

XCO[®] SHAPE

**MANUAL FOR GROUP FITNESS/
AEROBICS INSTRUCTORS**



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1. Introduction

Much of the discomfort of the passive and active properties of the musculoskeletal system is rooted in dysfunctions of the connective tissue system. Connective tissue is found at every level of our bodies, such as endomysium (surrounding each muscle fiber), epimysium (surrounding the entire muscle), and epithelial tissues (which cover the surface of the body and line its parts). Connective tissue has a three dimensional range of motion, as should any mechanical forces placed on them. Connective tissue adapts to the mechanical workload placed on it, following the maxim of “use it or lose it”. Movements during exercises should extend in all possible directions, to better stimulate the three-dimensional structure of connective tissue. The XCO® Trainer is optimally suited to accommodate this principle.

The biological half-life of connective tissue is anywhere from 200 to 500 days (i.e. 50% of this tissue requires at least 200 days to restore itself, depending on its location – or up to almost 2 years). The biological half-life for the matrix (the basic substance between the cells of a tissue) is from 2 to 9 days.

Not enough or an insufficient range of motion, incorrect training or posture all can debilitate the musculoskeletal system. When the connective tissue system and joint motion sensors (proprioceptors) adapt to any of these unfavorable conditions, decreased mobility ensues. The debilitation of the proprioceptors can in turn lead to a worsening of static and dynamic joint stability (troublesome coordination).

This vicious circle can be interrupted and counteracted through appropriate exercise with XCO®-TRAINERS. By adding XCO®-TRAINERS to our exercise and fitness programs, we can significantly improve fundamental motor functions such as strength, speed, endurance, flexibility and coordination.

2. History

The XCO®-TRAINERS have their origins in the realm of physical therapy, and were invented by Dutch Physical Therapist Jan Hermanns. In addition to his physical therapy practice, Hermanns also works as a personal trainer for professional athletes, including but not limited to team members of the Dutch National Baseball League and the National Hockey Team. Hermanns' basic goal was to integrate a training tool with preventive aspects into competitive athletics, to reduce the susceptibility to injury in athletes.

The primary causes of injuries are instabilities of the musculoskeletal system, specifically connective tissue. Hermanns was well aware of the fact that our connective tissues are hardly called upon in conventional exercise, and are therefore rarely addressed in fitness training. To stimulate the protein collagen, the main component of connective tissue, mechanical impulses and three-dimensional movements are a must.

Both of these stimuli are provided with XCO®-TRAINING -- while protecting the joints! The XCO®-TRAINER is an anodized aluminum tube, which is filled to two-thirds with slate granulate and sealed at both ends with plastic caps. XCO®-TRAINING distinguishes itself from similar training equipment, such as handheld dumbbells, by virtue of its dynamic (shifting) mass, by which proprioceptive training can be realized.

INFO BOX XCO®-TRAINERS



XCO-TRAINER® SIZE: S

(approx. 1.75 lbs, diameter 2", length 13")



XCO-TRAINER® SIZE: M

(approx. 2.2 lbs, diameter 2", length 17")



XCO-TRAINER® SIZE: L

(approx. 2.87 lbs, diameter 2.8", length 11.8")



XCO-TRAINER® ATHLETIC

(approx. 3.75 lbs, diameter 2.8", length 15.7")



XCO® GROUPTFITNESS SET

(approx. 1.3 lbs, diameter 1.8", length 10.2")

The acoustic feedback (a swishing sound made by the displacement of the granulated mass), is a great aid for trainers, physical therapists and exercise instructors, as it indicates proper use. It is nearly impossible to not use the XCO-TRAINERS® correctly – and the rhythmic sounds of its proper use are extremely motivating, particularly in a group setting.

An outstanding way to vary the application of the XCO®-Trainer is to blend the effect of a short dumb-bell with the targeted ballistic effect of the dynamic mass. This principle was originally applied in the development of XCO®-Models S, M, L and Athletic (depending on the user's fitness level and hand size), as only one tool to be held with both hands for many of the exercise modules. While such handling will admittedly reduce flexibility in Group Fitness and Aerobics, it is quite appropriate in physical therapy and in individual training modules, where such loss is not a matter of concern.

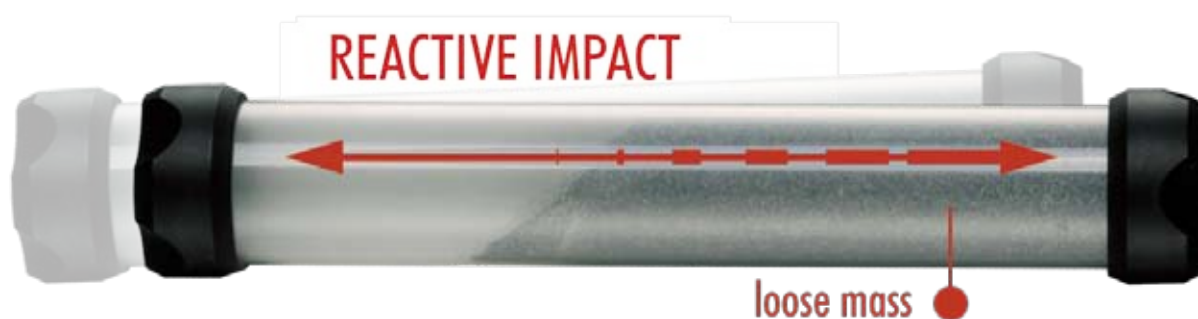


Illustration : Representation of the “Reactive Impact” in a transparent XCO-TRAINER®

XCO®s are now revolutionizing the group fitness industry. The benefits first realized with XCO® in the field of physical therapy have been carried over into fitness and toning exercises, giving us an extremely healthy and effective strength and endurance training method suitable for all ages and fitness levels.

“XCO®s” (approx 1.3 lbs each; diameter 1.8”, length 10.2”), refers to the shortest and lightest pair of XCO®-TRAINERS. These come equipped with PU foam padding to promote a more comfortable grip, and include special hand straps for added stability and to help ease strain on the thumb’s basal joint as well as the flexor and extensor muscles of the hand. This pair of XCO®s provides added range and variety in exercising.

Because the dynamic mass enables the simultaneous training of many muscle groups at once, heart rate is increased. Depending on length and intensity of the workout, heart rates of 120-160 bpm may be observed. This means that strength, endurance and coordination are all addressed simultaneously, making XCO®-TRAINING the perfect all-in-one workout.

3. Anatomical Fundamentals of the Connective Tissue System

Connective tissue structures appear in numerous forms in the human body and serve many essential functions. Our skin, our vascular system, the outer linings of our muscles, ligaments, intervertebral discs, menisci -- are all comprised of connective tissue. Also the connecting elements between muscles and bones, the tendons and ligaments – all essential to our mobility consist of connective tissue.

In his Clinical Dictionary, physician and teacher W. Pschyrembel defines connective tissue as: “The respective types of united cell structures, which have functional commonality and provide structural support. These groupings do not consist only of cells, but also of a substance found between the cells (extra- or intercellular substance)”.

A multitude of tissues can be found in our body:

- ✗ connective tissue
- ✗ cartilage
- ✗ muscle tissue
- ✗ nerve tissue

Alle diese Gewebe werden aus drei Basisstrukturen gebildet:

- ✗ cells
- ✗ fibers
- ✗ extracellular matrix



Movements (increased or decreased light tensile load, as well as optimal spatial alignment) stimulate these basic structures. Three-dimensional illustration of connective tissue containing the collagen protein:

Under mechanical forces, Fibrocytes convert into fibroblasts. In this manner, the biological half-life (regeneration) – normally 200-500 days – is reduced to ~200 days.

Illustration: Three-Dimensional structure of connective tissue

3.1. Three-Dimensional Stretching of Loose and Dense Connective Tissue Planes

Every connective tissue has a three-dimensional structure. Every joint has the ability to move within a 3-coordinate system. It should be noted that every joint and every connective tissue system is unique. The possibilities of motion ranges are nearly unlimited, if only due to the fact that the incipient position of the joints is possible at any degree or angle. This variability should be utilized to the greatest extent possible while exercising.

Connective tissues, as all bodily systems, are subject to the aging process. Over time, the 3-dimensional structural webbing of the connective tissue system loses some of its density, and deposits can accumulate in its interstitial spaces. The fascia, which provides muscle tissue with its elongating and gliding motions, can shorten and adhere when it loses its elasticity. XCO®-TRAINING makes it possible to pro-actively address the connective tissue system directly and improve such unwanted conditions.

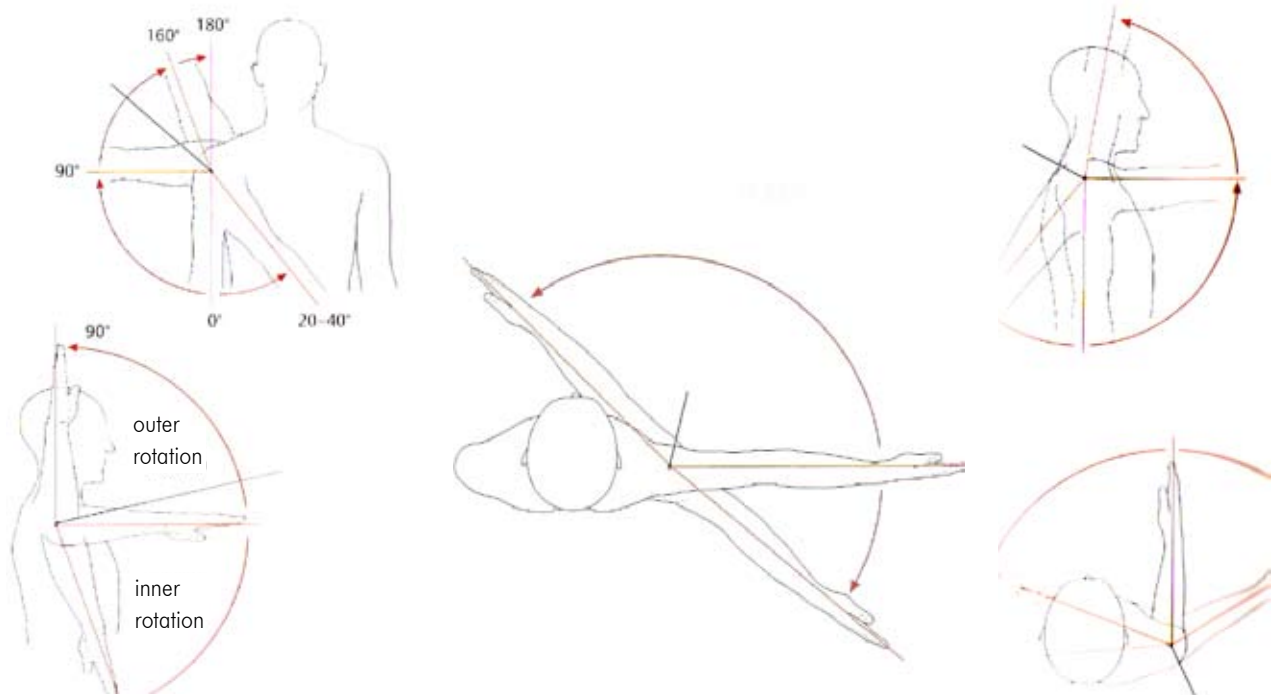


Illustration: Rotational axes and planes of movements

3.2. Proprioceptive Training with XCO®

The primary function of proprioceptors (sensory receptors) is to protect active and passive motor function. The REACTIVE IMPACT (delayed impact of the dynamic mass) gives the sensory receptors time to direct the contraction of the fascial sheaths that surround muscles and link muscle groups. This establishes a co-contraction of muscles, which in turn guarantees protection of the joints.

The actual protection of the joints is established by this synergistic co-contraction. By means of the plyometric movements triggered by the ballistic impulse (in which the muscle is loaded and then contracted in rapid sequence) an optimal interplay of agonist and antagonist muscles is created. This can be of immense benefit to the address of all-too-common instabilities of the spine and the large peripheral joints such as shoulders and knees.

Training with XCO-TRAINERS® stretches the connective tissue structures. The impulse at first arrives concentrically, at which point it plyometrically establishes an optimal muscle load. Lightning-quick, the concentric impulse then converts into an eccentric impulse.

This plyometric training is ideally suited to stabilize the joints and stimulate the regeneration of deep connective tissue by the trigger effect of the Reactive Impulse. Although the muscle-toning effects of such exercises will be immediately noticeable, the regeneration process will naturally take longer. The fact that many disorders of both the passive and active musculoskeletal system stem from dysfunctions of the connective tissue system underscores the value and positive benefits of XCO®-Training.

4. Training Instruction

The use of XCO-TRAINERS® brings about a co-contraction of opposing muscles. On the level of the actual musculature, the oscillating motion of the XCO®-TRAINER promotes muscle balance by working out opposing muscle groups simultaneously. A continuous rapid transition of eccentric and concentric contractions ensures joint protection. The “REACTIVE IMPACT” describes the trigger-effect caused by the delayed ballistic impulse of the XCO-TRAINER®’s shifting mass, which engages the body’s own resistance to counterbalance it.

Types of Training with XCO-TRAINERS®:

- ✘ Extensive interval strength-endurance training
- ✘ Intensive interval strength-endurance training
- ✘ Steady-state training
- ✘ Interval training
- ✘ Performance-based conditioning
- ✘ Explosive strength training
- ✘ Reactive strength training

Our body’s adaptability to a continuous unvarying motion stimulus is tremendous. , training with XCO®s satisfies numerous fundamental principles of training instruction:

- ✘ The principle of supercompensation
- ✘ The principle of the optimum workload
- ✘ The principle of adaptation

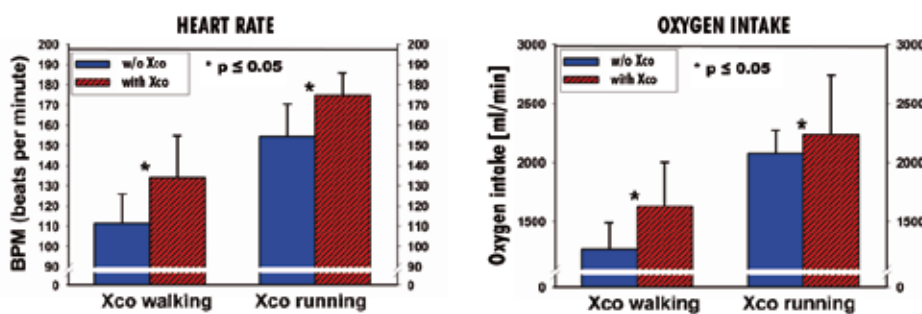
5. Methods of Application and Effects

5.1. Endurance

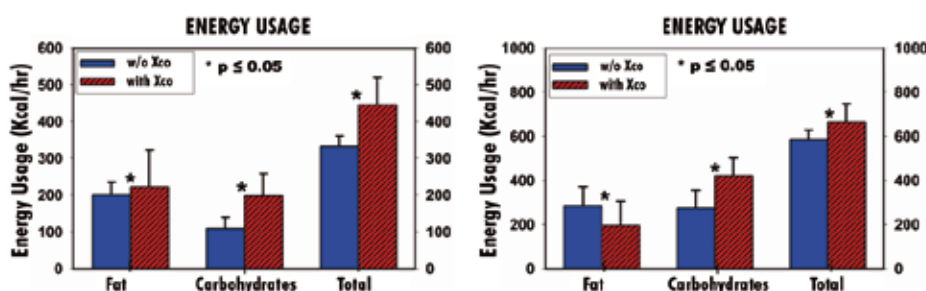
The plyometric movements of large muscle groups produce an immediate increase in heart rate. On the other hand, in cardiovascular training, by smoothly transitioning from one individual exercise to the next, heart rate remains relatively constant. To achieve the full benefits of endurance training, such as fat-burning, the length of the exercise routine should be never be less than 30 minutes.

In a study conducted in 2007 by the Institute of Medical Physics at the Friedrich-Alexander University of Erlangen-Nuremberg, the relative effectiveness of various exercises with and without the XCO-TRAINERS® was compared, using the respective parameters of heart rate, oxygen intake and energy expenditure. Given a maximal error margin of 5%, the differences were extremely significant and therefore very applicable.

It was proven that by activating arm and upper body musculature, the XCO-TRAINERS® increased the intensity of the exercises, which is a factor of great importance in boosting the effectiveness of cardiovascular fitness training. Calorie burning was boosted by 33%, which also resulted in a higher rate of burning carbohydrates and fat. (cf. Stengel, S.K.; Kalender, W.A.; Kemmler, W.: Influence on Energy Expenditure, Oxygen Intake and Heat Rate during Walking and Running by Utilization of XCO-TRAINERS®; Study by the Institute of Medical Physics at the Friedrich-Alexander University of Erlangen-Nuremberg; 2007)



Heart rate (left) and oxygen intake (right) during XCO® WALKING & RUNNING, with and without XCO-TRAINERS®. Significant differences ($\leq 0,05$) are marked with an asterisk.



Energy expenditure while walking (left) and running (right) with and without XCO-TRAINERS®. Significant differences ($\leq 0,05$) are marked with an asterisk.

5.2. Strength

A key advantage that free weights have over stationery exercise equipment is the tremendous number of possible variations. The shifting masses of the XCO-TRAINERS® produce other important benefits as well. The shifting mass causes a much different result than an inert mass is able to achieve. The most beneficial of these effects is realized at the end of each movement. The body absorbs the delayed impact of the shifting mass, which acts as a load charge on the muscle fibers. The connective tissues, including the ligaments and synovial joint capsules, all benefit alike from this delayed or REACTIVE IMPACT.

5.3. Coordination

XCO®-TRAINING improves both Intra- and inter-muscular coordination. By preparing the musculature is through rapid stretching-and-shortening cycles, reaction time is improved. The resulting improvement in coordination makes itself apparent by enhanced performance.

5.4. Flexibility

The increase or maintenance of flexibility is dependent on two factors. First, all peri- and intra-articulating joint structures (synovial joints and joint capsules, ligaments, etc.) must be able to facilitate flexibility. Secondly, movements in all situations must be stabilized by the musculature itself.

It can be concluded that the XCO®-TRAINER is a new comprehensive training tool that can significantly improve the effectiveness of fitness training.

6. Indications and Contraindications

6.1. Indications

The XCO-TRAINERS® have ushered in a new era in the fields of physical rehabilitation, injury prevention for sports and fitness, therapy and follow-up care.

As previously described, the application of an increased mechanical muscle load to muscles, ligaments, synovial joint capsules, intervertebral discs, menisci and skeletal structures can result in significantly improved resilience. Because of this, XCO®-Training can be used with successfully for sports- and preventive group fitness, personal training and the gym. XCO®-Training training can also be applied to the rehabilitative treatment of nearly any posture- or musculoskeletal-related complaints.

6.2. Contraindications

As with any other forms of strength training, we recommend a professional medical consultation prior to starting, especially if any of the following conditions are present:

- ✘ High blood pressure
- ✘ Advanced stages of pregnancy
- ✘ Inflammation of any body parts being addressed by the exercise
- ✘ Advanced intervertebral disc problems

7. XCO® SHAPE (Indoor)

The reactive impact, with its inherent joint-protecting functions, also lends itself well to the realm of group fitness. One of its key advantages is the wide range of target groups it embraces. Beginners, advanced and individuals of any age group or gender will find a satisfying match in the different workouts available. The acoustic feedback of the XCO®'s is extremely motivating in a group setting and assures the trainer or class instructor of proper technique and that the goals for the training session are thus being achieved.

A diverse choice of training goals:

- ✘ Cardiovascular fitness (interval training, basic endurance training, etc.)
- ✘ Strengthening of all relevant muscle groups
- ✘ Intra- and inter-muscular coordination
- ✘ Flexibility (by maximum utilization of the joint radius)

All of these goals focus on the improvement or stabilization of the basic properties of motor function. With XCO® SHAPE it is possible to accomplish this in one simple training program. (Refer also to the DVD, XCO® SHAPE, with recommendations of content for structuring a training course).

It is possible to offer a low impact training class (with easy-to-follow exercises done mainly in a standing position) or a pure toning or spinal health exercise class, best suited for use in conjunction with other small exercise equipment, such as exercise balls, or in rotation with the FLEXI-BAR®.

Extreme power and an equal amount of enthusiasm, especially from men and younger audiences, is generated by the XCO® Fight Class, which binds together key elements from fighting sports with XCO®-Training. The possibilities for putting together a training course for XCO® SHAPE are as numerous as the discrete goals set for each class and the composition of the group. A trainer or instructor's individual creativity will be of additional benefit in devising new uses for this training tool.

Its wide range of possible uses makes XCO® SHAPE an ideal training tool for fitness studios and clubs. The training is extremely efficient, with many options for variations. The high ratio of dynamic-eccentric movements makes it possible to achieve fast results and an agreeable energizing sensation can be felt in the connective tissues after every workout. Notwithstanding the excitement of the training experience, it is nevertheless important to take a 1 or 2 day breaks between workouts, especially in the first 30 training sessions, to prevent the negative effects of overtraining.

8. Ranges of Use: The “3-in-1 Concept”

The “3-in-1 Concept” describes the benefit of having one tool suitable for use in three different areas of fitness training. Depending on season or preference, the XCO®s can be used outdoors, in group fitness classes or in the gym.

XCO® SHAPE INDOOR:

In this arena, XCO®s can be implemented on a highly customized basis, whether in XCO® classes, cardio, toning, fight or cross-training classes. Additionally it can be used as a training aid for use in back strength training, etc. The possibilities are endless. Special XCO®-SHAPE classes are often offered as a 30-minute express class.

XCO® WALKING & RUNNING OUTDOOR:

This is where WALKING and/or RUNNING is offered in a group setting. This training operates on the same philosophy of “get trim through exercise” that popularized the German outdoor workout circuits of the early ‘70’s. Stints of walking and running are interspersed with a selection of specialized exercises. Previous instructional training in XCO® WALKING & RUNNING is required as a prerequisite for XCO® WALKING & RUNNING OUTDOOR. In this manner, quality of delivery is assured.

XCO® WALKING & RUNNING TREADMILL:

The XCO®s can be secured to both sides of a treadmill by use of specially designed holders. They can be used in the same fashion with Stairmasters® and other cardio stations (such as Technogym’s Cardio Wave®). Using the XCO®s as an aid in cardiovascular fitness training enables more diversification during a workout, since due to the increased intensity of the workout it requires less time per machine to get a desirable result.



9. Technique

9.1. Attaching the hand straps



Tightly fasten attachment straps around thermo-grip. Pull Velcro tabs firmly to secure attachment straps in place.

TIP : Open hand straps (in center) prior to securing them to the XCO-TRAINER®!

Firmly pull hand straps (located in center) in an upward motion over the back of the hand.

TIP : Ensure knuckles are visible – also, by leaning the second XCO-TRAINER® against the stomach it can be more easily attached.

The XCO-TRAINER® should remain securely in place when the hand is opened.

Important! Maintaining a sustained rigid grip can cause cramping in shoulders and forearms, and may lead to incorrect posture (hunching).

9.2. Grip Variations



Thumb position: neutral

TIP: Easiest method for learning the correct XCO® movement. This is usually also the most comfortable hand position.

Thumb position: adduction

TIP: Presented here only as an alternative to the neutral position.

Thumb position: full grip (crush grip)

Important! Maintaining a sustained rigid grip can cause cramping in shoulders and forearms, and may lead to incorrect posture (hunching).

Therefore: constantly vary thumb position.

9.3. Familiarization with the XCO®-Effect

1



2



To begin the XCO®-Trainer is placed transversely across the palm and is raised from in front of the body to just above the head and back again. This generates an effect comparable to the inert mass of a handheld dumbbell.

1



2



Now hold the XCO®-TRAINER lengthwise to the body, and in one motion catapult it from front to back. A series of these rhythmic, controlled motions activate the internal shifting mass of the XCO®-TRAINER, generating the unmistakable REACTIVE IMPACT. Joints are better protected and connective tissues are stimulated, which leads to a safer and more effective form of training. In this simple fashion, the athlete can experience an upper-body plyometric workout.

9.4. Degree of Impact

As an additional measure of intensity, the dynamic motion of the shifting mass can be executed with significant force (high impact) or a minimum of force (low impact). In this manner, the correct amount of REACTIVE IMPACT can be optimally adjusted to each individual, according to fitness level and overall condition.

10. Formation of a Course/Course Layout/ Structure/Program Structure

10.1. Important information prior to beginning a course:

- ✘ Product information and explanation of its differences from earlier training methods
- ✘ correct attachment of the hand straps
- ✘ raising participants' awareness of the XCO®-Effect prior to starting

10.2. Important information while instructing the course :

- ✘ Point out the importance of the acoustic feedback as a training control mechanism/ promoting body awareness.
- ✘ As needed, repeatedly adjust intensity level (neither too high nor too low).

Music recommendations

Beginners 125-130 BPM

Advanced 130-140 BPM

10.3. Sample Exercises – Toning

DOUBLE IMPACT



Description:

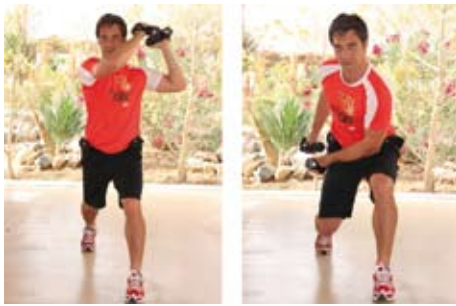
Squat slightly, with XCO®-TRAINERS at waist level. Swing both XCO®-TRAINERS up above head and back again, while straightening upper body and partially extending arms without locking the elbows. Tense the buttocks.

Intensity: 10-30 reps; 1-3 sets

Muscles targeted:

Legs, buttocks and back

KAYAK



Description:

Legs wide apart, left leg front, right leg back. Begin with XCO®-TRAINERS at head level on left side of head. Using sweeping, forceful diagonal motions, swing both XCO®-TRAINERS towards back leg and return with same sweeping motion, while bending the upper body in accordance with the overall motion.

Intensity: 10-30 reps; 1-3 sets

Muscles targeted:

Legs, buttocks, oblique abdominals, and chest

SHOULDER SHAKE



Description:

In a straddling position, knees slightly bent, toes pointing slightly outwards, buttocks tight. Raise the XCO®-TRAINERS to head level, then vigorously swing the XCO®s forward and immediately back again. Partially extend arms without locking elbows.

Intensity: 10-30 reps; 1-3 sets

Muscles targeted:

triceps, biceps

FRONT CROSS



Description:

In a straddling position, knees slightly bent, toes pointing slightly outward, buttocks tight. Begin with XCO®-TRAINERS at shoulder height, with palms facing down and arms crossed in front of chest. Vigorously swing the XCO®-TRAINERS to both sides simultaneously and immediately back to starting position.

Intensity: 10-30 reps; 1-3 sets

Muscles targeted:

shoulders and chest

10.3. Sample Exercises – Toning

FRONT CROSS (OUTWARD ROTATIONS)



Description:

Feet planted widely apart, knees slightly bent, toes pointing slightly outwards, buttocks tight. Start with XCO®-TRAINERS extended in front of chest at shoulder level, with palms facing upwards. Vigorously swing the XCO®-TRAINERS to both sides simultaneously and immediately bring back to starting position.

Intensity: 10-30 reps; 1-3 sets

Muscles targeted:

shoulders and chest

TWIST



Description:

Feet planted widely apart, knees slightly bent, toes pointing slightly outwards, buttocks tight. Start with XCO®-TRAINERS at shoulder height, with palms facing down. Swing the XCO®-TRAINERS from one side to the other and immediately back again. Extend arms partially without locking elbows.

Intensity: 10-30 reps; 1-3 sets

Muscles targeted:

Transverse abdominals, torso and chest

VICTORY



Description:

Wide straddling position, knees slightly bent, toes facing slightly outwards, buttocks tight. Start with XCO®-TRAINERS at waist height. Simultaneously swing both XCO®-TRAINERS upwards and outwards and immediately back to starting position. Extend arms partially without locking elbows.

Intensity: 10-30 reps; 1-3 sets

Muscles targeted:

Back, chest, shoulders, stomach

WAVE



Description:

Wide straddling position, knees slightly bent, toes facing slightly outwards, buttocks held firmly tight. Extend arms nearly all the way without locking elbows and bring them over the head. Using forceful, pendulum-like movements, swing the XCO®-TRAINERS back and forth over the head. Upper body should remain stationary!

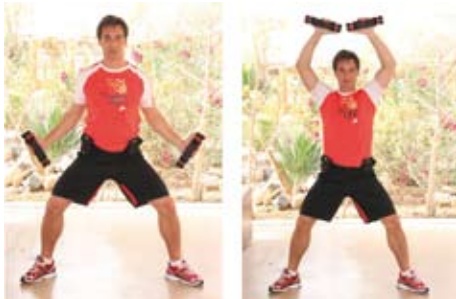
Intensity: 10-30 reps; 1-3 sets

Muscles targeted:

Transverse abdominals, pelvic floor houlders and chest

10.3. Sample Exercises – Toning

JUMPING JACK



Description:

Legs wide apart, knees slightly bent, toes pointing slightly outwards, buttocks tight. Start with both XCO®-TRAINERS at high level. Vigorously swing the XCO®-TRAINERS in a circular motion upwards, while straightening the upper body. Extend arms partially without locking elbows.

Intensity: 10-30 reps; 1-3 sets

Muscles targeted:

Thighs, adductors, trapezius, latissimus dorsi.

PUNCHING



Description:

Legs apart, knees slightly bent, toes pointing slightly outwards, buttocks tight. Start with XCO®-TRAINERS at waist height, palms facing inwards. Swing the XCO®-TRAINERS straight forward and immediately back again.

Intensity: 10-30 reps; 1-3 sets

Muscles targeted:

Triceps, biceps, oblique abdominals, torso

TRICEPS



Description:

Legs in a lunging position with right leg front and upper body leaning forward. Right hand is supported on the right thigh, and left arm is bent as in a running position. From this starting position, swing the free XCO® backwards and upwards while straightening arm, and immediately back again.

Intensity: 10-30 reps; 1-3 sets; switch sides

Muscles targeted:

Triceps

SHOULDER FLY



Description:

Legs wide apart, knees slightly bent. One hand is supported against thigh. Bend upper body forward. Position the free XCO®-TRAINER in front of and perpendicular to the legs, then forcefully swing the XCO® upwards and outwards and back again. Slightly rotate the upper body concurrent with the arm motions.

Intensity: 10-30 reps; 1-3 sets; switch sides

Muscles targeted:

Shoulders and chest

10.3. Sample Exercises – Toning

BIG KICK



Description:

While standing on one leg, bring the other leg forward, bending it at the knee. Tighten buttocks. Starting with the XCO®s at head level, vigorously swing them forward while simultaneously straightening out the free leg. When swinging the XCO®s back again, return leg to bent position.

Intensity: 10-30 reps; 1-3 sets; switch sides

Muscles targeted:

Triceps, biceps, quadriceps, straight abdominals

LUMBERJACK



Description:

Legs wide apart, knees slightly bent, toes pointing slightly outwards, buttocks tight. Start with XCO®s at head level (within field of vision). Forcefully swing the XCO®s downwards to waist level and immediately back up again.

Intensity: 10-30 reps; 1-3 sets

Muscles targeted:

Shoulders, chest and legs

AB BLASTER/"THE BOMB"



Description:

Legs apart, knees slightly bent, tighten buttocks. Extend arms partially without locking elbows over left side of head. Forcefully bring the XCO®s diagonally downwards, while simultaneously lifting the right knee up to hip level.

Intensity: 10-30 reps; 1-3 sets; switch sides

Muscles targeted:

overall

10.3. Sample Exercises – Toning

FLOOR KICK



Description:

Lie in a sideways position, supporting upper body with forearm. Lower knee is bent and should lie flat on the ground. Pelvis is raised above the ground. The upper arm is bent at the elbow and raised over the head. Lift and stretch upper leg up from floor. Move arm toward buttocks while pulling knee up toward chest. Vigorously swing the XCO® to starting position over head while extending upper leg.

Intensity: 10-30 reps; 1-3 sets; switch sides

Muscles targeted:

Transverse abdominals, torso, trapezius

FLOOR HACKER



Description:

Lie on back with knees bent and heels securely on ground. Both XCO®s are positioned behind the head, with arms fully extended. Firmly tighten abdominals and buttocks. Swing both XCO®s across body to outer thighs (Alternative: lift upper body concurrent with arm motions) and return to starting position.

Intensity: 10-20 reps; 1-3 sets;

Muscles targeted:

Straight abdominals, shoulder

FLOOR HACKER (SIDEWAYS)



Description:

Lie on back with legs slightly apart and knees bent. Start with the XCO®s above head, nearly touching the ground. Bring the XCO®s diagonally over body in the direction of the feet and back to starting position, rolling the torso up and down concurrently. Use alternating diagonal motions, just past the outer thighs.

Intensity: 10-20 reps; 1-3 sets; switch sides

Muscles targeted:

Oblique abdominals, shoulder

10.4. Stretching (Exercises)

The musculature to be worked out should be sufficiently stretched before and after exercise. Pay attention in particular to the front torso and arms.

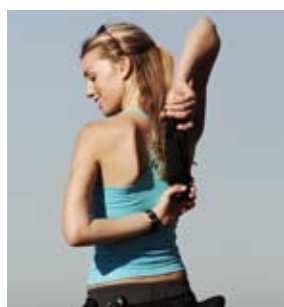
Muscles to be stretched:

- ✗ M. serratus anterior
- ✗ M. pectoralis minor
- ✗ M. pectoralis major
- ✗ Complete upper and lower arm musculature

Rules for stretching

1. Always stretch after any form of exercise (conclusion of every workout)
2. Never stretch cold or hardened muscles
3. Stretch gently without bouncing
4. Breathe regularly
5. Hold stretch position for 20-30 seconds; repeat as needed

EXERCISE 1



Description:

Standing upright, bend right arm down behind back between shoulder blades. Left hand grabs the right behind the back, gently pulling it into a downward stretch.

Intensity: 3x 15 seconds; switch sides

Muscles targeted:

biceps, triceps, shoulder girdle

EXERCISE 2



Description:

With legs crossed while in a standing position, stretch arms upwards and pull to one side while pushing the hips in the opposite direction; hold position, then slowly release.

Intensity: 3x 15 seconds; switch sides

Muscles targeted:

sides of torso

10.4. Stretching (Exercises)

EXERCISE 3



Description:

Slight lunging position, front foot propped up/supported by/leaning on heel. Thoroughly stretch out front knee, flexing toes of front foot upwards. While keeping back straight, bring body weight forward. Hold stretch for a short time, then slowly release.

Intensity: 3x 15 seconds; switch sides

Muscles targeted:

Calves, hamstrings

EXERCISE 4



Description:

Stand with feet shoulder-distance apart. Stretch right arm in front of body, with elbow facing down. Gently pull right hand with left hand, stretching out the forearm; hold briefly, then release (and return to starting position).

Intensity: 3x 15 seconds; switch sides

Muscles targeted:

forearms

EXERCISE 5



Description:

In a steady (balanced) standing position (lean against a tree, bench, etc. as needed), bend one leg back. Grab the ankle and pull towards the buttocks while keeping back straight. Hold briefly, then slowly release.

Intensity: 3x 15 seconds; switch sides

Muscles targeted:

Quadriceps

EXERCISE 6



Description:

Stand with legs hip-distance apart. Fold hands behind back and stretch upwards, while keeping back straight. Hold briefly, then release.

Intensity: 3x 15 seconds; switch sides

Muscles targeted:

Chest

11. Appendix: XCO® WALKING & RUNNING

XCO® WALKING & RUNNING has been met with tremendous acclaim from sports and fitness enthusiasts. Runners, walkers and NORDIC WALKERS in particular have discovered a new sports activity for themselves.

Use of the XCO-TRAINER® equipment intensifies the physical benefits of normal walking and running. The integration of XCO® WALKING & RUNNING into one's normal fitness routine results in a gentle, total body workout for walkers and runners alike. With the addition of customized exercises, the scope of your workout is increased to include the development of arm and upper body strength. The result: a full body fitness routine.

The fusion of XCO-TRAINER® fitness exercises with the benefits of pure walking or running have created a new healthy and extremely effective workout!

For more details about training as an XCO® WALKING & RUNNING INSTRUCTOR, go to www.xco-trainer.de and click on "Instructor Training".

Xco®
WALKING
& RUNNING

... much more
than just walking
with weights!

TOBIAS ANGERER
Overall winner, Tour de Ski 2007
1st place, Overall FIS World Cup 2007
1st place, Overall FIS World Cup 2006

Tobias Angerer

EVI SACHENBACHER-STEHLE
Gold: Nordic Ski World Champ. 2003 + 2002 Olympics
Silver: Nordic Ski World Champ. 2007 + 2006 Olympics

Evi Sachenbacher-Stehle

FLEXI-SPORTS®

www.flexi-sports.com



MANUAL FOR GROUP FITNESS / AEROBICS INSTRUCTORS

XCO® SHAPE: the ideal training tool for fitness clubs and studios!

This manual is intended for all trainers and instructors. It presents a comprehensive overview of the uses and techniques of the equipment, basics of anatomy, modes of operation and effects of XCO®. Additionally it shows the diverse applications for fitness clubs and studios as they relate to:

- ✘ Group fitness (fitness classes)
- ✘ Long distance and endurance sports
- ✘ Prevention and rehabilitation in sports or healthcare

Training that protects the joints and minimizes the risk of injury:

Whether the aim is strength, endurance or coordination, each personal fitness goal can be reached with XCO®-Training. Equally suitable for beginners and advanced.

