ADVANCED Training Manual

NordicFitnessChair™

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Introduction

The '90s are bringing fundamental changes in the way we think about fitness. For many, the '80s exercise prescription, which included only aerobic exercise, will no longer do.

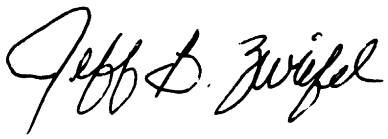
I'd like to congratulate you on recognizing the importance of including strength training in your fitness program. By deciding to develop your upper-body strength, muscle tone and coordination with the Nordic Fitness Chair, and combining its use with regular aerobic exercise, you're well on your way to achieving Balanced Fitness. And that means you'll look, feel and be your absolute best.

In anticipation of your questions and needs, I worked with NordicTrack to develop the *Nordic Fitness Chair Advanced Training Manual.* This manual answers your questions about strength training, and provides you with enough information to develop a personalized strength training program.

If you have any questions, feel free to call NordicTrack's Customer Service Department at 1-800-654-2271.

Most importantly, remember to combine regular aerobic exercise with strength training. That's the key to Balanced Fitness — a healthy heart and strong, toned, flexible muscles.

Good Luck,



Jeff Zwiefel, M.S.
Exercise Physiologist
The National Exercise For Life Institute

Why you should be interested in strength training.

Balanced fitness — the standard for the '90s.

Most of you are familiar with "aerobic" exercises — those which demand plenty of oxygen and thereby strengthen your heart and lungs. Aerobic exercise leads to cardiorespiratory endurance, or the ability to continue strenuous tasks involving large muscle groups for extended periods of time. Fitness experts agree that cardiorespiratory endurance is the most important health-related physical fitness component.

Since the aerobic movement of the 1970s, many of you have developed fitness programs that consist solely of aerobic exercise. But now, as we enter the '90s, experts are recommending a more comprehensive approach to fitness — one that combines aerobic exercise plus strength training for cardiorespiratory and musculoskeletal conditioning. This type of "Balanced Fitness" program does at *least* four things:

- improves your cardiovascular endurance,
- builds your muscular strength,
- increases your joint flexibility, and
- reduces your risk of injury.

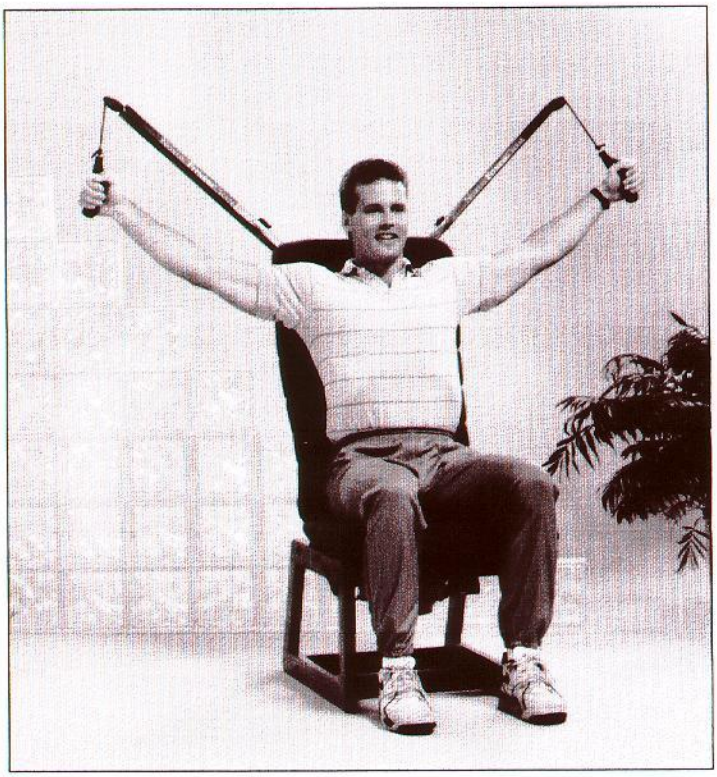
While aerobic exercises improve your cardiorespiratory endurance, most do little for improving your strength and flexibility. That's because they generally use mid-range muscle contractions, and they usually don't stress your muscles beyond their normal capacity. Strength training with the Nordic Fitness Chair, on the other hand, uses a full range of motion to improve your flexibility. It also lets you work your muscles to their maximum ability, with steadily increasing levels of resistance, to improve your strength.

In short, while aerobic exercise is the key to keeping your heart and lungs healthy, strength training is vital for keeping your muscles strong, toned and flexible. The combination of the two gives you the Balanced Fitness you need to enjoy life to its fullest.

The benefits of strength training.

The most common benefit of strength training is an improved quality of life. It helps you look better and feel better. It tightens, tones and shapes your body, gives you the strength to enjoy an active lifestyle, improves your self-esteem, and helps you avoid back pain, injury and osteoporosis.

Medical researchers think of your life in three stages. In the first stage, from birth to age 30, your strength and muscle mass increase steadily as you grow. During the middle years, from age 30 to 60,



you have the most control over the retention of your strength. If you are sedentary, medical research shows your strength will deteriorate at a predictable rate of one-half percent per year. On the other hand, with regular strength training, medical experts now state that you can preserve the strength you have at age 30, or any age that you begin your training, and carry it with you through the rest of your life. These revolutionary findings provide the basis for new medical thinking about strength training and Balanced Fitness. You can do something about your strength, appearance and muscle mass at any age. It's up to you.

Physiological adaptations of strength training include:

- increased number of capillaries for improved circulation
- increased bone mineral content for reduced risk of osteoporosis
- increased ligament, tendon and muscle strength for decreased risk of injury and improved performance
- improved utilization of oxygen for a stronger and more efficient cardiorespiratory system
- increased metabolism to achieve an ideal body composition

Identifying your goals.

Many people, with a wide range of goals, use strength training as part of their conditioning program. While Olympic weight lifting, power lifting and body building are activities normally associated with strength training, the goal and the programs designed to achieve them are significantly different than those of recreational strength training programs. The typical goals of recreational strength training programs include:

- strength development or maintenance,
- muscle hypertrophy (increased lean tissue),
- changes in body composition,
- improved muscular endurance, and
- power development.

Very few people who strength train ever develop "body-builder" physiques. Genetic factors such as body proportion, skeletal formation, muscle length, neurological efficiency and body fat all influence how large or strong your muscles will become. However, regardless of your genetic makeup, you can improve your strength, performance and appearance (without "bulking up") with a Nordic Fitness Chair training program.

Your level of fitness, motivation, goals, age, and needs will all have a significant impact on your rate of improvement through your strength training program. For instance, highly-trained individuals improve at a slower rate than untrained individuals. Also, while this manual covers specific strength and conditioning "how-to's," motivation cannot be overlooked. If you're highly motivated you'll train more intensely and regularly, and notice faster improvement, than if you are not.

Facts and fallacies.

In the past, the only strength training equipment available were dumbbells, barbells, and cable and pulley weight devices. During this time, it was said that you would become "muscle bound," inflexible," and "stiff" from strength training, and when you stopped training your muscle would "all turn to fat." It was also believed that women who performed strength training would instantly develop large, masculine muscles. Today, these old myths have been dispelled by research and by a growing familiarity with strength training methods.

As mentioned earlier, strength training with the Nordic Fitness Chair will not make you inflexible and "muscle bound." On the contrary, when the exercises are done properly, using the full range of motion, the Nordic Fitness Chair will help you become more supple and strong.

You also don't have to worry about your muscle turning to fat. Muscle and fat are two completely different tissues, and one cannot become the other. If you stop strength training, your muscles will only atrophy, or decrease in size.

Women often worry about "bulking up" when they strength train. However it is an unnecessary concern. While women gain strength just as quickly as men, men's muscles increase much more in size. The reason seems to be related to the sex hormone testosterone, which plays a major role in muscle growth or hypertrophy. People of both sexes have discovered the many positive benefits of strength training.

One other common myth is that strength training will allow you to "spot reduce." The truth is, body fat reduction is best accomplished through a combination of dieting, aerobic exercise and strength training. By reducing your calorie intake and getting aerobic exercise fat will be drawn from all areas of your body, and burned for energy. Resistance work will increase your lean muscle tissue, help your body become more efficient at burning calories, and help you tone and tighten your muscles.

Planning your strength training program.

In order to design your own strength training program, there are a number of principles and concepts you should be familiar with. This section defines the isokinetic training mode (that is used by your Nordic Fitness Chair) and explains its many superior qualities. It also introduces you to important program variables and gives you some helpful tips on progression, warm-up and cool-down.

Isokinetic vs. other strength training modes.

Strength training modes generally fall into three categories — isometric, isotonic, and isokinetic.

Isometrics.

Isometrics is the oldest and simplest exercise principle. It involves either pulling or pushing an immovable object such as a wall or a weight machine loaded beyond maximal strength. Static isometric exercises are of limited value in a general fitness program. While most daily tasks and sports are dynamic in nature, or involve movement, isometric exercises strengthen your muscles only at a static point. For example, if you perform an isometric contraction by pushing against a wall with bent elbows, your muscles will be stronger in that precise bent-elbow position but not when your arm is more flexed or extended. Strength throughout the range of motion, which is needed for most athletic, recreational and daily activities, is not developed with isometrics.

Isotonics.

Isotonics can be broken down into two categories — constant resistance and variable resistance.

Constant Resistance

Unlike isometric exercise, isotonic exercise is dynamic. It involves physically lifting or pulling an object to a predetermined position, and then returning the object to its original position. With most forms of isotonics, the resistance you work against is constant, or fixed, such as with free weight lifting (e.g., using dumbbells or barbells), or strength training with most resistance machines.

Your strength varies throughout the range of motion. However, most isotonic methods of strength training use constant resistance (for example, a 10 lb. dumbbell or a 10 lb. setting on the weight machine). Because these methods don't adjust for your varying strength, movement is often erratic and unstable, and results in sore, tired, aching muscles — or even torn or weakened ligaments.

Variable Resistance

Many equipment manufacturers have produced variable resistance devices — machines that attempt to match the increases and decreases in strength (strength curve) throughout the range of motion. However, it is impossible to construct one mechanical device that will match the strength curve of all individuals for each exercise. Because they don't adjust for individuals' varying strength, variable resistance devices are not as effective as isokinetic resistance devices.

Isokinetics.

By using the isokinetic principle, or "accommodating resistance", the Nordic Fitness Chair alleviates many of the shortcomings of the constant and variable resistance training modes. With the Nordic Fitness Chair, the resistance you work against is not fixed, it is determined by the speed you put into the movement. This "accommodating resistance" allows you to work against maximum resistance throughout the range of motion, developing strength and coordination for athletic, recreational, and daily activities. It also adjusts appropriately for different individuals' strength.

Program variables.

All exercise does not develop strength and endurance in a muscle. For this to happen, a muscle must be overloaded, or exercised beyond its normal capacity. On the other hand, if the imposed stress is too great, the muscle responds negatively and tissue damage occurs. A muscle responds positively and gains strength if the intensity of the training is appropriately and gradually increased.

To develop a personalized program that will help you meet your individual goals, you should familiarize yourself with the following program variables:

- choice of exercises,
- order of exercises,
- resistance (the load used) for the exercises,
- length of rest periods between sets and exercises, and
- number of sets used for the exercises.

1. Choice of exercises:

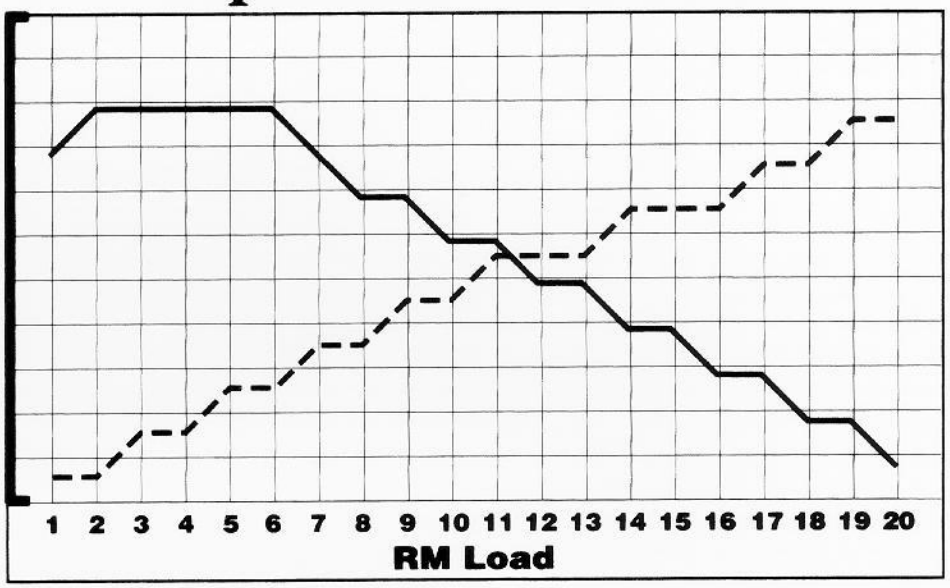
The exercises we've selected for this manual are those that we feel most efficiently and effectively work the major muscle groups of your upper-body. You'll recognize the "Basic 6" workout, which includes one exercise each for your back, shoulders, chest, triceps, biceps, and abdominals. Also included are alternative, more advanced exercises

for working each of these upper-body muscle groups. For basic fitness, you should exercise all of these groups, in order to keep your body balanced in strength and appearance.

As you become more familiar with your Nordic Fitness Chair, you will probably want to vary the "Basic 6" routine. This is where the advanced exercises come in. For instance, instead of doing the Lateral Raise, the "Basic 6" exercise for your shoulders, you may want to try one of the more advanced shoulder exercises such as the Shoulder Press or the Front Raise. Each of these exercises will change the angle of your pull, slightly varying the way your muscle is worked, and causing it to respond a little differently. This will allow for more "complete" development of each muscle group and overall improved function and coordination.

2. Order of exercises:
The order of exercises usually follows progression from larger to smaller muscle groups. Because the large muscle groups are fundamental to overall strength development, it is important that you train them while you are fresh and capable of handling heavier resistances. Also, inappropriate exercise order could result in the inability to complete the prescribed exercise sessions. Here's why:
If you were doing the "Basic 6" exercises, the appropriate order would be: Pulldown (back), Lateral Raise (shoulders), Fly (chest), Tricep Pushdown (triceps), Bicep Curl (biceps), and Abdominal Crunch (abdominals). But say you did not follow this order, and you did the Bicep Curl before the Pulldown. The Bicep Curl would fatigue your bicep muscles. Then you would move on to the Pulldown, which uses mainly the large muscle of your back, but also calls on your smaller biceps. Because your biceps would already be fatigued, you might have difficulty finishing the recommended number of Pulldowns. Many exercises for large muscle groups also bring smaller muscle groups into play. This is why varying the recommended order may hamper you from getting your best possible workout.

Repetition Continuum



The above repetition continuum chart shows the relationship between RM load and increases in strength and endurance. You'll notice that few repetitions per set increase mainly strength/power; many repetitions per set increase endurance.

3. Resistance (load used in each exercise):
As we mentioned earlier, the Nordic Fitness Chair uses the isokinetic form of resistance, which means the resistance you work against is determined by the speed you put into the movement.

Your strength varies throughout the range of motion of every exercise. Unlike other forms of resistance, which are fixed, isokinetics adjusts for this varying strength and provides resistance equivalent to that which you exert throughout the entire range of motion of every repetition. This allows you to continually impose maximum strength upon the muscle group you're working, and therefore get the most effective strength training workout.

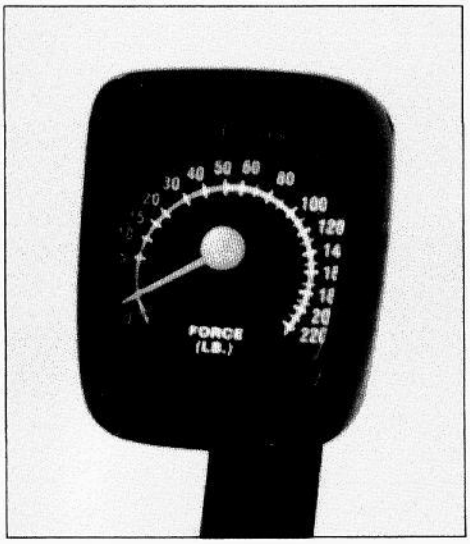
When strength training, achieving *momentary muscular exhaustion or fatigue* with the completion of a given number of repetitions is the goal. This means that as you complete the last repetition, you should reach the point of *momentary failure* — the point at which your muscle can no longer move the resistance with proper form or technique. It is vital that you use good form, completing all repetitions in a smooth, controlled fashion up to this point. Maintaining correct form, and avoiding throwing or jerking movements, is more important than trying to do too many repetitions.

A one repetition maximum (1 RM) refers to the maximal amount of resistance you can lift once, but not a second time. Therefore, a 10 RM refers to the amount of resistance you can lift 10 times before achieving momentary muscular fatigue. (On the Nordic Fitness Chair, working at 10 RM would mean using the force that allows you to complete 10 repetitions before achieving muscular fatigue.) A complete set should take approxi-

mately 60 to 90 seconds of continuous contractions. This amount of time usually relates closely to the completion of 8-12 repetitions.

Research indicates that most people can complete 8 repetitions with 80 percent of their maximum resistance and 12 repetitions with 70 percent of their maximum resistance. Seventy to eighty percent of maximum resistance provides an ideal training stimulus, and consistently using more than 80 percent of maximum resistance increases the risk of injury. Continually training with extremely heavy loads produces smaller gains in strength/power than more moderate loads at 4-6 RM. (See diagram of repetition continuum on page 8.)

Just as with aerobic conditioning, it is not recommended that you determine your one repetition maximum (1 RM) by attempting to perform one maximal contraction. Depending on your goals, it is advisable that you use no less than 8 repetitions and no more than 12 for your workout.



Pictured above is the Workout Intensity Meter accessory, which is available for use with the Nordic Fitness Chair. This meter displays, in pounds, the force you are working against with each repetition, and allows you to more accurately monitor your progress.

4. Number of sets used for each exercise:
The number of sets you perform is one important variable that will influence your training results. If you're a beginner, or if you're doing a circuit training program (see advanced training routines), you should do one or two sets. As you become more advanced, you may increase the number of sets for optimal gains in strength. Compared to single set programs, multiple set programs are better at improving the rate at which you gain strength, if you are training at the recommended intensity. However, scientific research shows that brief, high-intensity training is the most efficient for increasing strength and lean muscle tissue. In highly intense and all-out training to momentary muscular failure, it is important to remember that you will not benefit from, nor be able to productively perform, more than a limited number of sets.

5. Length of rest period between sets and exercises:
Many people don't consider the length of the rest period they take between sets and exercises, however, it is important. Part of the reason your muscle fatigues is that a strength training exercise depletes it of its primary energy source — phosphagen. Phosphagen provides a large amount of energy for a short period of time, enabling your muscle to contract against heavy resistance. During a rest period, your body replenishes its store of phosphagen. The length of your rest period will determine how much of this energy source will be available for the next set of exercises.

If you train at a high intensity (85 to 90% of 1 RM), you'll need a rest period of two to three minutes. If you want to perform several sets of an exercise with heavy loads, this much time must be allowed for restoration of phosphagen. The emphasis of this type of program is building strength and power.

In most cases, we suggest training with moderately heavy loads (70 to 80% of 1 RM) with rest periods of less than one minute. This program will help you increase your endurance, or the ability to perform high-intensity exercise for several minutes, as well as strength.

Finally, with lighter loads (40 to 60% of 1 RM), rest periods shorter than 30 seconds are recommended. This type of program (circuit training) results in a relatively high sustained heart rate and is recommended if your goal is improved cardiorespiratory fitness.

Program tips.

By taking into consideration the following tips on progression and warm-up/cool-down, you can maximize your strength training progress and avoid injury.

Progression
Many people make the mistake of starting a resistance training program at an intensity or volume that is too great for their physical condition. Doing this, or increasing the training stress too quickly, can result in muscle soreness and fatigue, and is one of the most common reasons people discontinue their training.

To help prevent the severe physical fatigue and delayed muscle soreness, you should follow the principle of progressive resistance. That is, you should gradually increase your intensity (percentage of 1 RM you're working at) and volume (frequency of your sessions, number of exercises, and number of sets).

Besides helping you avoid soreness and fatigue, progressive resistance is necessary if continued gains in strength are to be made. If training is to remain effective over long periods of time, there is a need for variation in the training stimulus. Many novice and

intermediate strength trainers reach plateaus, or periods where they experience little progress in their programs. To avoid these plateaus, the stress must be progressively expanded. As you know, when using the Nordic Fitness Chair, you can raise your workload by increasing the speed of the movement. You can also increase your training stress by increasing the frequency of your training, or the number of exercises you do, or the number of sets you do, or by reducing the rest time between sets and exercises.

Warm-up/cool-down.
For a warm-up, we suggest starting with four to five minutes of light aerobic activity, followed by stretching. The aerobic exercise will elevate your pulse and improve your performance by increasing the temperature within your muscles, so they contract more forcefully and relax more quickly. It will also prepare your muscles for stretching. Static stretching before the muscle becomes warm can be dangerous because cold muscles are more likely to be strained or torn. Stretching improves muscle elasticity, aiding in injury prevention and improving your range of motion.

When your workout session includes aerobic conditioning, it is equally important to cool down. A cool-down allows your circulatory and metabolic systems to return gradually to a resting level. Stretching at the end of a training session prevents muscle tightness and increases your flexibility.

During a workout session that includes both aerobic conditioning and strength training, the proper sequence should be as follows:

1. 4-5 minutes of low-level aerobic activity as warm-up
2. Stretching
3. Aerobic conditioning
4. Cool-down
5. Strength training
6. Stretching

For a workout session that includes just strength training, you would eliminate steps three and four:

1. 4-5 minutes of low-level aerobic activity as warm-up
2. Stretching
3. Strength training
4. Stretching

Considerations in developing a flexibility program:

a. Flexibility is more likely to be improved when there has been an elevation in muscle and core temperature before stretching. This can be accomplished by doing low-level aerobic activity for five to six minutes before stretching.

b. Flexibility exercise should be done S L O W L Y and under control without developing momentum.

c. Flexibility is gained by increasing the effort and duration of stretching exercises at regular intervals.

d. The maintenance of flexibility depends upon the amount of movement of the body parts through the complete range of motion each day.

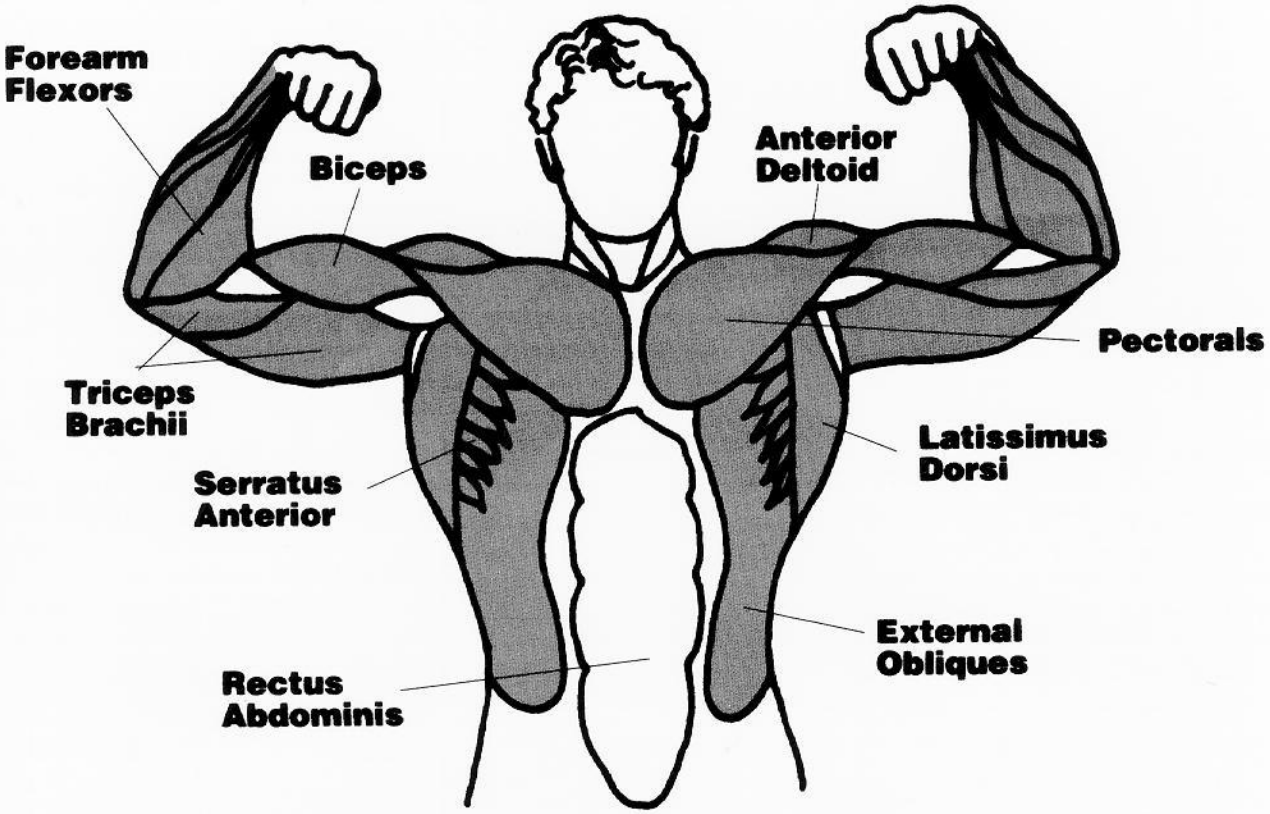
e. Loss of strength from inactivity can be slowed if each muscle group is stretched daily.

Guidelines for Stretching

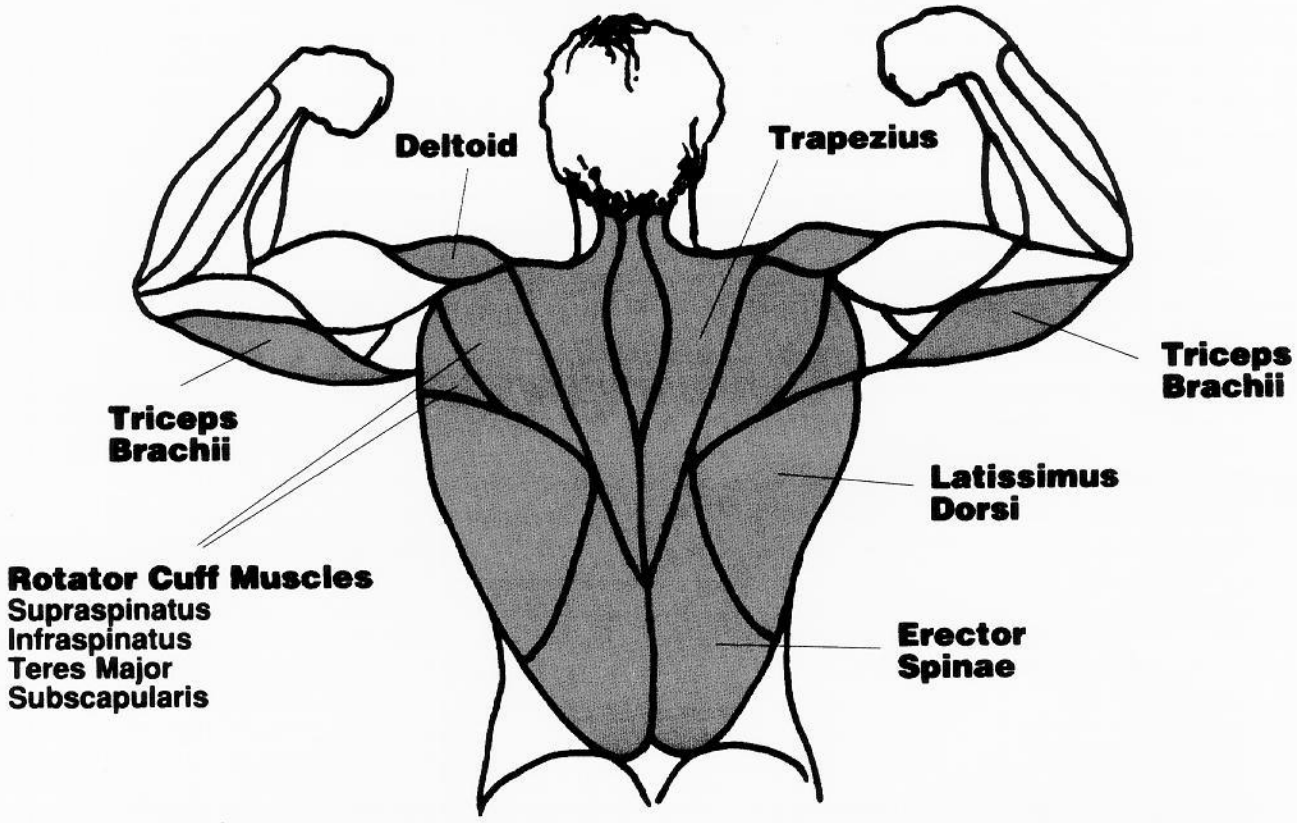
1. **Stretch before and after a workout.**
2. **Avoid ballistic or bouncing movements when stretching.**
3. **Programs should include stretching for the entire body.**
4. **The muscle should be stretched to the point where tension is felt.**
5. **Maintain a regular breathing pattern while stretching.**
6. **The stretch should be held for 15 to 20 seconds for maintenance of flexibility, and 20 seconds or longer if the objective is to increase flexibility.**
7. **Do 5-6 minutes of low-level aerobic activity before stretching to increase core temperature.**
8. **Become aware of a variety of stretching exercises for each body part so that different stretches can be used periodically to help decrease boredom.**
9. **Stretching exercises are an important part of a personal fitness program and should be enjoyed.**

Anatomical Chart

Anterior View



Posterior View



Nordic Fitness Chair

1. Pulldown (back and biceps)

Major muscles used: latissimus dorsi and biceps

Execution:

1. Adjust pulley arms to the upward vertical position. Grasp handles with your palms facing forward. Pull handles downward to shoulder level and touch your elbows to the side of your chest wall.
2. Pause, and then raise to original position. The Pulldown should be done with both arms simultaneously, using a smooth motion. Remember to extend your arms fully in the starting position.

No. of sets performed: 2
No. of repetitions per set 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
The Pulldown strengthens the upper back, which is as beneficial for many practical purposes such as twisting bending or pulling. This will improve your muscle tone for recreational activities including canoeing, tennis, archery, batting, fencing, passing a football, handball most swimming strokes, and racquetball. It can also improve your performance on the golf course. In your daily activities, the increased strength will be useful moving furniture, washing your car and swinging a child or grandchild around.

2. Lateral Raise (shoulders)

Major muscles used: deltoids

Execution:

1. Adjust pulley arms to the downward vertical position. Grasp handles with your palms facing your body. Raise handles directly out to the side until they are just above the level of your shoulders, while keeping elbows slightly flexed. This exercise can be difficult, because it isolates the smaller muscle groups of the shoulder. Remember to keep your arms directly out to the side of your body, with your palms facing down.
2. Lower handles back to starting position and repeat. The Lateral Raise should be done with both arms simultaneously, using a smooth, controlled motion.

No. of sets performed: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
The Lateral Raise strengthens the shoulders, which beneficial for activities that involve repeatedly raising your arms over your head. This also helps you work long periods with your arms raised overhead. The Lateral Raise helps you enhance your performance recreational activities such as canoeing and tennis.

3. Fly (chest)

Major muscles used: pectoralis major and minor

Execution:

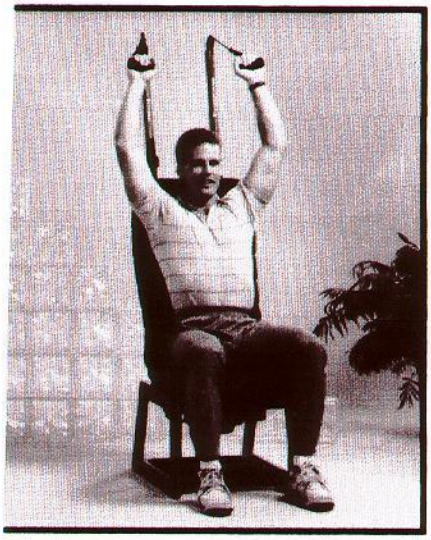
1. Adjust pulley arms to the horizontal position. Grasp handles with your palms facing forward. Pull directly toward the midline of your body, always keeping your elbows slightly flexed and palms inward. Remember to keep the entire movement on the horizontal plane.
2. Return the handles to the starting position and repeat. The Fly should be done with both arms simultaneously, in a smooth, controlled fashion.

Number of sets performed: 2
Number of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

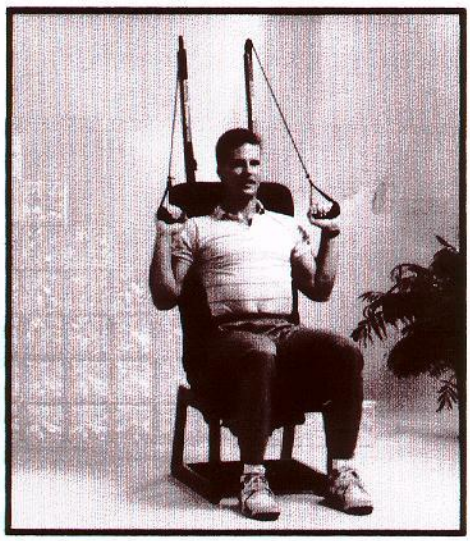
Benefits:
The Fly works the chest muscles, helping you develop strength and endurance that's helpful in many recreational and daily activities. Enhanced recreational activities include: passing a football, doing the crawl and backstroke, throwing, punching, fencing and shooting a basketball.

***Recovery times may vary depending upon program.**

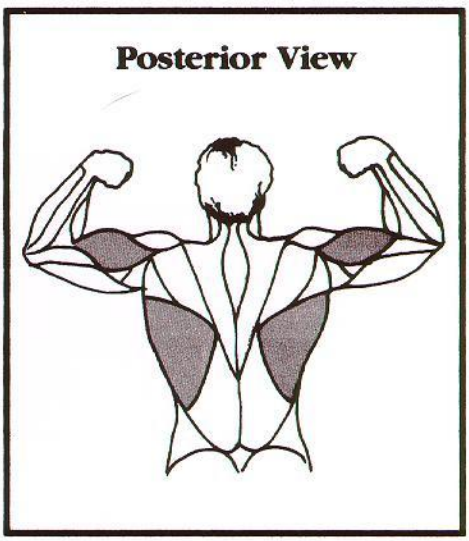
"Basic 6" Exercises



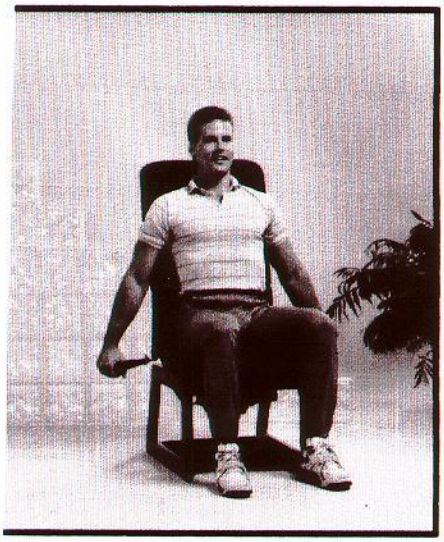
Pulldown — Start



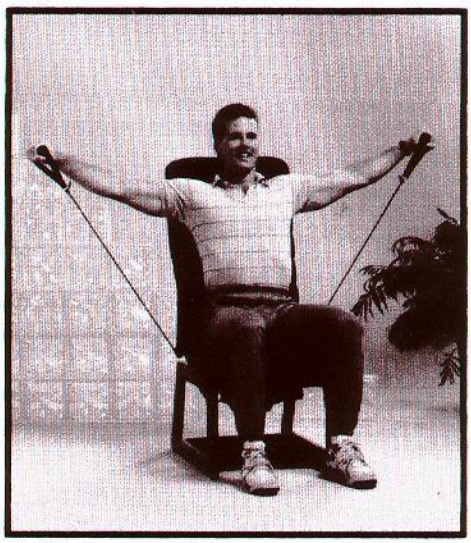
Pulldown — Finish



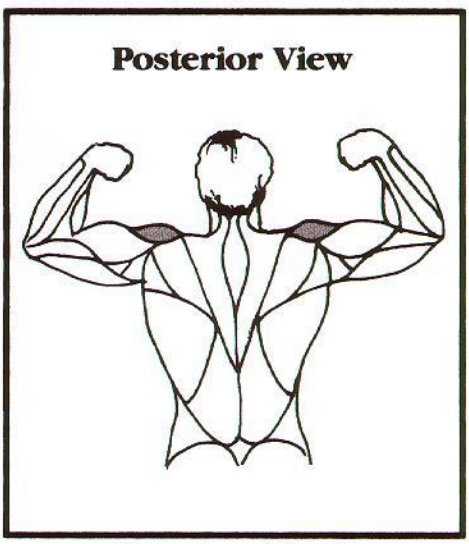
Muscles Used



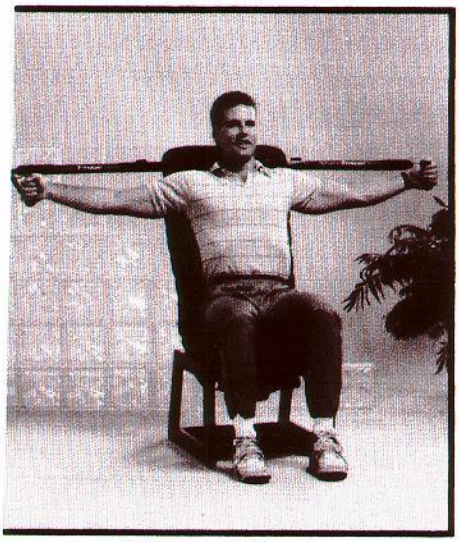
Lateral Raise — Start



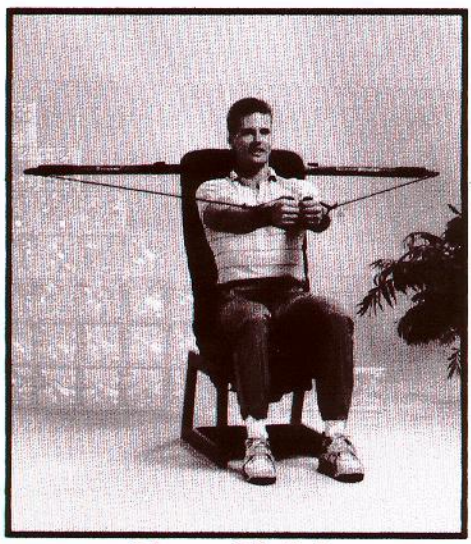
Lateral Raise — Finish



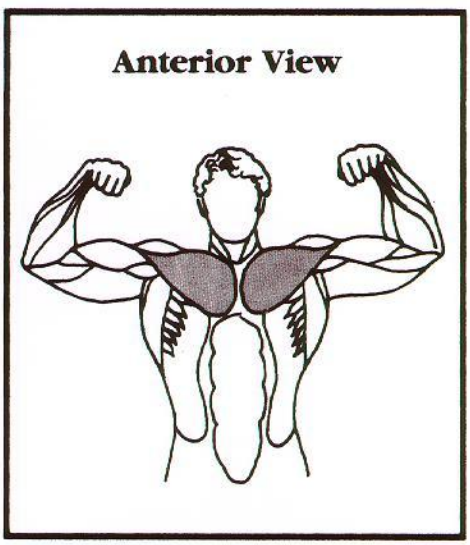
Muscles Used



Fly — Start



Fly — Finish



Muscles Used

4. Tricep Pushdown (triceps)

Major muscles used: triceps brachii

Execution:

1. Adjust pulley arms to the upward vertical position. Grasp handles with your palms facing forward. Pull downward until your elbows are tight to the sides of your body and flexed. This is the starting position. Now the Tricep Pushdown movement begins. Push the handles downward, extending your arms entirely and keeping your elbows stationary at the sides of your body.
2. Return to the starting position and repeat. Exercise both arms together in a smooth, controlled motion.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
The triceps are the prime movers in most pushing and extending movements, including the breast stroke, gymnastics bar work, batting, the fencing thrust, passing in football and basketball, and boxing. This exercise is especially beneficial for toning and shaping the back of the upper arms.

5. Bicep Curl (biceps)

Major muscles used: biceps brachii and forearm flexors

Execution:

1. Adjust pulley arms to the downward vertical position. Grasp handles with your palms facing forward. While keeping your elbows tight to your sides, lift the handles upward toward the front of your shoulder.
2. Return to starting position and repeat. The Bicep Curl should be done with both arms simultaneously, in a smooth, controlled fashion.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
Daily practical uses of the biceps include carrying groceries, carrying a child, cleaning, or moving furniture. Recreational activities where stronger biceps can be beneficial include swimming, archery and rowing.

6. Abdominal Crunch (abdominals)

Major muscles used: rectus abdominis

Execution:

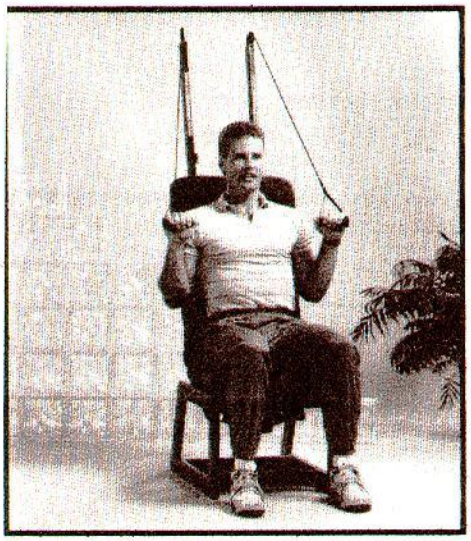
1. Adjust pulley arms to the upward vertical position. Grasp the handles beside your head. Holding them firm, draw your head to your knees, keeping your lower back rounded. Contract or tighten your abdominal muscles while performing the exercise.
2. Return to an erect position, but don't lean back into the chair cushion (maintain about three inches between your upper back and the chair cushion).

No. of sets: 2
No. of repetitions per sets: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

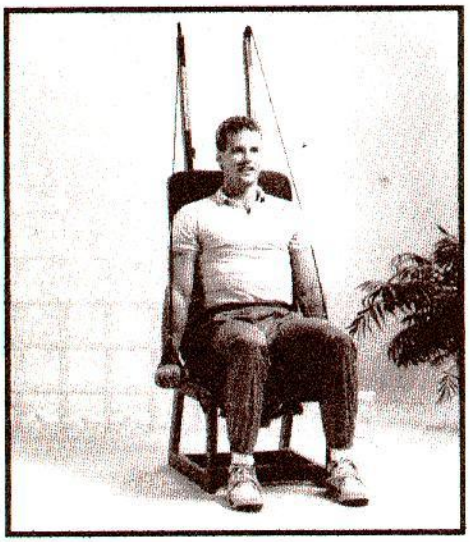
Benefits:
Of all the muscles discussed, the abdominals most often need to be strengthened. Abdominal strength is crucial because it helps you control excessive lordosis, or arching of the lower back. Clinical evidence also shows that maintaining good abdominal muscle strength/endurance greatly reduces the risk of developing low back pain.

*Recovery times may vary depending upon program.

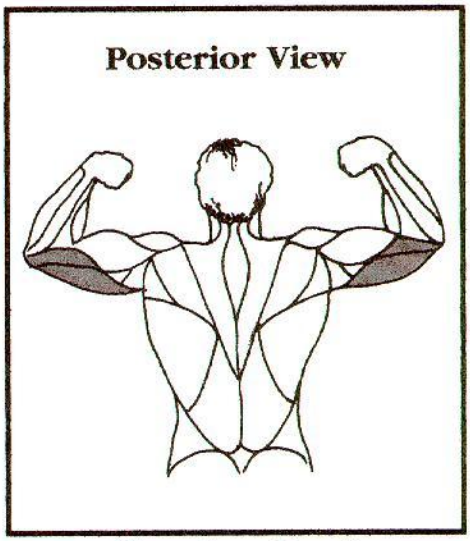
"Basic 6" Exercises



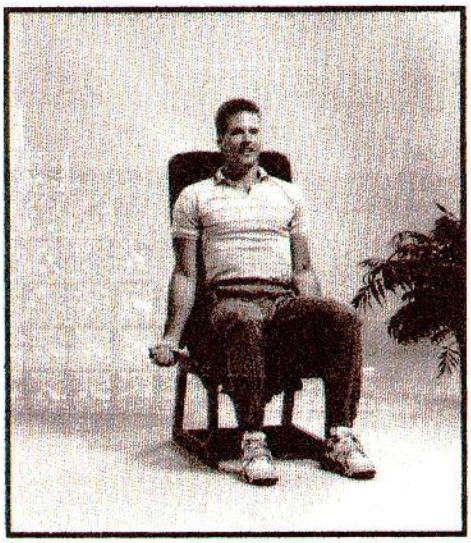
Tricep Pushdown — Start



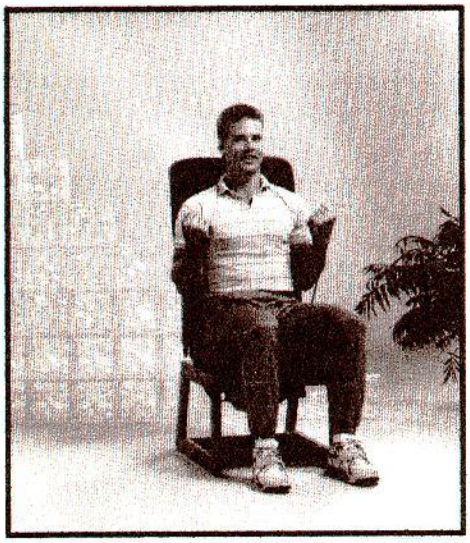
Tricep Pushdown — Finish



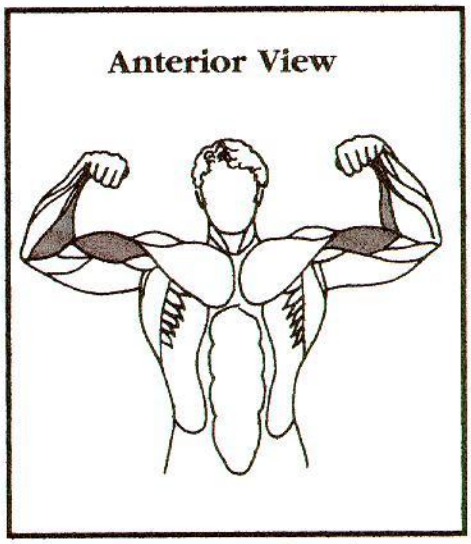
Muscles Used



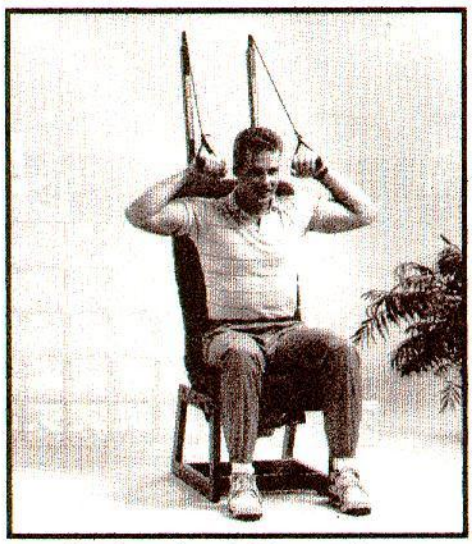
Bicep Curl — Start



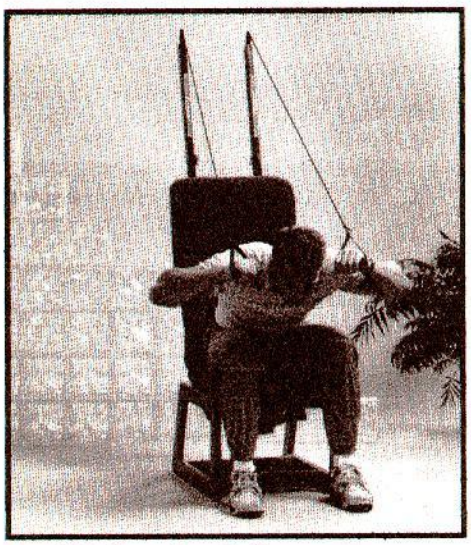
Bicep Curl — Finish



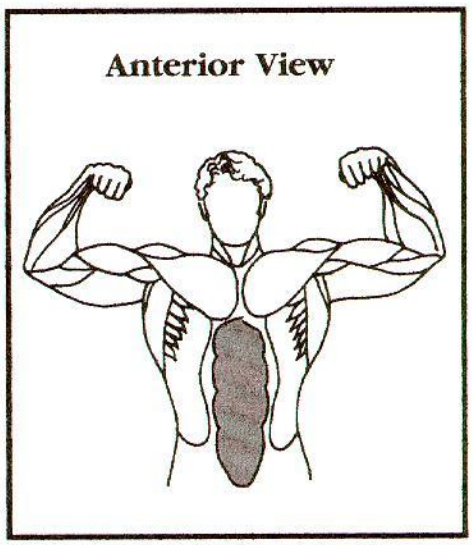
Muscles Used



Abdominal Crunch — Start



Abdominal Crunch — Finish



Muscles Used

Advanced Routine

(3 days per week)

This training routine effectively stresses muscle groups to promote muscle balance and reduce the risk of injury This advanced program requires a greater amount of training since more exercises are performed for each muscle group. It is more extensive than the "Basic 6" (three days per week) program, and is designed to promote greater improvement in muscle size and strength.

Exercises	Muscle groups	No. of sets x No. of repetitions
Day 1 (Monday)		
1. Pulldown	latissimus dorsi and biceps	3 x 8-12
2. Advanced Pulldown	latissimus dorsi and biceps	3 x 8-12
3. Shoulder Press	deltoids and triceps	3 x 8-12
4. Lateral Raise	deltoids	3 x 8-12
5. Chest Press	pectorals, deltoids, triceps	3 x 8-12
6. Fly	pectorals and deltoids	3 x 8-12
7. Alternating Hammer Curl	biceps	3 x 8-12
8. Bicep Curl	biceps	3 x 8-12
9. Tricep Pushdown	triceps	3 x 8-12
10. Tricep Extension	triceps	3 x 8-12
11. Abdominal Crunch	abdominals	3 x 8-12
Day 2 (Tuesday)		
Aerobic exercise		
Day 3 (Wednesday)		
1. Pulldown	latissimus dorsi and biceps	3 x 8-12
2. Advanced Pulldown	latissimus dorsi and biceps	3 x 8-12
3. Shoulder Press	deltoids and triceps	3 x 8-12
4. Lateral Raise	deltoids	3 x 8-12
5. Chest Press	pectorals, deltoids, triceps	3 x 8-12
6. Fly	pectorals and deltoids	3 x 8-12
7. Alternating Hammer Curl	biceps	3 x 8-12
8. Bicep Curl	biceps	3 x 8-12
9. Tricep Pushdown	triceps	3 x 8-12
10. Tricep Extension	triceps	3 x 8-12
11. Abdominal Crunch	abdominals	3 x 8-12
Day 4 (Thursday)		
Aerobic exercise		
Day 5 (Friday)		
1. Pulldown	latissimus dorsi and biceps	3 x 8-12
2. Advanced Pulldown	latissimus dorsi and biceps	3 x 8-12
3. Shoulder Press	deltoids and triceps	3 x 8-12
4. Lateral Raise	deltoids	3 x 8-12
5. Chest Press	pectorals, deltoids, triceps	3 x 8-12
6. Fly	pectorals and deltoids	3 x 8-12
7. Alternating Hammer Curl	biceps	3 x 8-12
8. Bicep Curl	biceps	3 x 8-12
9. Tricep Pushdown	triceps	3 x 8-12
10. Tricep Extension	triceps	3 x 8-12
11. Abdominal Crunch	abdominals	3 x 8-12
Day 6 and 7 (Saturday and Sunday)		
Aerobic exercise		

Recovery time between sets and exercises should be approximately two minutes.
No strength-related activities should be performed on days two and four.

Advanced Routine With Bar Accessory

(3 days per week)

This training routine can be performed if you have purchased the available supplementary bar that attaches to your Nordic Fitness Chair. It is common to have a degree of muscle development imbalance from one limb to another. The bar may assist in counteracting this imbalance and allow for a more fluid movement since both arms are functioning simultaneously.

Exercises	Muscle groups	No. of sets x No. of repetitions
Day 1 (Monday)		
1. Pulldown	latissimus dorsi and biceps	3 x 8-12
2. Advanced Pulldown	latissimus dorsi and biceps	3 x 8-12
3. Shoulder Press	deltoids and triceps	3 x 8-12
4. Upright Rowing	trapezius and deltoids	3 x 8-12
5. Chest Press	pectorals, deltoids, triceps	3 x 8-12
6. Incline Press	pectorals, deltoids, triceps	3 x 8-12
7. Bicep Curl	biceps	3 x 8-12
8. Reverse Curl	biceps and forearm flexors	3 x 8-12
9. Tricep Extension	triceps	3 x 8-12
10. Abdominal Crunch	abdominals	3 x 8-12
Day 2 (Tuesday)		
Aerobic exercise		
Day 3 (Wednesday)		
1. Pulldown	latissimus dorsi and biceps	3 x 8-12
2. Advanced Pulldown	latissimus dorsi and biceps	3 x 8-12
3. Shoulder Press	deltoids and triceps	3 x 8-12
4. Upright Rowing	trapezius and deltoids	3 x 8-12
5. Chest Press	pectorals, deltoids, triceps	3 x 8-12
6. Incline Press	pectorals, deltoids, triceps	3 x 8-12
7. Bicep Curl	biceps	3 x 8-12
8. Reverse Curl	biceps and forearm flexors	3 x 8-12
9. Tricep Extension	triceps	3 x 8-12
10. Abdominal Crunch	abdominals	3 x 8-12
Day 4 (Thursday)		
Aerobic exercise		
Day 5 (Friday)		
1. Pulldown	latissimus dorsi and biceps	3 x 8-12
2. Advanced Pulldown	latissimus dorsi and biceps	3 x 8-12
3. Shoulder Press	deltoids and triceps	3 x 8-12
4. Upright Rowing	trapezius and deltoids	3 x 8-12
5. Chest Press	pectorals, deltoids, triceps	3 x 8-12
6. Incline Press	pectorals, deltoids, triceps	3 x 8-12
7. Bicep Curl	biceps	3 x 8-12
8. Reverse Curl	biceps and forearm flexors	3 x 8-12
9. Tricep Extension	triceps	3 x 8-12
10. Abdominal Crunch	abdominals	3 x 8-12
Day 6 and 7 (Saturday and Sunday)		
Aerobic exercise		

Recovery time between sets and exercises should be approximately two minutes.
No strength-related activities should be performed on days two and four.

Split Routine

(four days per week)

The split routine is designed to reduce total workout time and increase the stress of overload placed upon a given muscle or group of muscles during each training session. It requires that the frequency of the training sessions be increased from three days per week to four days per week, while the frequency of muscle stimulation is reduced from three days per week to two days per week. The volume of overload for each muscle group is significantly greater with this training regimen.

Exercises	Muscle groups	No. of sets x No. of repetitions
Day 1 (Monday)		
1. Pulldown	latissimus dorsi and biceps	3 x 8-12
2. Advanced Pulldown	latissimus dorsi and biceps	3 x 8-12
3. Adduction	latissimus dorsi	2 x 8-12
4. Bicep Curl	biceps	3 x 8-12
5. Alternating Hammer Curl	biceps	2 x 8-12
6. Overhead Bicep Curl	biceps	2 x 8-12
7. Abdominal Crunch	abdominals	3 x 8-12
Day 2 (Tuesday)		
1. Shoulder Press	deltoids and triceps	3 x 8-12
2. Lateral Raise	deltoids	2 x 8-12
3. Front Raise	front deltoids	2 x 8-12
4. Pronated Fly	rear deltoids	2 x 8-12
5. Chest Press	pectorals, deltoids, triceps	3 x 8-12
6. Fly	pectorals and deltoids	3 x 8-12
7. Decline Fly	upper pectorals and deltoids	2 x 8-12
8. Tricep Pushdown	triceps	2 x 8-12
9. Tricep Extension	triceps	2 x 8-12
Day 3 (Wednesday)		
Aerobic exercise		
Day 4 (Thursday)		
1. Pulldown	latissimus dorsi and biceps	3 x 8-12
2. Advanced Pulldown	latissimus dorsi and biceps	3 x 8-12
3. Adduction	latissimus dorsi	2 x 8-12
4. Bicep Curl	biceps	3 x 8-12
5. Alternating Hammer Curl	biceps	2 x 8-12
6. Overhead Bicep Curl	biceps	2 x 8-12
8. Abdominal Crunch	abdominals	3 x 8-12
Day 5 (Friday)		
1. Shoulder Press	deltoids and triceps	3 x 8-12
2. Lateral Raise	deltoids	2 x 8-12
3. Front Raise	front deltoids	2 x 8-12
4. Pronated Fly	rear deltoids	2 x 8-12
5. Incline Press	upper pectorals, deltoids and triceps	3 x 8-12
6. Fly	pectorals and deltoids	3 x 8-12
7. Incline Fly	upper pectorals and deltoids	2 x 8-12
8. Tricep Pushdown	triceps	2 x 8-12
9. Tricep Extension	triceps	2 x 8-12
Day 6 and 7 (Saturday and Sunday)		
Aerobic exercise		

Recovery time between sets should be three minutes or more. This program is best suited for those individuals interested in increasing muscle strength.

No strength-related activities should be performed on days three, six and seven.

Circuit Training

(three days per week)

As mentioned previously, if your training goal is to improve cardiovascular fitness, then circuit training, using lighter loads and short rest periods, should be beneficial. The circuit of 12 exercises should be repeated several times, rather than following the multiple-set training program as the previous programs suggest. This type of training should also reduce the duration of training sessions.

Exercises	Muscle groups	No. of sets x No. of repetitions
Day 1 (Monday)		
1. Pulldown	latissimus dorsi and biceps	2 x 10-15
2. Shoulder Press	deltoids and triceps	2 x 10-15
3. Advanced Pulldown	latissimus dorsi and biceps	2 x 10-15
4. Lateral Raise	deltoids	2 x 10-15
5. Chest Press	pectorals, deltoids, triceps	2 x 10-15
6. Alternating Hammer Curl	biceps	2 x 10-15
7. Fly	pectorals	2 x 10-15
8. Bicep Curl	biceps	2 x 10-15
9. Tricep Pushdown	triceps	2 x 10-15
10. Abdominal Crunch	abdominals	2 x 10-15
11. Tricep Extension	triceps	2 x 10-15
Day 2 (Tuesday)		
Aerobic exercise		
Day 3 (Wednesday)		
1. Pulldown	latissimus dorsi and biceps	2 x 10-15
2. Shoulder Press	deltoids and triceps	2 x 10-15
3. Advanced Pulldown	latissimus dorsi and biceps	2 x 10-15
4. Lateral Raise	deltoids	2 x 10-15
5. Chest Press	pectorals, deltoids, triceps	2 x 10-15
6. Alternating Hammer Curl	biceps	2 x 10-15
7. Fly	pectorals	2 x 10-15
8. Bicep Curl	biceps	2 x 10-15
9. Tricep Pushdown	triceps	2 x 10-15
10. Abdominal Crunch	abdominals	2 x 10-15
11. Tricep Extension	triceps	2 x 10-15
Day 4 (Thursday)		
Aerobic exercise		
Day 5 (Friday)		
1. Pulldown	latissimus dorsi and biceps	2 x 10-15
2. Shoulder Press	deltoids and triceps	2 x 10-15
3. Advanced Pulldown	latissimus dorsi and biceps	2 x 10-15
4. Lateral Raise	deltoids	2 x 10-15
5. Chest Press	pectorals, deltoids, triceps	2 x 10-15
6. Alternating Hammer Curl	biceps	2 x 10-15
7. Fly	pectorals	2 x 10-15
8. Bicep Curl	biceps	2 x 10-15
9. Tricep Pushdown	triceps	2 x 10-15
10. Abdominal Crunch	abdominals	2 x 10-15
11. Tricep Extension	triceps	2 x 10-15
Day 6 and 7 (Saturday and Sunday)		
Aerobic exercise		

Rest interval should be reduced significantly. Note that this circuit training routine's successive exercises do not stress the same muscle groups. A 15-second recovery time between sets and exercises is recommended. The multiple sets system should not be followed with this training regimen. The circuit should be repeated several times to complete the recommended number of sets.

Nordic Fitness Chair

1. Advanced Pulldown - palms toward (back and biceps)

Major muscles used: latissimus dorsi and biceps

Execution:

1. Adjust pulley arms to the upward vertical position. Grasp handles with your palms facing your body. Pull handles downward to shoulder level with your elbows directed forward as they are drawn to the sides of your chest.
2. Raise to the original position with your arms fully extended and repeat.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
This is an advanced pulldown exercise that strengthens the back and biceps. However, the role of the biceps is largely dependent upon the grip one utilizes. A widely-spaced, palms-away-from-your-body grip places less emphasis on the biceps, whereas a narrowly-spaced, palms-facing-your-body grip places greater emphasis on the biceps. This exercise is also beneficial for many practical purposes such as twisting bending, or pulling. These muscles are utilized in many recreational activities such as canoeing, tennis, archery, batting, fencing, passing a football, handball, most swimming strokes, and racquetball.

2. Adduction (back)

Major muscles used: latissimus dorsi

Execution:

1. Adjust pulley arms to the upward vertical position. Grasp handles with your palms facing downward. With a slightly flexed arm, pull handles downward toward the top of your thighs.
2. Raise to the starting position and repeat.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
Activities that use these muscles include: passing a football, batting, serving in tennis, canoe racing, rowing, most swimming strokes, golfing, pole vaulting and archery.

3. Pronated Fly (upper back)

Major muscles used: posterior deltoids, rotator cuff, trapezius

Execution:

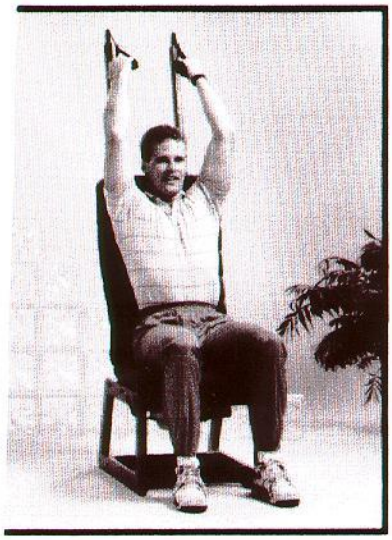
1. Adjust pulley arms to the horizontal position. Grasp opposite handles (right handle with left hand and left handle with right hand). Pull handles across your body while maintaining a slightly flexed arm position. Cables should cross at chest level.
2. Return the handles to starting position and repeat.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

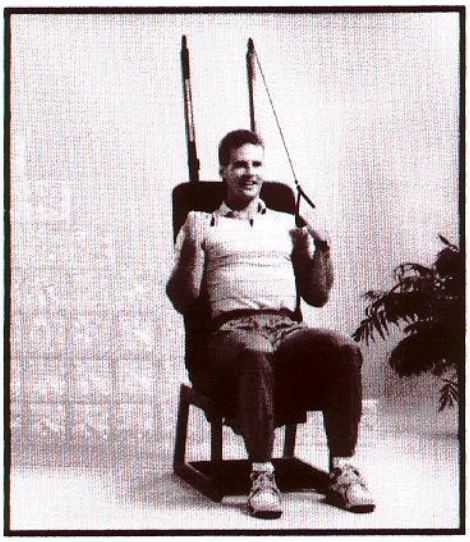
Benefits:
Strengthening the muscles of the upper back may assist in maintaining or improving posture. Activities that use these muscles include: canoeing, tennis, archery, batting, fencing, passing a football, tackling, golfing, handball, most swimming strokes and racquetball.

***Recovery times may vary depending upon program.**

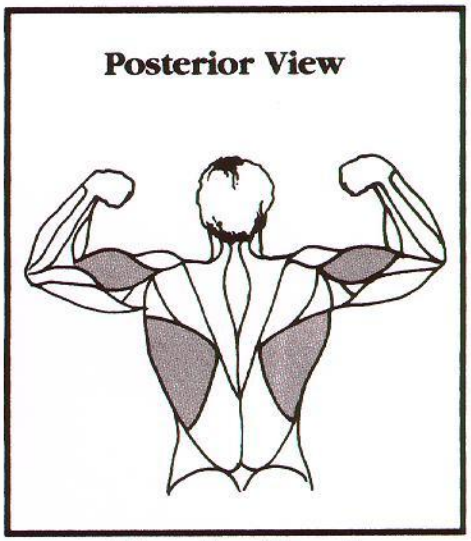
Advanced Exercises



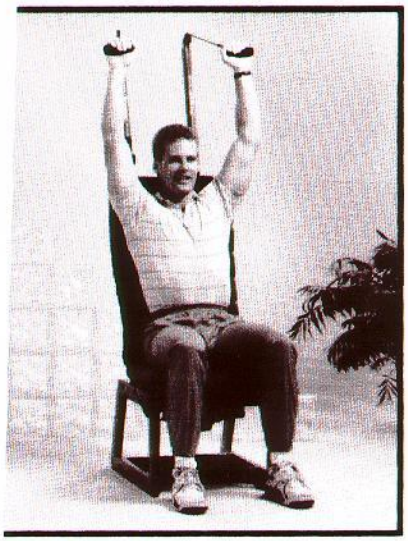
Advanced Pulldown — Start



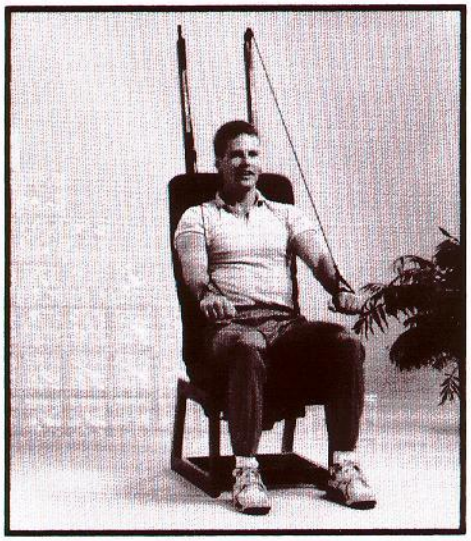
Advanced Pulldown — Finish



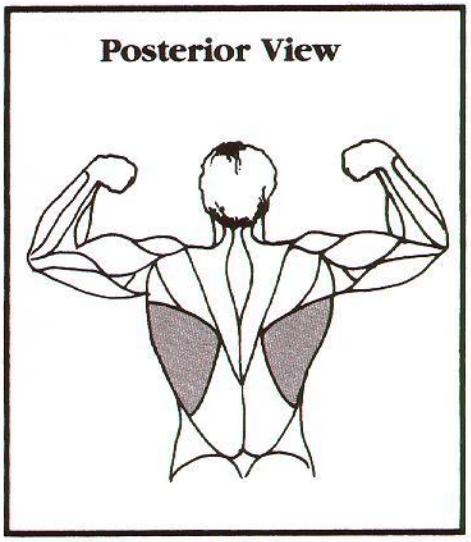
Muscles Used



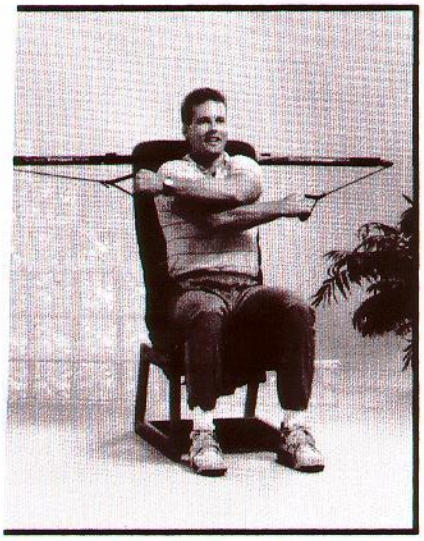
Adduction — Start



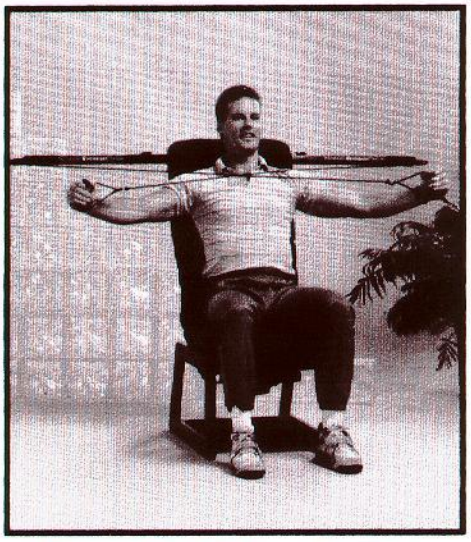
Adduction — Finish



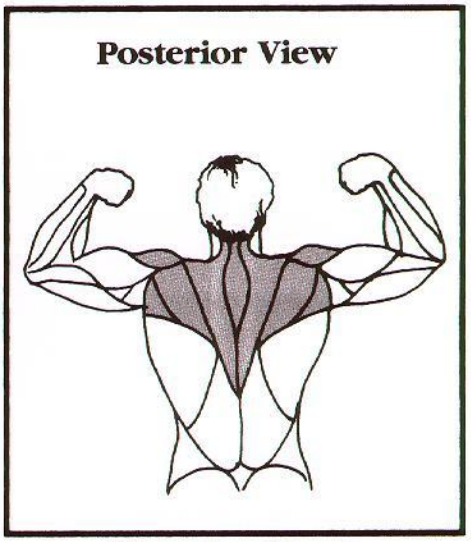
Muscles Used



Pronated Fly — Start



Pronated Fly — Finish



Muscles Used

Nordic Fitness Chair

4. Shoulder Press (shoulders)

Major muscles used: deltoids

Execution:

1. Adjust pulley arms to the downward vertical position. Raise handles to shoulder level with your palms facing forward (starting position). Press handles directly overhead until your arms are fully extended, while keeping your elbows wide. Keep your hands slightly wider than shoulder-width apart throughout the movement. Avoid locking of the elbow joint at the end of the press.
2. Return handles to starting position at shoulder level and repeat. Maintain good posture and avoid arching your back.

No. of sets performed: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
These muscles are used by the upper body in most pushing or extending movements. Examples of recreational activities that use these muscles are the breast stroke, canoeing, tennis, archery, batting, golfing, handball, and passing a football and basketball. This exercise may also assist in improved posture and a reduction in shoulder injuries.

5. Front Raise (shoulders)

Major muscles used: anterior deltoid

Execution:

1. Adjust pulley arms to the downward vertical position. Grasp the handles with your palms facing backward. Raise handles in front of your body to a position just above shoulder level. Keep your hands shoulder-width apart as you raise the handles.
2. Return handles to the starting position and repeat. Both arms should be performed simultaneously.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
Activities these muscles are utilized for are canoeing, tennis, archery, batting, passing a football, doing the breast stroke, backstroke and crawl, golfing and handball. Strengthening of these muscles is also recommended for shoulder rehabilitation.

6. Internal Rotation (shoulders)

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

Execution:

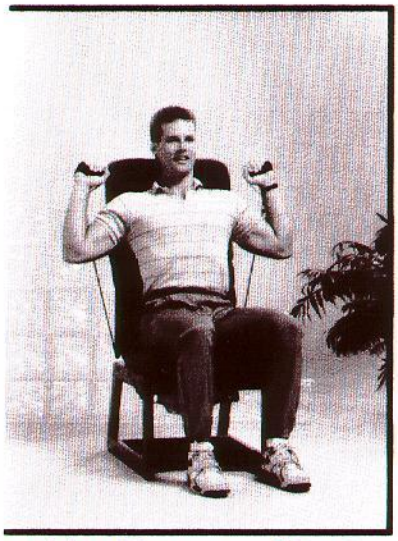
1. Adjust pulley arms to the 45 degree position. Grasp the left handle with your right hand and the right handle with your left hand. Stabilize your upper arms against the sides of your chest and rotate one handle inward in an alternating fashion.
2. Return to starting position and repeat with the opposite arm.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

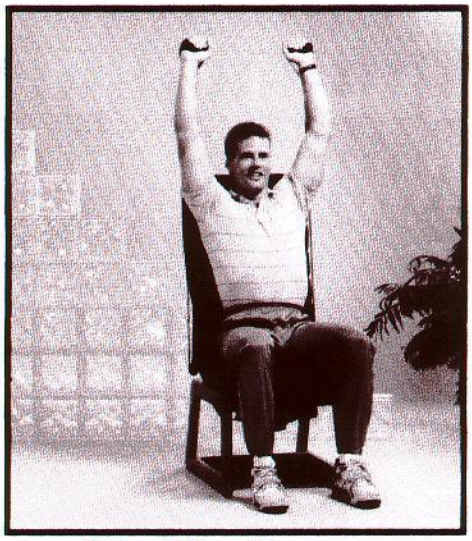
Benefits:
Repetitive arm movements above the horizontal plane may cause injuries to tendons and muscles the shoulder region. The shoulder joint is surrounded by a rotator cuff comprising of four tendons. 75 percent of the time, the source of should pain is found in the rotator cuff. This exercise is very effective for injury prevention or rehabilitation of the shoulder joint.

*Recovery times may vary depending upon program.

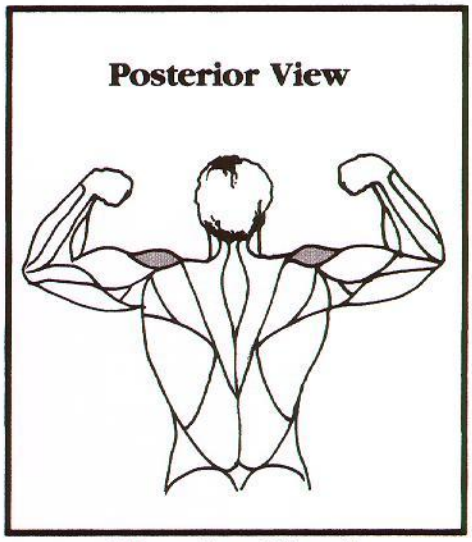
Advanced Exercises



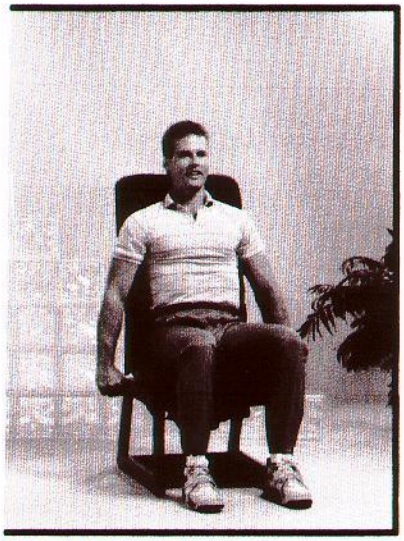
Shoulder Press — Start



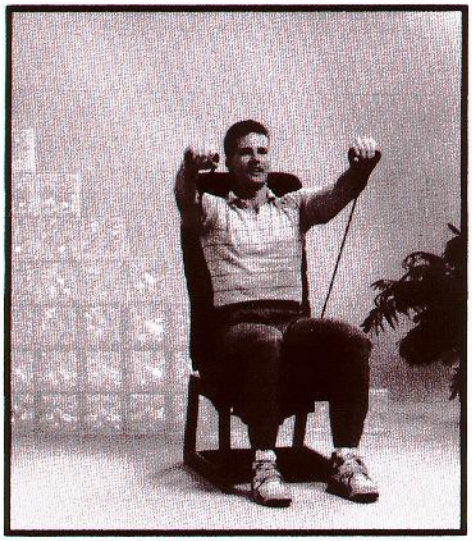
Shoulder Press — Finish



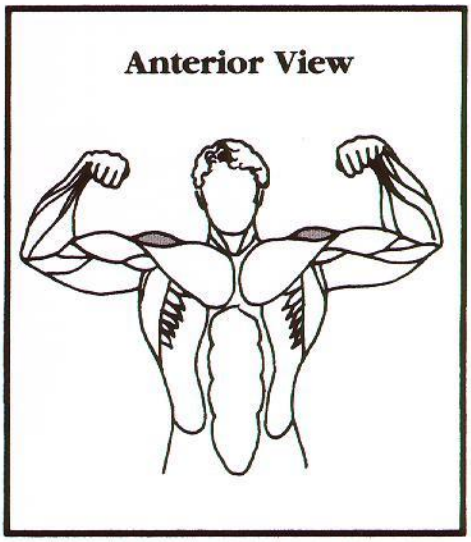
Muscles Used



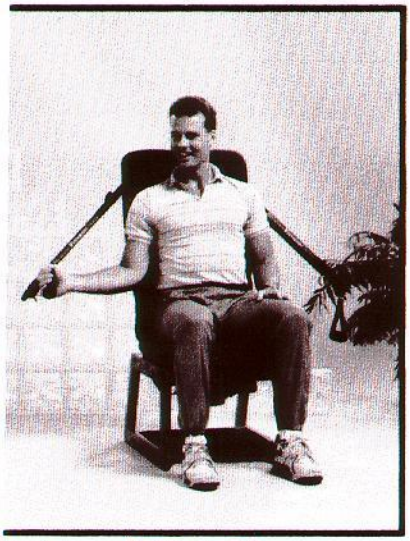
Front Raise — Start



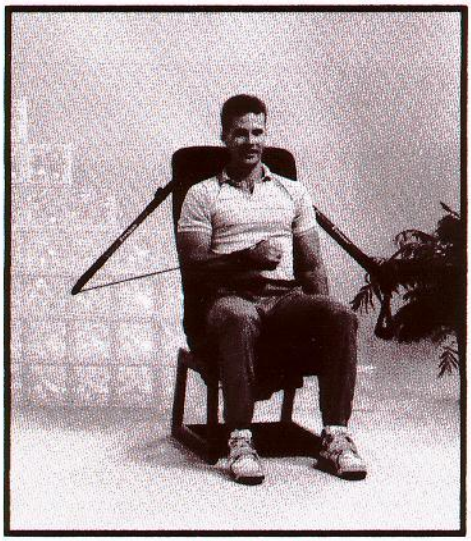
Front Raise — Finish



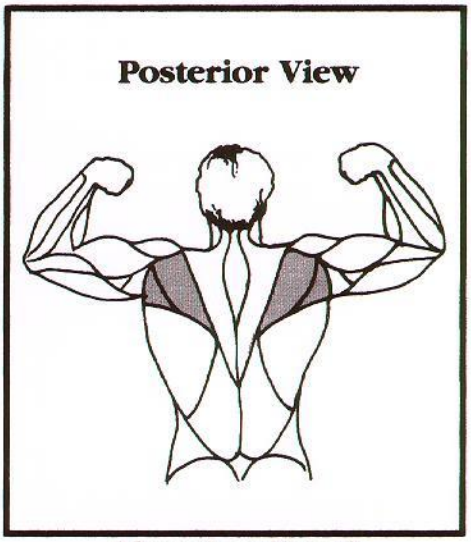
Muscles Used



Internal Rotation — Start



Internal Rotation — Finish



Muscles Used

7. External Rotation (shoulders)

Major muscles used: supaspinatus, infraspinatus, teres minor, and subscapularis

Execution:

1. Adjust pulley arms to the 45 degree position. Grasp the left handle with your right hand and the right handle with your left hand. Stabilize your upper arms against the sides of your chest and externally rotate handles outward as far as possible. Cables should cross in front of your body.
2. Return to starting position and repeat.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
Limited range of motion and loss of strength are common problems with the shoulder joint. Repeated loading may cause thickening of the soft tissues and lead to chronic inflammation. This exercise is an excellent preventative measure for shoulder injury and rehabilitation for past injuries.

8. Golf Swing (shoulders)

Major muscles used: posterior deltoids, supraspinatus, infraspinatus, teres minor, and subscapularis

Execution:

1. Adjust right pulley arm to 45 degree position. With your left hand, grasp the right handle and pull it across your body with a slightly flexed arm to a position above head level and extended to left side. Attempt to keep your shoulders against back of chair. (NOTE: If you are left-handed, this exercise should be performed with left chair arm at 45 degree position and you should use your right arm.)
2. Return to starting position with a slightly flexed arm and repeat.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
This exercise develops the muscles utilized in the golf swing. This increase in strength may increase the yardage of a golf swing and reduce potential risk of injury. The golf swing occurs in two planes, the plane of the back swing and the plane of the down swing. Also, the swing evolves around three dimensions: 1. vertical, the up-and-down movement, 2. lateral, the side-to-side movement, and 3. rotary, the movement around the body. The lateral movement is improved most dramatically by the use of this exercise.

9. Chest Press (chest and triceps)

Major muscles used: pectoralis major, minor and triceps brachii

Execution:

1. Adjust pulley arms to the horizontal position with the cables around the mid-arm pulley. Grasp handles with your palms facing downward. Push directly away from your chest until your arms are fully extended, while keeping your elbows wide. Keep your hands slightly wider than shoulder-width apart throughout the movement. Avoid locking your elbows at the end of the press.
2. Return the handles to your chest and repeat. The chest press should be done with both arms.

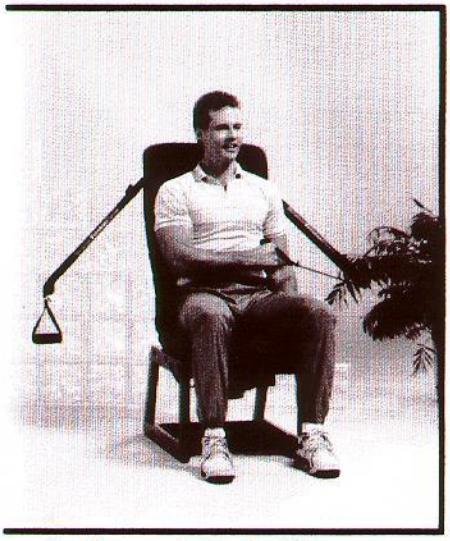
NOTE: This exercise may be more effective with the pulley arms at the 45 degree position for shorter individuals.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

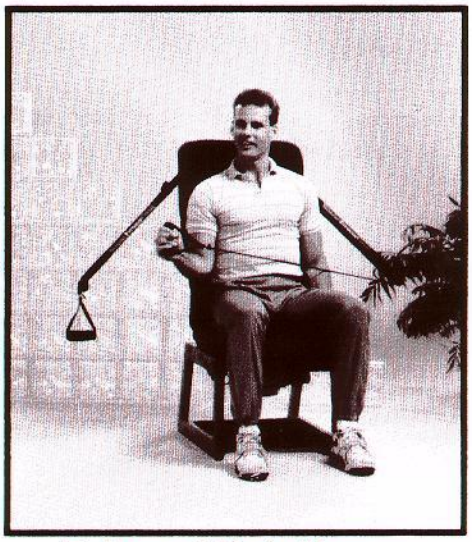
Benefits:
Development of strength and endurance of the chest serves many purposes that apply to recreational and daily activities. Several of these recreational activities are passing a football, doing the crawl and backstroke, throwing, punching, fencing, and shooting a basketball.

***Recovery times may vary depending upon program.**

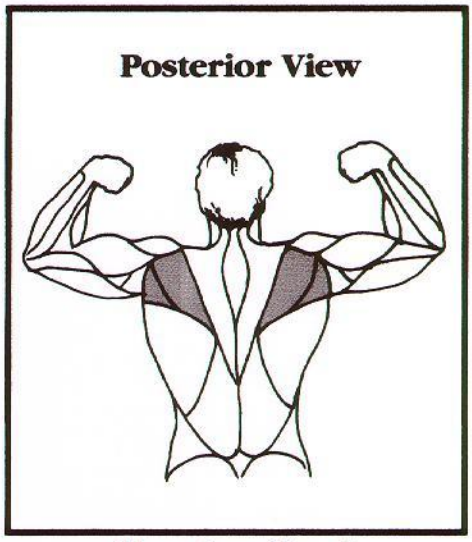
Advanced Exercises



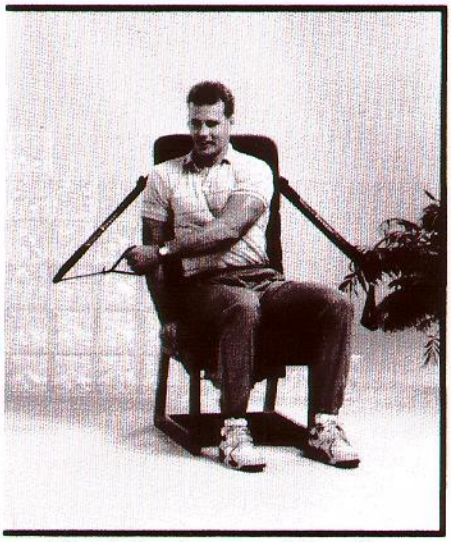
External Rotation — Start



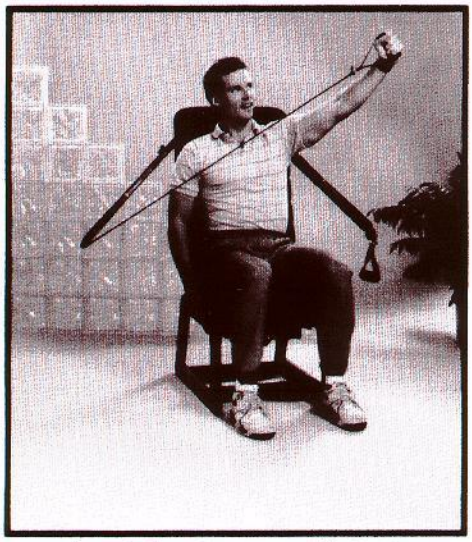
External Rotation — Finish



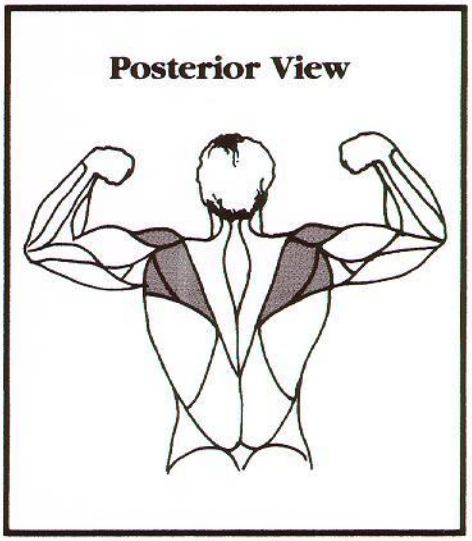
Muscles Used



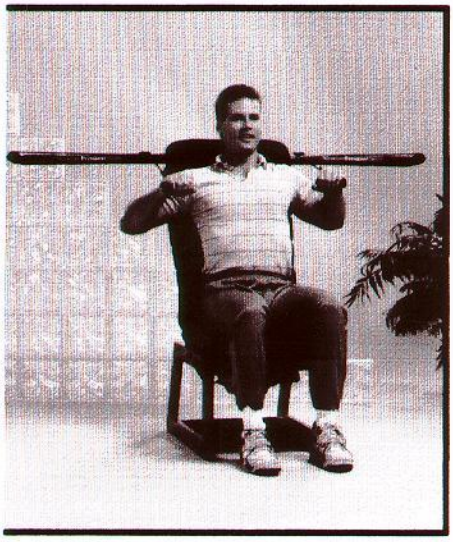
Golf Swing — Start



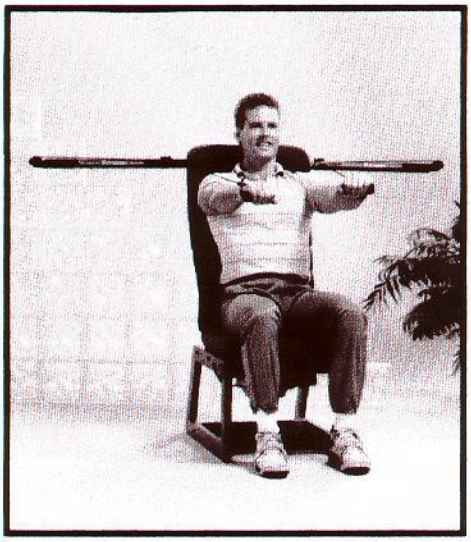
Golf Swing — Finish



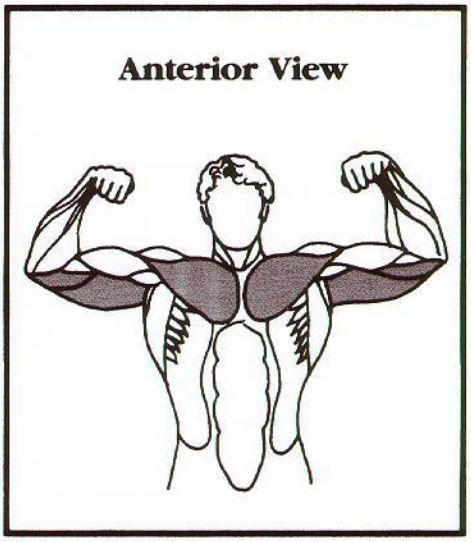
Muscles Used



Chest Press — Start



Chest Press — Finish



Muscles Used

Nordic Fitness Chair

10. Incline Fly (upper chest)

Major muscles used: pectoralis major, anterior deltoids, and triceps

Execution:

1. Adjust pulley arms to 135 degree position. Grasp handles with your palms facing forward. Pull handles directly toward the midline of your body, at a level below your chest . Always keep your elbows slightly flexed and palms inward.
2. Return to starting position and repeat.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
This exercise emphasizes the muscles of the upper chest. These muscles are used as prime movers of the upper body in any pushing or extending movement. Examples of recreational activities that use these muscles are: passing a football, doing the crawl and backstroke, throwing, punching, fencing, and shooting a basketball.

11. Incline Press (chest, shoulders, and triceps)

Major muscles used: upper pectoralis major, anterior deltoids, and triceps brachii

Execution:

1. Adjust pulley arms to 45 degree position, with cables around mid-arm pulley. Grasp handles with your palms facing downward and elbows wide. Press handle upward at a 45 degree angle to an extended arm position above head level. Space hands slightly wider than shoulder width. Avoid locking of the elbow joint at the end of the press.
2. Return the handles to side of chest and repeat. The Incline Press should be done with both arms simultaneously.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
This exercise concentrates on development of the upper chest muscles. Some of the recreational activities that use the muscles include passing a football, doing the crawl and backstroke, throwing, punching, fencing, and shooting a basketball.

12. Decline Fly (lower chest)

Major muscles used: pectoralis major, anterior deltoids, and triceps

Execution:

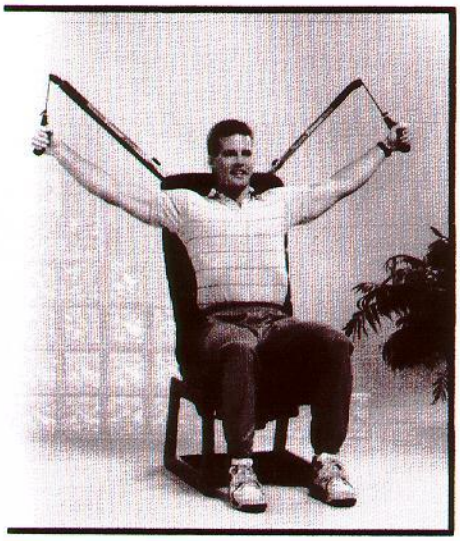
1. Adjust pulley arms to the 45 degree position. Grasp handles with your palms facing forward. Pull handles directly toward the midline of your body at approximately eye level. Keep your elbows slightly flexed, and palms inward.
2. Return handles to starting position and repeat.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

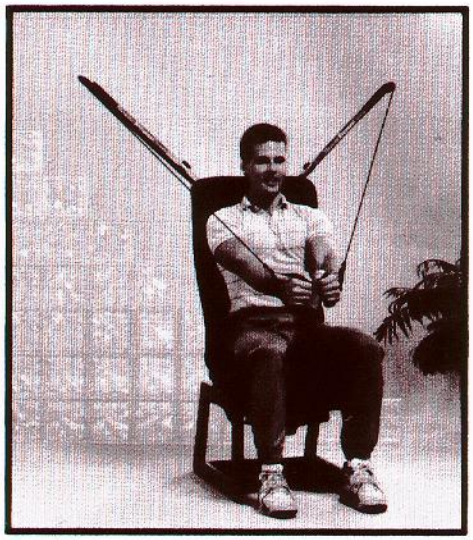
Benefits:
This exercise emphasizes the pectoral muscles of the lower chest. These muscles are used as prime movers of the upper body in any pushing or extending movement. Examples of recreational activities improved with this exercise include passing a football, doing the crawl and backstroke, throwing, punching, fencing, and shooting a basketball.

*Recovery times may vary depending upon program.

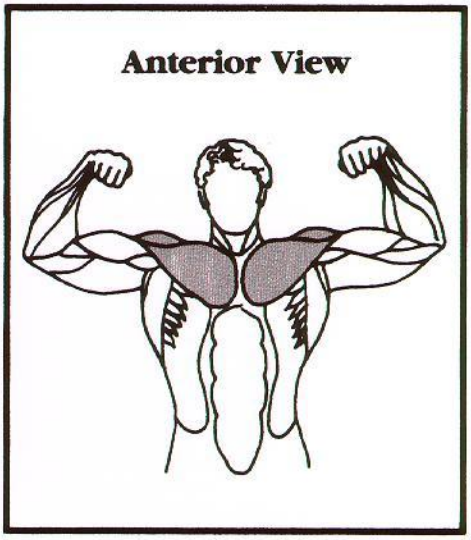
Advanced Exercises



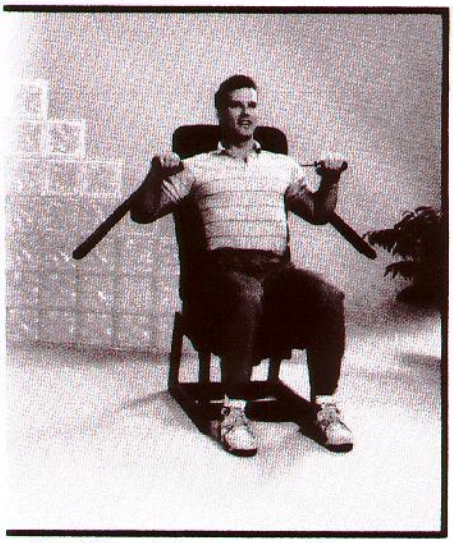
Incline Fly — Start



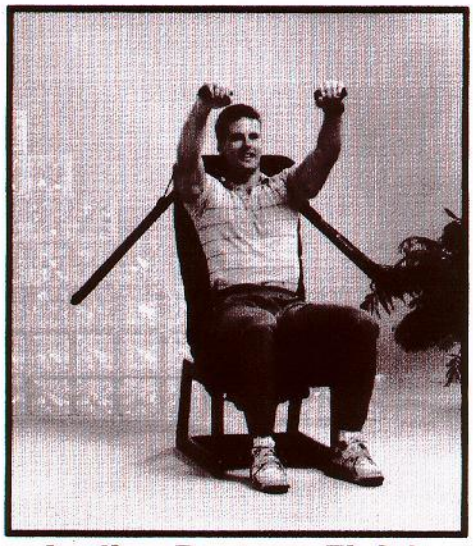
Incline Fly — Finish



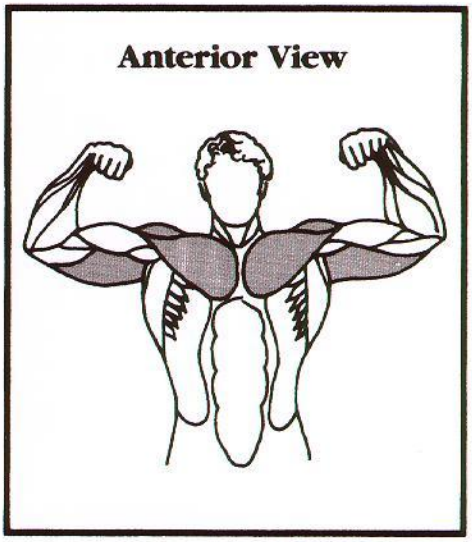
Muscles Used



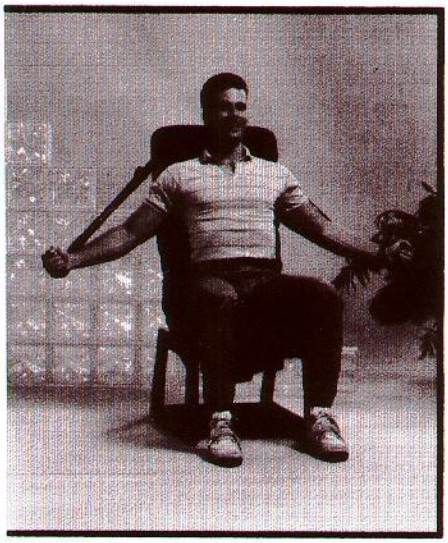
Incline Press — Start



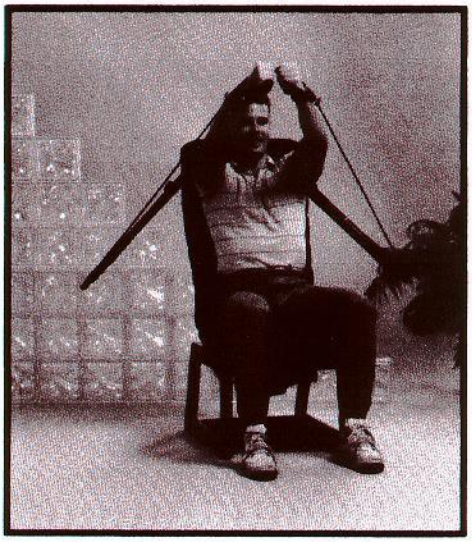
Incline Press — Finish



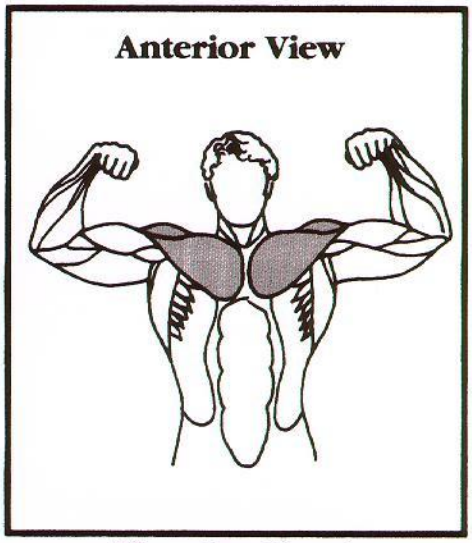
Muscles Used



Decline Fly — Start



Decline Fly — Finish



Muscles Used

13. Tennis Swing (chest)

Major muscles used: pectoralis and anterior deltoid

Execution:

1. Adjust right pulley arm to the horizontal position. Grasp the right handle with your right palm facing forward. Pull across your body, keeping a slightly flexed elbow position. Attempt to keep your shoulders against back of chair. (NOTE: If you are left-handed the left pulley arm should be in horizontal position, and you should use your left arm.)
2. Return to starting position and repeat.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
This exercise strengthens the muscles utilized in the tennis forehand. It is necessary to build a base of strength. This movement should be slow and methodical, providing sufficient progressive resistance to stimulate the improved efficiency of the neuromuscular system. The purpose of the strength base is in preparation for later speed work and the prevention of injuries. This exercise may also be utilized to help alleviate side dominance, which is prevalent in many racquet athletes. The muscular imbalance of one side over another leads to alignment difficulties and strained muscles.

14. Tricep Extension (triceps)

Major muscles used: tricep brachii

Execution:

1. Adjust pulley arms to the upward vertical position with cables around the mid-arm pulley. Grasp handles with your palms facing upward and elbows vertically positioned tightly beside your head. Push handles upward and forward until your arms are fully extended, while stabilizing your upper arm.
2. Return to starting position and repeat. Do not allow your elbows to flare out to the sides during the movement.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
These muscles are used as prime movers in most pushing or extending movements. Functional examples would include pushing a grocery cart, lawn mower, or child in a stroller. Recreational activities in which this muscle group is used include: doing the breast stroke, batting, passing in football or basketball, and boxing.

15. Alternate Hammer Curl (biceps)

Major muscles used: biceps brachii, brachioradialis and flexors of the forearm

Execution:

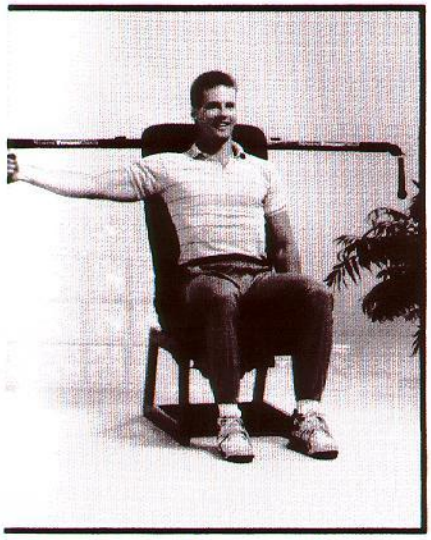
1. Adjust pulley arms to the downward vertical position. Grasp handles with your palms facing your body. Raise one handle upward while keeping your upper arm stable at the side of body. As you raise the handle, turn your palm upward until arm is fully flexed.
2. Return to starting position and repeat with the opposite arm.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

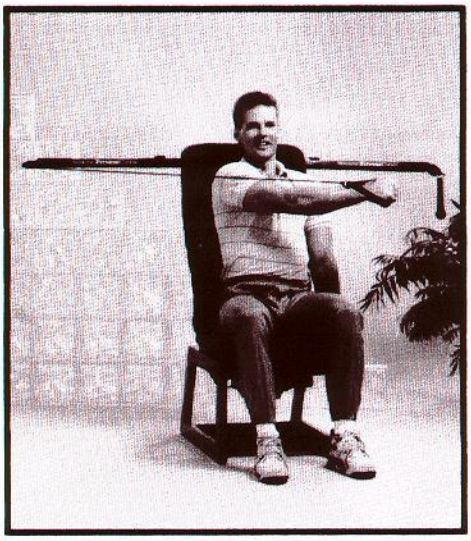
Benefits:
This exercise utilizes different muscles of the upper arm and forearm than the Bicep Curl. Daily practical uses of the biceps include carrying groceries, carrying a child, cleaning, or moving furniture. Recreational activities where stronger biceps can be beneficial include swimming, archery, and rowing.

*Recovery times may vary depending upon program.

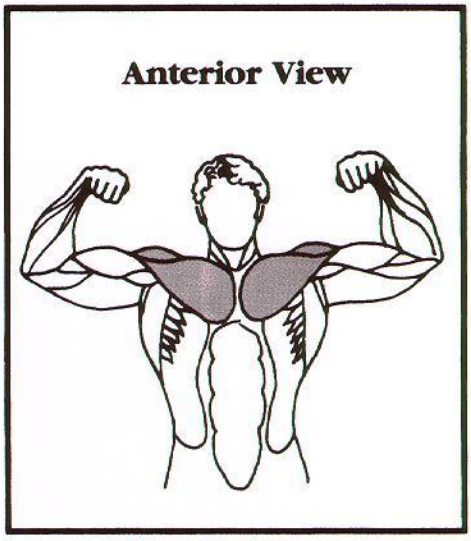
Advanced Exercises



Tennis Swing — Start

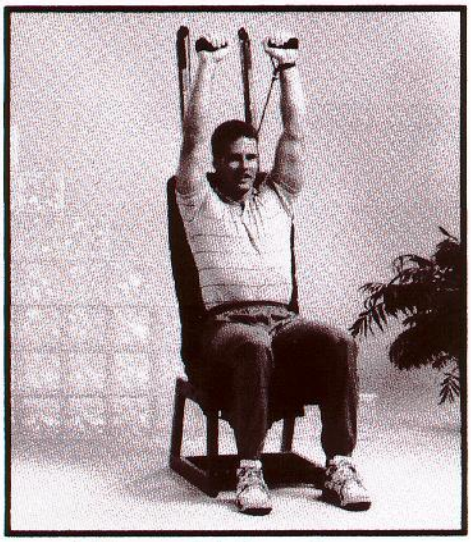


Tennis Swing — Finish

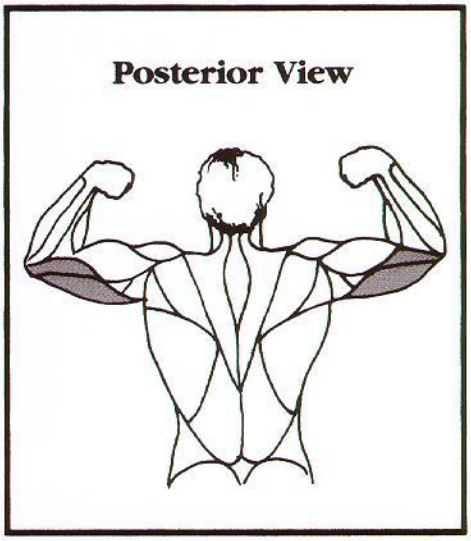


Muscles Used

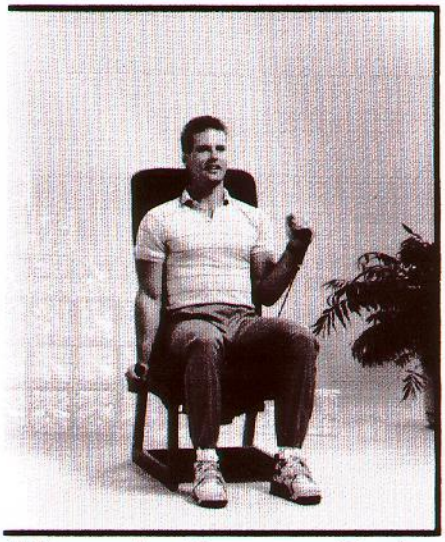
Tricep Extension — Start



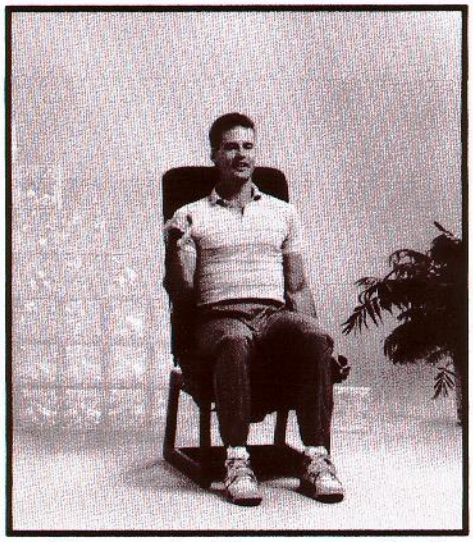
Tricep Extension — Finish



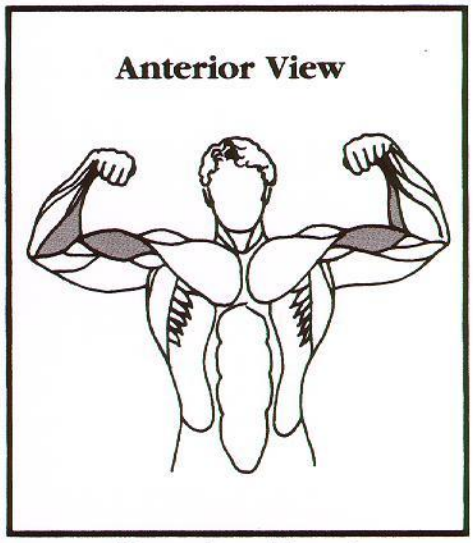
Muscles Used



Alternate Hammer Curl — Start



Alternate Hammer Curl — Finish



Muscles Used

Nordic Fitness Chair
Advanced Exercises

16. Overhead Curl (biceps)

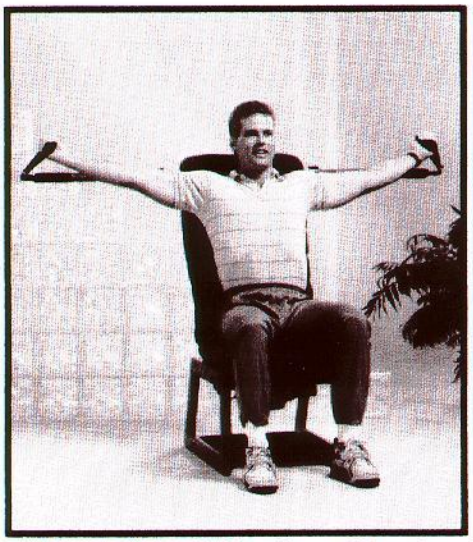
Major muscles used: biceps brachii

Execution:

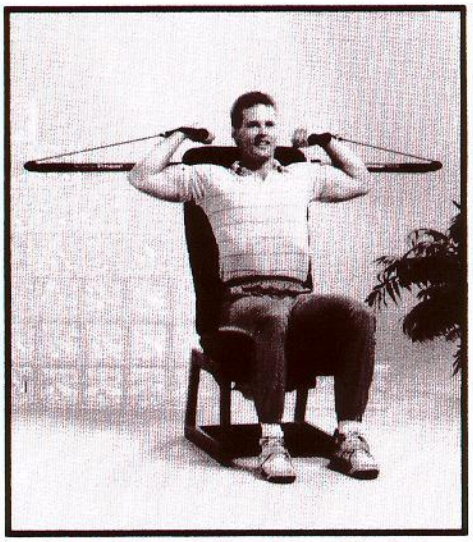
1. Adjust pulley arms to the horizontal position. Grasp handles with your palms facing upward. While stabilizing your upper arm, flex your arm by pulling handles toward your head.
2. Lower to starting position with arms extended laterally, and repeat.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

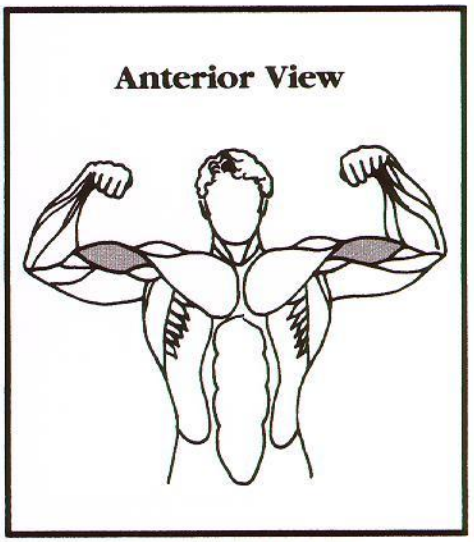
Benefits:
Strengthening of the biceps is beneficial for carrying heavy objects, lifting a child in and out of a vehicle, and raking a lawn. Recreational or competitive activities include: ring work in gymnastics, rope climbing, archery, pole vaulting, wrestling, swimming, and rowing.



Overhead Curl — Start



Overhead Curl — Finish

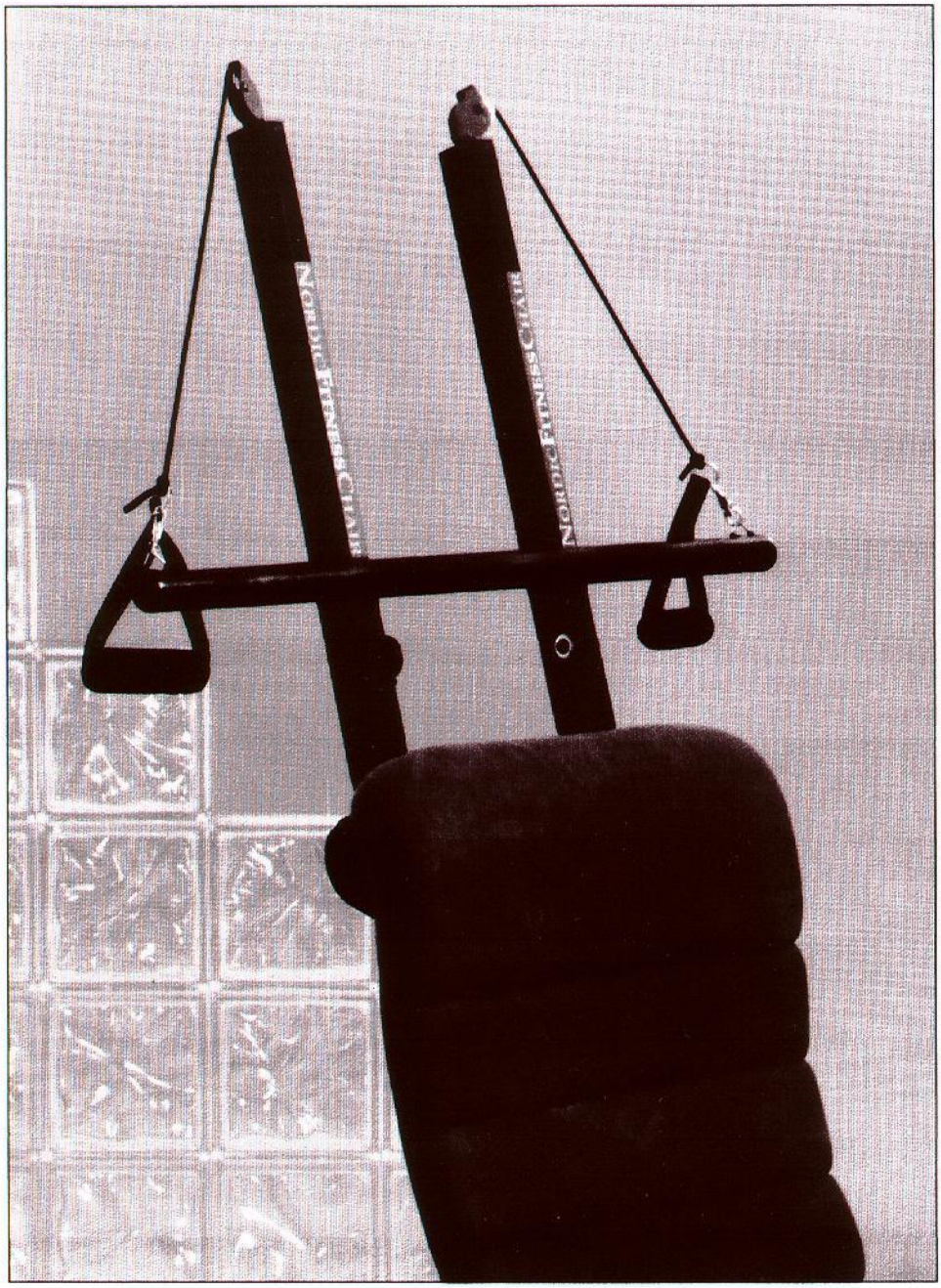


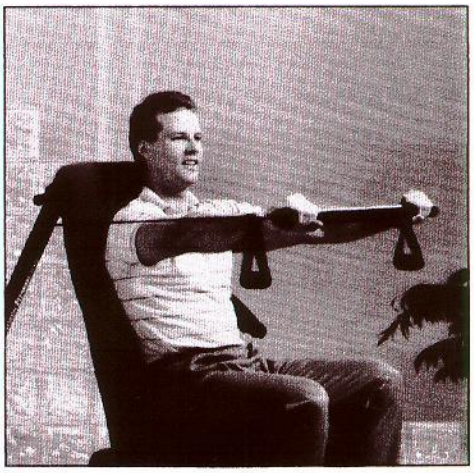
Muscles Used

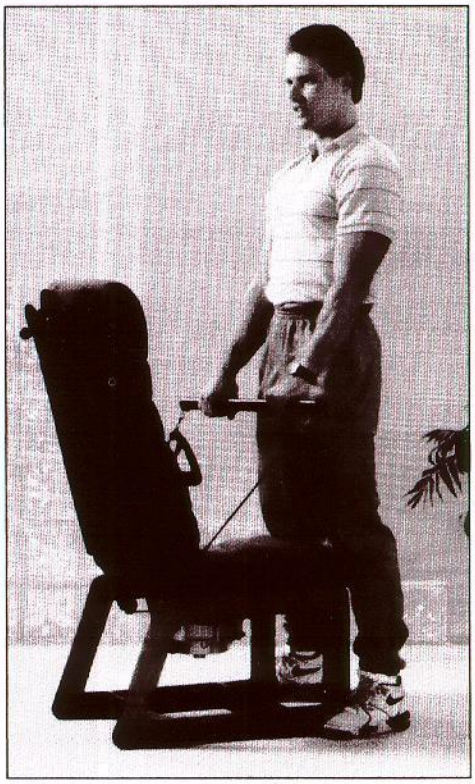
*Recovery times may vary depending upon program.

Nordic Fitness Chair Accessory Bar Exercises

The following exercises can be performed if you have purchased the available supplementary bar that attaches to your Nordic Fitness Chair.







Nordic Fitness Chair

1. Pulldown (back and biceps)

Major muscles used: latissimus dorsi and biceps

Execution:

1. Adjust pulley arms to the upward vertical position. While seated, grasp bar with your palms facing forward. Pull bar downward to shoulder level and touch your elbows to the side of your chest wall.
2. Pause, and then raise to original position. The Pulldown should be done with a smooth motion. Remember to extend the your arms fully in the starting position.

No. of sets performed: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
The Pulldown strengthens the upper back, which is beneficial for many practical purposes such as twisting, bending, or pulling. This will improve your muscle tone for recreational activities including canoeing, tennis, archery, batting, fencing, passing a football, handball, most swimming strokes, and racquetball. It can also improve your performance on the golf course. And in your daily activities, the increased strength will be useful for moving furniture, washing your car and swinging a child or grandchild around.

2. Advanced Pulldown - palms facing toward body (back and biceps)

Major muscles used: latissimus dorsi and biceps

Execution:

1. Adjust pulley arms to the upward vertical position. While seated, grasp bar with your palms facing towards your body. Pull the bar downward to shoulder level, with your elbows directed forward.
2. Raise to the original position with your arms fully extended and repeat.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
This Advanced Pulldown exercise strengthens the back and biceps. However, the role of the biceps is largely dependent upon the grip one utilizes. A widely-spaced, palms-away-grip places less emphasis on the biceps, whereas a narrowly-spaced, palms-facing-grip places greater emphasis on the biceps. This exercise is also beneficial for many practical purposes, such as twisting, bending, or pulling. These muscles are utilized in many recreational activities such as canoeing, tennis, archery, batting, fencing, passing a football, handball, most swimming strokes, and racquetball.

3. Shoulder Press (shoulders)

Major muscles used: deltoids

Execution:

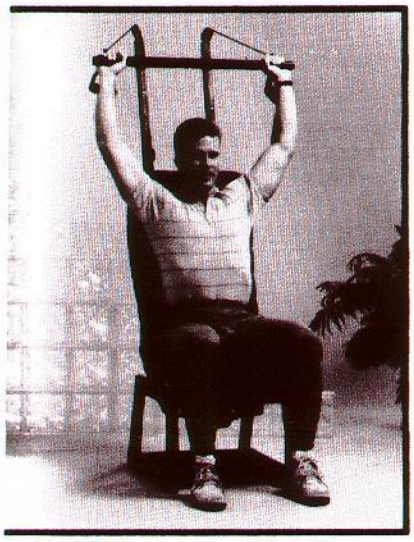
1. Adjust pulley arms to the downward vertical position. While seated, raise the bar to shoulder level behind your neck, with your palms facing forward (starting position). Press the bar directly overhead until your arms are fully extended, while keeping your elbows wide. Avoid locking your elbow joint at the end of the press.
2. Return the bar to the starting position at shoulder level and repeat. Maintain good posture and avoid arching your back.

No. of sets performed: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

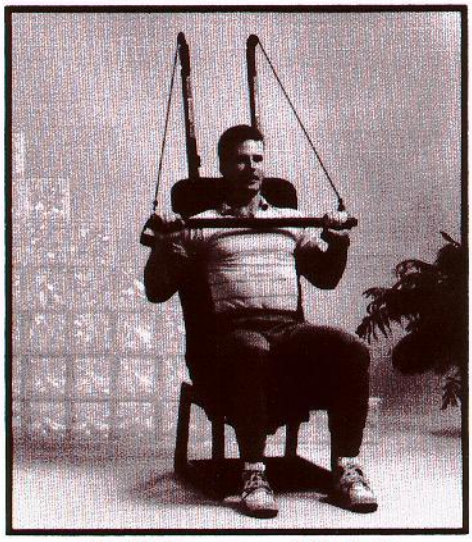
Benefits:
These muscles are used by the upper body in most pushing or extending movements. Examples of recreational activities that use these muscle are: doing the breast stroke, canoeing, tennis, archery, batting, golfing, handball, and passing a football and basketball. This exercise may also assist in improved posture and a reduction in shoulder injuries.

*Recovery times may vary depending upon program.

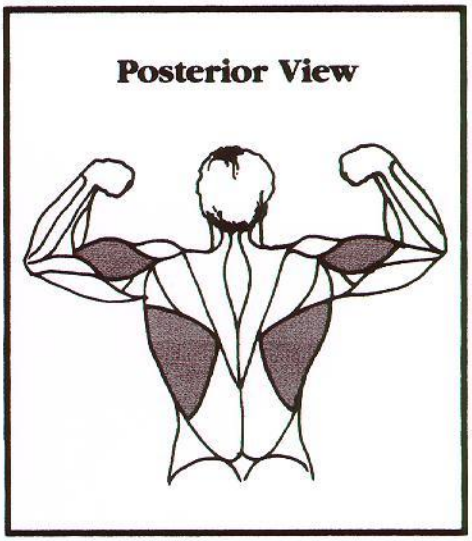
Accessory Bar Exercises



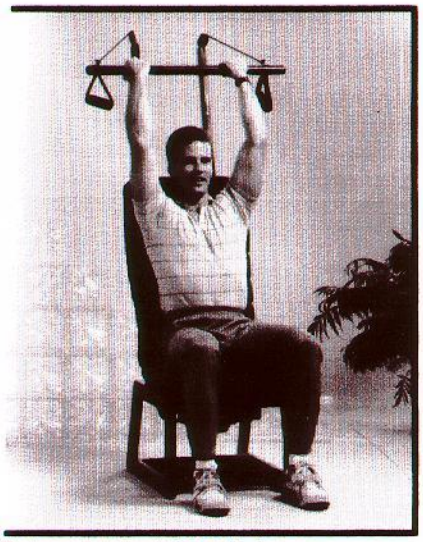
Pulldown — Start



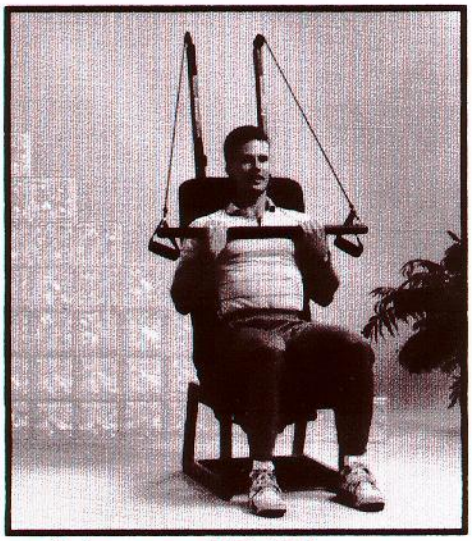
Pulldown — Finish



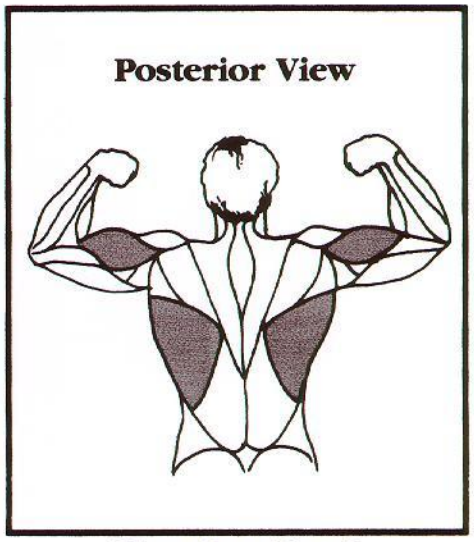
Muscles Used



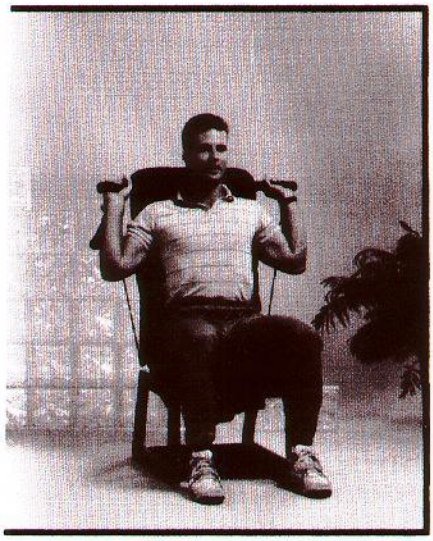
Advanced Pulldown — Start



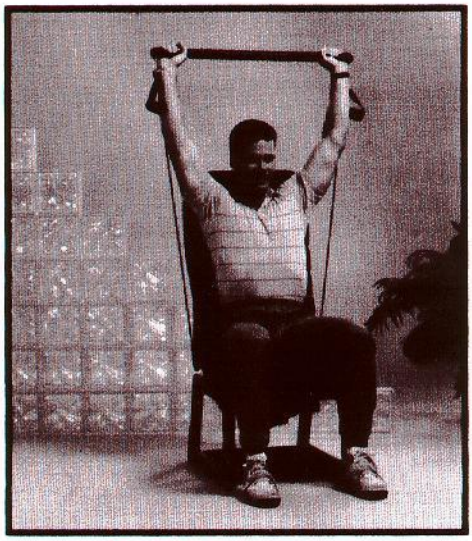
Advanced Pulldown — Finish



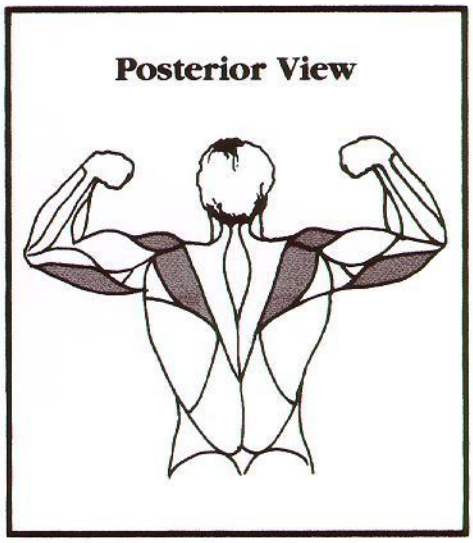
Muscles Used



Shoulder Press — Start



Shoulder Press — Finish



Muscles Used

Nordic Fitness Chair

4. Front Raise (shoulders)

Major muscles used: anterior deltoids

Execution

1. Adjust pulley arms to the downward vertical position. While seated, grasp the bar with your palms facing downward. Raise the bar in front of your body, to a position just above shoulder level. Keep your hands shoulder-width apart as you raise the bar.
2. Return bar to starting position and repeat.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
Shoulder muscles are used for canoeing, tennis, archery, batting, passing a football, doing the breast stroke, backstroke and crawl, golfing and handball. Strengthening of these muscles is also recommended for shoulder rehabilitation.

5. Upright Row (shoulders)

Major muscles used: trapezius and deltoids

Execution:

1. Adjust pulley arms to the downward vertical position. Kneel facing the chair. Grasp the bar with your palms facing toward you, with a six-inch separation between them. Raise the bar upward, keeping it as close to your body as possible and leading with the elbows. Raise to a position just below the chin.
2. Return to the starting position and repeat.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
The Upright Row strengthens the muscles of the shoulders, which is beneficial for activities that involve repeatedly raising your arms over your head. This also helps you work for long periods with your arms raised overhead. The Upright Row helps you enhance your performance in recreational activities such as canoeing, tennis, archery, batting, golfing, handball, and passing a football and basketball.

6. Chest Press (chest and triceps)

Major muscles used: pectoralis major, minor and triceps brachii

Execution

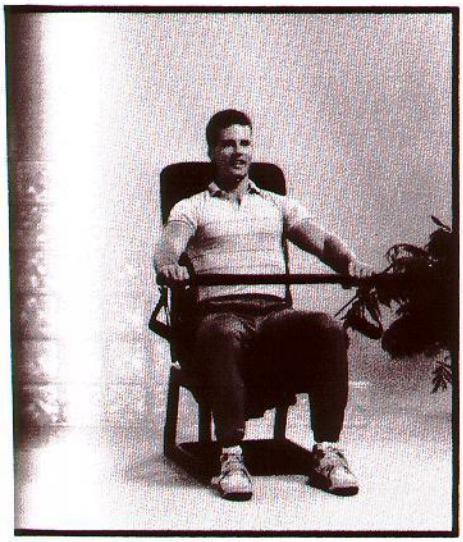
1. Adjust pulley arms to the 45 degree position with the cables around the mid-arm pulley. While seated, grasp the bar with your palms facing downward. Push directly away from your chest until your arms are fully extended, while keeping your elbows wide. Avoid locking your elbow joint at the end of the press.
2. Return the bar to chest and repeat.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

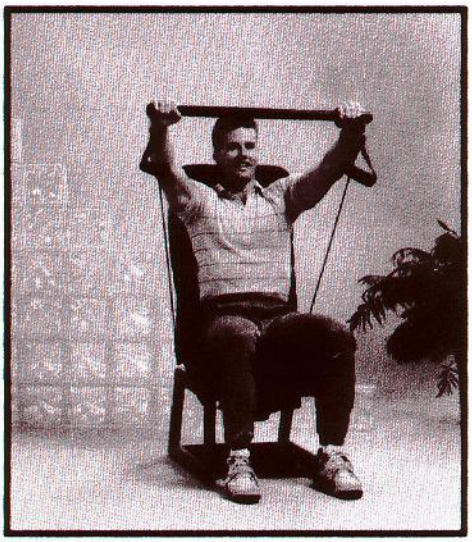
Benefits
Developing strength and endurance of the chest serves many purposes that apply to recreational and daily activities. Several of these recreational activities include: passing a football, doing the crawl and backstroke, throwing, punching, fencing, and shooting a basketball.

*Recovery times may vary depending upon program.

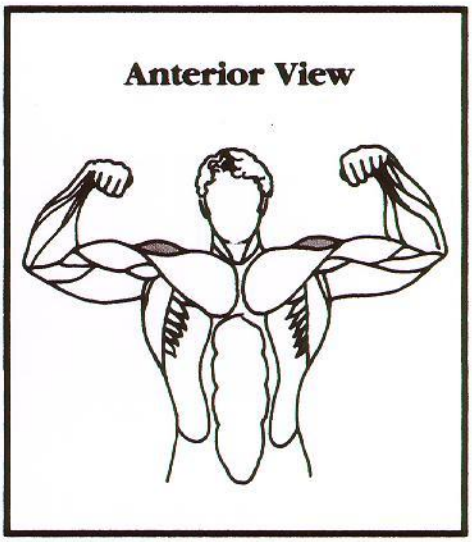
Accessory Bar Exercises



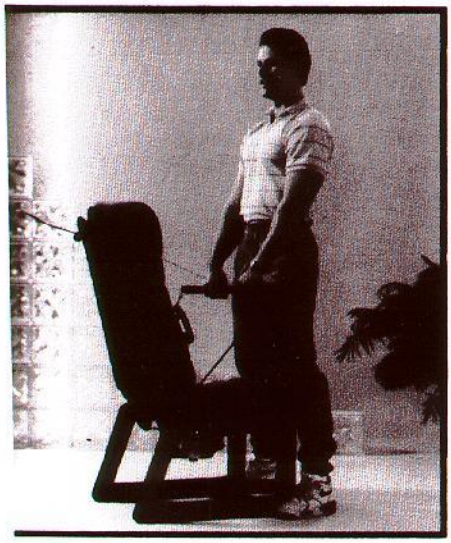
Front Raise — Start



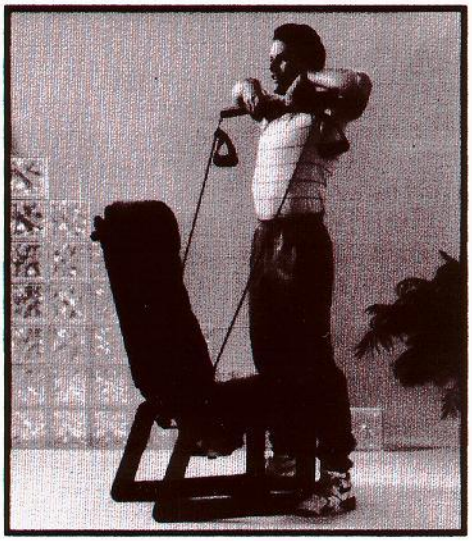
Front Raise — Finish



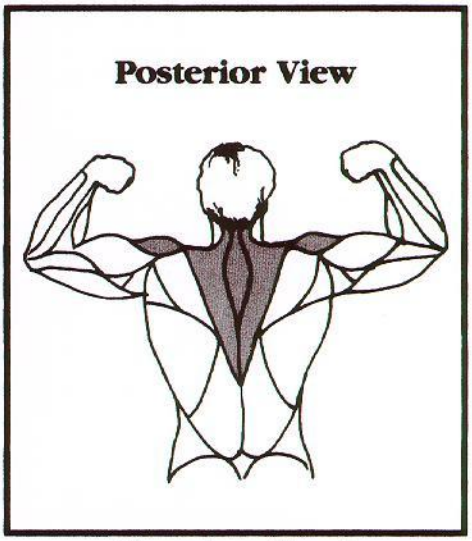
Muscles Used



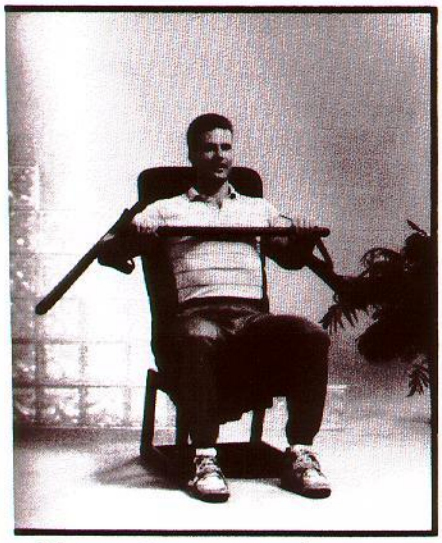
Upright Row — Start



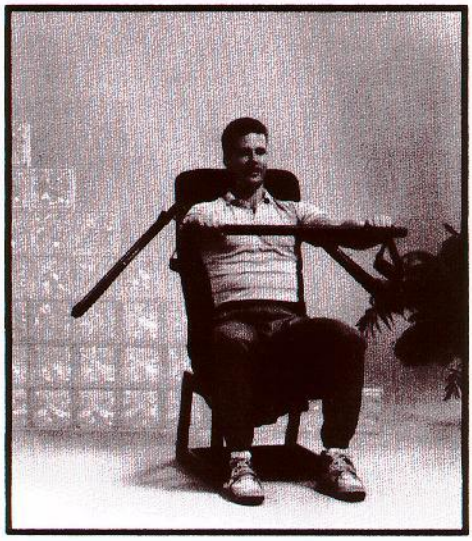
Upright Row — Finish



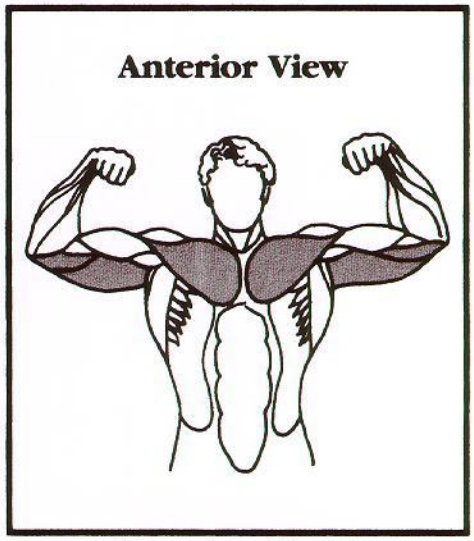
Muscles Used



Chest Press — Start



Chest Press — Finish



Muscles Used

Nordic Fitness Chair

7. Incline Press (chest, shoulders, and triceps)

Major muscles used: upper pectoralis major, anterior deltoids, and triceps brachii

Execution:

1. Adjust pulley arms to the 45 degree position with cables around mid-arm pulley. While seated, grasp the bar with an overhand grip with your elbows wide. Press the bar upward at a 45 degree angle, to an extended arm position above head level.
2. Return the bar to the sides of your chest and repeat. The Incline Press should be done with both arms simultaneously.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
This advanced exercise concentrates on development of the upper chest muscles. Some of the recreational activities that use these muscles include passing a football, doing the crawl and back stroke, throwing, punching, fencing, and shooting a basketball.

8. Decline Press (chest)

Major muscles used: pectoralis muscles, triceps, anterior deltoids

Execution:

1. Adjust pulley arms to the 135 degree position, with cables around mid-arm pulley. While seated, grasp bar with an overhand grip, keeping your elbows wide. Press bar away and downward from your chest, towards your knees.
2. Raise the bar to chest level and repeat.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

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.

9. Tricep Extension (triceps)

Major muscles used: triceps brachii

Execution:

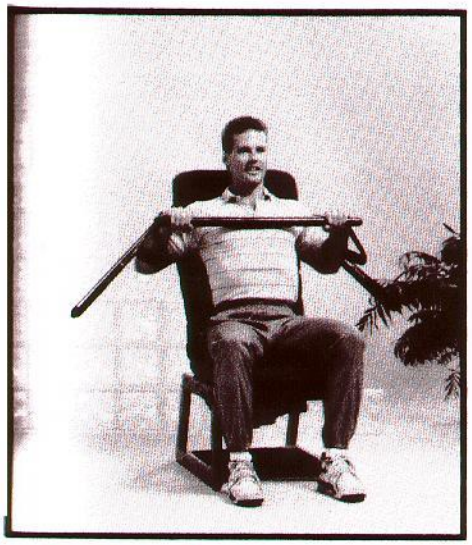
1. Adjust pulley arms to the upward vertical position with cables around the mid-arm pulley. While seated, grasp the bar with your palms facing upward and your elbows vertically positioned tightly beside your head. Push the bar upward and forward until your arms are fully extended, while stabilizing your upper arm.
2. Return to starting position and repeat. Do not allow your elbows to flare out to sides during the movement.

No. of sets: 2
No. of repetitions: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

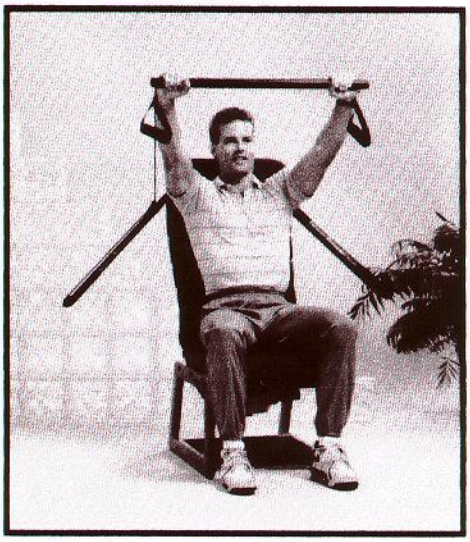
Benefits:
These muscles are used as prime movers in most pushing or extending movements. Functional examples would include pushing a grocery cart, lawn mower, or child in a stroller. Recreational activities that use this muscle group include: doing the breast stroke, batting, passing in football and basketball, and boxing.

***Recovery times may vary depending upon program.**

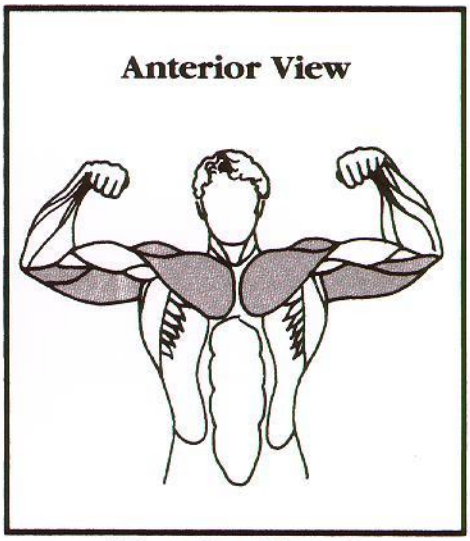
Accessory Bar Exercises



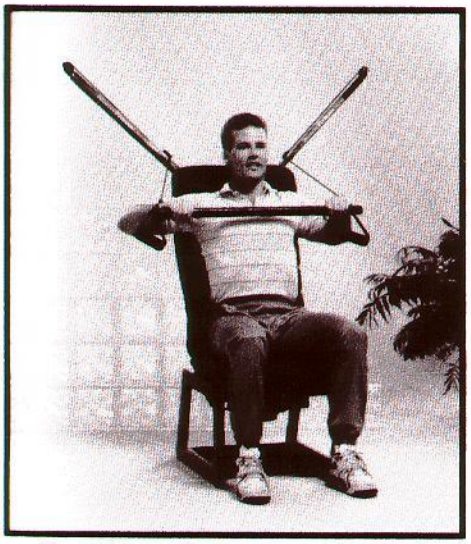
Incline Press — Start



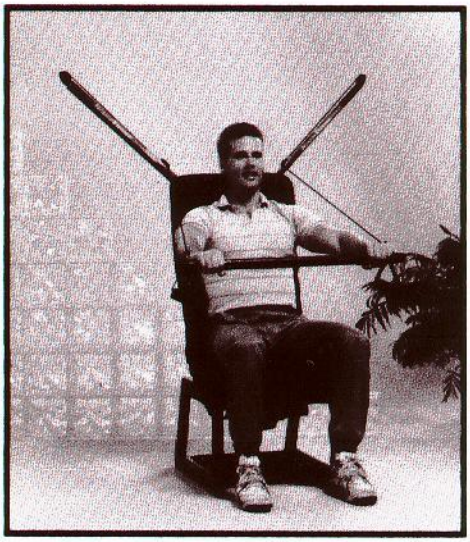
Incline Press— Finish



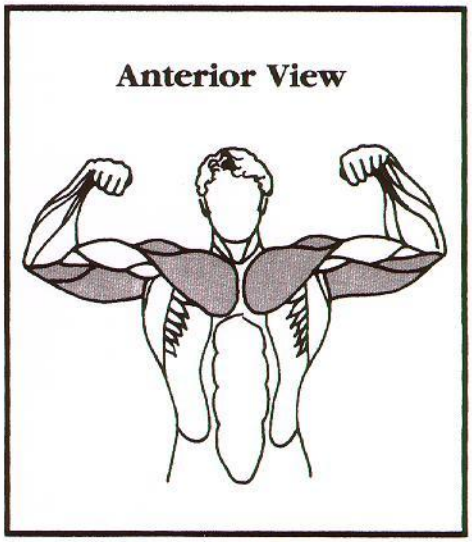
Muscles Used



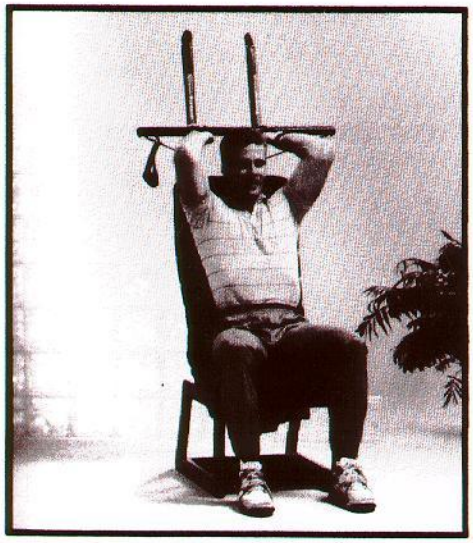
Decline Press — Start



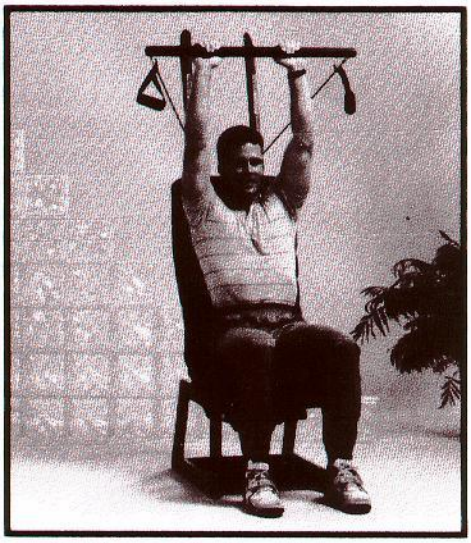
Decline Press— Finish



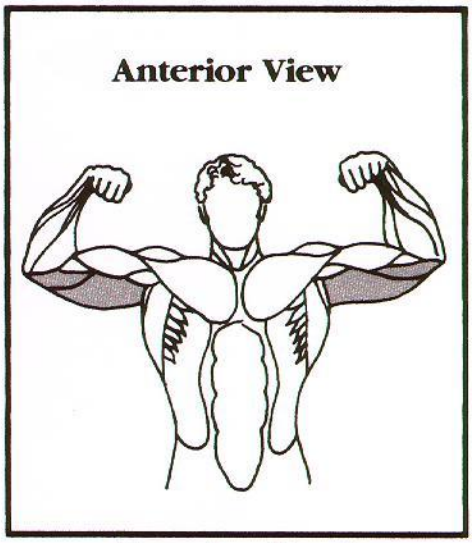
Muscles Used



Tricep Extension — Start



Tricep Extension — Finish



Muscles Used

10. Bicep Curl (biceps)

Major muscles used: biceps brachii and forearm flexors

Execution:

1. Adjust pulley arms to the downward vertical position. Kneel facing the chair. Grasp the bar with your palms facing forward. While keeping your elbows tight to your sides, lift the bar upward toward the front of your shoulders.
2. Return to starting position and repeat. This exercise should be performed in a smooth, controlled fashion.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
Daily practical uses of the biceps include carrying groceries, carrying a child, cleaning, or moving furniture. Recreational activities where stronger biceps can be beneficial include swimming, archery, rowing.

11. Reverse Curl (biceps and forearms)

Major muscles used: biceps and forearm flexors

Execution:

1. Adjust pulley arms to the downward vertical position. In a standing position, facing the chair, grasp the bar with an overhand grip, with your arms at your sides. Raise the bar upward, flexing at your elbows while stabilizing your upper arms at your sides.
2. Return to starting position and repeat. Avoid any body movement except that involved with flexion of the elbow joint.

No. of sets: 2
No. of repetitions per set: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

Benefits:
This exercise utilizes different muscles of the upper arm and forearm than the Bicep Curl. Daily practical uses of the biceps include carrying groceries, carrying a child, cleaning, or moving furniture. Recreational activities where stronger biceps can be beneficial include swimming, archery, and rowing.

12. Abdominal Crunch (abdominals)

Major muscles used: rectus abdominis

Execution:

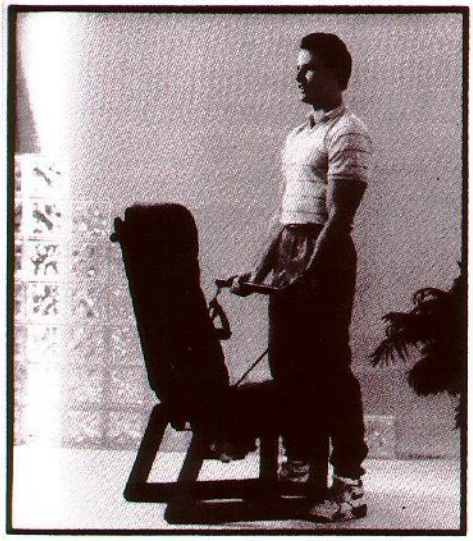
1. Adjust pulley arms to the upward vertical position. While seated, grasp the bar in front of your forehead. holding the handle firmly. Draw your head to your knees, keeping your lower back rounded. Contract or tighten your abdominal muscles while performing the exercise.
2. Return to an erect position, but don't lean back into the chair cushion (maintain about three inches between your upper back and the chair cushion).

No. of sets: 2
No. of repetitions per sets: 8-20
Recovery time between sets and exercises: 30 seconds to one minute*

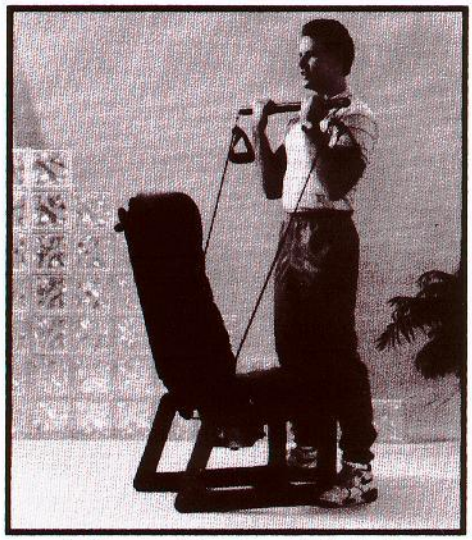
Benefits:
Of all the muscles discussed, the abdominals most often need to be strengthened. Abdominal strength is crucial because it helps control excessive lordosis or arching of the lower back. Clinical evidence shows that maintaining good abdominal muscle strength/endurance greatly reduces the risk of developing low back pain.

*Recovery times may vary depending upon program.

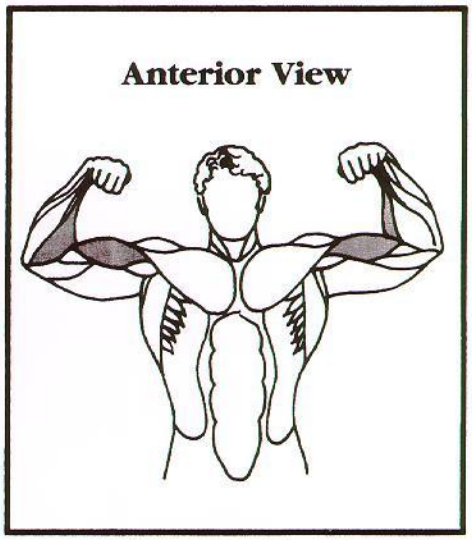
Accessory Bar Exercises



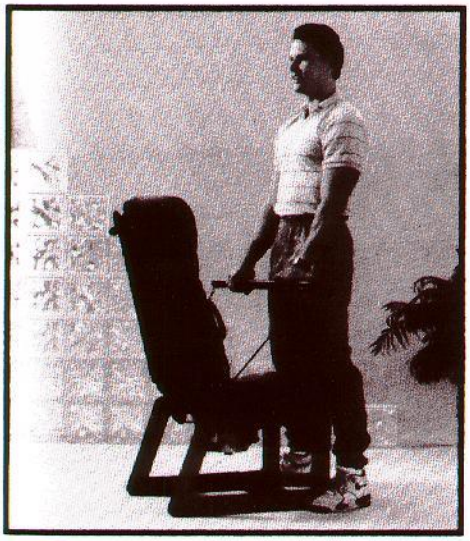
Bicep Curl — Start



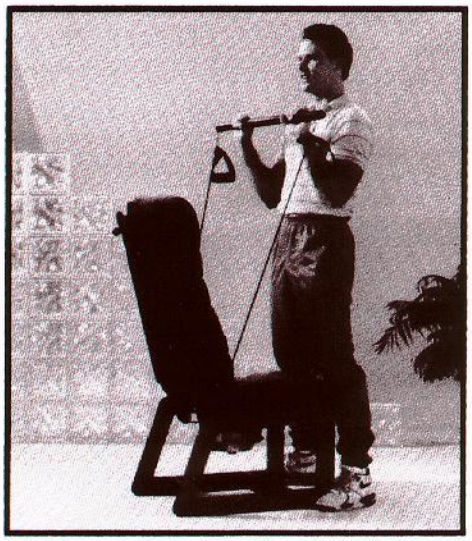
Bicep Curl — Finish



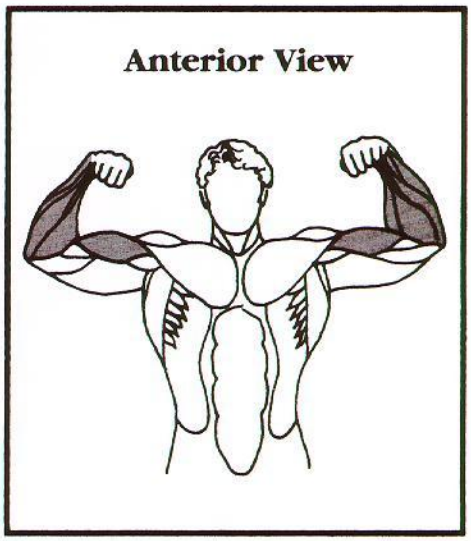
Muscles Used



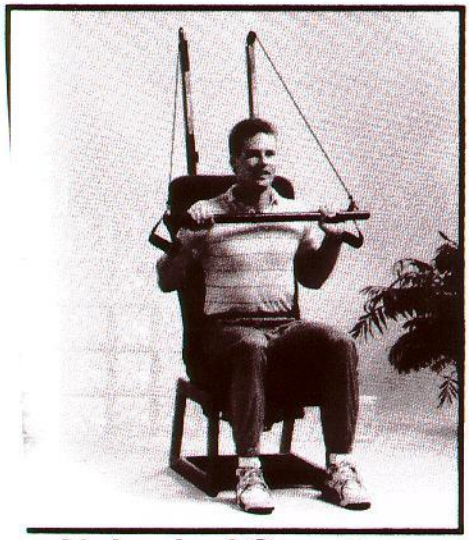
Reverse Curl — Start



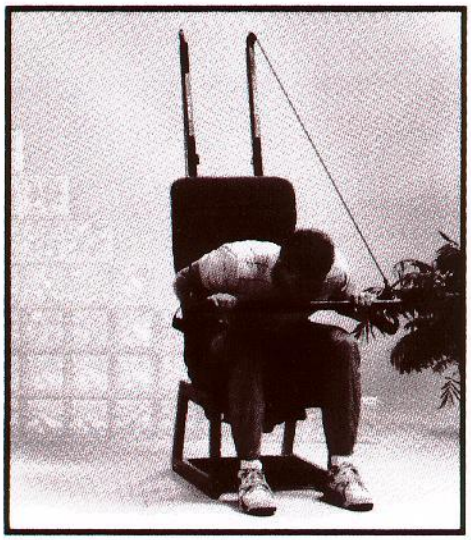
Reverse Curl — Finish



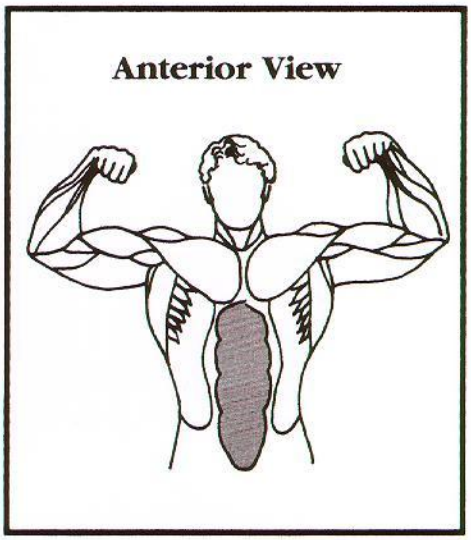
Muscles Used



Abdominal Crunch — Start



Abdominal Crunch — Finish



Muscles Used

Sports Strength and Conditioning Programs

This section outlines sports-specific routines for improvement in tennis, swimming, golf, cross-country skiing, baseball and softball.

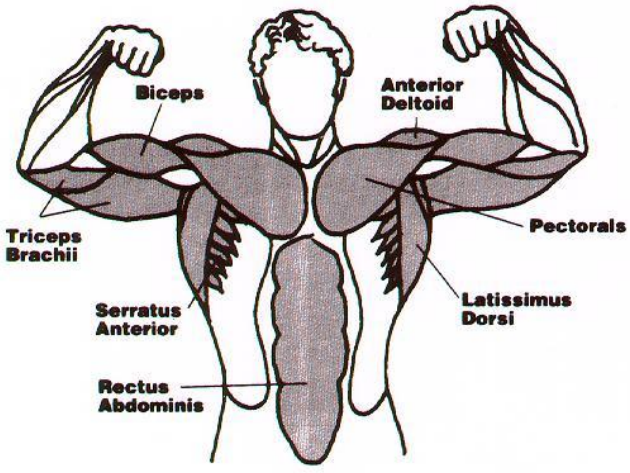
Tennis

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 and play. Matches can last much longer, and the major contributing factor to this requirement is aerobic power. Local muscle endurance in the arms is challenged by tennis. 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:

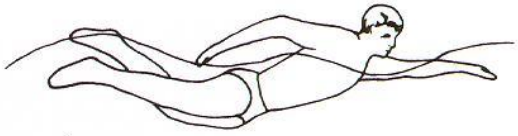
Anterior View



Resistance training program for tennis: (circuit training)

1. Pulldown	2 sets	10-15 repetitions
2. Shoulder Press	2 sets	10-15 repetitions
3. External Rotation	2 sets	10-15 repetitions
4. Internal Rotation	2 sets	10-15 repetitions
5. Tennis Swing	2 sets	10-15 repetitions
6. Chest Press	2 sets	10-15 repetitions
7. Tricep Extension	2 sets	10-15 repetitions
8. Bicep Curl	2 sets	10-15 repetitions
9. Abdominal Crunch	2 sets	10-15 repetitions

Swimming

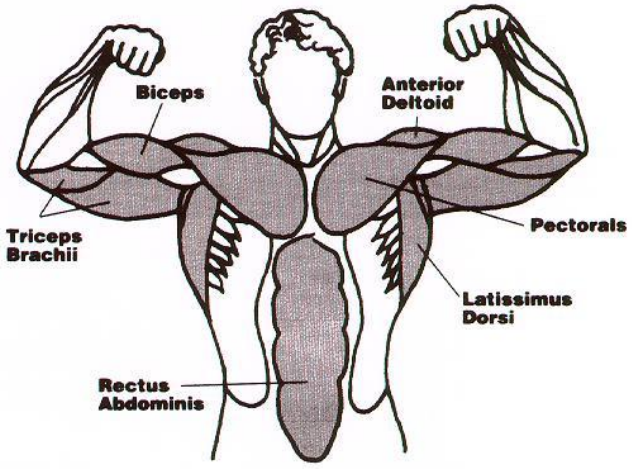


Major performance factors in sprint swimming are speed, acceleration, and arm power. Strength requirements are greater in swimming than in running because of the need to move limbs rapidly and forcefully through the resistance of the water.

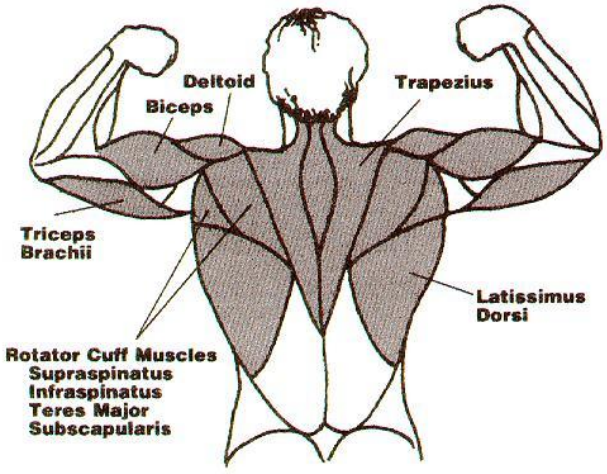
Long distance swimming requires less muscular strength and the primary objective is to increase local muscular endurance. Resistance of the water, even at slower swimming speeds, does require development of muscular strength.

Muscle groups used in swimming:

Anterior View



Posterior View



Resistance training program for swimming:

1. Pulldown	2 sets	10-15 repetitions
2. Front Raise	2 sets	10-15 repetitions
3. Shoulder Press	2 sets	10-15 repetitions
4. Upright Row	2 sets	10-15 repetitions
5. Lateral Raise	2 sets	10-15 repetitions
6. Front Raise	2 sets	10-15 repetitions
7. Chest Press	2 sets	10-15 repetitions
8. Incline Press	2 sets	10-15 repetitions
9. Tricep Pushdown	2 sets	10-15 repetitions
10. Abdominal Crunch	2 sets	10-15 repetitions

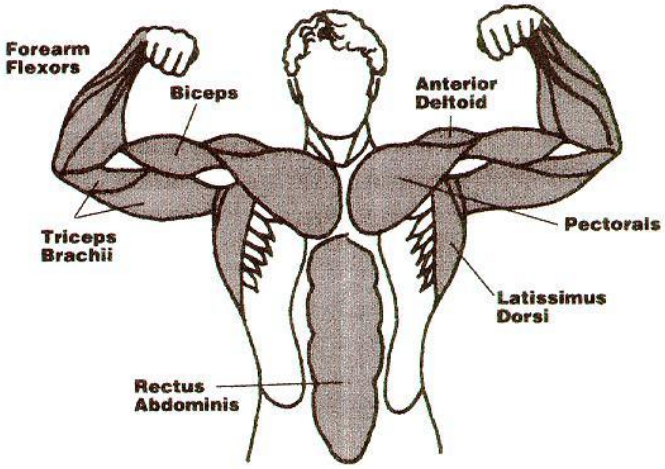
Golf

The golf swing is strictly an anaerobic action (an "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 of several hours, and includes walking over a period of several hours, aerobic capacity is also involved in playing the game of golf.

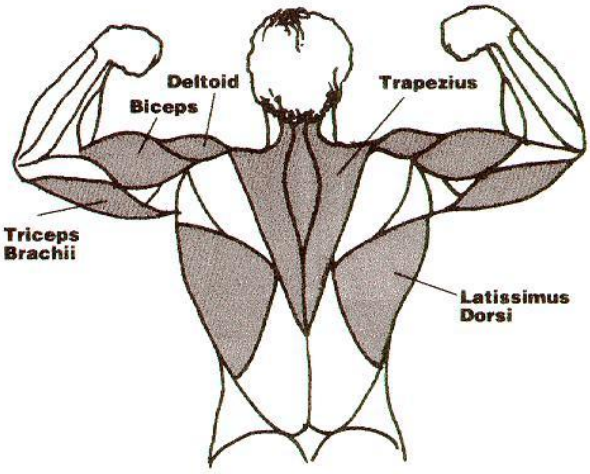
Strength training is aimed at upper body, particularly the shoulders, arms, and forearms, and grip strength. The emphasis is on lighter resistance and many repetitions. Training of that nature develops muscular endurance as well as strength. A two day-a-week, in-season program will help a golfer maintain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

Muscle groups used in golf:

Anterior View



Posterior View



Resistance training program for golf:

1. Pulldown	2 sets	10-15 repetitions
2. Shoulder Press	2 sets	10-15 repetitions
3. Lateral Raise	2 sets	10-15 repetitions
4. Internal Rotation	2 sets	10-15 repetitions
5. External Rotation	2 sets	10-15 repetitions
6. Golf Swing	2 sets	10-15 repetitions
7. Chest Press	2 sets	10-15 repetitions
8. Tricep Extension	2 sets	10-15 repetitions
9. Bicep Curl	2 sets	10-15 repetitions
10. Reverse Curl	2 sets	10-15 repetitions
11. Abdominal Crunch	2 sets	10-15 repetitions

Cross-Country Skiing

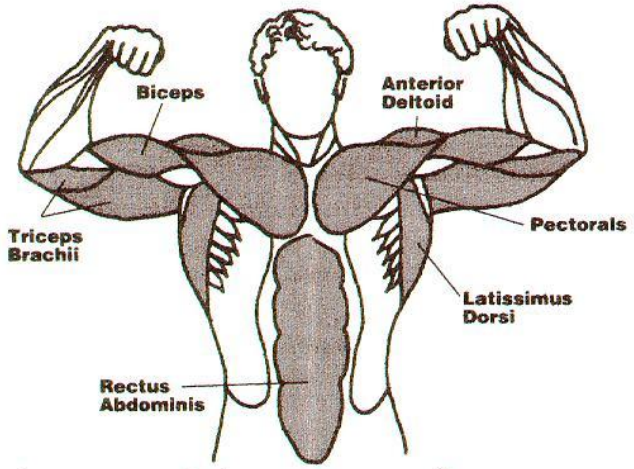
Cross-country skiing involves upper and lower-body muscles, and therefore gives the greatest aerobic benefit. Nordic skiing is considered to be one of

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 the 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:

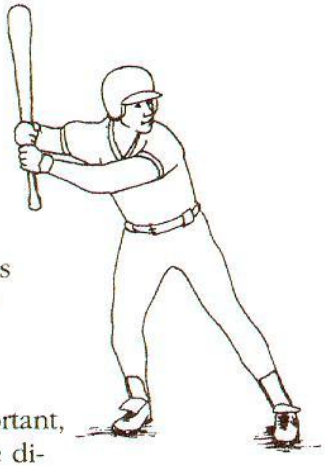
Anterior View



Resistance training program for cross country skiing:

1. Pulldown	2 sets	10-15 repetitions
2. Lateral Raise	2 sets	10-15 repetitions
3. Front Raise	2 sets	10-15 repetitions
4. Chest Press	2 sets	10-15 repetitions
5. Incline Press	2 sets	10-15 repetitions
6. Tricep Pushdown	2 sets	10-15 repetitions
7. Bicep Curl	2 sets	10-15 repetitions
8. Abdominal Crunch	2 sets	10-15 repetitions

Baseball/Softball

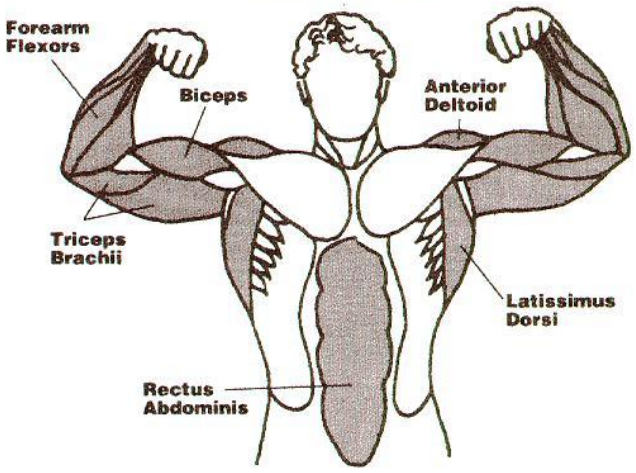


Baseball and softball are very anaerobic games. With the exception of the pitcher and catcher, players engage in brief bouts of effort requiring primarily acceleration, power, and speed. On defense, the actions of the pitcher and catcher are more frequent but still anaerobic.

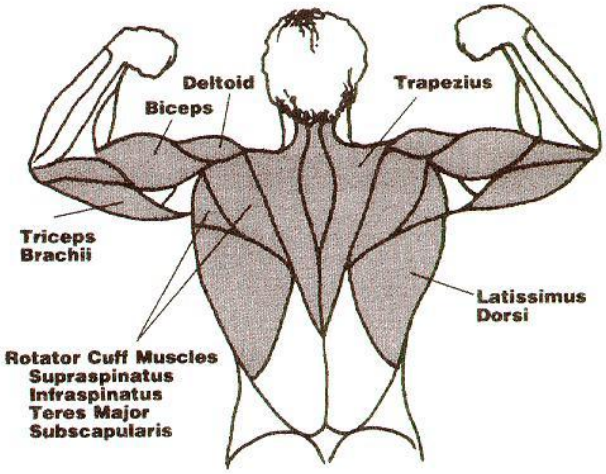
Arm strength is very important, so strength training should be directed to that area. Baseball and softball players can benefit a great deal from strength training. Strength must be maintained during the season to be effective. Only one set of ten repetitions is sufficient for in-season conditioning, while two sets are recommended for off-season training.

Muscle groups used in baseball and softball:

Anterior View



Posterior View



Resistance training program for Baseball/ Softball:

1. Pulldown	2 sets	8-12 repetitions
2. Adduction	2 sets	8-12 repetitions
3. Shoulder Press	2 sets	8-12 repetitions
4. Internal Rotation	2 sets	8-12 repetitions
5. External Rotation	2 sets	8-12 repetitions
6. Lateral Raise	2 sets	8-12 repetitions
7. Front Raise	2 sets	8-12 repetitions
8. Chest Press	2 sets	8-12 repetitions
9. Incline Fly	2 sets	8-12 repetitions
10. Tricep Pushdown	2 sets	8-12 repetitions
11. Bicep Curl	2 sets	8-12 repetitions
12. Reverse Curl	2 sets	8-12 repetitions
13. Abdominal Crunch	2 sets	8-12 repetitions

Your Training Journal

Once you've decided to undertake an exercise program, feedback is essential. This training journal is designed to help you keep a record of your progress throughout your strength training and fitness program. Documenting your workout is motivating, because it makes improvement more apparent. Keeping up-to-date records may also identify greater gains with some muscles and the need to strengthen or emphasize others.

Sample Training Program Log

Date ① 3-27-90	Time Started ② 6:30	Time Finished ③ 7:30
Today's Workout ④ Chest, Shoulders, Triceps & Abdominals		Weight ⑤ 165

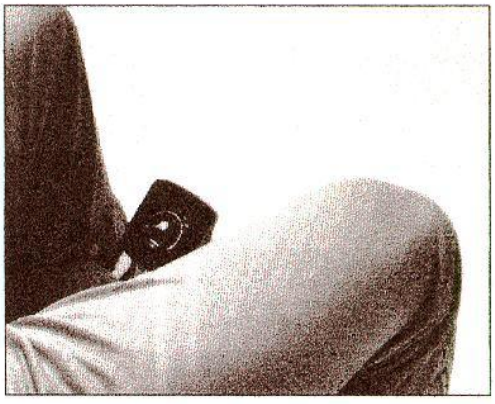
Exercise ⑥	Sets	Lbs. 1 Rep		Lbs. 2 Reps		Lbs. 3 Reps		Lbs. 4 Reps.	
1. Chest Press	⑦ 3	⑧ 150	⑨ 10						
2. Fly	2	30	10						
3. Incline Fly	2	25	8						
4. Shoulder Press	3	60	9						
5. Lateral Raise	2	15	10						
6. Internal Rotation	2	5	9						
7. External Rotation	2	5	10						
8. Tricep Pushdown	2	30	10						
9. Tricep Extension	2	30	8						
10. Abdominal Crunch	2	50	10						

Aerobic Activity ⑩	Time/Level of Difficulty ⑪
NordicTrack - 20 min.	35 min. / moderate

Comments ⑫ Felt good, rested, reduce recovery time between sets on next workout.

① Write in day, month and year
② Time workout begins — a.m. or p.m.
③ Time workout finished — a.m. or p.m.
④ What muscle groups you will work that day
⑤ Your body weight before working out
⑥ Exercise performed
⑦ Number of sets performed
⑧ Resistance used*
⑨ Number of times lifted during that set — repetitions
⑩ Type of aerobic exercise performed
⑪ Total time of activity and/or level of difficulty
⑫ Any comments on how workout felt — attitudes, problems, etc.

NOTE: For best results, keep an accurate account of every workout.
**If you have the available force meter accessory*



For best results, it is valuable to document your workout using the optional Workout Intensity Meter accessory, which displays in pounds, the force you are working against with each repetition. The Workout Intensity Meter accessory allows you to more accurately record your strength improvements.

Date	Time Started	Time Finished

Today's Workout	Weight

Exercise	Sets	Lbs. 1 Rep	Lbs. 2 Reps	Lbs. 3 Reps	Lbs. 4 Reps.

Aerobic Activity	Time/Level of Difficulty

Comments

Date	Time Started	Time Finished

Today's Workout	Weight

Exercise	Sets	Lbs. 1 Rep	Lbs. 2 Reps	Lbs. 3 Reps	Lbs. 4 Reps.

Aerobic Activity	Time/Level of Difficulty

Comments

Glossary of Terms

Abduction
Limb movement away from the midline of the body.

Adduction
Limb movement toward the midline of the body.

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

Atrophy
Muscle shrinkage during periods of inactivity.

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 two to three times.

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.

Eccentric contraction
Whenever a muscle exerts force, lengthens, and is overcome by a resistance.

Extension
The straightening of a joint, creating a larger angle between involved bones. Can be thought of as the opposite of flexion.

Flexion
A bending movement within a joint. The angle of the bones involved lessens during flexion.

Hyperextension
Forcing of a joint beyond its normal full extension.

Hypertrophy
Muscular growth in response to overload training, which occurs primarily from an enlargement of individual muscle fibers.

Intensity
Expressed as a percentage of the maximum resistance an individual can lift once but cannot lift a second time.

Isokinetic resistance
Exercise at a controlled rate of muscular contraction.

Isometric resistance
When a muscle exerts force, but does not change in length.

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

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

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

One repetition maximum (1 RM)
The resistance (mass of the free weight) at which an individual could perform only one lift and not be able to repeat it a second time.

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 it is normally accustomed.

Progressive resistance exercise (P.R.E.)
A practical application of the overload principle that forms the basis of most resistance training programs.

Rotation
The pivoting or moving of a bone upon its own axis.

Static
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.

Volume
Related to the amount of work performed during the lift session. Depends on the frequency of sessions, number of exercises, and number of sets and load used.

NORDICFITNESSCHAIR™

from NordicTrack

141 Jonathan Boulevard North, Chaska, MN 55318

1-800-848-7786

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