APPENDIX I

THERABAND TRAINING

Recognized as the original system of progressive resistance for over 25 years, and endorsed by the American Physical Therapy Association (APTA), Thera-Band elastic resistance has been proven to increase strength, mobility and function, as well as reduce joint pain (Jette AM et al. 1999; Mikesky AE et al. 1994 & Topp R. et al. 2002). Evidence-based exercise programs utilizing Thera- Band bands and tubing rehabilitate injuries, improve the functional ability of older adults, improve athletic performance, and aid in treating many chronic diseases.

Thera-Band resistance bands and tubing are low-cost, portable and versatile. Made of natural rubber latex, they are easily recognized by the trademark Thera-Band colors – yellow, red, green, blue, black and silver, as well as our other colors of tan and gold. Advancing through the sequential system of progressive resistance provides positive reinforcement and feedback for gauging results.

Guidelines

➢ The progressive resistance levels speak of success; the colour of Thera-Band denotes the resistance.

➢ With all exercises, posture and body alignment is critical. Kept the shoulders and hips aligned, tighten the abdominals, and relax the knees.

➢ Included proper warm-up and cool-down activities with the elastic resistance training programme.
- Performed all exercises in a slow and controlled manner. At no time the subject felt “out of control”; did not allow the band or tubing to snap back.
- Avoid hyper extending or over-flexing joints when exercising. Don’t lock the joints.
- Breathe evenly while performing these exercises. Exhale during the more difficult phase of the repetition. Don’t hold your breath.

**List of Theraband Exercises**

1. Shoulder Flexion, Extension and Abduction & Adduction
2. Lateral raise
3. Front raise
4. Overhead Press
5. Elbow flexion & extension
6. Wrist Flexion, Extension, Supination and Pronation
7. Concentration Curl
8. Chest press
9. Serratus Press
10. Chest Flies
11. Horizontal Abduction
12. Lateral Pull Down
13. Upright Row
14. Trunk Twist
15. Back extension
16. Hip Flexion, extension, Abduction & Adduction
17. Quick Kicks
18. Dead Lift
19. Knee flexion and extension
20. Leg press
21. Squat
22. Lunge
23. Dorsi flexion and Ankle Plantar
24. Ankle inversion and eversion

TRAINING SCHEDULE FOR THERABAND EXERCISE TRAINING GROUP FOR TWELVE WEEKS

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*Upper and lower body exercises were given equally in each week.
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Represented values. All products not available in all colors.
Details of Theraband Exercises

1. Shoulder Flexion

• Stand on elastic.
• Begin with arm at side, elbow straight, thumb up.
• Grasp elastic.
• Raise arm in front over head, keeping elbow straight.
• Slowly return to starting position.

1.1 Shoulder Extension

• Secure elastic at waist level as shown.
• Grasp elastic and pull arm backwards keeping elbow straight.
• Slowly return to start position.

1.2 Shoulder Abduction

• Stand on elastic.
• Begin with arm at side, elbow straight, holding elastic, palm forward.
• Raise arm upward, out to side and over head.
• Slowly return to starting position.

1.3 Shoulder Adduction

• Attach elastic to secure object at waist level
• Grasp elastic in hand.
• Pull arm inward, keeping elbow straight.
• Slowly return to start position and repeat.
2. Lateral Raise

- Stand on elastic.
- Hold elastic in both hands.
- Begin with arms at sides.
- Position palms forward.
- Keep elbows straight and lift arms to shoulder level.
- Slowly lower and repeat.

3. Front Raise

- Secure elastic at waist level as shown.
- Grasp elastic and pull arm backwards keeping elbow straight.
- Slowly return to start position.

4. Overhead Press

- Stand on elastic.
- Grasp elastic in hands, arms at side, elbows bent, as shown.
- Push arms up and overhead.
- Slowly return to start position and repeat.

5. Elbow Flexion

- Stand on elastic
- Grasp elastic in hand, palm up, arm straight.
- Pull upward, bending at elbow.
- Slowly return to start position and repeat.
5.1 Elbow Extension

- Attach elastic to secure object at waist level.
- Grasp elastic, thumb up, elbow bent, as shown.
- Straighten elbow, keeping elbow at side.
- Slowly return to starting position.

6. Wrist Flexion

- Secure elastic under foot.
- Grasp elastic in hand.
- Place forearm on table with hand off edge of table, palm up, as shown.
- Move wrist upward.
- Slowly return to starting position.

6.1 Wrist Extension

- Secure elastic under foot.
- Grasp elastic with hand.
- Place forearm on table with hand off edge of table, palm down as shown.
- Move wrist upward.
- Slowly return to starting position.

6.2 Pronation

- Secure elastic near floor.
- Support forearm on table or armchair.
- Position hand palm up with elastic crossing under thumb as shown.
- Rotate hand to palm down, elastic should resist this movement.
- Slowly return to start position.
6.3 Supination

- Secure elastic near floor.
- Support forearm on table or armchair.
- Position hand palm down with elastic crossing over thumb as shown.
- Rotate hand to palm up, elastic should resist this movement.
- Slowly return to start position.

7. Concentration Curl

- Attach elastic to secure object at floor level.
- Grasp elastic in hands, palms up, arms straight.
- Pull upward, bending at elbows.
- Keep trunk straight
- Slowly return to start position and repeat.

8. Chest Press

- Attach elastic to secure object at shoulder level.
- Sit or stand as shown.
- Hold elastic in hands, arms out from side, elbows bent, as shown.
- Push forward, straightening elbows.
- Slowly return to start position and repeat.

9. Serratus Press

- Attach elastic to secure object at shoulder height.
- Face away, grasp elastic in hand with elbow straight, arm in front, as shown.
- Push arm forward.
- Slowly return to start position.
10. Chest Flies

- Secure middle of elastic to stationary object at shoulder level.
- Face away from attachment in a staggered step, one leg in front of other as shown.
- Grasp bands at shoulder level with your elbows straight.
- Keep elbows straight and pull inward with palms inward.
- Slowly return and repeat.

11. Horizontal Abduction

- Attach elastic to secure object at shoulder level.
- Grasp elastic with hand, as shown.
- Pull arm outward, keeping elbow straight.
- Do not twist at waist.
- Slowly return to start position and repeat.

12. Lat Pull Down

- Attach elastic overhead to secure object.
- Grasp elastic in hands as shown.
- Pull down, bending elbows, squeezing shoulder blades together.
- Slowly return to start position and repeat.

13. Upright Row

- Stand on elastic.
- Grasp elastic in both hands in front of hips, elbows straight.
- Lift upward toward chin, bending elbows.
- Keep hands close to chest.
- Slowly lower and repeat.
14. Trunk Twist

- Attach elastic to secure object at waist level.
- Sit in chair.
- Grasp elastic in both hands, hold elastic at navel.
- Twist away from elastic.
- Slowly return and repeat the sets in the other direction.

15. Back Extension

- Attach elastic to secure object at shoulder level while sitting on stool as shown.
- Grasp elastic in hands and hold to chest.
- Pull backward, straightening trunk.
- Slowly return and repeat.

16. Hip Flexion

- Attach elastic to secure object at ankle level.
- Loop band around ankle.
- Stand, facing away from the pull.
- Extend leg forward, keeping knee straight.
- Slowly return to start position and repeat.

16.1 Hip Extension

- Attach elastic to secure object at ankle level.
- Loop around ankle.
- Stand, facing toward the pull.
- Extend leg backward, keeping knee straight.
- Slowly return to start position.
16.2 Hip Abduction

- Attach elastic to secure object at ankle level.
- Stand with involved leg away as shown.
- Keep knee straight, pull away, moving leg outward.
- Slowly return to start position.

16.3 Hip Adduction

- Attach elastic to secure object at ankle level.
- Stand with involved leg toward pull, as shown.
- Keep knee straight, pull in, moving leg inward.
- Slowly return to start position.

17. Quick Kicks

- Loop elastic around ankles.
- Kick leg outward and quickly repeat.
- Keep toes pointed straight ahead and do not bend trunk.

18. Dead Lift

- Stand in middle of tubing with both feet.
- Squat down, grasp ends of tubing in hands and take up all slack.
- Keep elbows and back straight and extend hips to slowly return from the squat to an upright position.
19. Knee Extension

- Attach elastic to ankle of involved leg.
- Secure behind as shown.
- Sit, with leg bent to 90 degrees, as shown.
- Straighten leg at knee.
- Slowly return to start position.

19.1 Knee Flexion

- Attach elastic to secure object.
- Sit in chair, attach elastic to ankle of involved leg as shown.
- Pull heel under chair through full range, as shown.
- Slowly return to starting position.

20. Leg Press

- Sit in chair.
- Loop elastic around bottom of foot as shown.
- Hold elastic in both hands.
- Push leg down straightening at knee.
- Slowly return to start position and repeat.

21. Squat

- Stand on both legs.
- Hold elastic in both hands, elbow straight.
- Place elastic under feet.
- Bend knees to 90 degrees.
- Pull to add tension to elastic.
- Straighten knees.
- Slowly repeat.
22. Lunge

- Stand with one foot on middle of band. Grasp ends of band and loop around hands at chest level, keeping elbows bent.
- Place other leg behind with knee slightly bent.
- Keep trunk straight and bend front knee, lowering body downward.
- Slowly return to upright position and repeat.

23 Ankle Dorsi flexion

- Sit on floor or couch with leg in front.
- Attach elastic to secure object in front of foot.
- Attach other end of elastic to forefoot.
- Pull foot backward toward shin.
- Slowly return and repeat.

23.1 Ankle Plantar flexion

- Sit on floor or couch with leg in front.
- Hold elastic in hands.
- Attach other end of elastic to forefoot.
- Push foot forward.
- Slowly return and repeat.

24. Ankle Inversion

- Attach elastic to secure object
- Sit on floor with leg straight.
- Attach elastic to forefoot.
- Pull foot inward as shown.
- Slowly return and repeat.
24.1 Ankle Eversion

- Attach elastic to secure object
- Sit on floor with leg straight.
- Attach elastic to forefoot.
- Pull foot outward as shown.
- Slowly return and repeat.
Strength training for health is, for the most part, very different than body building. Medicine balls are an effective strength training tool for building core strength. This includes our abdominal muscles and our lower back. Many exercises involve full body movements. Full body movements allow us to combine cardiovascular and strength training in the same workout. Medicine ball exercises can involve twisting, turning and bending motions that may not get incorporated into traditional strength training exercises. By incorporating all of our major muscle groups along with the muscle stabilizers, medicine ball exercises can build functional strength. Functional strength refers to our ability to carry out performance oriented fitness to execute the skill with reasonable effort, such as batting, bowling and fielding of cricketers.

Medicine balls range in size from 1 pound up to over 30 pounds. According to the American College of Sports Medicine, many people use a heavier ball than needed. As a rule of thumb, the medicine ball should be heavy enough to slow the motion but not so heavy that the control, accuracy or range of motion is compromised during the exercise. If you lose control by the end of your exercise routine, the ball is too heavy. The weight of the medicine ball should also correspond to 30 to 50 percent of the one-repetition maximum for a similar strength training exercise. A one-repetition maximum is the total weight with which you can perform only one repetition of a specific exercise. For example, if you can perform only one biceps curl with a 25-pound dumbbell, then you would use a medicine ball between 7 and 12 pounds to complete three sets of eight to twelve repetitions of the same exercise. Lower
weights, such as 4 to 10 pounds, can be used for tossing exercises. Mid-weights, such as 8 to 15 pounds, can be used for abdominal exercises. Heavier weights can be used for lower body exercises.

**List of Medicine Ball Exercises**

1. Russian Twist, Single Leg Russian Twist
2. Figure 8’s
3. Chops, Single Leg Chop, Diagonal Chops
4. Circles
5. Medicine Ball Squat
6. Medicine Ball Lunge, Lunge II
7. Sagittal or Front Reach,
8. One Leg Squat
9. Medicine Ball Push Up
10. Two Arm Wall Pass
11. Modified Hammer Throw
12. Slams
13. Knee Throw Push Up
14. Puts
15. Wall Throws,
16. Start Throws
17. Squat Throw #1
18. Over the Back Toss
19. Frontal or Side Reach
20. Transverse or Rear Reach

21. Side Throws

22. Single Arm Throw,

23. One Step Wall Throws

24. Squat Throw #2

### Training Schedule for Medicine Ball Exercise Training Group for Twelve Weeks

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*Upper and lower body exercises were given equally in each week.
Details of Medicine Ball Exercises

1. Russian Twist

- Begin by putting ball at belly button height arms length away from body and behind your right or left hip.
- Start by moving ball to the right or left.
- Keep core tight and turn/rotate back foot to allow greater range of motion on exercise.

1.1 Single Leg Russian Twist

- See Russian Twist exercise
- When weight is off of back leg take it off the ground

2. Figure 8’s

- Begin with ball at ear level with arms extended.
- Move the ball through a fig. 8 pattern continuously.
- Pattern will be in front and side of body taking you from right to left.

3. Chops

- Start with ball overhead at arms length.
- Stop the ball when it is between your feet.
- Repeat

3.1 Single Leg Chop

- See Diagonal Chop exercise
- Balance on one leg and perform the exercise
3.2. Diagonal Chops

- Start with ball behind and above ear.
- Move the ball diagonally across the body, ending near knee of opposite leg or foot.
- Return with same pattern.
- Rotate/turn back foot to increase effective range of exercise.

4. Circles

- Begin with ball overhead and move ball in a circular motion as big as possible around your body.

5. Medicine Ball Squat

- Keep ball at arms length while performing a squat. - Variation
- Start ball at chest and press up or out when squatting, return to chest on ascent.

6. Medicine Ball Lunge

- Begin with ball at belly button level
- Take a step forward with one leg
- At the same time move the ball to side of lunging leg.
- Continue alternating legs by either walking or switching in place.

6.1 Medicine Ball Lunge II

- Begin with ball at belly button.
- While lunging forward raise the ball up overhead.
- Either leave the ball overhead while continuing to lunge or return ball to belly button on each lunge.
7. Sagittal or Front Reach

- Begin with ball at belly button.
- Step forward and extend arms to touch or approach front foot.
- Return and repeat in place with same foot or alternate.

8. One Leg Squat

- Start with ball at arms length.
- Squat on one leg with ball held out in front as a counter balance.
- Leave free leg in front.
- Can also be done by leaving free leg to side or rear.
- Ball can start from belly button and be pressed out when squatting.

9. Medicine Ball Push Up

- Position ball under one hand and perform a pushup.
- Try doing one pushup with hand on ground, pushing hard enough to catch yourself on the ball for next rep.
- Begin to roll ball across to opposite hand between reps if you want a bigger challenge.

10. Two Arm Wall Pass

- Begin by facing wall about arm’s length away.
- Keep hands above head initially keeping throw range short.
- Work towards arms being bent and further away from wall.
- Can also be done with one arm.
11. Modified Hammer Throw

- Begin with ball near hip opposite of throw/delivery side.
- Start transferring weight from backside to delivery side by turning back foot.
- Finish with throw delivering ball at shoulder height with weight balanced over delivery side.
- Throw can also begin over shoulder.

12. Slams

- Start with ball overhead.
- Throw pulling ball down with your mid section.
- Keep ball stretched as long as possible.
- This exercise can also be done with one arm.

13. Knee Throw Push Up

- Start with ball at chest level.
- Kneeling down on both knees, throw the ball forward and follow it.
- When completing extension catch yourself in a push up position.
- This can also be done from an overhead position.

14. Puts

- Start with ball behind one hip with weight more on that leg.
- Throw the ball turning the side with ball towards the direction of the throw.
- Finish in a balanced position.

15. Wall Throws

- Swing ball to an overhead position, stretching the upper extremities.
- Throw by pulling core down.
- Aim about 1 to 2 feet above the bottom of the wall.
• Stand about 6 to 8 feet from the wall.

16. Start Throws
• Begin with weight evenly distributed between feet and hands.
• Deliver ball by pushing on ground with feet and bringing ball to position near chest.
• As you are completing hip extension, deliver the ball and in the direction of the throw and begin running.

17. Squat Throw #1
• Start with ball at chest.
• Quickly squat and jump delivering the ball as high as possible directly overhead.
• Let the ball bounce once, reposition and repeat.

18. Over the Back Toss
• Start with ball overhead and bring it down to knees.
• Begin throw as soon as ball gets to knee level.
• Throw by extending ankle, knee, hip and delivering ball overhead backwards.
• This is a great total body power test.

19. Frontal or Side Reach
• Begin with ball at belly button.
• Step and laterally reach to one side.
• Continue reaching and stepping to one side or alternate legs.

20. Transverse or Rear Reach
• Start with ball at belly button
• Open and step/reach between 90 and 180 degrees to the rear.
• Return to start and repeat with same leg or opposite leg.
21. Side Throws

- Begin 90 degrees to wall with ball behind one hip and more weight on that leg.
- Deliver ball at hip height, with more weight on front leg.
- Catch ball and repeat.

22. Single Arm Throw

- Start with ball between feet.
- Throw ball as high as possible by extending at knee, ankle and hip.
- Check that ball flies straight overhead and is not pulled backwards.
- Ball should move close to body for best height.

23. One Step Wall Throws

- Start with ball at belly button.
- Then in a stretched top position with ball overhead step with one foot towards wall.
- Shift weight completely over throwing side.
- Aim about 1 to 2 feet above bottom of wall.

24. Squat Throw #2

- Start with ball at belly button or overhead.
- Quickly squat to have the ball at calf level.
- Jump and throw the ball directly overhead, letting the ball bounce once then repeat.
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<td>1 kg / 2.20 lbs.</td>
<td>19 cm / 7.48”</td>
<td>Purple</td>
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<td>2 kg / 4.40 lbs.</td>
<td>19 cm / 7.48”</td>
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<tr>
<td>3 kg / 6.61 lbs.</td>
<td>22 cm / 8.66”</td>
<td>Yellow</td>
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<td>4 kg / 8.81 lbs.</td>
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<tr>
<td>5 kg / 11.02 lbs.</td>
<td>27 cm / 10.62”</td>
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<td>6 kg / 13.22 lbs.</td>
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<tr>
<td>7 kg / 15.43 lbs.</td>
<td>27 cm / 10.62”</td>
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MEDICINE BALLS
MEDICINE BALL EXERCISES DIAGRAM

PENDULEM
ALT HAND TOUCH
HEAD TOUCH
STATIC ARM/LEG
FOREWARD STRETCH
KNEE TOUCH
STATIC
STATIC
STATIC
STATIC
SQUAT STATIC
DOUBLE LEG
SINGLE LEG
ALL OFF FLOOR
DROP PUSH
ROLL OVER + 2 CHINS
FOREWARD LUNGE
LEAP FROG
BOTH FEET TOUCH
OVER UNDER
SLAM DOWNS
TRI-CEPS LIFTS
LEG PLACE KICKS
REAR ROLL
HYPER-PUSH
ARCH UPS
FOREWARD SWAY
SUPPORT ARCH REVERSE
SIDE PRESS UPS
TWIST AND TOUCH
MEDICINE BALL EXERCISES
MEDICINE BALL EXERCISES
# APPENDIX III

## RATING SCALE FOR EVALUATION OF CRICKET PLAYING ABILITY

Name of the subject: ______________________ Date of Birth: __________
Height: _________________ Weight: __________ Group: ______________

### BATTING

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<tbody>
<tr>
<td>1. Footwork and Co-ordination</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
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<tr>
<td>2. Ability to middle the ball with bat</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
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</tr>
<tr>
<td>3. Ability to time and pace the ball</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
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<tr>
<td>4. Ability to defend and attack</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
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<tr>
<td>5. Wide range of stroke/improvisation</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
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### BOWLING

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<td>2. Consistency in line and length</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
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<td>3. Accuracy and nip of the bowler</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
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<td>4. Wide range of variation</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
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<td>5. Tactics</td>
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<td>2. Accuracy in throwing</td>
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<td>3. Speed in throws</td>
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<td>4. Ability to stop the ball</td>
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<td>5. Sliding/Diving</td>
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### WICKET KEEPING

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<td>2. Ball gathering ability – Standing back from the wicket</td>
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<td>4. Runout</td>
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<td>5. Moving / High / Diving catches</td>
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APPENDIX IV
RAW SCORES OF THERABAND TRAINING GROUP ON SELECTED PERFORMANCE VARIABLES

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RAW SCORES OF MEDICINE BALL TRAINING GROUP ON SELECTED PERFORMANCE VARIABLES

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## APPENDIX VI
RAW SCORES OF CONTROL GROUP ON SELECTED PERFORMANCE VARIABLES

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