

Resistance Training

Why Resistance Training?

The factors that primarily affect improved athletic performance are efficient technique, speed of performance, and competitive attitude based on a sound foundation of general endurance, all round strength, and general mobility.

How to get stronger?

A muscle will only strengthen when forced to operate beyond its customary intensity (overload).

Overload can be achieved by progressively increasing the following:

- Resistance e.g. adding 10 kg to the barbell
- number of repetitions with a particular weight
- number of sets of the exercise
- intensity or training load (function of weight and the speed of movement of the exercise)

Which Resistance Training Exercise?

The exercise must be specifically related to the strength needs of soccer (specificity) and should incorporate the predominant types of muscular activity and the movement patterns involved. Although specificity is important, it is necessary to include general exercises for the chest, Back, Shoulder, Biceps, Triceps, Quadriceps, Hamstrings, and Calf

How Much?

The amount of weight to be used should be based on a percentage of the maximum amount of weight that can be lifted one time, generally referred to as one repetition maximum (1 RM). The maximum number of repetitions performed before fatigue which prohibits the completion of an additional repetition is referred to as repetition maximum (RM), and is a function of the weight used. The maximum repetition is a reflection of the intensity of the exercise.

How often?

Frequency is linked to recovery since the body must be allowed to recover from the strenuous demands of strength training. As a general 'rule of thumb' 48 hours should elapse between strength training exercises.

Types of strength training equipment

There are a variety of resistance machines and free weights. Resistance machines are effective tool for building strength and muscle tone and are designed to work the target muscle in isolation, without the assistance of the surrounding muscles. Free weights (barbells, dumbbells, and machines that provide the same equal resistance to a muscle) allow you to target not only a particular muscle group but also to engage other muscles that assist in the work. Once they are conditioned, these assisting muscles help you to increase the weight you use in training the target muscles. The assisting muscles help stabilize the body, support limbs, and maintain posture during the lift. Lifting free weights improve your coordination by improving the neuromuscular pathways that connect your muscles to the central nervous system.

Safety in the Weight Room

Strength training is safe when properly supervised and controlled. Here are some basic safety rules that should be observed when performing strength training:

- Train only when a qualified coach is present
- Follow your training schedule
- Work in pairs - one lifting one spotting
- No horseplay
- Wear the correct clothing and shoes
- No eating drinking, or smoking
- No personal stereos with headphones
- Help and respect other athletes
- Only athletes who are working out should be in the weight room

Guidelines for Spotting

- All obstacles must be cleared from the lifting area
- Collars should be securely fastened to the bar
- Spotter must be in proper position
- When spotting dumbbell exercises, spot as close to the dumbbell(s) as possible
- Once the load on the bar exceeds the spotter's ability to effectively protect the lifter, a second spotter must be used.
- Know how many repetitions the lifter is going to attempt
- Discuss with the lifter the procedure for the liftoff
- At the first indication that a lift will be missed, the lifter should ask the spotter for help
- The lifter should stay with the bar until it is racked or placed on the floor

Remember: Weight training requires supervision to ensure sound technique which results in safety and efficiency.

Before You Start

Prior to starting any training it is recommended that the athlete have a medical examination to ensure that it is safe for the athlete to do so.

Core Strength

What is the Core?

The core area of the body is the link between the extremities. It consists of the muscles of the abdominal cavity, spinal column and pelvis. These muscles wrap around and completely encircle the core area of the body. Due to the array of muscles and the different directions in which their fibres pull, they provide the trunk with tight powerful support for a wide range of physical movements. As a unit they work to stabilize the trunk during movements of the extremities.

Why is Core Strength Important?

- The muscles of the lower torso are essential for maintaining the body's equilibrium when performing many physical tasks.
- The core muscles help to stabilize the pelvis and shoulder blades in order to provide a solid base for movement of the legs and arms.
- The abdominal muscles assist with effective and proper movement as well as providing protection for the internal organs.
- The abdominal muscles create internal pressure that supports the spine, maintaining the stability to stand erect.
- Development of strong core muscles may help prevent low back injury.
- Core muscles may assist in breathing during exercise and physical activity.

What is the role of Core Strength during movement?

All forces generated by the upper and lower body muscles either originate, are stabilized by, or are transferred through the trunk. The stronger the core the more efficiently the force exerted by the arms and legs on the "core" will be transferred to other areas of the body and to the desired movement. The body's centre of gravity (an imaginary point around which the body's weight is evenly distributed) is also located within the lower torso. Your centre of gravity is your centre of power, and developing your centre of power will greatly improve the efficiency and effectiveness of your movements.

Core Strength Exercises

Perform the following Abdominal/Back exercises after each strength training session

- **Crunches:** Lie on back with knees bent and feet on the floor. Curl head and shoulders up and off the floor, bringing rib cage closer to pelvis. Once you can no longer curl body return to starting position. To make the exercise easier hold arms on thighs and to make it harder hold arms over head. Vary leg position, either straight or tucked, to increase difficulty
- **Side Bends:** Perform a curl-up. From the curled-up position, side bend at the trunk to slide your right hand towards your right heel. Then side bend at the trunk, the other way, to slide your left hand towards your left heel.
- **Cross Knee Sit-Up:** Lie on back with knees and feet flat on the floor. Cross the left leg over the right kneecap. Hold left hand behind head and raise the shoulder off the floor. Attempt to touch the right elbow to outside of left knee. Repeat with opposite leg and hand.
- **Pump Sit-Up:** Lying on back, extend legs out in front and interlock hands behind head. Work in a bicycle fashion. Bring left knee up to touch right elbow and vice versa. Do not allow feet to touch the floor

- **Double Leg Lowering:** Lie on back, contract abdominal muscles and rotate pelvis backwards. Place hands behind head, forearms relaxed on floor. Back and pelvis must not move during the leg movements. Begin with feet in the air. Lower both legs at once. Stop lowering leg when back and pelvis begin to move and return leg to starting position. Keep hip, knee and ankle in line
- **Back Extensions:** Sit on the floor with legs bent and feet flat on the floor. Position your hands behind you to take some of the weight. Raise your body off the floor so that your body is parallel with the floor. Hold for one second and slowly lower
- **Quadruped opposite upper and lower body extension:** Kneel with feet and hands on the floor. Simultaneously raise the right arm and left leg, straightening the knee and elbow. Keep stomach tight, **do not move trunk**. Hold this position then return to the starting position. Repeat using the left leg and the right arm.

How many?

Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions

Perform the following Resistance Exercises before each strength training session

- **Good Mornings:** Stand with feet shoulder width apart and back stable. Place barbell on shoulders. Keep back straight and head up. Bend at the hips. Return to start position. Keep back stable only move hips. Keep knees locked or slightly bent.
- **Dumbbell Side Bends (both sides):** Stand with feet shoulder width apart, knees slightly bent, and back stable. Hold dumbbell in right hand, palm in. Place left hand on waist. Keep back straight. Bend to right, and then bend to left. Change weight to left hand and repeat movement. Bend at waist only, not at hips or knees.
- **Seated Barbell Twists:** Place light barbell on shoulder. Sit at end of bench with both feet on the floor. Initiate movement with trunk not shoulders and arms. Twist torso to right/left by twisting at waist only. Keep back straight and stable. Do not move from hips, keep hips square.
- **Bend to Opposite Foot (both sides):** Stand with feet shoulder width apart, knees bent and back stable. Grasp dumbbell with left hand, palm in. Place right hand on right hip. Bend until dumbbell nearly touches right foot. Return to starting position. Change dumbbell to right hand and repeat.

How many?

1 set of 15 repetitions

Load Assignment

Training Intensity

Training intensity is widely recognized as the most critical element of any training regime. Weight training intensity is a function of the training load and the speed of movement of the exercise. For most athletes, intensity is most easily represented as a percentage of one's **repetition maximum (RM)** for an exercise. Accordingly, RM refers to the maximal number of repetitions that can be performed with a load. The accuracy of the RM is increased with proper warm up, rest intervals, motivation, and familiarity with the exercise. In addition to being described in absolute terms of power output, intensity may be stated in relative terms, that is, as a percentage of an athlete's 1RM. For example if an athlete's 1RM for the bench press is 100 kg, a relative intensity of 70% of 1RM for this exercise means doing repetitions with 70 kg

Determining the RM

Determination of 1RM is relatively very simple for well rested experienced athletes. However inexperienced athletes may not have developed the skill, balance, and neurological attributes that would allow for a safe and effective RM testing procedure. Therefore, it may be safer to use a higher RM value such as 10RM when testing inexperienced athletes. The 1RM can then be easily estimated.

Example for Estimating the 1RM

The following procedure should be used when estimating 1RM from a 10RM test-measured value of the athlete:

- Perform a set of 10 repetitions with a light weight
- Depending on the ease with which this is completed, add additional weight and perform another set of 10 repetitions.
- Allow a rest of 2 to 4 minutes between trials to ensure adequate recuperation
- Continue the process until a weight allowing only 10 repetitions is attained
- Calculate the 1RM value using the following formula:

$$1RM = (\text{Weight Lifted}) \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$$

Precautions

The following precautions should be observed when conducting RM testing:

- Athletes should have medical clearance
- A safety check of all equipment should be conducted
- An adequate number of trained spotters or equipment with safety catches, such as power racks, must be employed with such free weight exercises as squats and bench presses
- Athletes should be properly dressed, rested, and familiar with the exercises
- Supervisors and other personnel should know emergency medical procedures in case an accident or injury occurs

Warm up

The athlete should perform warm up sets before performing RM testing. Warm up allows for optimal

muscle contraction and elasticity. Therefore, the athlete should perform enough warm up sets that raise core temperature and mentally pares the athlete to focus on the task. The first set of warm up activities should be performed with weights of 50-70% of the RM weight to be attempted. A second warm up performed with weights of 75-80% of the RM weight may be employed.

Weight Exercises (Upper Body)

Barbell Bench Press

- Bar loaded evenly, collars in place and secure
- Spotter knows the command when to assist the athlete
- Lie on bench, eyes under bar
- Hands placed evenly on bar
- Grip firm and slightly wider than shoulder width, thumbs around bar, wrist locked
- Body and head rest on bench throughout exercise
- Legs placed on each side of bench, feet flat on floor
- Lift bar off rack in a controlled manner
- Stabilize bar over upper chest, arms straight, elbows locked, and grip tight
- Momentary stop
- Bar lowered slowly to chest in controlled manner
- Inhale while lowering the bar
- Momentary stop
- Elbows out and under the bar
- Bar driven up to starting position
- Exhale while pushing bar up
- Keep head and hips on bench
- Do not arch, twist body, or move feet
- Return bar to rack in controlled manner

Incline Dumbbell Press

- Lie on incline bench (30-45 degrees).
- Hold dumbbell in each hand above shoulders, palms facing forward.
- Lower dumbbell straight down to sides of chest, arms close to sides.
- Push back to starting position using same path.
- Keep trunk stable, only move shoulder girdle and arms.

Lat Pull - Down (neck)

- Feet shoulder width apart, knees bent and back stable.
- Hold lat bar with hands wide apart
- Kneel or sit.
- Support weight with arms extended overhead.
- Initiate movement with shoulder blades.
- Pull bar straight down until it touches the back of neck.
- Return to starting position
- Keep trunk stable, only move shoulder girdle and arms

Lat Pull - Down (chest)

- Feet shoulder width apart, knees bent and back stable.
- Hold lat bar with hands wide apart
- Kneel or sit.
- Support weight with arms extended overhead.
- Initiate movement with shoulder blades.
- Pull bar in front to chest

- Return to starting position
- Keep trunk stable, only move shoulder girdle and arms

Upright row

- Stand with feet shoulder width apart, knees bent and back stable.
- Hold barbells, palms facing thighs.
- Hands slightly narrower than shoulder width.
- Start with bar at arms' length.
- Pull bar straight up until nearly under chin.
- Keep elbows out to side, elbows should be raised above shoulders.
- Keep bar close to body. Keep trunk stable, only move shoulder girdle and arms

Seated Rowing

- Sit facing low pulley machine
- Back straight and perpendicular to the floor
- Keep knees slightly bent
- Lean forward grasping the bar with palms facing the floor
- Hands shoulder width apart
- Pull back until the back is straight and perpendicular. This is the Start Position
- Pull the bar towards the chest
- Lead with the shoulder blades and then the elbows.
- Keep the bar at chest height
- Return to the start position
- Do not sway backwards with the trunk.
- Keep the trunk stable only move shoulder girdle and arms

Barbell (Bend Over) Rowing

- Place barbell on floor in front of you
- Keep feet shoulder width apart
- Bend over at hips, keep back straight.
- Hold bar wider than shoulders.
- Keep legs slightly bent, torso parallel to floor.
- Pull bar straight up to lower part of chest.
- Lower to starting position.
- Keep back stable only move shoulder girdle and arms.

Posterior Raise

- Assume a bent over position on a bench.
- Raise the dumbbell to the side of the body by flexing the elbow, the shoulder is abducted 90 degrees (90 degrees between arm and side of body)
- Initiate the movement with the shoulder blade.
- Lower the dumbbell until the arm is in the extended position.
- Keep the trunk stable, only move the shoulder girdle and arm

Anterior Raise

- Stand with feet shoulder width apart, knees bent and back stable.
- Hold dumbbells in front of thighs with a pronated grip.
- Using straight arms, raise one or both arms to a level even with the top of the head.
- Slowly lower the dumbbells to thighs.
- Can also be done with a barbell.
- Do not swing torso
- Only move shoulder girdle

Lateral Raise

- Stand with feet shoulder width apart, knees bent and back stable.
- Hold dumbbells on the side of thighs with a pronated grip.
- Keep elbow slightly flexed.
- Raise dumbbells laterally to shoulder height.
- Lower the dumbbells in a controlled manner.
- Do not swing torso
- Only move shoulder girdle

Dumbbell shoulder press

- Can be done seated or standing
- Raise dumbbells to shoulder height.
- Keep elbows in, and palms in.
- Press dumbbells straight up to arms' length.
- Return to shoulder height.
- Keep trunk stable, only move shoulder girdle and arms.

Triceps extensions

- Kneel on a bench with your elbow pointed behind you in the starting position.
- Hold dumbbell.
- Slowly extend arm backwards
- Always keep elbow pointing backward and close to side
- Slowly lower weight back to starting position

Biceps curls (Standing Dumbbell Curl)

- Stand with feet shoulder width apart, knees bent and back stable.
- Hold dumbbells with palms facing the thighs.
- Raise one dumbbell in an arch by flexing the arm at the elbow.
- Twist forearm to chin in a supinated grip (palm up).
- Lower the dumbbells in a controlled fashion.
- Do not swing the weight up with the lower back.
- Do not allow the shoulder to move forwards as the dumbbells are curled

Weight Exercises (Lower Body)

Squats

- Position the body under the bar on the squat rack
- Feet shoulder width or slightly wider apart and tighten the stomach muscles.
- Grasp the bar comfortably with a wide overhand grip and rest in behind the head on the trapezius area of the shoulder.
- Keep the head up and the eyes focussed forwards
- The weight is lowered by flexing the hips and knees.
- Keep the trunk stable only move the legs
- The bar is kept over the centre of the base of support.
- The knees should not move forward beyond the toes.
- The movement should be controlled in both directions.
- The squat technique may feel uncomfortable at first; learn using only a light bar.

Leg Curl

- Assume a position lying prone on the leg-curl bench.
- Slip the back of the ankles under the roller pads.
- The knees should extend past the end of the bench.
- Flex the knees curling the lower leg up to at least a 90 degree angle, and then slowly lower.
- Keep the pelvic area in contact with the bench.
- Keep the trunk stable, only move the legs.
- Single leg curls are recommended

Leg Extension

- Sit on machine and place ankles behind roller pad.
- Position legs shoulder width apart, align knees with axis of machine.
- Keep trunk stable with back flat against the chair.
- Keep thighs flat against seat.
- Straighten legs at the knees and move feet up.
- Lower slowly to starting position.
- Perform exercise with both legs or one leg at a time.

Leg Press

- Sit on machine
- Grasp seat's handle with hands
- Keep back straight
- Place feet on machine rests with toes pointing slightly outwards
- Knee angle at 90-60 degrees
- Extend legs fully and partially lock knees
- Hold this position momentarily
- Lower weight slowly back to starting position
- Do not bounce weight at the bottom
- Do not arch or twist body

Lunge

- Begin by standing with feet shoulder width apart, knees bent and back stable.
- A bar is held behind the head on the shoulders or dumbbells are held at your side.
- Step forwards with a normal stride on one foot.
- Lower the body forward and down keeping the weight over the flexed knee.
- The rear leg is relaxed and slightly flexed so that the knee almost touches the floor.
- The trunk stays in an upright, supporting position.
- Return to the starting position with feet shoulder width apart.
- Keep the trunk stable only move the legs.
- The exercise is done by alternating the legs on each repetition.
- Time should be spent learning and practising the technique.

Calf Raises

- In the leg press machine push weight out following leg press instructions.
- Slowly raise weight up and down on toes, keeping legs straight

Strength Training Program

The following program is a 20-week strength Training Program that was designed by Bruce Craven of the Saskatchewan Sport Science Program. The program should be conducted during the period November to March as part of the Alberta Soccer Association's Winter Training Program.

References

Baechele, T. R. (1994). Essentials of Strength Training and Conditioning - National Strength and Conditioning Association. (pp 401-444) Champaign, IL: Human Kinetics

Craven B. (2001). Strength and Flexibility Manual. Saskatoon, SK: Sport Medicine Science Council of Saskatchewan

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Sport Coach (2001). Weight Training Internet Publication

Phase I
Strength Training - Anatomical Adaptation

Strength Training - Anatomical Adaptation (5 Week Cycle)

Phase I/Week 1

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps ×% Load	Weight	Sets×Reps × % Load	Weight	Sets×Reps × % Load	Weight
Squat	2×10 @ 60				2×10 @ 60	
Leg Curl	2×10 @ 60				2×10 @ 60	
Rest						
Leg Press			2×10 @ 60			
Lunge			2×10 @ 60			
Rest						
BB Bench Press	2×10 @ 60				2×10 @ 60	
Lat Pull (Neck)	2×10 @ 60				2×10 @ 60	
Rest						
DB Incline Press			2×10 @ 60			
Lat Pull (Chest)			2×10 @ 60			
Rest						
Seated Row	2×10 @ 60				2×10 @ 60	
DB Shoulder Press	2×10 @ 60				2×10 @ 60	
Rest						
Bent-over Row			2×10 @ 60			
Ant/Lateral Raises			2×10 @ 60			
Rest						
Triceps Extensions	2×10 @ 60				2×10 @ 60	
Biceps Curls	2×10 @ 60				2×10 @ 60	

Load: 60% of 1 Rep Max (RM)

Rest: 1-2 minutes (where indicated)

Tempo: Controlled (3.1.3)

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

Strength Training - Anatomical Adaptation (5 Week Cycle)

Phase I/Week 2

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight
Squat			2×12 @ 60			
Leg Curl			2×12 @ 60			
Rest						
Leg Press	2×12 @ 60				2×12 @ 60	
Lunge	2×12 @ 60				2×12 @ 60	
Rest						
BB Bench Press			2×12 @ 60			
Lat Pull (Neck)			2×12 @ 60			
Rest						
DB Incline Press	2×12 @ 60				2×12 @ 60	
Lat Pull (Chest)	2×12 @ 60				2×12 @ 60	
Rest						
Seated Row			2×12 @ 60			
DB Shoulder Press			2×12 @ 60			
Rest						
Bent Over Row	2×12 @ 60				2×12 @ 60	
Ant/Lateral Raises	2×12 @ 60				2×12 @ 60	
Rest						
Triceps Extensions			2×12 @ 60			
Biceps Curls			2×12 @ 60			

Load: 60% of 1 Rep Max (RM)

Rest: 1-2 minutes (where indicated)

Tempo: Controlled (3.1.3)

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

Strength Training - Anatomical Adaptation (5 Week Cycle)

Phase I/Week 3

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight
Squat	2×15 @ 65				2×15 @ 65	
Leg Curl	2×15 @ 65				2×15 @ 65	
Rest						
Leg Press			2×15 @ 65			
Lunge			2×15 @ 65			
Rest						
BB Bench Press	2×15 @ 65				2×15 @ 65	
Lat Pull (Neck)	2×15 @ 65				2×15 @ 65	
Rest						
DB Incline Press			2×15 @ 65			
Lat Pull (Chest)			2×15 @ 65			
Rest						
Seated Row	2×15 @ 65				2×15 @ 65	
DB Shoulder Press	2×15 @ 65				2×15 @ 65	
Rest						
Bent Over Row			2×15 @ 65			
Ant/Lateral Raises			2×15 @ 65			
Rest						
Triceps Extensions	2×15 @ 65				2×15 @ 65	
Biceps Curls	2×15 @ 65				2×15 @ 65	

Load: 65% of 1 Rep Max (RM)

Rest: 1-2 minutes (where indicated)

Tempo: Controlled (3.1.3)

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

Strength Training - Anatomical Adaptation (5 Week Cycle)

Phase I/Week 4

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight
Squat			3×10 @70			
Leg Curl			3×10 @70			
Rest						
Leg Press	3×10 @70				3×10 @70	
Lunge	3×10 @70				3×10 @70	
Rest						
BB Bench Press			3×10 @70			
Lat Pull (Neck)			3×10 @70			
Rest						
DB Incline Press	3×10 @70				3×10 @70	
Lat Pull (Chest)	3×10 @70				3×10 @70	
Rest						
Seated Row			3×10 @70			
DB Shoulder Press			3×10 @70			
Rest						
Bent Over Row	3×10 @70				3×10 @70	
Ant/Lateral Raises	3×10 @70				3×10 @70	
Rest						
Triceps Extensions			3×10 @70			
Biceps Curls			3×10 @70			

Load: 70% of 1 Rep Max (RM)

Rest: 1-2 minutes (where indicated)

Tempo: Controlled (3.1.3)

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

Bruce Craven

Strength Training - Anatomical Adaptation (5 Week Cycle)

Phase I/Week 5

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight
Squat			3×10 @75			
Leg Curl			3×10 @75			
Rest						
Leg Press	3×10 @75				3×10 @75	
Lunge	3×10 @75				3×10 @75	
Rest						
BB Bench Press			3×10 @75			
Lat Pull (Neck)			3×10 @75			
Rest						
DB Incline Press	3×10 @75				3×10 @75	
Lat Pull (Chest)	3×10 @75				3×10 @75	
Rest						
Seated Row			3×10 @75			
DB Shoulder Press			3×10 @75			
Rest						
Bent Over Row	3×10 @75				3×10 @75	
Ant/Lateral Raises	3×10 @75				3×10 @75	
Rest						
Triceps Extensions			3×10 @75			
Biceps Curls			3×10 @75			

Load: 75% of 1 Rep Max (RM)

Rest: 1-2 minutes (where indicated)

Tempo: Controlled (3.1.3)

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

Phase II
Strength Training - Hypertrophy

Strength Training - Hypertrophy (4 Week Cycle)

Phase II/Week 1

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight
Squat			3×10 @75			
Leg Curl			3×10 @75			
Rest						
Leg Press	3×10 @75				3×10 @75	
Lunge	3×10 @75				3×10 @75	
Rest						
BB Bench Press			3×10 @75			
Lat Pull (Neck)			3×10 @75			
Rest						
DB Incline Press	3×10 @75				3×10 @75	
Lat Pull (Chest)	3×10 @75				3×10 @75	
Rest						
Seated Row			3×10 @75			
DB Shoulder Press			3×10 @75			
Rest						
Bent Over Row	3×10 @75				3×10 @75	
Ant/Lateral Raises	3×10 @75				3×10 @75	
Rest						
Triceps Extensions			3×10 @75			
Biceps Curls			3×10 @75			

Load: 75% of 1 Rep Max (RM)

Rest: 1-2 minutes (where indicated)

Tempo: Controlled (3.1.3)

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

Strength Training - Hypertrophy (4 Week Cycle)

Phase II/Week 2

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight
Squat	4×10 @75				4×10 @75	
Leg Curl	4×10 @75				4×10 @75	
Rest						
Leg Press			4×10 @75			
Lunge			4×10 @75			
Rest						
BB Bench Press	4×10 @75				4×10 @75	
Lat Pull (Neck)	4×10 @75				4×10 @75	
Rest						
DB Incline Press			4×10 @75			
Lat Pull (Chest)			4×10 @75			
Rest						
Seated Row	4×10 @75				4×10 @75	
DB Shoulder Press	4×10 @75				4×10 @75	
Rest						
Bent Over Row			4×10 @75			
Ant/Lateral Raises			4×10 @75			
Rest						
Triceps Extensions	4×10 @75				4×10 @75	
Biceps Curls	4×10 @75				4×10 @75	

Load: 75% of 1 Rep Max (RM)

Rest: 1-2 minutes (where indicated)

Tempo: Controlled (3.1.3)

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

Strength Training - Hypertrophy (4 Week Cycle)

Phase II/Week 3

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight
Squat			4×8 @ 80			
Leg Curl			4×8 @ 80			
Rest						
Leg Press	4×8 @ 80				4×8 @80	
Lunge	4×8 @ 80				4×8 @80	
Rest						
BB Bench Press			4×8 @80			
Lat Pull (Neck)			4×8 @80			
Rest						
DB Incline Press	4×8 @80				4×8 @80	
Lat Pull (Chest)	4×8 @80				4×8 @80	
Rest						
Seated Row			4×8 @80			
DB Shoulder Press			4×8 @80			
Rest						
Bent Over Row	4×8 @80				4×8 @80	
Ant/Lateral Raises	4×8 @80				4×8 @80	
Rest						
Triceps Extensions			4×8 @80			
Biceps Curls			4×8 @80			

Load: 80% of 1 Rep Max (RM)

Rest: 1-2 minutes (where indicated)

Tempo: Controlled (3.1.3)

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

Bruce Craven

Strength Training - Hypertrophy (4 Week Cycle)

Phase II/Week 4

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight
Squat	4×8 @ 80				4×8 @ 80	
Leg Curl	4×8 @ 80				4×8 @ 80	
Rest						
Leg Press			4×8 @ 80			
Lunge			4×8 @ 80			
Rest						
BB Bench Press	4×8 @ 80				4×8 @ 80	
Lat Pull (Neck)	4×8 @ 80				4×8 @ 80	
Rest						
DB Incline Press			4×8 @ 80			
Lat Pull (Chest)			4×8 @ 80			
Rest						
Seated Row	4×8 @ 80				4×8 @ 80	
DB Shoulder Press	4×8 @ 80				4×8 @ 80	
Rest						
Bent Over Row			4×8 @ 80			
Ant/Lateral Raises			4×8 @ 80			
Rest						
Triceps Extensions	4×8 @ 80				4×8 @ 80	
Biceps Curls	4×8 @ 80				4×8 @ 80	

Load: 80% of 1 Rep Max (RM)

Rest: 1-2 minutes (where indicated)

Tempo: Controlled (3.1.3)

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

Bruce Craven

Phase III
Strength

Strength Training - Strength (4 Week Cycle)

Phase III/Week 1

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight
Squat	4×6 @ 85				4×6 @ 85	
Leg Curl	4×6 @ 85				4×6 @ 85	
Rest						
Leg Press	4×6 @ 85				4×6 @ 85	
Lunge	4×6 @ 85				4×6 @ 85	
Rest						
BB Bench Press			4×6 @ 85			
Lat Pull (Neck)			4×6 @ 85			
Rest						
DB Incline Press			4×6 @ 85			
Lat Pull (Chest)			4×6 @ 85			
Rest						
Seated Row						
DB Shoulder Press						
Rest						
Bent Over Row						
Ant/Lateral Raises						
Rest						
Triceps Extensions						
Biceps Curls						

Load: 85% of 1 Rep Max (RM)

Rest: 1-2 minutes (where indicated)

Tempo: Controlled (3.1.3)

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

Strength Training - Strength (4 Week Cycle)

Phase III/Week 2

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight
Squat			4×6 @ 85			
Leg Curl			4×6 @ 85			
Rest						
Leg Press			4×6 @ 85			
Lunge			4×6 @ 85			
Rest						
BB Bench Press	4×6 @ 85				4×6 @ 85	
Lat Pull (Neck)	4×6 @ 85				4×6 @ 85	
Rest						
DB Incline Press	4×6 @ 85				4×6 @ 85	
Lat Pull (Chest)	4×6 @ 85				4×6 @ 85	
Rest						
Seated Row						
DB Shoulder Press						
Rest						
Bent Over Row						
Ant/Lateral Raises						
Rest						
Triceps Extensions						
Biceps Curls						

Load: 85% of 1 Rep Max (RM)

Rest: 1-2 minutes (where indicated)

Tempo: Controlled (3.1.3)

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

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Strength Training - Strength (4 Week Cycle)

Phase III/Week 3

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight
Squat			6×4 @ 90			
Leg Curl			6×4 @ 90			
Rest						
Leg Press	6×4 @ 90				6×4 @ 90	
Lunge	6×4 @ 90				6×4 @ 90	
Rest						
BB Bench Press			6×4 @ 90			
Lat Pull (Neck)			6×4 @ 90			
Rest						
DB Incline Press	6×4 @90				6×4 @ 90	
Lat Pull (Chest)	6×4 @90				6×4 @ 90	
Rest						
Seated Row			6×4 @ 90			
DB Shoulder Press			6×4 @ 90			
Rest						
Bent Over Row	6×4 @90				6×4 @ 90	
Ant/Lateral Raises	6×4 @90				6×4 @ 90	
Rest						
Triceps Extensions			6×4 @ 90			
Biceps Curls			6×4 @ 90			

Load: 90% of 1 Rep Max (RM)

Rest: 1-2 minutes (where indicated)

Tempo: Controlled (3.1.3)

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

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Strength Training - Strength (4 Week Cycle)

Phase III/Week 4

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight	Sets×Reps× % Load	Weight
Squat	6×4 @ 90				6×4 @ 90	
Leg Curl	6×4 @ 90				6×4 @ 90	
Rest						
Leg Press			6×4 @ 90			
Lunge			6×4 @ 90			
Rest						
BB Bench Press	6×4 @ 90				6×4 @ 90	
Lat Pull (Neck)	6×4 @ 90				6×4 @ 90	
Rest						
DB Incline Press			6×4 @90			
Lat Pull (Chest)			6×4 @90			
Rest						
Seated Row	6×4 @ 90				6×4 @ 90	
DB Shoulder Press	6×4 @ 90				6×4 @ 90	
Rest						
Bent Over Row			6×4 @ 90			
Ant/Lateral Raises			6×4 @ 90			
Rest						
Triceps Extensions	6×4 @ 90				6×4 @ 90	
Biceps Curls	6×4 @ 90				6×4 @ 90	

Load: 90% of 1 Rep Max (RM)

Rest: 1-2 minutes (where indicated)

Tempo: Controlled (3.1.3)

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

Phase IV

Power

Strength Training - Power (3 Week Cycle)

Phase IV/Week 1

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Wt	Sets×Reps× % Load	Wt	Sets×Reps× % Load	Wt
Squat	20" on/30"off ×4@60%				20" on/30"off ×4@60%	
Leg Curl	20" on/30"off ×4@60%				20" on/30"off ×4@60%	
Rest						
Leg Press	20" on/30"off ×4@60%				20" on/30"off ×4@60%	
Lunge	20" on/30"off ×4@60%				20" on/30"off ×4@60%	
Rest						
BB Bench Press			20" on/30"off ×4@60%			
Lat Pull (Neck)			20" on/30"off ×4@60%			
Rest						
DB Incline Press			20" on/30"off ×4@60%			
Lat Pull (Chest)			20" on/30"off ×4@60%			

Load: 60% of 1 Rep Max (RM)

Rest: 3-4 minutes (where indicated)

Tempo: Slow negative, Fast positive (3.0.1)

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

Strength Training - Power (3 Week Cycle)

Phase IV/Week 2

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Wt	Sets×Reps× % Load	Wt	Sets×Reps× % Load	Wt
Squat			20" on/30" off ×4@60%			
Leg Curl			20" on/30" off ×4@60%			
Rest						
Leg Press			20" on/30" off ×4@60%			
Lunge			20" on/30" off ×4@60%			
Rest						
BB Bench Press	20" on/30" off ×4@60%				20" on/30" off ×4@60%	
Lat Pull (Neck)	20" on/30" off ×4@60%				20" on/30" off ×4@60%	
Rest						
DB Incline Press	20" on/30" off ×4@60%				20" on/30" off ×4@60%	
Lat Pull (Chest)	20" on/30" off ×4@60%				20" on/30" off ×4@60%	

Load: 60% of 1 Rep Max (RM)

Rest: 3-4 minutes (where indicated)

Tempo: Slow negative, Fast positive (3.0.1)

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

Strength Training - Power (3 Week Cycle)

Phase IV/Week 3

Exercises	Day 1		Day 2		Day 3	
Circuit	Sets×Reps× % Load	Wt	Sets×Reps× % Load	Wt	Sets×Reps× % Load	Wt
Squat	20" on/30"off ×4@60%					
BB Bench Press	20" on/30"off ×4@60%					
Leg Curl	20" on/30"off ×4@60%					
Seated Row	20" on/30"off ×4@60%					
Rest	Repeat circuit × 4					
Circuit						
Leg Press			20" on/30"off ×4@60%			
DB Incline Press			20" on/30"off ×4@60%			
Lunge			20" on/30"off ×4@60%			
Lat Pull (Chest)			20" on/30"off ×4@60%			
Rest			Repeat circuit × 4			

Load: 60% of 1 Rep Max (RM)

Rest: 3-4 minutes (where indicated)

Tempo: Slow negative, Fast positive (3.0.1)

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

Phase V
Muscular Endurance

Strength Training - Muscular Endurance (4 Week Cycle)

Phase V/Week 1

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Wt	Sets×Reps× % Load	Wt	Sets×Reps× % Load	Wt
Squat	30"on/30"off @70% × 4				30"on/30"off @70% × 4	
Leg Curl	30"on/30"off @70% × 4				30"on/30"off @70% × 4	
Rest						
Leg Press			30"on/30"off @70% × 4			
Lunge			30"on/30"off @70% × 4			
Rest						
BB Bench Press	30"on/30"off @70% × 4				30"on/30"off @70% × 4	
Lat Pull (neck)	30"on/30"off @70% × 4				30"on/30"off @70% × 4	
Rest						
DB Incline Press			30"on/30"off @70% × 4			
Lat Pull (Chest)			30"on/30"off @70% × 4			
Rest						
Seated Row	30"on/30"off @70% × 4				30"on/30"off @70% × 4	
DB Shoulder Press	30"on/30"off @70% × 4				30"on/30"off @70% × 4	
Rest						
Bent-over Row			30"on/30"off @70% × 4			
Ant/Lateral Raises			30"on/30"off @70% × 4			
Rest						
Biceps Curls	30"on/30"off @70% × 4				30"on/30"off @70% × 4	
Triceps Extensions	30"on/30"off @70% × 4				30"on/30"off @70% × 4	

Load: 70% of 1 Rep Max (RM)

Rest: 2 minutes (where indicated)

Tempo: Fast as possible while maintaining proper technique

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

Strength Training - Muscular Endurance (4 Week Cycle)

Phase V/Week 2

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Wt	Sets×Reps× % Load	Wt	Sets×Reps× % Load	Wt
Squat			30"on/30"off @70% × 4			
Leg Curl			30"on/30"off @70% × 4			
Rest						
Leg Press	30"on/30"off @70% × 4				30"on/30"off @70% × 4	
Lunge	30"on/30"off @70% × 4				30"on/30"off @70% × 4	
Rest						
BB Bench Press			30"on/30"off @70% × 4			
Lat Pull (neck)			30"on/30"off @70% × 4			
Rest						
DB Incline Press	30"on/30"off @70% × 4				30"on/30"off @70% × 4	
Lat Pull (Chest)	30"on/30"off @70% × 4				30"on/30"off @70% × 4	
Rest						
Seated Row			30"on/30"off @70% × 4			
DB Shoulder Press			30"on/30"off @70% × 4			
Rest						
Bent-over Row	30"on/30"off @70% × 4				30"on/30"off @70% × 4	
Ant/Lateral Raises	30"on/30"off @70% × 4				30"on/30"off @70% × 4	
Rest						
Biceps Curls			30"on/30"off @70% × 4			
Triceps Extensions			30"on/30"off @70% × 4			

Load: 70% of 1 Rep Max (RM)

Rest: 2 minutes (where indicated)

Tempo: Fast as possible while maintaining proper technique

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

Strength Training - Muscular Endurance (4 Week Cycle)

Phase V/Week 3

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Wt	Sets×Reps× % Load	Wt	Sets×Reps× % Load	Wt
Squat	40"on/20"off @70% × 4				40"on/20"off @70% × 4	
Leg Curl	40"on/20"off @70% × 4				40"on/20"off @70% × 4	
Rest						
Leg Press			40"on/20"off @70% × 4			
Lunge			40"on/20"off @70% × 4			
Rest						
BB Bench Press	40"on/20"off @70% × 4				40"on/20"off @70% × 4	
Lat Pull (neck)	40"on/20"off @70% × 4				40"on/20"off @70% × 4	
Rest						
DB Incline Press			40"on/20"off @70% × 4			
Lat Pull (Chest)			40"on/20"off @70% × 4			
Rest						
Seated Row	40"on/20"off @70% × 4				40"on/20"off @70% × 4	
DB Shoulder Press	40"on/20"off @70% × 4				40"on/20"off @70% × 4	
Rest						
Bent-over Row			40"on/20"off @70% × 4			
Ant/Lateral Raises			40"on/20"off @70% × 4			
Rest						
Biceps Curls	40"on/20"off @70% × 4				40"on/20"off @70% × 4	
Triceps Extensions	40"on/20"off @70% × 4				40"on/20"off @70% × 4	

Load: 70% of 1 Rep Max (RM)

Rest: 2 minutes (where indicated)

Tempo: Fast as possible while maintaining proper technique

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$

Strength Training- Muscular Endurance (4 Week Cycle)

Phase V/Week 4

Exercises	Day 1		Day 2		Day 3	
	Sets×Reps× % Load	Wt	Sets×Reps× % Load	Wt	Sets×Reps× % Load	Wt
Squat			40"on/20"off @70% × 4			
Leg Curl			40"on/20"off @70% × 4			
Rest						
Leg Press	40"on/20"off @70% × 4				40"on/20"off @70% × 4	
Lunge	40"on/20"off @70% × 4				40"on/20"off @70% × 4	
Rest						
BB Bench Press			40"on/20"off @70% × 4			
Lat Pull (neck)			40"on/20"off @70% × 4			
Rest						
DB Incline Press	40"on/20"off @70% × 4				40"on/20"off @70% × 4	
Lat Pull (Chest)	40"on/20"off @70% × 4				40"on/20"off @70% × 4	
Rest						
Seated Row			40"on/20"off @70% × 4			
DB Shoulder Press			40"on/20"off @70% × 4			
Rest						
Bent-over Row	40"on/20"off @70% × 4				40"on/20"off @70% × 4	
Ant/Lateral Raises	40"on/20"off @70% × 4				40"on/20"off @70% × 4	
Rest						
Biceps Curls			40"on/20"off @70% × 4			
Triceps Extensions			40"on/20"off @70% × 4			

Load: 70% of 1 Rep Max (RM)

Rest: 2 minutes (where indicated)

Tempo: Fast as possible while maintaining proper technique

Order: Exercises are in Super Sets

Warm-up with Core Strength Circuit (perform 1 set of 15 reps of each exercise): Good Mornings, Dumbbell Side Bends, Seated Barbell Twists, Bend to Opposite Foot

Cool-down with Abdominal Work-out (Start at 1 set of 10 repetitions. Each week increase the number of repetitions by 2. When you reach 20 repetitions increase the number of sets by one and start again at 10 repetitions): Crunches, Side Bends, Cross Leg Sit up, Pump sit up, double leg lowering, Back Extensions, Quadruped opposite upper and lower body extension

Determine 1 RM after each cycle: $1 \text{ RM} = \text{Weight Lifted} \times (0.03) \times (\text{Reps Lifted}) + (\text{Weight Lifted})$