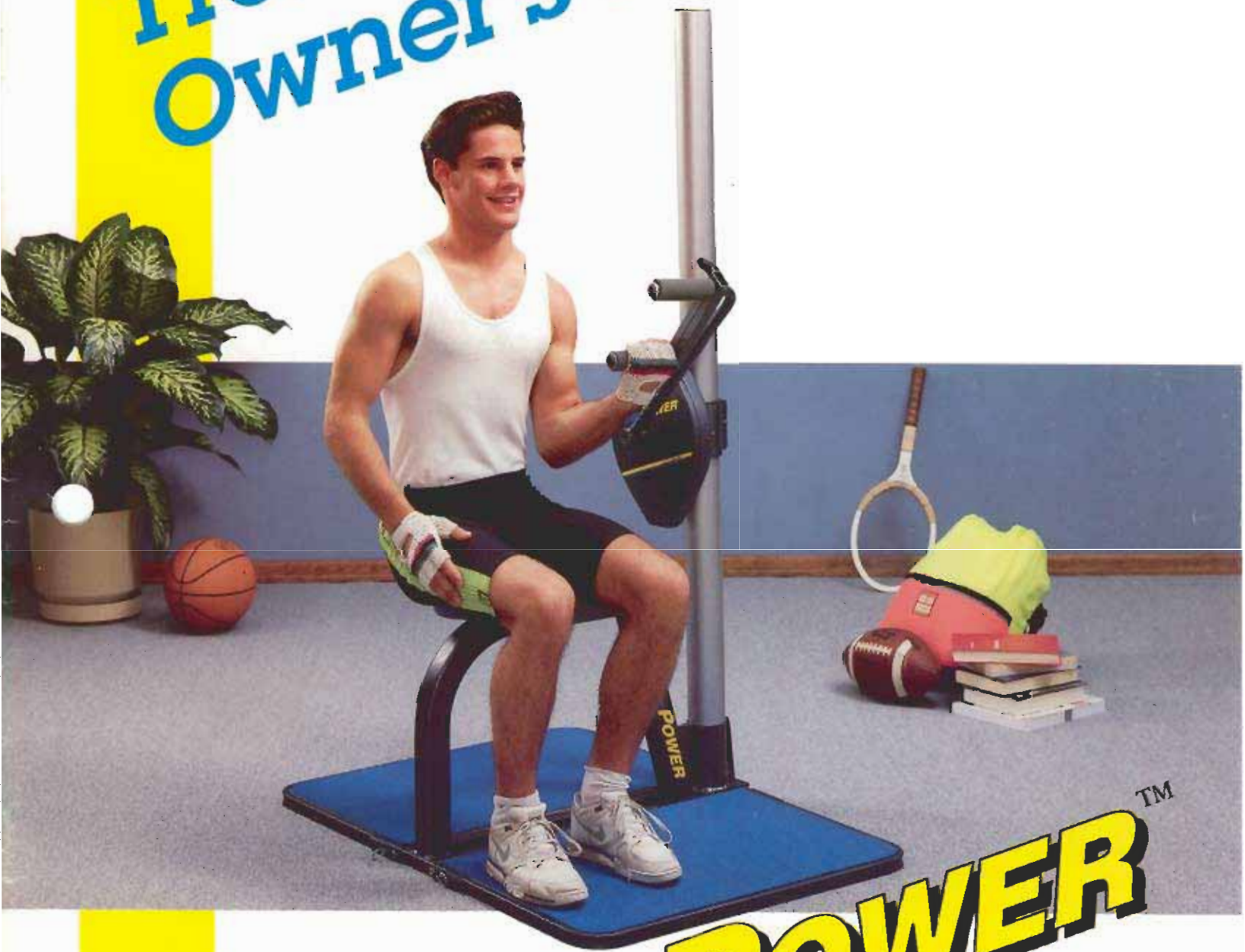


Training and Owner's Manual



Nordic POWER™



Table of Contents

<i>Introduction</i>	2
<i>Assembly and Maintenance Instructions</i>	3
<i>NordicPower Training Manual</i>	4
<i>Training Recommendations</i>	5
<i>Changing Resistance Settings</i>	7
<i>Types of Strength Training</i>	8
<i>General Conditioning</i>	8
<i>Athletic Competition</i>	8
<i>Body Building</i>	8
<i>Rehabilitation</i>	9
<i>NordicPower Exercises</i>	10
<i>Designing your NordicPower Training Program</i>	26
<i>Sports Conditioning Routines</i>	28
<i>Football</i>	28
<i>Tennis</i>	28
<i>Swimming</i>	29
<i>Golf</i>	29
<i>Cross Country Skiing</i>	30
<i>Baseball/Softball</i>	30
<i>Glossary of Terms</i>	31
<i>NordicPower Personal Training Log</i>	33
<i>Warranty Information</i>	36

Dear Fitness Friend:

Congratulations! You are about to begin working out on the latest in safe, effective strength training. NordicPower.

The key to a comfortable workout with NordicPower is to take your time! Begin working out by setting the resistance level lower and increasing repetitions until you feel comfortable on the machine and your muscles are ready for a complete workout.

The second key to getting a rewarding workout with NordicPower is to align the fulcrum of the lever arm with the joint of the muscle being exercised. You will soon learn to adjust the machine to fit your body so that each exercise feels natural.

With NordicPower you can build a bigger, stronger body, or just tone, firm and shape your muscles. No matter which goal you have set for your NordicPower training program, you will improve the way you look, feel and live with regular strength training workouts.

If you have questions concerning your NordicPower, I encourage you to call NordicTrack's Customer Service Department at 1-800-654-2271.

Good Luck!



Jeff Zweifel, M.S.

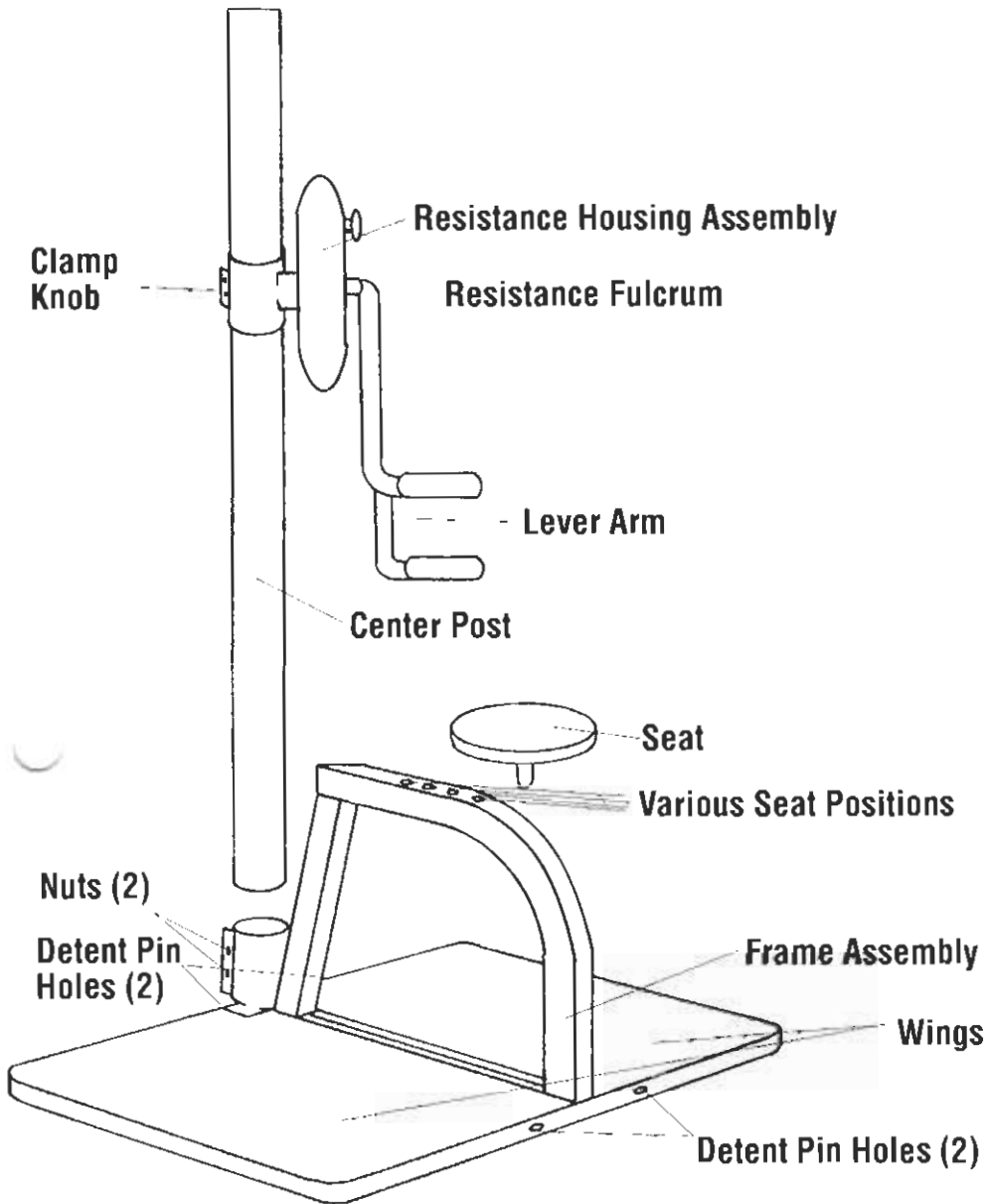
Exercise Physiologist

National Exercise For Life Institute



NordicPOWER™

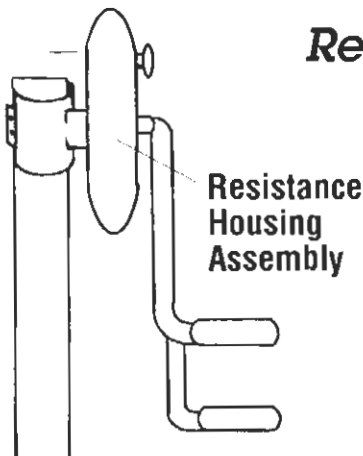
Assembly And Maintenance Instructions



Assembly

1. Unpack all parts from box. Note that there is a plastic bag which contains: 4 detent pins, 2 nuts, 1 flat wrench, and 1 allen wrench.
2. Set the frame assembly on the floor and open up the wings.
3. Line up the holes and insert the 4 detent pins to secure.
4. Insert the center post into the frame assembly. Secure by tightening the 2 nuts.
5. Insert the seat into one of the various seat positions.
6. Slide the resistance housing assembly over the top of the center post. Secure by tightening the clamp knob.
7. For shipping purposes the arm is mounted backwards. Remove the telescoping arm and mount according to the diagram.

Hole For Allen Wrench



Recalibrating Resistance Mechanism.

As the resistance mechanism on your NordicPower breaks in (no resistance at a readout of 15 lbs.), it will be necessary to recalibrate the resistance readout. In order to do this simply:

1. Turn the resistance knob to zero (100 lbs./60 lbs).
2. Slide the resistance housing assembly to the top of the pole as indicated by the diagram at the left. A small hole at the back of the housing will become visible.
3. Using the allen wrench provided with your NordicPower, tighten the bolt at the back of the resistance housing until a light resistance is felt on the lever arm.
4. Your NordicPower is now recalibrated.

NordicPower Training Manual

Strength and muscle building is a vital component in the training of all competitive athletes. Using resistance to overload the muscular system builds bigger, faster and stronger bodies. Or it can tone, shape and trim to enhance physique and improve any sports performance. There are significant health and lifestyle benefits gained from adding strength training to a workout routine. That's why it's one of the fastest growing fitness activities in the world today.

This training manual will examine basic strength training principles, methods, exercises and sample training routines for general conditioning, sport or athletic enhancement and body building to allow you to reach your training goals. Master these basic principles and you'll be on your way to developing your ultimate muscular physique and/or sports performance. The following results may be produced with a strength training routine using NordicPower :

- 1. Increased muscular strength**
- 2. Stronger ligaments, tendons, and connective tissues**
- 3. Improved flexibility**
- 4. Stronger bones**
- 5. Increased heart-lung efficiency**
- 6. Better protection against injury**
- 7. Better coordination**
- 8. Faster speed of movement**

NordicPower is a "constant isotonic" resistance machine that provides resistance throughout a full

range of motion to strengthen all major muscle groups of the body. "Isotonic" implies a dynamic movement in which the muscle generates the same amount of force throughout the entire movement. NordicPower is a two-way-directional resistance. In other words, resistance is applied to one specific muscle or muscle group during the lifting phase of the exercise while the resistance is applied to the opposing muscle(s) during the lowering phase.

Training with NordicPower is much safer than traditional free weights. There is no concern of dropping a weight - especially if you're inexperienced, or training alone. An easily adjustable resistance knob allows you to vary your workload quickly. No need to change plates. The ability to isolate a given muscle or muscle group more efficiently is an additional benefit of the NordicPower, where it is many times very difficult to isolate muscles with traditional weight systems. NordicPower's isolation movements, marked by concentration on smaller muscle areas, is appropriate for general conditioning, rehabilitation and sport specific training.

Note: Consult with your physician before beginning any exercise program. Strength training can be one of the safest of physical activities. Be sure to utilize the manual and the description of proper form on the exercises before attempting unfamiliar lifts. NordicPower is safe, but work within your limits. If you have to arch your back or lean to complete a repetition you are working against too much resistance.

Training Recommendations

Beginning your training program

For the beginner, it is essential to build a solid foundation. The most common mistake of the beginner is to progress too quickly. In the beginning months of your training, you should perform basic exercises such as those listed below three times weekly, performing all exercises each session. These basic exercises involve the major muscles of the body. These muscles are extremely important since they involve the most visible and largest muscles that will provide you with the desired physical appearance. When developing your personal resistance training program, it should be designed to promote strength in all of the major muscle groups. When muscles are neglected, it is possible to develop muscle imbalances, which in time may lead to muscle injury. NordicPower's two-way directional resistance ensures that opposing muscles are also being worked with each repetition.

NordicPower General Conditioning Routine:

- 2-3. Hip Flexion/Hip Extension — lower abdominals, thighs, gluteals, and hamstrings
- 10-11. Leg Curl/Leg Extension — quadriceps and hamstrings (thighs)
- 6-7. Hip Abduction/Hip Adduction — outer hip and inner thigh
- 12-13. Overhead Press/Lat. Pulldown — latissimus dorsi (outer back) and deltoids (shoulders)
- 24-25. Chest Fly/Pronated Raise — pectoralis (chest) and posterior deltoid (shoulder)
- 34-35. Bicep Curl/Tricep Pulldown — biceps (upper arm front) and tricep (upper arm back)
- 44-45. Abdominal Crunch/Back Extension — abdominals and erector spinae (lower back)

The training program was designed in this order to train the large muscle groups that use the heavier resistances earlier in the workout. That way you

won't fatigue the small muscles before you call them into play in training the larger muscles. In your exercise program with NordicPower, muscle groups are alternately stressed and rested with each repetition on the two-way directional resistance.

Proper Isolation

The first two to three weeks of a training program should be devoted to form and technique on the machine. Proper isolation of those muscles being exercised is an important factor in training. If you want to maximally shape or build a muscle independently, you must isolate it from the other muscles as best you can. NordicPower is designed to allow you to do this effectively. Explosive and jerky movements are dangerous in strength training. Instead, you should work against a resistance that allows you to perform the movement correctly rather than "cheat" by using an improper technique. If you are only going through the motions of the exercise you will not develop desirable gains. You must understand what muscles you are working and concentrate on that specific muscle or group of muscles.

Proper Overload

A muscle must be properly overloaded to positively respond. The word "overload" simply means that you are making the muscle do something that it is not used to doing. The overload can range from severe to mild, and the muscle will eventually adapt to the level of overload being applied. Strength training must be progressive. As soon as the muscle can accommodate a particular resistance, slightly greater stress should be applied to stimulate further strength improvement. To gain strength, you must constantly attempt to handle greater resistances. To increase muscle size, not only should you try to handle heavier and heavier resistances, but you can also increase the number of sets and the frequency of training sessions.

When applying the overload principle to your exercise plan it is referred to as Progressive Resistance Exercise (P.R.E.). This simply means that the intensity of your workout should be increased gradually and progressively to build and tone muscle safely and efficiently. It is generally recommended that the resistance of any exercise should not be increased by more than 5 percent per week to insure sensible and safe progression. Your program should begin with two weeks of low intensity and gradually be increased as your level of physical condition improves.

Recovery Time

Proper recovery time is necessary for the tissues to rebuild and make positive gains between workout sessions. Most strength training professionals advise that a three day per week program be followed. It is generally accepted that 48 hours be allowed between workouts of any given muscle group. The every-other-day approach ensures that you won't overtrain a given muscle group. If you wish to train on a daily basis, you could follow a program of upper body on one day and lower body on the next day. When too much rest is taken between workouts, the muscle initially rebuilds to a higher level of strength, but gradually returns to its original strength level prior to the next training session. In other words, don't let more than 96 hours pass between working muscle groups. (See sample training routines).

Muscle Failure

Do not push yourself as a novice to the point of momentary muscular failure during the first workouts. However, it will become important as you advance in your training program to perform each set to the point of failure. This is the point when you are unable to perform another repetition. A ten repetition maximum (10 RM) is referred to as the heaviest workload that can be lifted ten times in succession and achieve momentary

muscular fatigue. By failing the last repetition in a set, you have stressed the muscle to its maximum capacity. The most important aspect of any successful strength training program is that a maximal voluntary contraction is included in each set of a given exercise. You should use enough resistance that if you were to do one repetition more than the prescribed number, you would fail. This does not mean that form and technique should ever be sacrificed for increased resistance or additional repetitions.

Full Range Of Motion

When a muscle is exercised through a full-range of motion, there is little chance of decreasing joint flexibility. Full range of motion also provides the muscle with a greater training stimulus, because the distance over which a muscle moves a resistance is greater. NordicPower is specifically designed to provide full-range exercise movements. For example, tricep and bicep exercises should ensure maximum elbow extension and maximum elbow flexion for each repetition. You may need to reduce the resistance of an exercise in order to achieve full range of motion. For full range exercise, the body part that is being moved by muscular contraction must be rotating on a common axis with the source of resistance. For example, in the bicep curl exercise, the elbow joint must be in line with the axis of a rotary-form of resistance. When you are properly positioned, you are always lifting the resistance, regardless of your actual direction of movement. Without the rotary form resistance which is provided by NordicPower, full range of motion is not possible.

Number Of Exercises

The recommended number of exercises to be performed each session is eight to fourteen. These should be designed to work all the major muscle groups of the body. If you have different goals or less time available, you may prefer to do a fewer number of exercises, keeping in mind the importance of muscle balance. NordicPower incorporates a system of paired exercises to assure that you will maintain excellent balance to improve flexibility and remain free of injuries. You are continually complementing an exercise with an opposing muscle group exercise (e.g., leg extension and

to complete the circuit with no rest periods between exercises. As you advance, you may wish to repeat the entire circuit after a brief rest period. A function of the circuit training program is to maintain a high heart rate for extended periods, which will in effect increase your metabolic rate. An increased metabolic rate allows you to burn more calories which in turn provides you with better control of body fat.

If you are using proper form and appropriate intensity, more than three sets of a given exercise is commonly considered unnecessary. When performing more sets, it is essential to extend your recovery time between workouts to adequately recover.

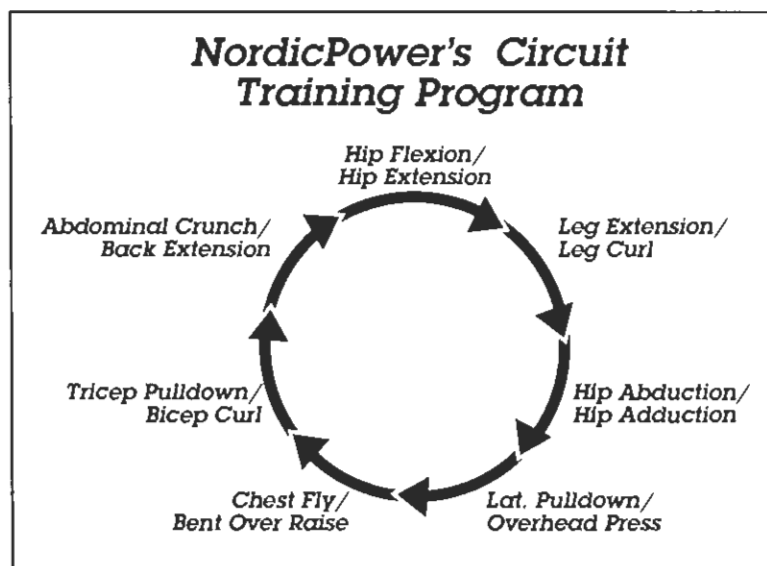
The number of repetitions may vary depending on the exercise that is being executed. Heavier resistances should be used when working the larger muscle groups, which should allow for the completion of approximately 8 - 10 repetitions. Conversely, performing more repetitions (15-20) and using less resistance is more effective in the development of the smaller muscle groups.

It should be noted that there exists an inverse relationship between the

amount of resistance that is used for an exercise and the number of repetitions that can be completed. It becomes obvious that these training variables are dependent on your goals. For example: If you wish to primarily improve muscular endurance and tone, it is best to perform numerous repetitions against low resistances. On the other hand, if you desire muscular strength, it is best to perform few repetitions against high resistances.

Speed Of Movement

Controlled speed of movement with each repetition eliminates any chance of using momentum to aid your



leg curl or tricep pulldown and bicep curl).

Sets And Repetitions

For general conditioning, 1 - 3 sets of 8 - 15 repetitions is recommended. A repetition is the completion of one entire cycle of an exercise. A set is the completion of a consecutive series of repetitions. Individuals who train in a circuit fashion complete one set of 8 - 12 repetitions per exercise. The main objective in a circuit training system is to complete all the exercises in the circuit within a target time limit. Above is a diagram of a sample circuit training program. You should attempt

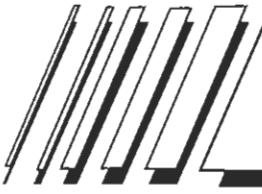


Rehabilitation

NordicPower can be used as a means of rehabilitating people with injuries. Rehabilitation of injuries must obviously be very individualized, but there are general guidelines to follow. Guidelines for reconditioning:

1. The reconditioning program or exercises prescribed by the physician should be closely followed.
2. Begin conditioning slowly and easily. Increase range of motion in the pain free zone and intensity very gradually.
3. Be certain that movements are done smoothly, avoiding jerky or stressful movements of the joints.
4. Some discomfort is to be expected when performing exercises, especially as the amount or intensity increases. Sharp pain or increasing discomfort is the signal that the exercise must be discontinued or modified.
5. General conditioning or conditioning special parts of the body should be maintained, whenever feasible.
6. Low resistance and high repetition (fifteen to twenty-five reps) is usually the rule for rehabilitative exercises.
7. Rehabilitation should not result in the overdevelopment of one limb. It may be necessary to train the opposing muscle group or limb. If an injured limb is very heavily retrained, a muscular imbalance may result.

Rehabilitation exercises may be done daily or even several times per day. In some circumstances greater rest may be required and rehabilitative sessions may be less often. The concept of active rehabilitation is widely used in medicine and can hasten your recovery. When rehabilitating a muscle or joint, take your time. Impatience is probably the greatest danger to the athlete during the rehabilitative period.



NordicPower Exercises

The following are explanations of how to do the various exercises that will be used in the strength programs in this manual. The exercises are provided in order of larger to smaller muscle groups so that you may refer to them easily when designing your own program in the proper training sequence. Each exercise listed effectively isolates the desired muscle or muscle groups which will assist you in maximal development.

Note: Begin working out on NordicPower with low resistance and high repetitions to develop proper form and technique.

1. Squat

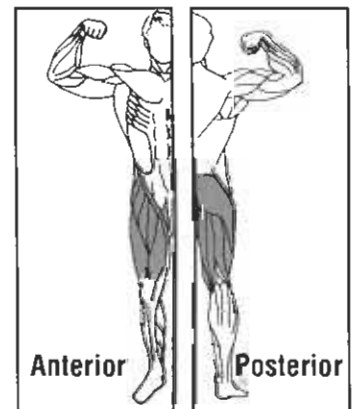
Major muscles used: leg extensors (quadriceps: rectus femoris, vastus lateralis, vastus medialis, and vastus intermedius), hip extensors (gluteal muscles and hamstrings: biceps femoris, semimembranosus, and semitendonsis)

Execution:

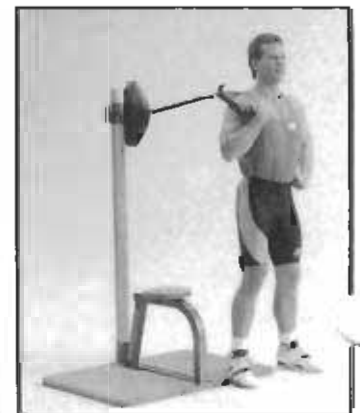
1. In a seated position with resistance device to the side of the body, align axis of resistance mechanism with shoulder joint. Adjust lever arm to full length with handle secured over shoulder. Bend at knees and lower body so that thighs approach a position parallel to floor. Keep head up and back as straight as possible. Maintain body weight primarily distributed onto the heels during the exercise.
2. Press legs up to the starting position without locking knees in the fully extended position. Maintain consistent technique during the raising and lowering phase of the movement.
3. After completing the desired number of repetitions, repeat the movement by securing the handle on the opposing shoulder.

Benefits:

Strength in the lower extremities is crucial for all activities which use pushing or extending movements of the leg. This includes any running or jumping movement. Examples are track, basketball, football, tennis and wrestling.



Squat



Squat

2-3. Hip Flexion and Hip Extension

(variation #1)

Major muscles used: hip flexors (lower abdominals, iliopsoas, sartorius, rectus femoris, pectineus), hip extensors (hamstring and gluteal muscles: biceps femoris, semimembranosus, and semitendinosus)

Execution:

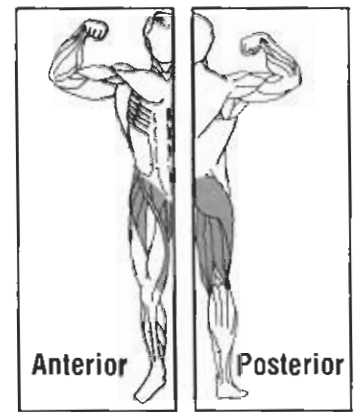
1. **Hip Flexion:** Adjust lever arm to a length in which the pads are against front and rear of ankle joint. Initiating the movement from the hip, raise upward with movement in a slightly bent knee position. Maintain an erect upper torso and keep the upper body in a stable position by grasping pole with hand.

2. **Hip Extension:** Initiating the movement from the hip, extend the leg back, opposite to that of flexion. With a slightly bent knee position, raise backward while maintaining an erect upper torso position.

3. After completing the desired number of repetitions, repeat movement with opposing hip by aligning hip with axes of cam and stabilizing with hand.

Benefits:

Improved posture. Aids in lifting and bending. Improves stair climbing endurance and prevents sway back and protruding belly.



Hip Flexion #1



Hip Extension #1

4-5. Hip Flexion and Hip Extension (variation #2)

Major muscles used: Major muscles used: hip flexors (lower abdominals, iliopsoas, sartorius, rectus femoris, pectineus), hip extensors (hamstring and gluteal muscles: biceps femoris, semimembranosus, and semitendinosus)

Execution:

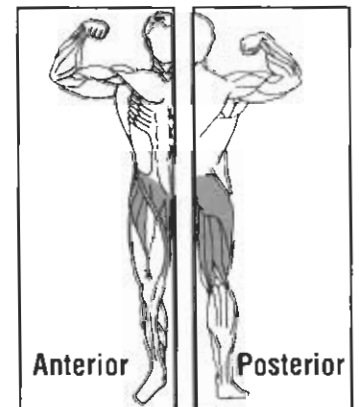
1. **Hip Flexion:** Initiating the movement from the hip, raise upward with movement in a bent knee position (90 degrees). Maintain an erect upper torso and keep the upper body in a stable position by grasping pole with hand.

2. **Hip Extension:** Initiating the movement from the hip, extend the leg back, opposite to that of flexion. With a 90 degree bent knee position, raise backward while maintaining an erect upper torso position.

3. After completing the desired number of repetitions, repeat movement with opposing hip by aligning hip with axes of cam and stabilizing with hand.

Benefits:

Same as exercises 2-3.



Hip Flexion #2



Hip Extension #2

6-7. Hip Abduction and Hip Adduction

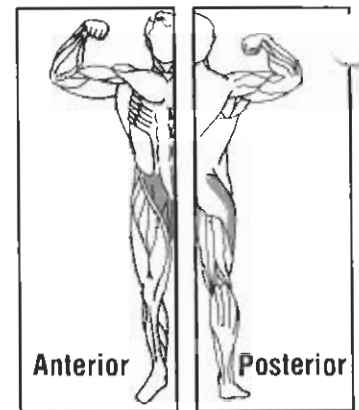
Major muscles used: hip abductors (outer hip: gluteals, tensor fasciae latae), hip adductors (inner thigh: adductor magnus, longus, brevis, pectineus, and gracilis)

Execution:

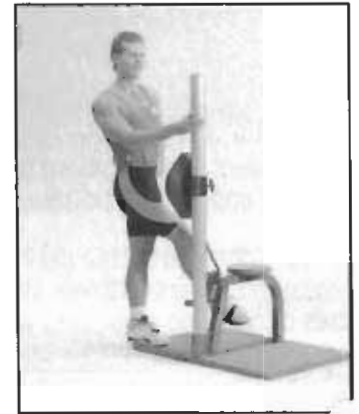
- Hip Abduction:** Initiate the movement from the side of hip, raise laterally outward away from body. Maintain a slightly bent knee and stabilize an erect upper torso by grasping pole with hand throughout the movement.
- Hip Adduction:** Initiating the movement from the inner thigh, drive the leg across in front of the support leg. Maintain a slightly bent knee and stabilize an erect upper torso by grasping pole with hand throughout the movement.
- After completing the desired number of repetitions, repeat movement with opposing leg by inserting leg in pads.

Benefits:

Improves flexibility in lower back and knee joint stability. Aids in shifting weight from front to hind foot, giving more power to moves in football, golf, skating, etc.



Hip Abduction



Hip Adduction

8-9. Standing Leg Extension and Standing Leg Curl

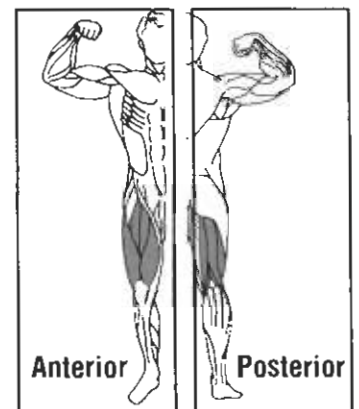
Major muscles used: leg extensors (quadriceps: rectus femoris, vastus lateralis, vastus medialis, and vastus intermedius), leg flexors (hamstrings: biceps femoris, semitendinosus, semimembranosus)

Execution:

- Standing Leg Extension:** Lift the leg upward until the back of the pad approaches or touches the buttocks, maintaining the upper leg stationary. This should be done to ensure a full range of motion. Stabilize an erect upper torso by grasping pole with hand throughout the movement.
- Standing Leg Curl:** Initiating the movement from the knee joint, drive the lower leg back to the start position while maintaining the upper leg stationary. Stabilize an erect upper torso by grasping pole with hand throughout the movement.
- After completion of the desired number of repetitions, repeat movement with opposing leg by inserting leg in pads.

Benefits:

Improved knee joint stability for running, walking, etc. Also effects pelvic stability.



Standing Leg Extension



Standing Leg Curl

10-11. Seated Leg Extension and Seated Leg Curl

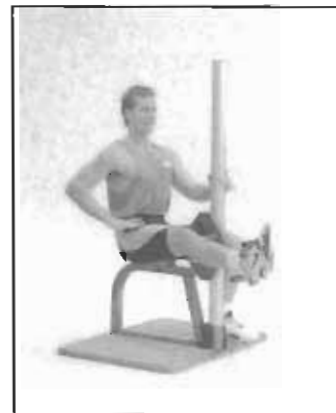
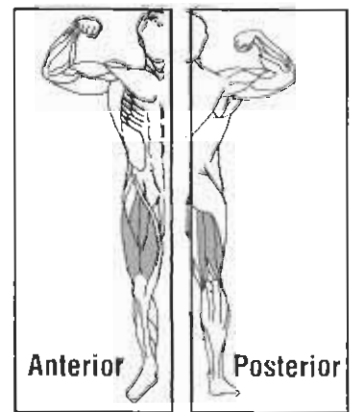
Major muscles used: leg extensors (quadriceps: rectus femoris, vastus lateralis, vastus medialis, and vastus intermedius), leg flexors (hamstrings: biceps femoris, semitendinosus, semimembranosus)

Execution:

- Seated Leg Extension:** Extend at the knee until the lower leg is parallel to the floor. Keep trunk straight at all times. Make sure leg is completely extended at the top of the exercise.
- Seated Leg Curl:** In a seated position with resistance device to the side of the body, align axis of resistance mechanism with hip joint. Adjust lever arm to a position length in which pads are against the front and rear of ankle joint. Flex the leg at the knee until back of pad approaches buttocks. Keep trunk straight at all times.
- After completion of the desired number of repetitions, repeat movement with opposing leg by inserting leg in pads.

Benefits:

Improved knee joint stability for running, walking, etc. Also effects pelvic stability.



Seated Leg Extension



Seated Leg Curl

12-13. Overhead Press and Lat. Pulldown

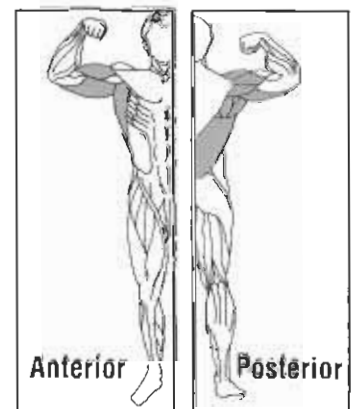
Major muscles used: deltoid, tricep and latissimus dorsi, biceps

Execution:

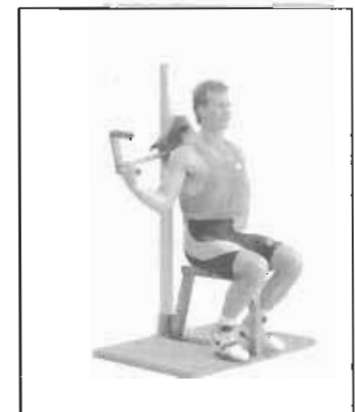
- Overhead Press:** The length of the lever arm should allow your arm to be at a 90° angle when your upper arm is at your side. Align axis of resistance mechanism in the center of upper back with shoulder joint. Grasp handle and press the lever overhead until your bicep touches your ear. Keep the upper body erect during this exercise.
- Lat. Pulldown:** Pull the handle downward from overhead position while maintaining elbow wide. The action should draw upper arm to side of chest. Do not jerk or raise the body to assist in the movement.
- After completion of the desired number of repetitions, continue exercise by raising handle to opposite arm by rotating handle overhead and repeat.

Benefits:

Improves upper back strength, gives you the v-shaped back. Improves posture.



Overhead Press



Lat. Pulldown

14-15. Pullover and Front Raise

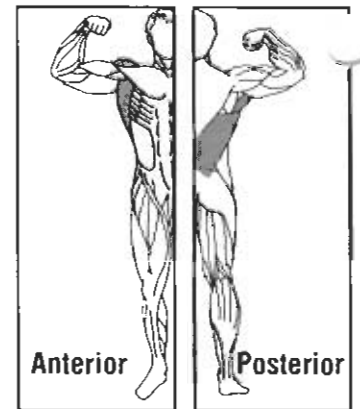
Major muscles used: latissimus dorsi and anterior deltoid

Execution:

1. **Pullover:** In a seated position with resistance device to the side of the body, align axis of resistance mechanism with shoulder joint. Adjust lever arm so that your arm is fully extended in the overhead position. Pull over with a straight arm in front of body until you reach top of thighs. Stabilize the torso at all times.
2. **Front Raise:** Perform movement by raising handle upward from the top of thighs in front of body to starting overhead position.
3. After completion of the desired number of repetitions, turn and face the opposite direction and repeat movement with opposing arm.

Benefits:

Improves shoulder joint stability. Gives upper back strength. Reduces tension on neck muscles. Improves posture.



Pullover



Front Raise

16-17. Bent-over Incline Press and Standing Low Row

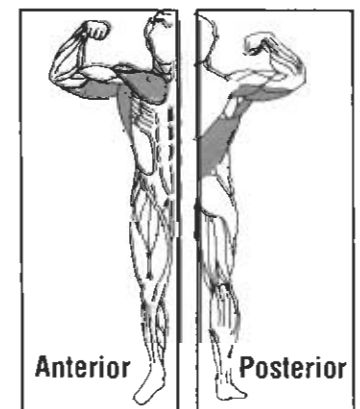
Major muscles used: deltoid, upper pectoralis, triceps and latissimus dorsi, teres major

Execution:

1. **Bent-over Incline Press:** Bend at the waist with slightly bent knees and a flat back. Upper torso should be supported with hand on seat. Grasp handle with opposing hand and press outward until arm is fully extended.
2. **Standing Low Row:** Pull handle toward body with elbow at a 45 degree position. Draw handle to side of chest to achieve full range of motion. Maintain a flat back position throughout movement.
3. After completion of the desired number of repetitions, rotate resistance mechanism to opposite side of pole and repeat the exercise with the opposing arm.

Benefits:

These muscles are used as prime movers of the upper body in any pushing or extending movement. Examples are tackling, canoeing, shot put, pole vaulting, tennis, archery, batting, fencing, passing a football, golf swing, handball, most swimming strokes and racquetball.



Bent-over Incline Press



Standing Low Row

8-19. Decline Press and Low Row

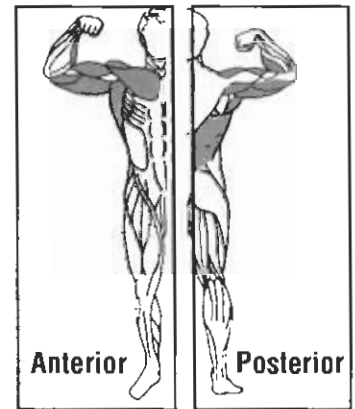
Major muscles used: deltoid, lower pectoralis, triceps and latissimus dorsi, teres major

Execution:

1. **Decline Press:** Bend at the waist at a 45° angle with slightly bent knees and a flat back. Upper torso should be supported by the pole. Grasp handle with hand and press outward until arm is fully extended.
2. **Low Row:** Pull handle toward body with elbow at 45° position. Draw handle to side of chest to achieve full range of motion. Maintain a flat back position throughout the movement.
3. After completion of the desired number of repetitions, rotate resistance mechanism to opposite side of pole and repeat the exercise with the opposing arm.

Benefits:

Development of strength and endurance of the chest serves many purposes that apply to recreational and daily activities. Several of these recreational activities include passing a football, doing the crawl and back stroke, throwing, punching, fencing, and shooting a basketball.



Decline Press



Low Row

20-21. Upright Rowing and Tricep Pressdown

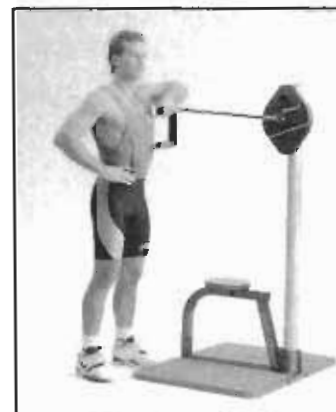
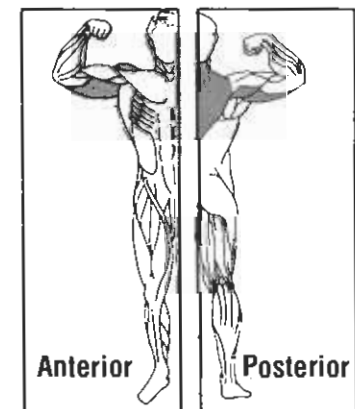
Major muscles used: trapezius, deltoid and tricep

Execution:

1. **Upright Rowing:** Stand with your feet shoulder-width apart facing the pole. Take an overhand grip on the handle with your right hand down in front of the body at arm length. Pull up to shoulder height.
2. **Tricep Pressdown:** Press the handle downward until the arm is fully extended. Maintain stable body position throughout the movement.
3. After completion of the desired number of repetitions, rotate resistance mechanism to opposite side of pole and repeat the exercise with the opposing arm.

Benefits:

Same as exercises 16-17.



Upright Rowing



Tricep Pressdown

22-23. Lateral Raise and Adduction

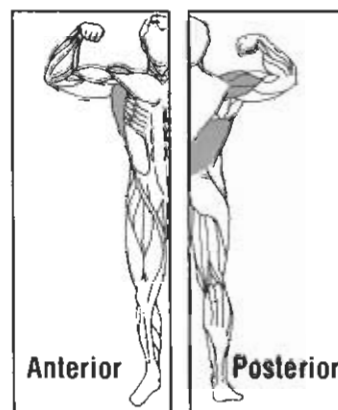
Major muscles used: deltoid and latissimus dorsi

Execution:

1. **Lateral Raise:** The elbow should be slightly bent as you grasp handle with right hand and raise directly out to the side to a position just above shoulder level. Keep the upper torso stationary during the movement.
2. **Adduction:** Pull handle downward and inward to side of body while maintaining slightly bent elbow position. Maintain a stable body position while performing this movement.
3. After completing the set, rotate lever to opposite side of body and repeat the exercise with the opposing arm.

Benefits:

Shoulder stability improves racquet sports, golf or any upper-body activity.



Lateral Raise



Adduction

24-25. Chest Fly and Pronated Raise

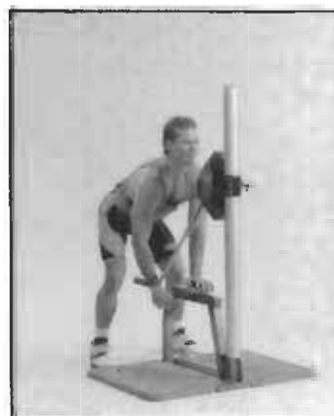
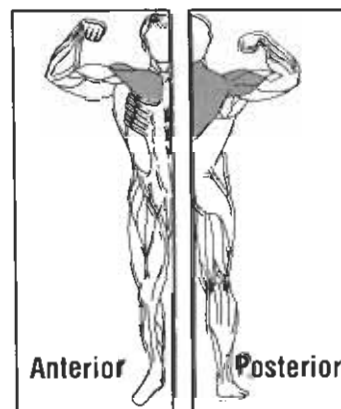
Major muscles used: pectoralis, anterior deltoid and posterior deltoid, rotator cuff muscles, rhomboid, trapezius

Execution:

1. **Chest Fly:** Bend at the waist with slightly bent knees and a flat back. Grasp handle with right hand and pull downward and inward to midline of body while stabilizing the torso.
2. **Pronated Raise:** Raise from the downward position laterally to a position just above shoulder height while maintaining the bent over position with a flat back. A slight flex in the elbow should be maintained throughout the movement.
3. After completion of the desired number of repetitions, repeat the exercise with the opposing arm.

Benefits:

Improves chest expansion and respiration. Improves shoulder stability, which is good for any upper-body activity.



Chest Fly



Pronated Raise

26-27. Internal Rotation and External Rotation

Major muscles used: subscapularis, teres major and supraspinatus, infraspinatus, teres minor

Execution:

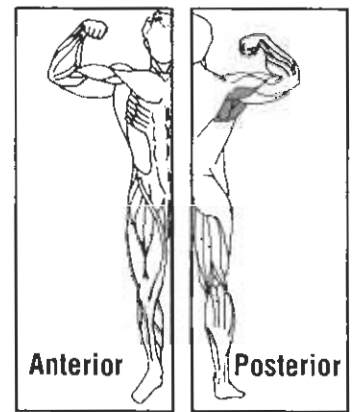
1. **Internal Rotation:** Grasp handle with hand aligning elbow with axis of resistance device and rotate upper arm downward and inward. Maintain stability of the upper arm throughout the movement and work through as full range of motion as possible. This exercise resembles an arm wrestling motion.

2. **External Rotation:** Beginning the exercise from the downward position, rotate the handle upward externally. Maintain stability of the upper arm throughout the movement and work through as full range of motion as possible.

3. After completion of the desired number of repetitions, turn your body and face the opposite direction and repeat the exercise with the opposing arm. Begin with a low resistance and high repetitions to develop form and technique.

Benefits:

Improves rotator cuff strength and stability for throwing, racket sports, etc.



Internal Rotation



External Rotation

28-29. Shoulder Circumduction

Major muscles used: supraspinatus, infraspinatus, subscapularis, teres major, teres minor

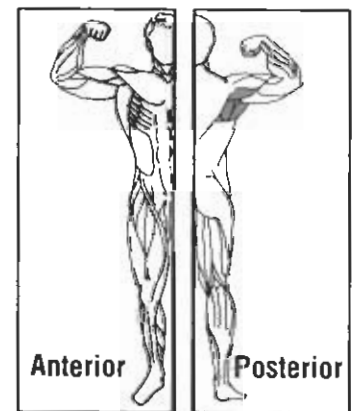
1. Remove lever handle from the machine. In a standing position with resistance mechanism to the side of your body in alignment with the shoulder joint, grasp bar and rotate arm upward or medially originating movement from the shoulder.

2. Rotate bar downward or laterally originating movement from the shoulder.

3. After completion of the desired number of repetitions, turn your body and face the opposite direction and repeat the exercise with the opposing arm.

Benefits:

Very effective for injury prevention or rehabilitation of the shoulder joint. Limited range of motion and loss of strength are common problems with the shoulder joint.



Shoulder Circumduction



Shoulder Circumduction

30-31. Shoulder Shrug and Shoulder Depression

Major muscles used: trapezius, rhomboid, levator scapulae and pectoralis minor

Execution:

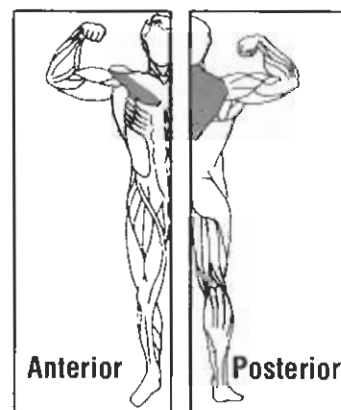
1. **Shoulder Shrug:** Take an overhand grip on the handle with the right hand down in front of the body at arm length lateral to the middle right of the body. Raise the handle upward using the shoulder and not bending the arm. Elevate the shoulder as high as possible while maintaining a stable body position.

2. **Shoulder Depression:** Press the handle downward from the shoulder without bending the arm. Do not lean or sway to complete the movement.

3. After completion of the desired number of repetitions, repeat the exercise with the opposing shoulder.

Benefits:

Reduces neck and muscle tension. Improves shoulder and upper-back stability.



Shoulder Shrug



Shoulder Depression

32-33. Chest Press and Seated Low Row

Major muscles used: pectoralis, tricep and latissimus dorsi, teres major

Execution:

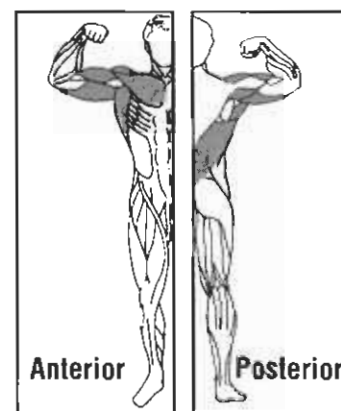
1. **Chest Press:** With the resistance mechanism high on the pole, align the handle with the shoulder joint. Press outward away from the torso with elbow a 45° angle until arm is fully extended. Use the opposite hand to stabilize the torso.

2. **Seated Low Row:** From the extended position pull the handle back toward the chest with elbow at a 45° position to the side of body.

3. After completion of the desired number of repetitions, rotate resistance mechanism to opposite side of pole and repeat the exercise with the opposing arm.

Benefits:

Improves any pushing activity. Improves respiration and posture.



Chest Press



Seated Low Row

4-35. Seated Bicep Curl and Seated Tricep Pulldown (variation #1)

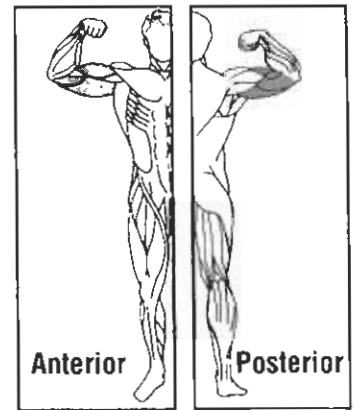
Major muscles used: biceps brachii and tricep

Execution:

- Seated Bicep Curl:** Grasp the handle with an underhand grip and pull upward flexing at the elbow joint. Stabilize the elbow at side of the body. Keep the elbow near the fulcrum when exercising.
- Seated Tricep Pulldown:** From the flexed position, pull the handle downward until arm is fully extended. Stabilize the elbow at side of body.
- After completion of the desired number of repetitions, turn and face the opposite direction and repeat the exercise with the opposing arm.

Benefits:

Improves shoulder and elbow stability. Improves racquet sports, throwing, rowing, etc. Improves pushing and pulling activity.



Seated Bicep Curl #1



Seated Tricep Pulldown #1

36-37. Seated Tricep Pressdown and Seated Reverse Bicep Curl (variation #2)

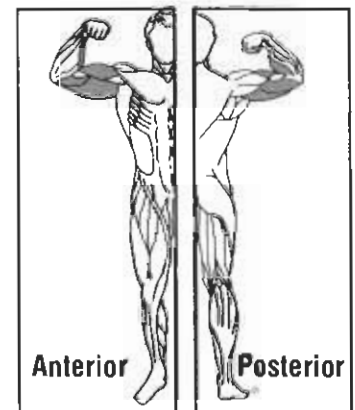
Major muscles used: tricep and brachialis, brachioradialis

Execution:

- Seated Tricep Pressdown:** To give the tricep the more advantageous pull, grasp the handle with an overhand grip and press downward extending at the elbow joint. Stabilize the elbow at side of body.
- Seated Reverse Bicep Curl:** From the fully extended position, pull the handle upward until arm is fully flexed. Stabilize the elbow at side of body.
- After completion of the desired number of repetitions, turn and face the opposite direction and repeat the exercise with the opposing arm.

Benefits:

Same as exercises 29-30



Seated Tricep Pressdown #2



Seated Reverse Bicep Curl #2

38-39. Standing Bicep Curl and Standing Tricep Pulldown (variation #3)

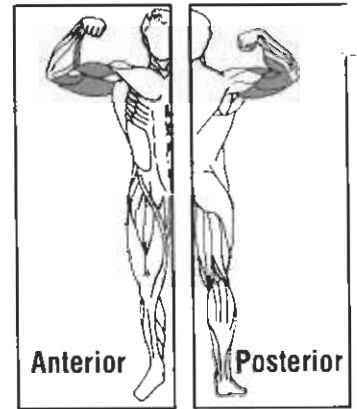
Major muscles used: biceps brachii and tricep

Execution:

1. **Standing Bicep Curl:** Grasp the handle with an underhand grip and elbow maintained closely at side of body. Pull upward until arm reaches full flexion.
2. **Standing Tricep Pulldown:** From the flexed arm position, pull the handle downward extending at the elbow joint. Maintain a stable upper arm with elbow close by side.
3. After completion of the desired number of repetitions, turn and face the opposite direction and repeat the exercise with the opposing arm.

Benefits:

Same as exercise 29-30.



Anterior

Posterior



Standing Bicep Curl #3



Standing Tricep Pulldown #3

40-41. Standing Tricep Pressdown and Standing Reverse Bicep Curl (variation #4)

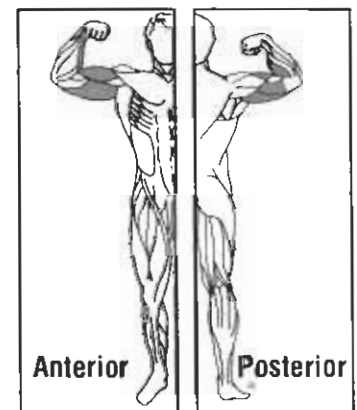
Major Muscles used: tricep and brachialis, brachioradialis

Execution:

1. **Standing Tricep Pushdown:** Grasp the handle with the overhand grip and elbow maintained closely at side of body. Press downward until the arm reaches full extension.
2. **Standing Reverse Bicep Curl:** From the extended arm position, curl the handle upward flexing at the elbow joint. Maintain a stable upper arm with elbow close by side.
3. After completion of the desired number of repetitions, turn and face the opposite direction and repeat the exercise with the opposing arm.

Benefits:

Same as exercise 38-39.

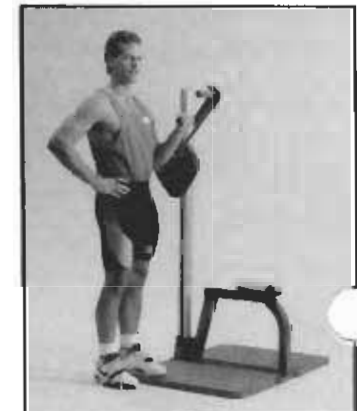


Anterior

Posterior



Standing Tricep Pressdown #3



Standing Reverse Bicep Curl #3

42-43. Seated French Press and Seated Overhead Reverse Curl

Major muscles used: tricep and brachialis, brachioradialis

Execution:

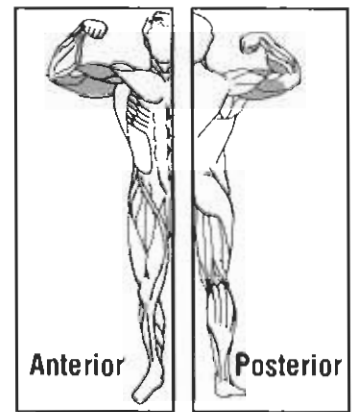
1. **Seated French Press:** Take an overhand grip on the handle; the palm will be facing up. Press handle upward and forward to a position overhead until the arm reaches full extension. Maintain a stable upper arm extending at the elbow joint. Do not allow the elbow to flare outward during the movement.

2. **Seated Overhead Reverse Curl:** From the extended arm position pull the handle downward and backward to a position behind the head. Stabilize the upper arm while flexing arm at the elbow joint.

3. After completion of the desired number of repetitions, turn the body and face the opposite direction and repeat the exercise with the opposing arm.

Benefits:

Works the triceps more intensely. Simulates throwing motion. Good for baseball, football, or other throwing activities.



Seated French Press



Seated Overhead Reverse Curl

44-45. Abdominal Crunch and Back Extension (variation #1)

Major muscles used: rectus abdominis and erector spinae

Execution:

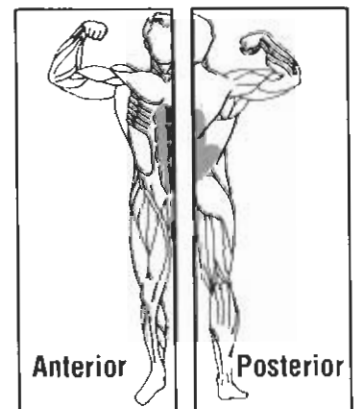
1. **Abdominal Crunch:** The lever arm axis should be aligned with your waist, at the point you bend forward. With an underhand grip, grasp the other handle to stabilize lever arm against upper chest. Shorten the distance between rib cage and waistline by contracting abdominals only. Do not pull on the handle to perform the exercise. Legs should remain relaxed.

2. **Back Extension:** From the forward flexed position extend the upper torso backward while stabilizing the lever arm against upper chest. Continue the movement to a slightly leaning back position, but not into hypertension.

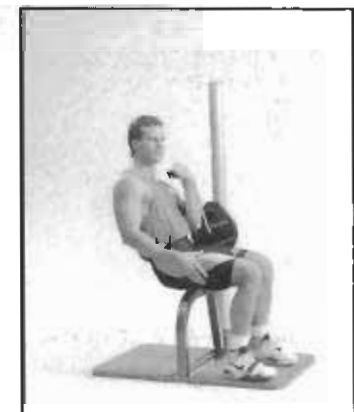
3. Maintain the pelvis tilted backward throughout the movement. It is advisable to perform this exercise facing the opposite direction with lever arm positioned against left upper chest on alternate workout sessions.

Benefits:

Improves lower back strength for pulling, pushing or lifting. Improves posture.



Abdominal Crunch #1



Back Extension #1

46-47. Back Extension and Abdominal Crunch (variation #2)

Major muscles used: erector spinae and rectus abdominis

Execution:

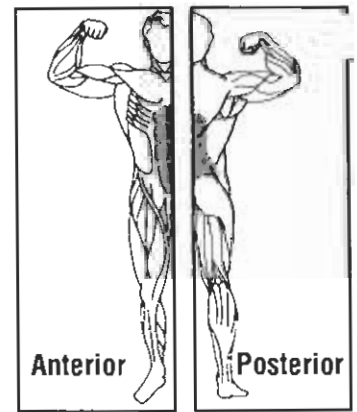
1. **Back Extension:** To focus on the back muscles, position the lever arm against the upper back. Extend the upper torso backward with the arm embraced around the lever arm to maintain the handle against back.

2. **Abdominal Crunch:** From the extended position, flex the upper torso forward and downward, shortening the distance between the rib cage and the waistline. Legs should remain relaxed.

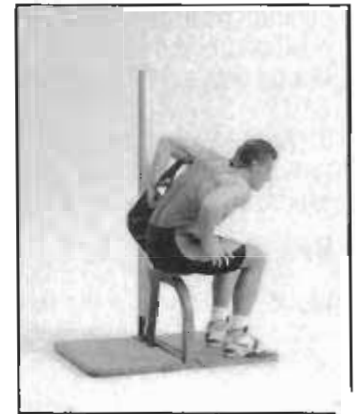
3. Maintain the pelvis tilted backward throughout the movement. It is advisable to perform this exercise facing the opposite direction with lever arm positioned against left upper back on alternate sets or workout sessions.

Benefits:

Improves lower-back posture, and lifting strength.



Back Extension #2



Abdominal Crunch #2

48. Side Bends

Major muscles used: abdominal oblique

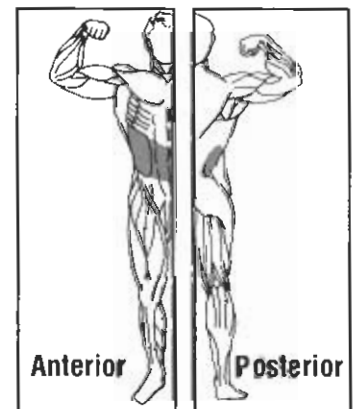
Execution:

1. **Side Bend:** Stand with an overhand grip on handle at side. Bend away from the pole at the waist maintaining a stable lower body.

2. Repeat exercise by pulling handle to bend to the opposite side. Laterally bend to a position of comfort. Upper torso should not lean forward or backward during the exercise.

Benefits:

Excellent for lower spine stability and reducing lower-back pain. Improves trunk stability for pushing, pulling and lifting.



Side Bends



Side Bends

49. Neck Flexion

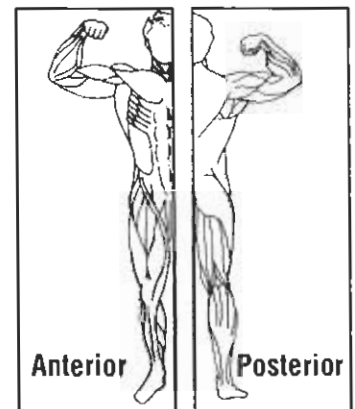
Major muscles used: semispinalis, splenius and sternocleidomastoid

Execution:

1. **Neck Flexion:** Place handle against forehead. Grasp handle with hand to stabilize against head. Flex head forward.
2. Begin with a low resistance and high repetitions to develop proper form, technique, avoid injury and muscle soreness.

Benefits:

Improves head and neck posture. Reduces muscle tension.
Excellent for football, wrestling and hockey.



Neck Flexion



Neck Flexion

50. Neck Extension

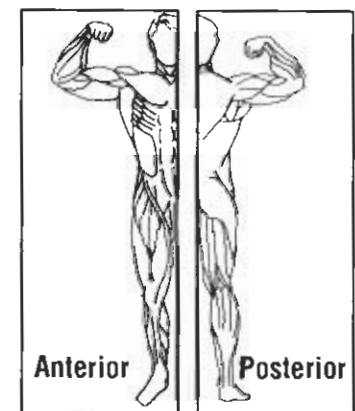
Major muscles used: semispinalis, splenius and sternocleidomastoid

Execution:

1. **Neck Extension:** With handle at the back of the head, stabilize it with hand. Extend head backward.
2. Begin with a low resistance and high repetitions to develop proper form, technique, avoid injury and muscle soreness.

Benefits:

Improves head and neck posture. Reduces muscle tension.
Excellent for football, wrestling and hockey.



Neck Extension



Neck Extension

51. Lateral Neck Flexion

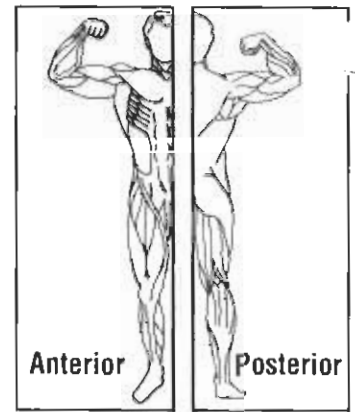
Major muscles used: sternocleidomastoid

Execution:

1. **Lateral Neck Flexion:** Grasp handle with left hand to stabilize against head. Flex head laterally.
2. Repeat the exercise by adjusting handle to right side of head, grasping handle with right hand.
3. Begin with a low resistance and high repetitions to develop proper technique, and to avoid injury and muscle soreness.

Benefits:

Reduces neck and upper-back pain. Improves side-to-side neck movement.



Lateral Neck Flexion



Lateral Neck Flexion

52. Calf Raises

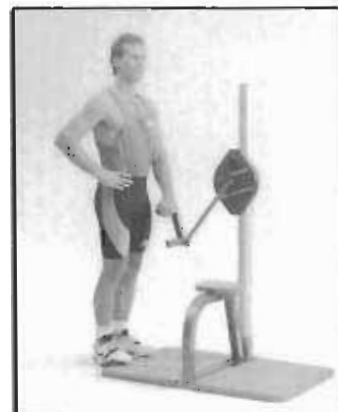
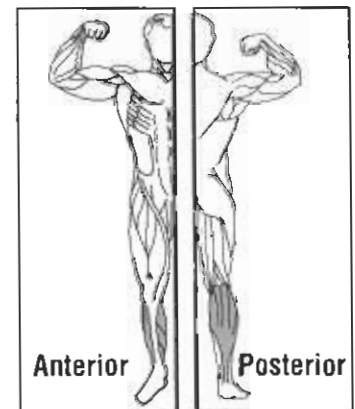
Major muscles used: soleus and gastrocnemius

Execution:

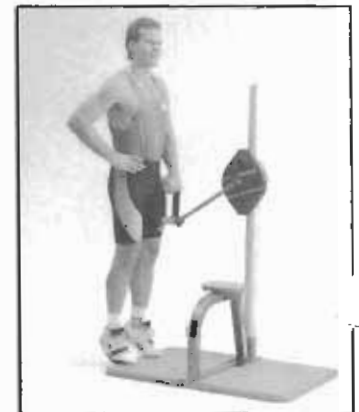
1. **Calf Raise:** Stand with front one-third of the foot on the platform. Grasp the handle with an overhand grip close in front of body. Raise the heels as high as possible. Initiate movement from the calves.
2. Lower the handle pressing heels downward to the original starting position and repeat the movement.
3. Utilize low resistance and high repetitions with this exercise. Be sure to move through a complete range of motion.

Benefits:

Improves jumping activities (basketball, tennis, football, etc.). Increases walking and running endurance. Prevents flat feet.



Calf Raises



Calf Raises

53-54. Wrist Curls and Reverse Wrist Curls (variation #1)

Major muscles used: forearm flexors and forearm extensors

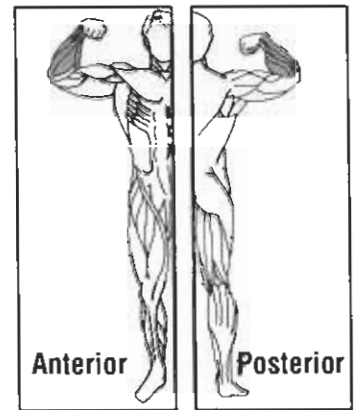
Execution:

1. **Wrist Curl:** Position the resistance mechanism on the right side of body at waist level. The lever arm is at the length of forearm. Grasp the handle with palm facing upward and forearm supported by the thigh. Flex the fingers and wrist upward throughout a full range of motion.

2. **Reverse Wrist Curl:** Extend the fingers and wrist, pressing the handle downward rolling it down the fingers as far as possible.

Benefits:

Excellent for gripping activities—racquet sports, golf, etc.



Wrist Curls #1



Reverse Wrist Curls #1

55-56. Wrist Curls and Reverse Wrist Curls (variation #2)

Major muscles used: forearm flexors and forearm extensors

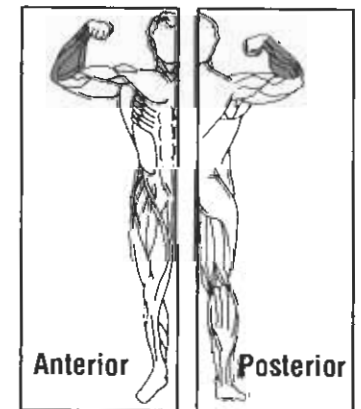
Execution:

1. **Wrist Curl:** Flex the wrist downward to the starting position while keeping forearms supported by the thighs.

2. **Reverse Wrist Curl:** Grasp the handle with palm facing downward and forearm supported by the thigh. Extend the wrist upward through a full range of motion.

Benefits:

Same as exercise 53-54.



Wrist Curls #2



Reverse Wrist Curls #2

Designing your NordicPower Training Program

NordicPower is the perfect way to isolate areas that you feel need particular attention. This chart shows how you can isolate certain body areas by doing specific exercises on your NordicPower.

Area To Be Exercised	Appropriate Exercises		
Hips	<i>Hip Flexion Squat</i>	<i>Hip Extension</i>	<i>Hip Abduction</i>
Thighs	<i>Leg Extension Squat</i>	<i>Leg Curl</i>	<i>Hip Adduction</i>
Back	<i>Lat. Pulldown Back Extension Pulldown</i>	<i>Bent-over Raise Seated Low Row Upright Rowing</i>	<i>Adduction</i>
Shoulders	<i>Overhead Press Lateral Raise Bent-over Raise</i>	<i>Upright Rowing Front Raise Shrugs</i>	<i>Internal Rotation External Rotation Shoulder Circumduction</i>
Chest	<i>Chest Fly Chest Press</i>	<i>Depression Decline Press</i>	<i>Bent-over Incline Press</i>
Upper Arms	<i>Seated French Press Seated Tricep Pulldown Seated Tricep Pressdown</i>	<i>Seated Bicep Curl Seated Overhead Reverse Curl Standing Bicep Curl</i>	<i>Standing Reverse Bicep Curl Standing Tricep Pressdown Standing Tricep Pulldown</i>
Forearms	<i>Wrist Curls</i>	<i>Reverse Wrist Curls</i>	<i>Standing Reverse Bicep Curl</i>
Abdominal	<i>Abdominal Crunch</i>	<i>Side Bends</i>	
Neck	<i>Flexion</i>	<i>Extension</i>	<i>Lateral Flexion</i>
Calves	<i>Standing Calf Raises</i>		

NordicPower General Conditioning Routine*

Exercise	Corresponding Number In Manual	Number Of Sets x Reps
Hip Flexion/ Hip Extension	2-3	2 x 8-10
Seated Leg Extension/ Seated Leg Curl	10-11	2 x 8-10
Hip Abduction/ Hip Adduction	6-7	2 x 8-10
Lat. Pulldown/ Overhead Press	12-13	2 x 8-10
Chest Fly/ Pronated Raise	24-25	2 x 8-10
Seated Bicep Curl/ Tricep Pulldown	34-35	2 x 8-10
Abdominal Crunch/ Back Extension	44-45	2 x 8-10

II. NordicPower Bodybuilding Routine*

Exercise	Corresponding Number In Manual	Number Of Sets x Reps
Squat	1	3-5 x 10-15
Hip Flexion/ Hip Extension	2-3	3-5 x 10-15
Standing Leg Extension/ Standing Leg Curl	8-9	3-5 x 10-15
Hip Abduction/ Hip Adduction	6-7	3-5 x 10-12
Lat. Pulldown/ Overhead Press	12-12	3-5 x 8
Chest Press/ Low Row	32-33	3-5 x 8
Chest Fly/ Pronated Raise	24-25	3-5 x 8
Shoulder Shrug/ Shoulder Depression	30-31	3-5 x 10-12
Standing Bicep Curl/ Standing Tricep Pulldown	38-39	3-5 x 10-12
Seated French Press/ Overhead Reverse Curl	42-43	3-5 x 10-12
Abdominal Crunch/ Back Extension	44-45	3-5 x 10-12
Calf Raises	47	3 x 15-20

*Perform three times a week every other day.

Sports Conditioning Routines

Football

The major objectives of off-season strength training programs are the development of maximum strength and aerobic power. Strength conditioning during the off-season will focus on high-resistance, low repetition work. A circuit training program is frequently designed for off-season conditioning. An entire program can be completed in approximately one hour with your NordicPower.

The advantages of using such a circuit are efficient use of time, total body development in terms of increased strength, and cardiovascular as well as muscular endurance. This type of program can be completed in approximately sixty minutes, three times per week (M-W-F).

Circuit: Perform each exercise for 30 seconds, rotate through training circuit twice.

Muscle groups used in football:

Gluteus Muscles	Latissimus Dorsi	Biceps
Quadriceps	Deltoids	Low Back
Hamstrings	Trapezius	Abdominals
Abductor Muscles	Pectoralis Major	Gastrocnemius
Adductor Muscles	Triceps	Forearm Flexors & Extensors

Exercise	Number Of Sets (Circuits)
Chest Press/ Low Row	2
Lat. Pulldown/ Overhead Press	2
Abdominal Crunch/ Back Extension	2
Upright Rowing/ Tricep Pushdowns	2
Standing Leg Extensions/ Leg Curls	2
Calf Raises	2
Chest Fly/ Bent Over Raise	2
Squat	2
Neck Flexion/ Neck Extension	2
Lateral Neck Flexion	2

Tennis

Tennis is a unique game in that almost every shot differs from the previous one. It is commonly referred to as a game of continual emergencies with each stroke accommodating to the ball. Even the shortest tennis match will likely involve at least an hour of continuous movement. Tennis requires aerobic power. Properly played, tennis can be a very vigorous game requiring a high level of physical conditioning.

For tennis, the strength program must be designed to train the muscles to produce maximum acceleration throughout the full range of motion as would occur with a swing of the racquet. Developing the muscles' ability to rapidly accelerate is an important component of the tennis training program. Tennis is a game of quick actions, agility and power. Local muscle endurance is an essential part of tennis, as the player may take hundreds of strokes in a single match.

Muscle groups used in tennis:

Quadriceps	Serratus Anterior
Hamstrings	Latissimus Dorsi
Gluteus Maximus	Rectus Abdominis
Gastrocnemius	External Oblique
Soleus	Triceps Brachii
Deltoids	Biceps
Pectoralis Major	

Exercise	Number Of Sets	Repetitions
Leg Curl/ Leg Extension	2	10-15
Hip Abduction/ Hip Adduction	2	10-15
Calf Raises	2	10-15
Lat. Pulldown/ Overhead Press	2	10-15
External Rotation/ Internal Rotation	2	10-15
Chest Press/ Low Row	2	10-15
Standing Bicep Curl/ Tricep Pulldown	2	10-15
Shoulder Circumduction	2	10-15
Wrist Curl/ Reverse Wrist Curl	2	10-15

Swimming

Major performance factors in sprint swimming are speed, acceleration and arm power. Strength requirements are greater in swimming than in running because of the need to move limbs rapidly and forcefully through the resistance of the water.

Long distance swimming requires less muscular strength, so the primary objective is to increase local muscular endurance. Resistance of the water, even at slower swimming speeds, does require development of muscular strength.

Muscle groups used in swimming:

Gluteus	Deltoids
Quadriceps	Rotator Cuff Muscles
Hamstrings	Trapezius
Gastrocnemius	Triceps
Soleus	Biceps
Latissimus Dorsi	Abdominals
Pectoralis Major	

Golf

The golf swing is strictly an anaerobic action ("all out" for brief periods of time). The primary conditioning involves the grip, arms, shoulders, and back. Since the game is played for a period over several hours, and includes walking over a period of several hours, aerobic capacity is also involved in playing the game of golf.

Strength training is aimed at upper body, particularly the shoulders, arms, forearms and grip strength. The emphasis is on lighter resistance and many repetitions. Training of that nature develops muscular endurance as well as strength. A two day-a-week in-season program will help a golfer maintain muscular strength with a minimum expenditure of time.

Muscle groups used in golf:

Quadriceps	Pectoralis Major
Hamstrings	Tricep
Gastrocnemius	Bicep
Soleus	Forearm Flexors
Latissimus Dorsi	Wrist Flexors
Trapezius	Abdominals
Deltoids	

Exercise	Number Of Sets	Repetitions
Hip Flexion/ Hip Extension	2	10-15
Leg Curl/ Leg Extension	2	10-15
Calif Raises	2	10-15
Lat. Pulldown/ Overhead Press	2	10-15
Pullover/ Front Raise	2	10-15
Upright Row/ Tricep Press	2	10-15
Internal Rotation/ External Rotation	2	10-15
Lateral Raise/ Adduction	2	10-15
Chest Press/ Low Row	2	10-15
Incline Press/ Bent Row	2	10-15
Bicep Curl/ Tricep Pulldown	2	10-15
Abdominal Crunch/ Back Extension	2	10-15

Exercise	Number Of Sets	Repetitions
Chest Press/ Low Row	2	10-15
Lat. Pulldown/ Overhead Press	2	10-15
Lateral Raise/ Adduction	2	10-15
Internal Rotation/ External Rotation	2	10-15
French Press/ Reverse Curl	2	10-15
Leg Extension/ Leg Curl	2	10-15
Hip Flexion/ Hip Extension	2	10-15
Bicep Curl/ Tricep Pulldown	2	10-15
Wrist Curl/ Reverse Curl	2	10-15
Abdominal Crunch/ Back Extension	2	10-15

Cross Country Skiing

Cross country skiing involves upper- and lower-body muscles and, therefore, gives the greatest aerobic benefit. Nordic skiing is considered to be one of the most physically demanding of all sports. Ski racing is an intense power endurance sport requiring superior cardiovascular fitness with muscular strength.

With the recent addition of the highly technical and demanding ski skating technique, greater emphasis must now be placed on strength development. Skating requires the use of muscles and joints not used in traditional diagonal stride technique. Because Nordic skiing is a total body sport, a broad range of muscle groups need to be targeted for strengthening.

Muscle groups used in cross country skiing:

Gluteus Maximus	Deltoids
Quadriceps	Pectoralis Major
Hamstrings	Triceps
Gastrocnemius	Biceps
Soleus	Rectus Abdominis
Latissimus Dorsi	

Exercise	Number Of Sets	Repetitions
Squat	2	10-15
Hip Flexion/ Hip Extension	2	10-15
Leg Extension/ Leg Curl	2	10-15
Calf Raises	2	10-15
Lat. Pulldown/ Overhead Press	2	10-15
Lateral Raise/ Adduction	2	10-15
Pullover/ Front Raise	2	10-15
Chest Press/ Low Row	2	10-15
Incline Press/ Bent Row	2	10-15
Upright Row/ Tricep Pushdown	2	10-15
Bicep Curl/ Tricep Pulldown	2	10-15
Abdominal Crunch/ Back Extension	2	10-15

Baseball/Softball

Baseball and softball are very anaerobic games. With the exception of the pitcher and catcher, players engage in brief bouts of effort requiring primarily acceleration, power, and speed. On defense, the actions of the pitcher and catcher are more frequent but still anaerobic.

Arm strength is very important, so strength training should be directed to that area. Baseball and softball players can benefit a great deal from strength training. Strength must be maintained during the season to be effective. Only one set of ten repetitions is sufficient.

Muscle groups used in baseball and softball:

Hip Flexors	Deltoids	Adductors
Gluteus Maximus	Rotator Cuff Muscles	Gastrocnemius
Erector Spinae	Triceps	Latissimus Dorsi
Quadriceps	Biceps	Abdominals
	Forearm Flexors	Obliques

Exercise	Number Of Sets	Repetitions
Hip Flexion/ Hip Extension	2	8-12
Leg Curl/ Leg Extension	2	8-12
Hip Adduction/ Hip Abduction	2	8-12
Calf Raises	2	8-12
Lat. Pulldown/ Overhead Press	2	8-12
Lateral Raise/ Adduction	2	8-12
Internal Rotation/ External Rotation	2	8-12
Pullover/ Front Raise	2	8-12
Chest Press/ Low Row	2	8-12
Chest Fly/ Pronated Raise	2	8-12
Tricep Pushdown/ Reverse Curl	2	8-12
Wrist Curls/ Reverse Curl.	2	8-12
Abdominal Crunches/ Back Extension	2	8-12

Glossary of Terms

Abduction

To move away from the midline of the body.

Absolute Strength

Maximal strength output.

Adduction

To draw toward the midline of the body.

Aerobic Exercise

Refers to a variety of exercises that stimulate heart and lung activity for a period sufficiently long enough to produce beneficial changes in the body. They have one thing in common: by making you work out hard, they demand plenty of oxygen.

Anaerobic Exercise

Short-term, high-intensity exercise that burns more oxygen than can be replaced. Strength training is anaerobic.

Atrophy

Wasting away of tissue or an organ caused by disuse.

Ballistic

A forceful stretch that utilizes repeated bouncing movements. This method has an increased potential for muscle or tendon injury and is not recommended for general use.

Body Composition

Physical fitness component which refers to the relative amounts of fat and lean body tissue or fat-free mass (muscle, bone, water) that comprise the body.

Cardiovascular Endurance

The ability to continue or persist in strenuous tasks involving large muscle groups for extended periods of time.

Circuit Training

Involves consecutive exercises using different muscle groups, thus rest time can be drastically reduced. It is a simple, efficient method of training with the circuit completed one to three times.

Concentric Contraction

A contraction of a muscle resulting in shortening of that

muscle, and most often producing joint/limb movement.

Delayed Muscle Soreness

A soreness that may persist for 3 to 4 days after exercise. The degree of discomfort depends to a large extent on the type of exercise performed. Post exercise muscle soreness is greater after repeated eccentric contractions.

Extension

The straightening of a joint, creating a larger angle between involved bones.

Flexion

Refers to a bending movement within a joint. The angle of the bones involved lessens during flexion.

Gluteus Maximus

Any of the three muscles of the buttocks.

Hyperextension

Forcing of a joint beyond its normal full extension.

Hyperplasia

Increase in cell number.

Hypertrophy

Increase in cell / tissue size.

Isokinetic Resistance

Exercise at a controlled rate of muscular contraction.

Isotonic Resistance

A dynamic event in which the muscle generates the same amount of force throughout the entire movement.

Lateral

Directed towards or coming from the side.

Metabolism

Reflects the body's heat production and is determined indirectly by measuring oxygen consumption.

Metabolic Rate

The energy expended by the body per unit of time (energy is measured in calories).

Momentary Muscular Failure

During resistance exercise the point at which you are unable to perform another repetition of a given exercise.

Muscle Fiber (cell)

Structural unit of a muscle.

One Repetition Maximum (1RM)

The resistance at (mass of the free weight) which the subject could perform only one lift and not be able to repeat it.

Osteoporosis

Loss of bone mineral ("porous bones"). As mineral is lost from the bone, the bone weakens and becomes more susceptible to fractures.

Overload

Continuously subjecting the muscle to workloads greater than those to which he or she is normally accustomed.

Progressive Resistance Exercise (P.R.E.)

A practical application of the overload principle and forms the basis of most resistance training programs.

Relative Strength

Maximal strength output as compared to body weight.

Repetition

One complete range of motion of a specific movement.

Rotation

Is the pivoting or moving of a bone upon it's own axis.

Set

A collection of non-stop repetitions. (Usually between 1-20 repetitions.)

Static

Refers to a slow stretch to a hold position, where resistance or tension is felt. Risk of a muscle pull is reduced by the use of slow stretching.

Variable Resistance

Increased load on the muscle while contracting through the range of motion.

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