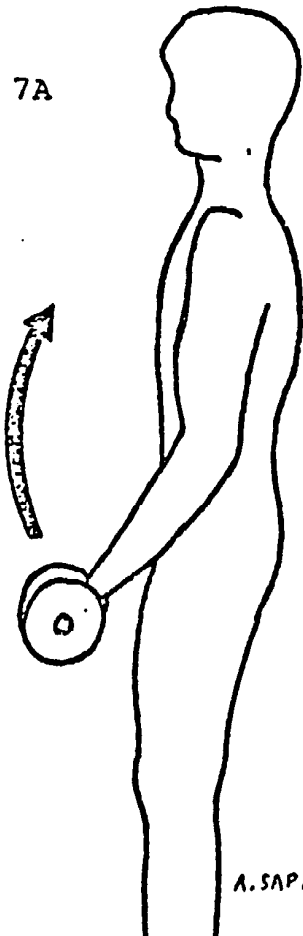
STARTING POSITION:

The dumbbell should be in its lowermost position at the side, or in front of, the body. The upper arm should be vertical and held against the body - (keep this position at all times.)

EXERCISE:

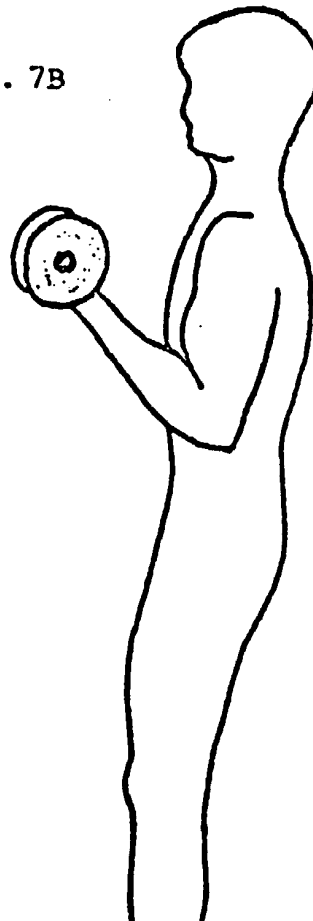
With the palm up, flex the elbow, raising the weights until they come just in front of the upper chest and almost touch it. Return to starting position. This constitutes a single repetition. DO NOT swing the weights or use body motion to help you.

Fig. 7A



A. SAPEGA

Fig. 7B



REVERSE ARM CURLS

INVOLVED MUSCLE GROUP:

Elbow Extensors

EQUIPMENT:

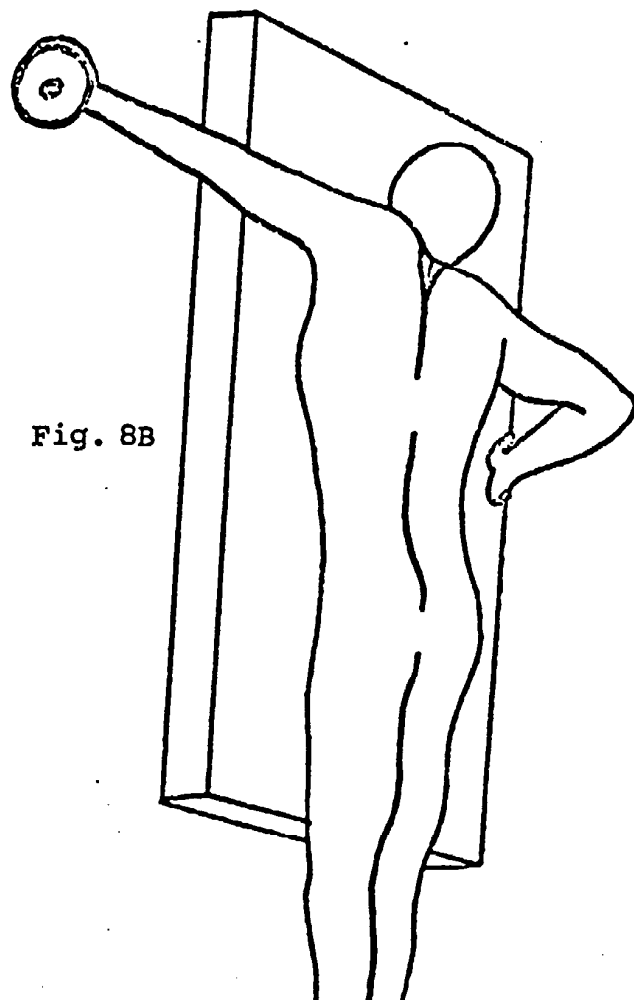
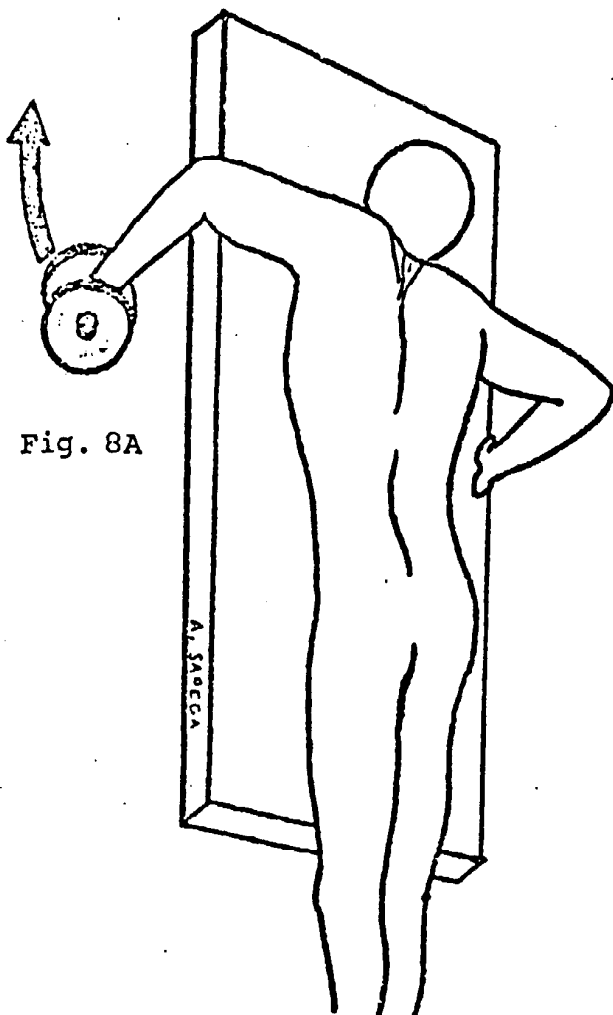
- (1) A firm bed, a long table, or high, wide bench.
- (2) A dumbbell bar with accompanying lock-rings.
- (3) Enough weights to determine your 1-RM and/or 6-RM

STARTING POSITION:

Lie prone (face down) on the table or bench, with the arm to be exercised hanging over the edge at the elbow. (See Fig. 8A.)

EXERCISE:

With the palm facing towards the table, raise the dumbbell by straightening the arm out to the horizontal position. (Fig. 8B) Lower the weight to the starting position. This represents one repetition.



PRONATOR and SUPINATOR ROLLER WINDING

INVOLVED MUSCLE GROUPS: Forearm Pronators; Forearm Supinators

EQUIPMENT:

The apparatus diagrammed on the following page can be made easily, and from readily available materials. A 2' section of 3/4" diameter dowel or broom handle is needed for the main shaft. A section of clothesline should be tied to the shaft through a hole drilled 6" away from one end. This will be the "support" end, the opposite becoming the "grip" end. Adhesive tape or another suitable material should be wrapped around the grip end to ensure a secure grip during exercise.

When using the apparatus, the support end must be placed on something that allows free rotation of the shaft. A tabletop or door-knob (seen in Fig. 10) will suffice as a supporting structure. The point on the shaft from which the rope hangs should be as close to this support as possible. This minimizes the amount of weight you must hold up at the grip end. The rope length should be adjusted by winding it around the shaft such that the weights hang freely at least 6" above the floor. You will need enough weight to determine your 1-RM and/or 6-RM.

STARTING POSITION:

Position your body so that the long axis of your forearm is in line with that of the shaft. Hold your upper arm close to your side and keep your elbow at a 90° angle. Grasp the grip end of the shaft as you would a conventional foil grip. For SUPINATION WINDING, start from the fully pronated position. For PRONATION WINDING, start from the fully supinated position.

EXERCISE:

Gripping the end of shaft securely, forcefully raise the weight by rotating the shaft as far as you can in the desired direction (either by pronating or supinating the forearm). Allow the shaft and your forearm to rotate back to the starting position, while maintaining your grip. This constitutes one repetition. You are not, therefore, maneuvering the weights up and down more than an inch or two with each repetition, and they should remain at about the same distance above the floor throughout the entire set of repetitions.

WRIST CURLS: REGULAR and REVERSE

INVOLVED MUSCLE GROUP: Regular Curls - Wrist Flexors
Reverse Curls - Wrist Extensors

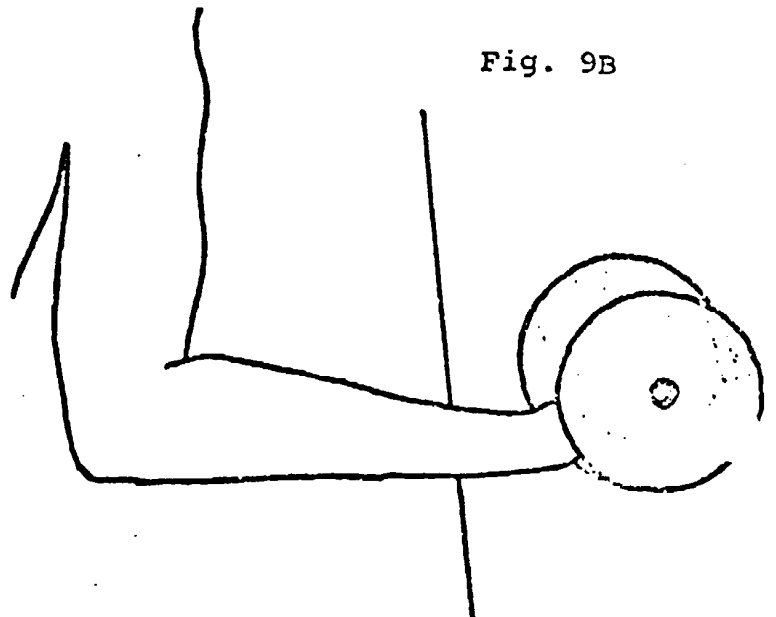
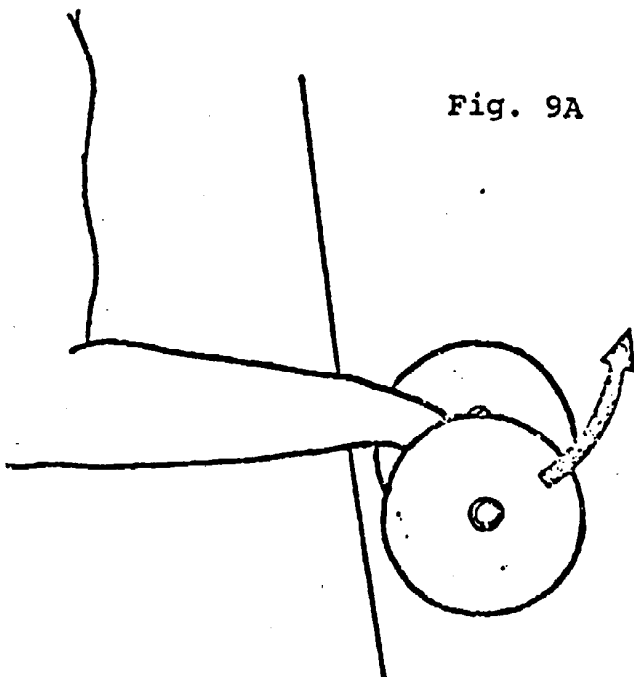
EQUIPMENT:

- (1) A table or bench to support the forearm.
- (2) A dumbbell bar with accompanying lock-rings.
- (3) Enough weights to determine your 1-RM, and/or 6-RM

STARTING POSITION: Regular Curls - the forearm should be in the supinated position (palm up), resting on the supporting surface with the wrist joint just over the edge. The wrist should be bent downwards towards the floor. The most comfortable positioning of the body in relation to the arm is accomplished by leaning over and resting the forearm on a narrow table.

EXERCISE: Flex the wrist, lifting the dumbbell up as far as possible while keeping the forearm in contact with the supporting surface. Lower the dumbbell to the starting position. This constitutes one repetition.

Reverse Curls - the technique is the same as above except that the forearm is in the pronated (palm down) position, and the raising of the dumbbell is accomplished by wrist extension rather than flexion. You will most likely want to lower your body to a position below that used for the regular curls.



ANAEROBIC TRAINING

PART I - SEE CYBEX PROGRAM ATTACHED

PART II - INTERVAL TRAINING

PART TWO - INTERVAL TRAINING

The idea here is to increase the capacity of your body to put out and recover from short sustained bursts of energy.

There is an entire book of computerized programs which can be referred to. For our purpose, however, we will concentrate on three series -

Series One:

Men - 220 yards in 38 seconds with
30 seconds rest.

Goal 20 repetitions

When you are trained to handle
20 reps, lower the running time
and rest period.

Women - 140 yards in 33 seconds with
30 seconds rest.

Goal 20 repetitions.

When you reach 20 reps, lower run-
ning time and rest period.

Series Two:

60-yard, then 40-yard, then 20-yard dashes
at 90% full speed. 15 repetitions.
Walk back to start mark after each dash.

Series Three:

30-yard dashes at 90% speed. 20 reps.

Start with a minimum of 8-10 reps then work
up to 20 reps run perfectly to time.

For your information, these sprints produced an average pulse of 156 beats per minute in a well-trained Pan American athlete. Three minute recovery was in the area of 120-95 beats per minute. Take first pulse no later than 10 seconds after running.

(OPTIONAL) RAIN DANCE - Organize a line of 4-6 (or more) runners. The line will run one mile total at a 6:15 pace. As the line proceeds, the last runner will sprint to the front position and continue leading the line at the 6:15 pace. As he reaches the head of the line, the new last man sprints to the front, etc.

This is a combination exercise which is enjoyable because of group participation.

Here are some pulse counts from the Pan Am taken in Mexico City just prior to competition.

<u>10-second High Range</u>	<u>3:00 Low Range</u>
174-132	126-96

APPARATUS for PRONATION-SUPINATION ROLLER WINDING.

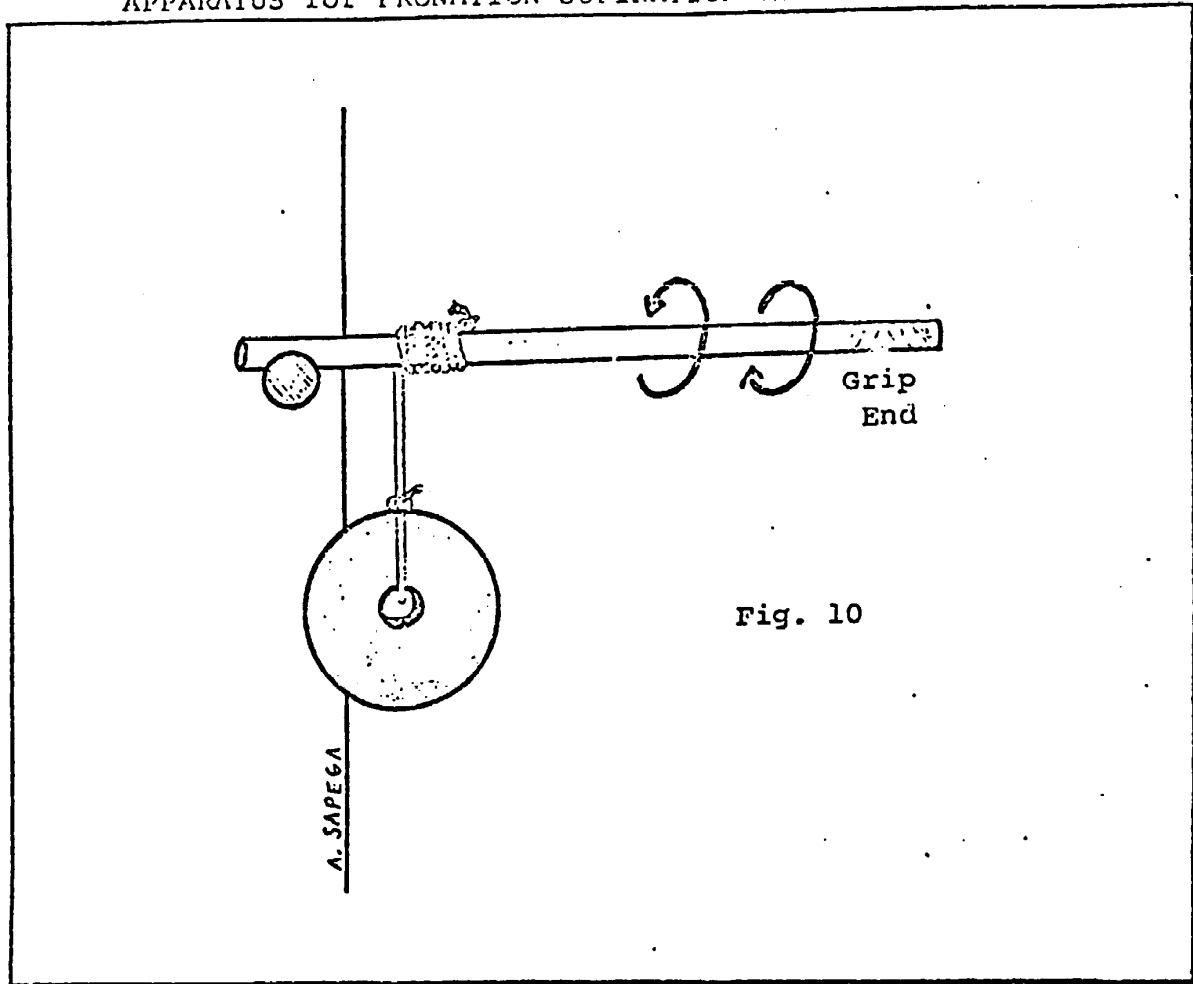


Fig. 10

HANDWORK

The major technical flaws observed fall into three areas.

1. Failure to start with the point. This alone is the reason for countless stop thrusts and/or "searching" for the target in an otherwise good attack (point passes, lands invalid, etc.).

YOU MUST START WITH EXTENSION OF THE ARM AND POINT IN THE ATTACK BEFORE ANY LEGWORK.

(The above does not refute other tactical actions used on certain opponents. It is a training discipline which will be demanded.)
2. "Lingering" on the blade. A "quick" blade on beats -- especially in foil -- is a must. We will emphasize getting off the blade instantaneously. (Tactical considerations are excepted.)
3. Failure to step back with the parry. Many "cheap" hits occur because of this oversight.
4. Poor blade position. Perpendicularity to the target will be stressed in foil and epee.

BOUTING

Four-man team events will receive the emphasis in large sessions.

In smaller sessions, games will be played. For example:

"IT" - One fencer is "it" and must fence all the others on the team in quick succession.

"PIGEON" - One fencer is secretly elected the "pigeon" of the opposing team and your squad must concentrate on defeating him.

"HERO" - One fencer is secretly told he must win all his bouts.

ROUND-ROBIN - Winner stays up.

(There are many games to play. Invent some on your own.)

FOOTWORK PART II

Activity One - 10-minute reprise of basic footwork.

Activity Two - Special across-the-floor (gym or room) step exercise. (Pattinando.)

Many fencers can execute a very good single or double step forward lunge.

However, it has been observed that very few fencers can continuously step forward or backward quickly with perfect balance.

Since this is the fundamental need of the great majority of attacks in international fencing, we are at a disadvantage immediately if we cannot execute.

System '76 will concentrate on producing excellence in this area of footwork.

You will be asked to quickly traverse a gymnasium length (or salle length) doing nothing but step forward or backward.

Foilists must concentrate on shortening their steps.

All must concentrate on perfection in the distance between the feet and the harmony of making the feet hit the floor simultaneously.

THERE MUST BE NO BOBBING OR ROCKING IN THIS EXERCISE.

Neither must you lean (especially going back).

Many hits are incurred by the failure to keep the distance in a retreat after the first one or two steps!

This is a rather demanding exercise which will surprise you with the pain it can produce if you do it correctly (which is the only way we will accept).

For your information, just quickly going up and down a 100-foot gym twice has elevated pulse counts at 10 seconds to the 200's. It appears that this is an interval training exercise in itself.

FOOTWORK PART I

The major technical flaw in the great majority of American fencers is legwork.

There are many reasons for this but this is not the place to discuss them.

Rather, this program shall give special emphasis to the re-establishment of proper footwork foundation.


We are relying on the cooperation of both fencer and coach to help us reach a new level of technical polish.

COACHES: INSIST ON PROPER FOOTWORK EXECUTION.

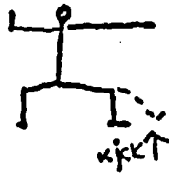
Footwork is the least glamorous and hardest work in fencing. But it is perhaps the most important in the sense that it compounds any other errors you may be making and facilitates proper hand technique.

WE WILL BE UNRELENTING IN OUR INSISTENCE ON FOOTWORK REFINEMENT.

System '76 will ask you to concentrate on doing the following things perfectly. A short note of technical explanation follows the segment discussed.

- 
1. On Guard - You must be perfectly balanced, leaning neither one way nor the other.
 2. Step Forward - Your back foot must come up only as far as your front foot has gone and it must hit the floor at the same time as the front toe.

3. Lunge - You must not "show" the lunge by moving your body or knee. A lunge properly made starts with a kick forward from the front foot with the knee acting as the pendulum control point.



Start of lunge.

NOTHING ELSE MOVES. (Except the arm which precedes everything.) Instantaneously the rear leg thrusts and the body is propelled.

4. Recovery to On Guard - You must recover in a basically balanced position from all lunges. This requires that you pull yourself back so that you can hold the front leg in the air a few inches off the ground. There must be no rocking or exaggerated swaying to accomplish this. It is a matter of balance and muscle feel you will develop by working on this conscientiously.
5. Balestra - Your feet must hit floor together, not one after the other.
6. Radoppio - Rear leg is brought up while you are still in lunge position and new lunge or flesch is made.

It is to be emphasized for foilsman that their steps should be quite short. Failure to keep steps crisp often results in effective counteractions from the opponent, i.e., stops and feint counterattacks.

Note: Ask your coach and fellow competitors to organize a footwork training session each time you work out.
You will find that the routine will soon pay dividends.

IMPORTANT NOTE: The "mortal sin" in this exercise is to allow the rear hip to begin to collapse forward. The lunge then loses all its power, the attack loses all its surprise, the point loses much of its ability to feint.

You must get the feeling that the feet are "roller skating" you in a perfect on-guard across the gym.

Practice it. IT IS VITALLY IMPORTANT.

Do for 5-10 minutes with 30-seconds rest when you feel very tired or tight.

RECORD KEEPING

If you attend the Olympic sessions we will keep a complete record of your progress.

However, you and your coach can keep your own record.

First, record your weight, resting pulse, on a card.

Then, keep a section to record your jogging runs.

Keep another section for your interval runs.

After each kind of run, keep three separate sections for pulse counts. These are 10 seconds, 3-minute recovery, 5-minute recovery. Keep the count by counting for ten seconds then multiply by 6.

It will be interesting for you to see how your pulse decreases as you get into better and better shape.

Also note what your counts are after a lesson, a bout, the footwork exercises, etc.

We would be interested in receiving this information from you at each training session or at an Olympic Trial.

It will be turned over to our medical/training team for further study.