



BUKU PETUNJUK

FIVE

Futsal Injury Prevention and Enhance Performance

Pemanasan Neuromuskular untuk Mencegah Cidera dan Meningkatkan Performa pada Olahraga Futsal

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Futsal Injury Prevention and Enhance Performance
Neuromuscular warming up to prevent injuries
and improve Futsal Sport Performance

FIVE MANUAL

FIVE Futsal Injury Prevention and Enhance Performance

MANUAL FIVE

Futsal Injury Prevention and Enhance Performance

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TABLE OF CONTENT

Preface	vii
Introduction	ix
About FIVE.....	1
PART 1	
CARDIOVASCULAR WARMUP	7
PART 2	
DYNAMIC STRETCHING.....	9
PART 3	
STRENGTHENING.....	19
PART 4	
BALANCE AGILITY &COORDINATION	31
PART 5	
PREPARE TO PLAY (PTP) - WITH THE BALL.....	43

PREFACE

“The FIVE Futsal Injury Prevention and Enhancing Performance Manual” is a Neuromuscular Warming-Up to prevent Injuries and Improving Performance in Futsal Sports. This is a guide for applying FIVE neuromuscular warming-up to young and amateur futsal players.

FIVE (Futsal Injury Prevention and Enhance Performance Program) is a neuromuscular warm-up created through a series of studies from UNY FIK lecturers funded by the Republic of Indonesia Ministry of Research, Technology and Higher Education (*Ristekdikti*). It is called neuromuscular warming because it is applied at the beginning of the session before practicing futsal (warming up), and combines several exercises that focus on strength, agility and balance to improve the ability of the neuromuscular system.

FIVE has been compiled scientifically and methodologically, involving sports practitioners in various related fields, namely sports doctors, physical trainers, academics and futsal coaches. Therefore, FIVE is expected to be spread out and practiced by young and amateur players to reduce the incidence of injuries.

FIVE Futsal Injury Prevention and Enhance Performance

We are aware that FIVE still needs improvements and further research. We are expecting any constructive suggestions and criticisms to improve FIVE and this manual.

Finally, we hope that FIVE and this manual can contribute to the advancement of futsal sports specifically in reducing the incidence of injuries and improving the performance of young and amateur athletes

Yogyakarta, October 2018

INTRODUCTION

Futsal is a sport that is popular in Indonesia. Google's trend data shows that Indonesia ranks on the second place in the search for futsal topics. This sport is not only played as a hobby but also a lifestyle (Bancin, 2009). This is in line with government's programs, especially Ministry of Health's, to reduce the burden of health costs through active lifestyles as well as the programme of Ministry of Youth and Sports through the "Let's Work Out" movement.

Futsal is potential both in the aspects of sports achievements and recreational / health. In terms of sports achievements, the number of young people playing this sport will potentially increase the number of futsal players competing professionally. The progress of futsal achievements in Indonesia is also quite good. The latest data shows that our national futsal team is ranked number 50 worldwide, ranked number 10 in Asia and ranked 3rd in Southeast Asia.

In the aspects of recreational / sports, it can increase physical activity in leisure time (leisure time physical activity) and support an active lifestyle to improve public fitness and prevent various types of non-communicable diseases such as stroke, diabetes, obesity, coronary heart disease etc.

FIVE Futsal Injury Prevention and Enhance Performance

The popularity of futsal in the society gives a dilemmatic choice. Research shows that futsal is a sport that has a high incidence of injuries, especially in young players. And futsal is also one of 10 sports that are at high risk of injuries (Shmikli, 2009). Rodigro (2006) stated that the cause of high rates of injury in young futsal players was thought to be due to muscle imbalance and low musculoskeletal fitness. By providing training focusing on physical condition and muscle fitness has shown to reduce the risk of injury to young players. Mandelbaum et al (2007) research conducted to 1,041 female football players aged 14-18 years in two seasons showed that the group receiving intervention in form of strength, plyometric and agility training programs had lower knee injury rates compared to the control group, 2 compared to 32 knee injuries in the first year and 4 to 35 knee injuries in the second season. These results are similar to the research conducted by Olsen et al (2005) on handball players and Brushojet et al (2008) on military population.

Neuromuscular warm up is one of the ways to lower the risk of injuries. This program is combining warming up and stretching using several components of exercise that can improve muscle strength and balance. This exercise is very practical, does not require any additional equipment and can be implemented in every training session. The development of a neuromuscular warm up program in football sports through FMARC (FIFA-Medical Assessment and Research Center) has shown lower incidence of injuries among the athletes (Soligard, 2009).

Looking at the positive results of FIFA 11+ neuromuscular warming up in reducing the incidence of injuries, a research team and futsal practitioners tried to create neuromuscular warming up that is specific to futsal. This warm up method is named FIVE, which stands for Futsal Injury Prevention and Enhancing Performance. In accordance with its full name, researchers hope that FIVE can contribute to futsal as a neuromuscular warming up to reduce the incidence of injuries and improve the performance of young and amateur athletes.

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ABOUT FIVE

FIVE (Futsal Injury Prevention and Enhancing Performance) is a neuromuscular warming up created specifically for futsal sport as an attempt to prevent injuries and improve the performance of young and amateur futsal athletes. FIVE is performed during the warm-up session before practicing futsal.

FIVE was compiled and validated by several experts such as: Indonesian Futsal National Team Coach, AFC Coach Instructor (Asian Football Federation), Sports Medicine Specialist, Sports Science Lecturer, and Strength and Conditioning Coach. FIVE has also been recognised by futsal sports federations namely AFI (Indonesian Futsal Association) under PSSI (Indonesian Football Association)

FIVE refers to number 5, which resembles the total number of players in 1 team of futsal. As the name implies, FIVE consists of 5 neuromuscular heating sections consisting of:

1. Part 1: Cardiovascular warm-up
Aim to increase heart rate and body temperature so that our body is ready for exercising.
2. Part 2: Dynamic stretching
Aim to stretch the muscles and prepare muscles system.

FIVE Futsal Injury Prevention and Enhance Performance

3. Part 3: Strengthening

Aims to increase muscle strength, especially the lower extremity and torso muscles.

4. Part 4: Balance, Plyometric & Agility

Train body balance, power and agility. These aspects are very important in futsal sports.

5. Part 5: Prepare to play (with the Ball)

Prepare sportsmen to be ready to play futsal with basic movements playing futsal using a ball.

FIVE Exercise Instructions

- FIVE can be completed for 20 minutes and is performed as a WARM UP session every time prior to exercises.
- FIVE is recommended to be done 2-3 times a week during regular exercise, for 12 weeks to get the optimal results.
- FIVE can be done as a warm-up when about to compete, however it is done by **skipping part 3 (Strengthening)**, since the component can cause fatigue that could affect athlete's performance during the match.
- FIVE consists of 5 parts, each of which has several exercises. Following are the details of the FIVE movements.

Part 1: Cardiovascular warm up

Jogging 4 x 16 m

Part 2: Dynamic stretching

a) *Hip in - Hip Out: 4 x 16m*

b) *High Heel - But Flicks: 4 x 16m*

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- c) *Carioca Smooth Swing: 4 x16m*
- d) *Groin - Hamstring Swing :: 4 x16m*

Part 3: Strengthening

- a) *Single toe raises: 3-5x each right and left*
- b) *Nordic hamstring:*
 - Beginner: 3-5 times
 - Final target: 12-15 times
- c) *Copenhagen exercise:*
 - Beginner: 3-5 times each side
 - Final target: 10-13 times each side
- d) *Bounding side: 2 x 16m*
- e) *Plank*
 - Beginners: 2 x 20'-30 '
 - Advanced: 2 x 40'-60 '
- f) *Side-plank*
 - Beginners: 2 x 20'-30 '
 - Advanced: 2 x 40'-60 '

Part 4: Balance, Agility & Coordination

- a. *Dynamic body contact: 2 x 16 m (alternating side)*
- b. *4-types agility training: each type is done 1 time*
 - 1. *Type A:*
 - 5x vertical jump-forward zig-zag - sprint*
 - 2. *Type B:*
 - (Position to lateral) 5x forward backward hop forward backward zig-zag to the 4th cones - sprint to the 6th cones*

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3. *Type C:*

(Position to the back) 5x hop lateral - backward zigzag to the 4th cones - sprint to 5th cones; back to 4th cones; sprint to 6th cones.

4. *Type D:*

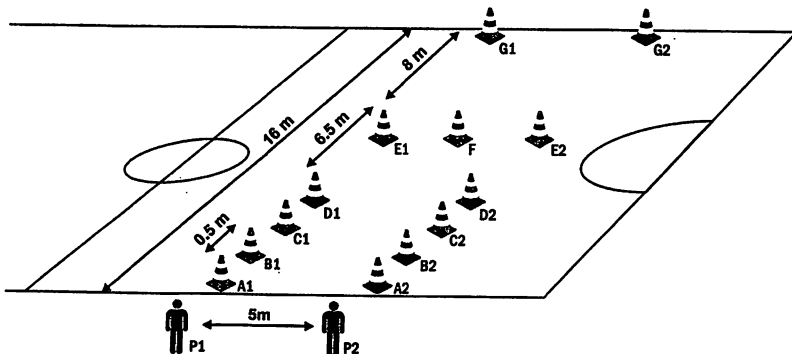
5x fwd backward hop - zigzag to 4th cones - sprint to the middle 5th cones; sprint to the 6th cones

Part 5: Prepare to play (PTP) With the Ball.

To be performed one set / time each.

- a) PTP 1: Passing - sprint - forward dribbling
- b) PTP 2: Passing - Plant and cut - backward dribbling
- c) PTP 3: Man to man (offensive and defensive)

FIVE Field Setting:



- It is assumed that the futsal field size is using a standard size. Otherwise trainer can modify the field settings to achieve the required track sizes.

FIVE Futsal Injury Prevention and Enhance Performance

- **Prepare 13 cones with the following conditions**
 - Cone A is the starting point for each FIVE exercise
 - Cone G is the end point of each FIVE exercise
 - Cone F is located between cones E1 and E2
- **Each pairs are positioned according to the track in cones A1 and A2**
- **Perform every movement according to the manual by emphasising:**
 - Quality and suitability of movement
 - Technical aspects and objectives of the movement
 - The aptness to physical ability, when you feel the set or repetition is too heavy, you can adjust them accordingly.

PART 1

CARDIOVASCULAR WARM UP

Aim

Prepare the heart-lung system to exercise and increase body temperature.

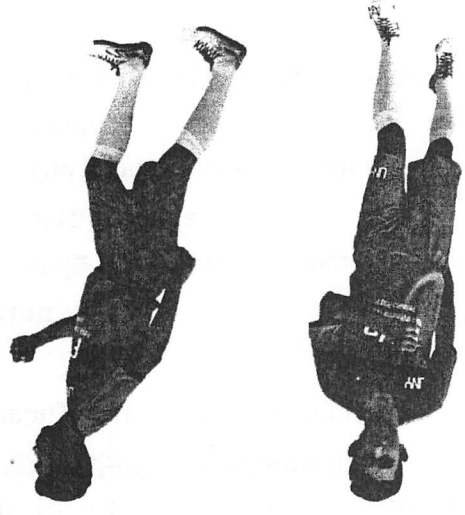
Instructions

Run straight from the starting point until the end point then returns to the starting point. Maintain constant running speed with 70-80% maximum speed.

Do as many as two sets (4 x 16 m).

Attention

1. Make sure the upper body position remains perpendicular
2. The pelvis, knees and feet must remain parallel when running
3. Do not bend your knees inside



INCORRECT MOVEMENT



CORRECT MOVEMENT

PART 2

DYNAMIC STRETCHING

a. HIP-IN and HIP-OUT

Aim

Provides dynamic stretching, especially in the pelvic muscles, buttocks, inner thighs and outer thighs

Instructions

Hip-In

Run on a straight line, then every 4-5 steps stop and lift your knees to the side. Turn your knees forward then lower your legs. Continue to run and every 4-5 steps do the same thing on the other side of the foot. When reaches the end point, return to the starting point by practicing Hip-out movement.

Hip Out

Run straight, then every 4-5 steps stop and lift up your knees to your chest. Turn your knees to the side then lower your legs. Continue to run and in every 4-5 steps do the same thing on the other side of the foot. When reaches the starting point, return to the end point by practicing Hip Out movements.

FIVE Futsal Injury Prevention and Enhance Performance

It is suggested to do Hip-in and Hip-out twice alternately.
Total motion will be 4 x 16 m

Attention

1. Ensure the alignment of the pelvis, knees and legs that support the body
2. Avoid the position of bending in or forward on the knee that supports the body

CORRECT MOVEMENT



| Hip-in | *| Hip-out |*

INCORRECT MOVEMENT



b. HIGH HEEL - BUTT FLICKS

Aim

To provide dynamic stretching, especially in the pelvic muscles, quadriceps and buttocks.

Instructions

HighHeel

Run straight while lifting your knees forward with the hip parallel height (+ 90°) alternating right and left feet until the end point. When reaches the end point, return to the starting point by keep on doing butt flick movements.

Butt Flick

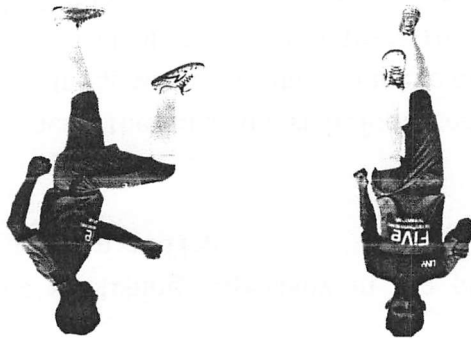
Run straight while lifting your heels of your right and left feet towards the buttocks alternately to the starting point.

High heats and screw flicks are alternately twice alternately. So the span of each set of movement will be 4 x 16 m.

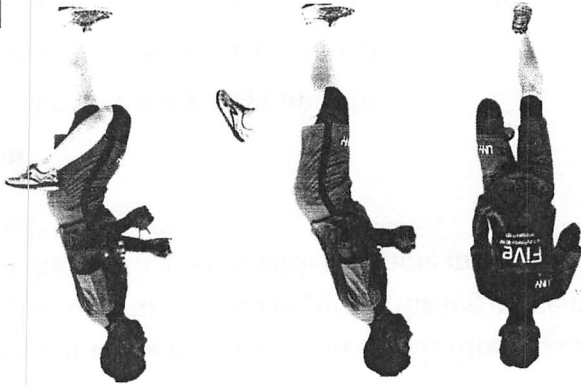
Attention

1. Ensure the alignment of the pelvis, knees and legs that support the body
2. Avoid the position of bending in or forward on the knee that supports the body

CORRECT MOVEMENT



| High Heel |



| Butt Flicks |

INCORRECT MOVEMENT



c. *SMOOTH SWING CARRIOCA*

Aim

Provides dynamic stretching, especially in the pelvic muscles, lower abdomen, and legs

Instructions

Position the body facing the side. Step right foot crossing to the front of the left leg, while continue to move of the left leg crosses to the back of the right foot then cross the right foot back, the left leg crossing forward and onward to the end point. The position of the arm is lifted casually, swinging the arm to the side opposite the leg movement. Return to the starting point with the same movement. Do it 4 x 16 m.

Attention

1. Make sure the body stays upright.
2. Alternately move hand and foot in relax.
3. Don't turn your body abruptly and suddenly.

FIVE Futsal Injury Prevention and Enhance Performance

CORRECT MOVEMENT



d. GROIN -HAMSTRING SWING

Aim

Provides dynamic stretching especially in the groin and hamstrings muscles

Instructions

Groin Swing

Run straight, then every 3-4 steps stop and lift your knees to the outside while whipping your legs up, then lower them. Back running and every 3-4 steps do the same thing on the other side of the foot. When finished at the end, run back to the initial cone.

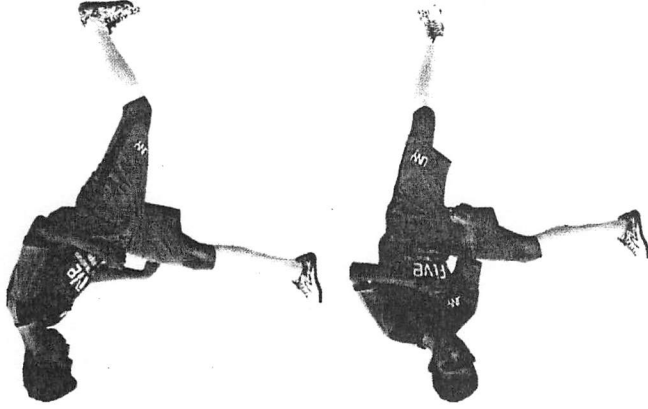
Swing Hamstring

Run straight then every 3-4 steps stop and lift your knees forward while whipping your legs up until your legs are straight, then lower them. Back running and every 3-4 steps do the same thing on the other side of the foot. When finished at the end, run back to cone start.

Groin Swing and *hamstring swing* are done alternately twice, so the total movement is 4 x 16 m

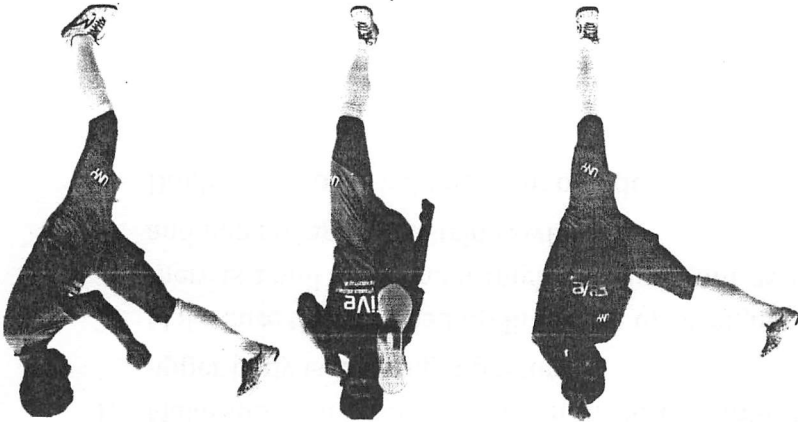
Attention

1. Make sure when you whip down the lower limbs, the upper body is in straight posture.
2. Make sure the whipped up limbs are up straight and there is a pull in the inner thigh muscle (groin swing) and hamstrings (hamstring swing).
3. Don't lean too far behind, front or side.



INCORRECT MOVEMENT

| *Groin Swing* | | *Hamstring Swing* |



CORRECT MOVEMENT

PART 3

STRENGTHENING

a. *SINGLE TOE RAISES*

Aim

Gives strength to the thigh and calf muscles.

Instructions

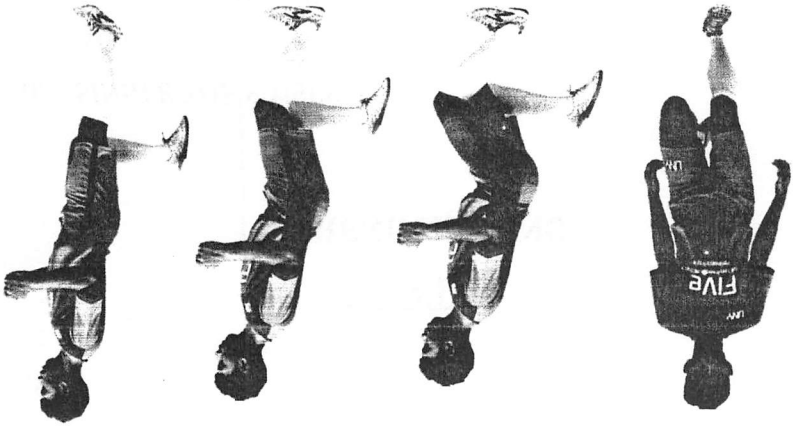
Stand on one foot. Bend your knees slowly, if possible to form a 90o angle. Then, straighten your knees while lifting your heels to the maximum. When your knees are straight, lower your heels. Repeat the same movement 3-5 times for each right and left foot.

Attention

1. Ensure the alignment of the pelvis, knees and disease.
2. Lean your body slightly forward and keep it steady and facing forward.
3. Bend your knees slowly then straighten a little faster.
4. Keep your knees from bending inward.
5. When bending your knees, the position of the feet is not tiptoe.



INCORRECT MOVEMENT



CORRECT MOVEMENT

b. NORDIC HAMSTRING

Aim

Gives strength to the hamstring muscle

Instructions

Kneel on a soft surface with the position of the knee, pelvis, chest and head in an equal position. The pair kneels behind, with both hands holding the upper part of the ankle while pressing down with the back of the body.

Maintain the position of the body in a straight position between the head and knees. Slowly drop the body forward, maintain that position with the muscles. When unable to hold for a long time, slowly move the weight on the arm, drop the body and hold the body with your hands.

Repetition:

Beginner: 3-5 times

Final target: 12-15 times

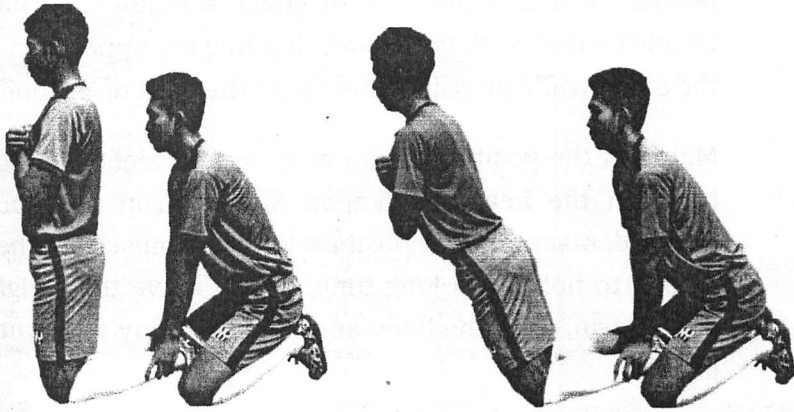
Attention

1. Make sure the pair is keeping the foot of the player who is exercising strongly.
2. Definition of head alignment, upper body, pelvis and thighs.
3. Movement using only knee.

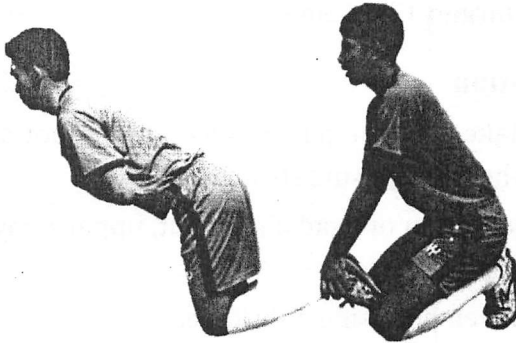
FIVE Futsal Injury Prevention and Enhance Performance

4. Do the exercises slowly at the beginning, if you feel more comfortable the movement can be accelerated.
5. Do not lift your head back and do not bend your hips.

CORRECT MOVEMENT



INCORRECT MOVEMENT



c. *COPPENHAGEN EXERCISE*

Aim:

Gives deep thigh muscle strengthening.

Instructions

Lie on your side with your legs straight. Refute the body with the elbow. Partner is behind to lift and hold the foot above.

Lift the pelvis and legs below, until the body is parallel. Elbow as a support, align with your shoulders. Lift the leg above, partner holds the thigh and calf to form a straight position.

Lift the lower leg towards the upper leg, then lower it down.

Repetition:

Beginner: 3-5 times each side

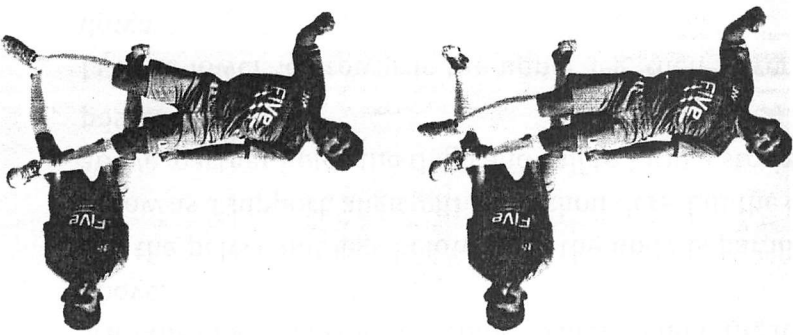
Final target: 10-13 times each side

Attention:

1. Make sure the alignment of the upper shoulder, hip and upper limbs must be in a straight line position.
2. When viewed from above, the body is in the position of a straight line
3. The elbow must be perpendicular to the shoulder.
4. When lifting the lower leg, lock the knee so that the legs are in the position of the knee.

5. Don't rest your head on your shoulder
6. Do not lift your shoulders or hips forward or backward.

CORRECT MOVEMENT



INCORRECT MOVEMENT



d. BOUNDING SIDE : 2 X 16 M

Aim:

Gives power jump and movement control with one leg

Instructions:

Stand on one leg, bend your knees, pelvis, and ankle slightly and lean forward.

From the starting point, jump as far as about a meter tilted to the right side with the support of the right foot, gently land down with the front palm and bend the pelvis, knee and ankle. Hold a few seconds and change the direction to the left side with the left foot support. Change the direction of returning to the right side and land with the right foot so that it reaches the end point. Do the same thing when turning to the starting point.

Attention:

1. Pelvis, knees and legs are aligned in front look.
2. Gently land with your front palm, bend your hips, knees and ankles together and lean forward slightly.
3. Keep your upper body stable and face forward.
4. Do not bend your knees to the sides.
5. Don't turn your body up
6. Don't turn or tilt the pelvis.



INCORRECT MOVEMENT



CORRECT MOVEMENT

e. **PLANK**

Aim

Strengthen torso muscles (cores) which are important to provide stability to the body while moving.

Instructions

Lie down facing the floor, rest your body with your elbows and feet.

Lift your upper body, pelvis, and legs to form a straight line and rest with your elbows. Elbows form angles perpendicular to the shoulder. Pull the abdominal muscles and buttocks. Keep the position 20-30 seconds. Return to the starting position, after a short break then repeat the exercise.

Repetition:

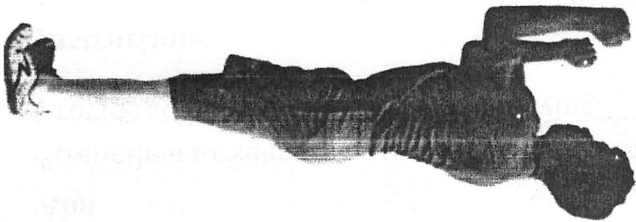
Beginners: 2 x 20'-30 '

Advanced: 2 x 40'-60 '

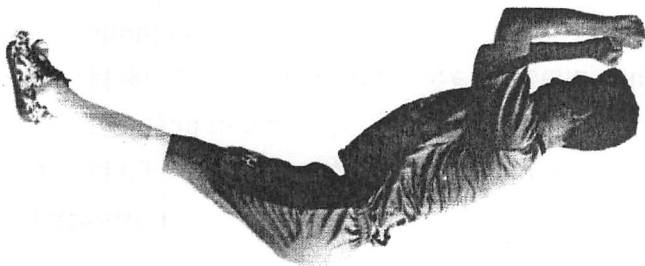
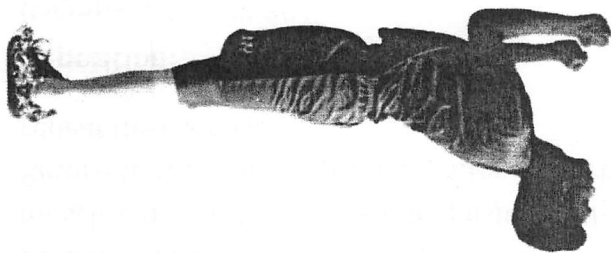
Attention

1. Make sure the body is in a straight line position from the head to toe.
2. Make sure your elbows are perpendicular to your shoulder.
3. Don't lift your head back.
4. Don't bend your back.
5. Do not lift the buttocks.

CORRECT MOVEMENT



INCORRECT MOVEMENT



f. **SIDE PLANK**

Aim

Provides reinforcement to the muscles of the torso (core) which are important stability when moving.

Instructions

Lie on your side with your legs straight. Refute the body with the elbows and lower legs.

Lift it up and down the pelvis and legs until the body forms a straight line. The elbow as a pedestal is parallel to the shoulder. Keep the position 20-30 seconds. Return to the starting position, with a short rest then repeat.

Repetition:

Beginners: 2 x 20'-30 '

Advanced: 2 x 40'-60 '

Attention

1. In a front view, the shoulders of the upper shoulders, hips and upper legs must be in a straight line position.
2. If viewed from above, the body is in the position of a straight line.
3. The elbow must be perpendicular to the shoulder.
4. Don't rest your head on your shoulder.
5. Don't lift your shoulders or hips forward or backward.

CORRECT MOVEMENT



INCORRECT MOVEMENT



PART 4

BALANCE, AGILITY & COORDINATION

a. *DYNAMIC BODYCONTACT*

Aim :

Train balance coordination and motion control

Instructions

Run in maximum speed together with partner from the first cone to the 4th cone. From the 4th cone run to the midpoint. Simultaneously with the partner push each other with shoulders, keep pushing each other while running forward to the end point. Run back to the first cone by exchanging positions with your partner. Do the same exercise again with the other shoulder.

Repetition

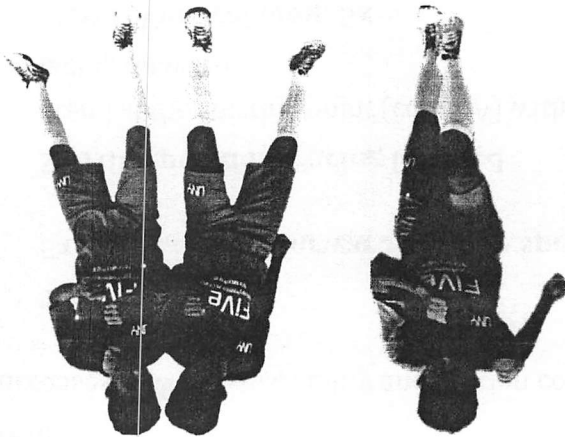
2 x 16 m (alternating sides)

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Attention

1. Make sure the upper body position remains perpendicular
2. The pelvis, knees and feet must remain parallel when running.
3. Push with maximum power.
4. Do not bend your knees inside

CORRECT MOVEMENT



INCORRECT MOVEMENT



b. 4-TYPES AGILITY TRAINING

Aim:

Increases power leaps, agility and motion control

1. Type A:

5x vertical jump-forward zig zag - sprint

Starting position: Facing forward

Stand at the starting point (cones A) with the position facing forward.

Step 1: Vertical jump 5x

Stand with both feet parallel to your hips. Gently bend the pelvis, knees and ankles until the knees bend at an angle of 110-120°. Lean forward. Hold this position for 1 second, then jump as high as possible. When jumping, straighten your whole body. Gently land with your front foot and gently bend your pelvis, knees and knees.

Jump up in place 5 times

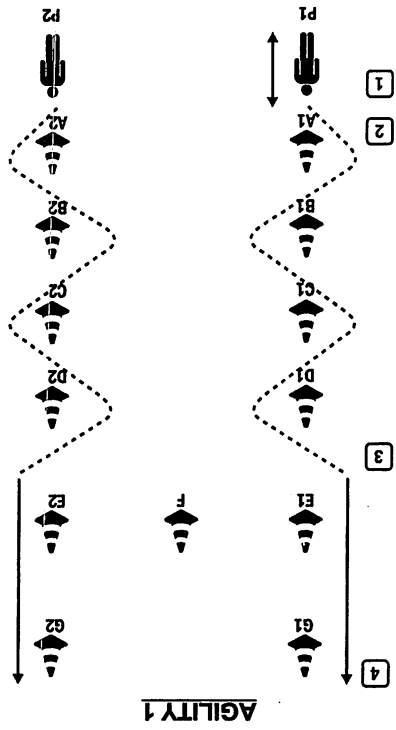
Step 2: Zig Zag to reach cone D

Run in zig-zag pattern passing 4 cones in front of cone D

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Step 3: Sprint

Do a straight run ahead with the maximum speed (sprint) from the 4th cone to the cone at the end.
Step 4: Return to the starting point in cone A



Agility Type A.

2. Type B :

(position to lateral) 5x forward backward hop-forward backward zigzag to the 4th cones - sprint to the 6th cones

Starting position: Facing sideways

Stand at the starting point (cone A) with the position facing to the side.

Step 1: Jump backwards (forward-backward jump) 5x Stand up with both legs parallel to the hips. Gently bend your pelvis, knees, and ankles until your knees bend at a 90-angle then jump towards the front as much as possible. As soon as you land, jump back towards the backside. When jumping, pay attention to the alignment of your knees, body and landing techniques well. Do it forward and backward in place for 5 times. (3 times forward, 2 times backward)

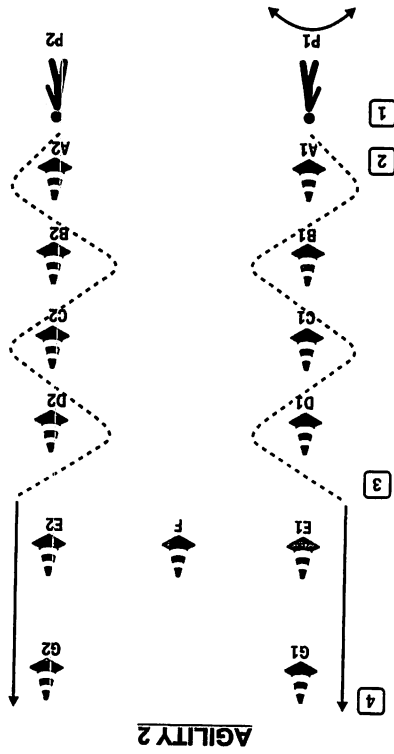
Step 2: Zig-Zag to reach cone D

Run in zig-zag pattern with fixed position facing to the side so that the zig-zag movement is carried forward and backward. Zig zag front-back is done through the cone D

Step 3: Sprint

Do the body back facing the cone F path, then run straight as fast as possible (sprint) to cone F

Step 4: Arriving at cone F, return to the starting point in cone A



Agility Type B

3. Type C :

(Position to the back) 5x lateral hop - backward zigzag to the 4th cones- sprint to 5th cones;back to 4th cones;sprint to 6th cones.

Starting position: Facing backwards

Stand at the starting point (cone A) with your back to the track

Step 1: Jump sideways (right-left) as much as 5x

Stand with both feet parallel to your hips. Gently bend the pelvis, knees, and ankles until the knees bend with a 110-120 angle then jump towards the right and left side as much as possible. When jumping, pay attention to the landing technique well, check the knee alignment not to bend inside (valgus). Do the right and left side jumps 5 times. (3 times to the right, 2 times left)

Step 2: Turn around and Zig Zag until cone D

Turn the body to face the front of the track (cone A). Run zig zag with the position fixed facing to the side so that the zig zag movement is carried forward and backward. Zig zag front-back is made when passing cone D

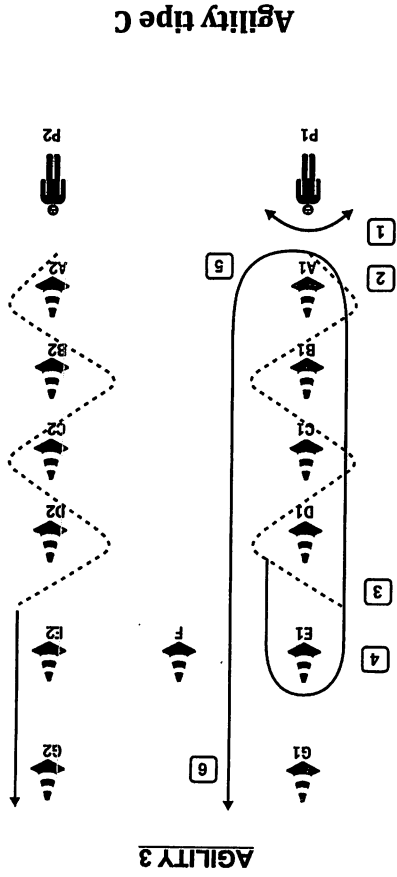
Step 3: Sprint to cone E

Sprint from cone D to cone E, then sprint from cone E.

Step 4: Sprint to cone A

Arriving at cone E, do a sprint run back to cone A

Step 5: Sprint 16 meters cone A to cone G
When reaching cone A, re-sprint to the end point in cone G



Agility type C

4. Type D :

5x fwd backward hop - zigzag to 4th cones- sprint to the middle 5th cones ; sprint to the 6th cones

Starting position: Facing forward

Stand at the starting point (cone A) with the position facing forward.

Step 1: Jump forward and back 5 times

Stand with both feet parallel to your hips. Gently bend the pelvis, knees, and ankles until the knees bend with an angle of 110-120° and then jump towards the front through the cone as much as possible. As soon as you land, jumps back towards the rear side. When jumping, pay attention to the alignment of your knees, body and landing techniques well. Do it forward and back in place 5 times. (3 times forward, 2 times backward)

Step 2: Zig Zag up to cone D

Run in zig-zag pattern through 4 cones in front up to cone D

Step 3: Sprint diagonally in the direction of cone F

Do a straight run diagonally towards cone F with maximum speed (sprint)

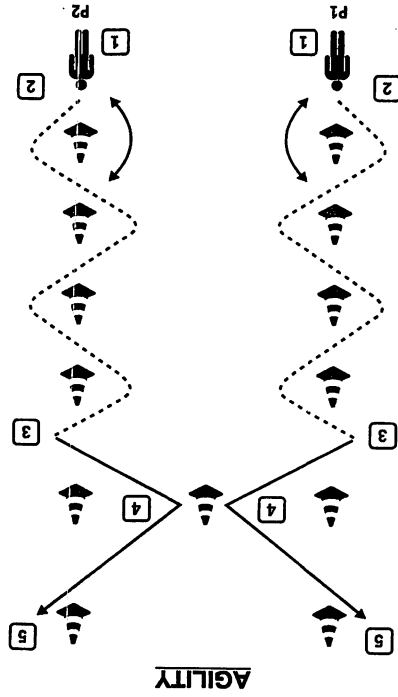
Step 4: Sprint diagonally towards the cone G

Arriving at cone F, then change the direction of the outer diagonal sprint so that it runs towards cone G. Note the alignment of the body, the position of the

knee and ankle when changing direction must be fixed and perfect.

Step 5: Return to cone A

Return to cone A with light jogging



Agility Type D

What to be mind of in Part 4: Balance, Agility & Coordination

1. When going to jump, the initial position in front view is the pelvis, knees and both legs must form the position of two straight lines that are parallel.
2. When you want to jump, bend your hips, knees and ankles together and lean your body forward
3. Jump with both feet and land gently with the sole of your foot.
4. The method of landing and power when jumping is more important than with high pressure.
5. Do not bend in your knee (valgus or X position)
6. Don't straighten the knee joint or land on your heel.



Jumping Technique

PART 5

PREPARE TO PLAY (PTP) - WITH THE BALL

a. PTP 1: Passing - sprint - forward dribbling

Aim: Prepare athletes to play futsal through specific movements used in futsal (pass and sprint)

Instructions

Players are in pairs, one player is at the starting point and another player is at the end point. The player who is at the end points pass the ball towards the player who is at the starting point. Then immediately run with maximum speed to the starting point. The player who gets the ball dribbles the ball forward to the end. Pass the ball towards the player who is the starting point and so forth. Perform one set each.

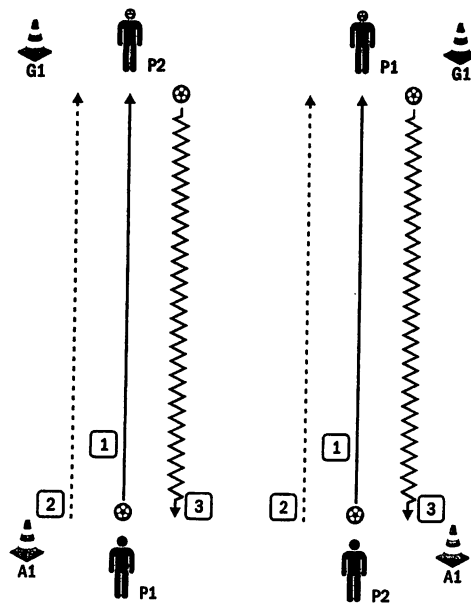
- Two players in pairs (A & B) stand facing each other within 16m
- Player A passes ball to player B then A sprint towards player B
- Player B performs front dribbling (with soles) towards player A after receiving passing
- Perform the initial instructions in a row

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Attention

1. Make sure the upper body position remains perpendicular
2. The pelvis, knees and feet must remain parallel when running
3. Do not bend your knees inside

PTP 1



P1 = Passing bola
P2 = Control bola

b. PTP 2 : Passing - Plant and cut - backward dribbling

Purpose: Prepare athletes to play futsal through specific movements used in futsal sports (pass, lead and sprint)

Instructions:

Players are in pairs, one player is at the starting point and another player is at the end point. The player who is at the end points pass the ball towards the player who is at the starting point. Then immediately run with maximum speed slanting 5-7 steps to the right side, stop with the right foot support and change the direction slanting to the left side. Repeat the exercise until you stand on your right leg again. Stop at cone 5. The player who is at the starting point passes the ball to the player. Then do the dribbling by retreating back towards cone 6.

Repetition

Complete each as 1 set.

- Two players in pairs (A & B) stand facing each other within a distance of 8 m (middle cones)
- Player A passes ball to player B then Player A runs in zig-zag pattern to the central cones
- Player B dribbling back after receiving ball from the player A
- After the reverse dribbling is done, and player A has stood at the middle cones, then player B passes the ball back to the player A

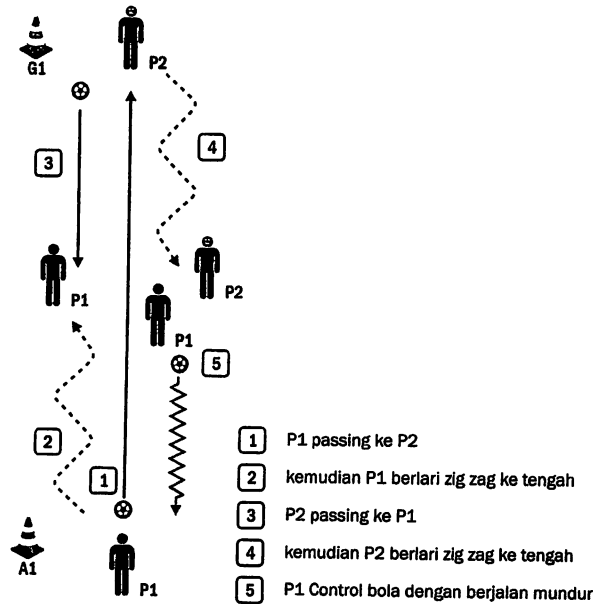
FIVE Futsal Injury Prevention and Enhance Performance

- Player A dribbles backwards after receiving the ball from player B, meanwhile player B is running in zig-zag pattern towards the central point after passing.

Attention

1. Make sure the upper body position remains perpendicular
2. The pelvis, knees and feet must remain parallel when running
3. Do not bend your knees inside
4. Make sure you don't lose the ball.

PTP 2



c. PTP 3 : Man to man (offensive and defensive)

Aim: Prepare athletes to play futsal through specific movements used in futsal sports (defence and attack)

Instructions

Players are in pairs, one player is at the starting point and another player is at the end point.

The player who is at the end points pass the ball towards the player who is at starting point. Run at maximum speed to the player at the starting point. The player who gets the ball dribbles the ball forward and blocked by the passer until reaching the end point. Make sure you don't lose the ball.

Repetition

Practice for 1 set.

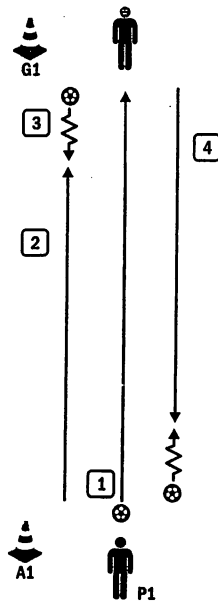
- Two players in pairs (A & B) stand facing each other with a distance of 16m
- Player A passes ball to player B, then player A sprint towards player B
- After player A arrives at player B (within 1 meter)
- Then player A makes a passive defence (going backward) while player B performs forward dribbling to the starting point of player A
- Perform initial instructions alternately (Player A does dribble and B performs passive defence)

FIVE Futsal Injury Prevention and Enhance Performance

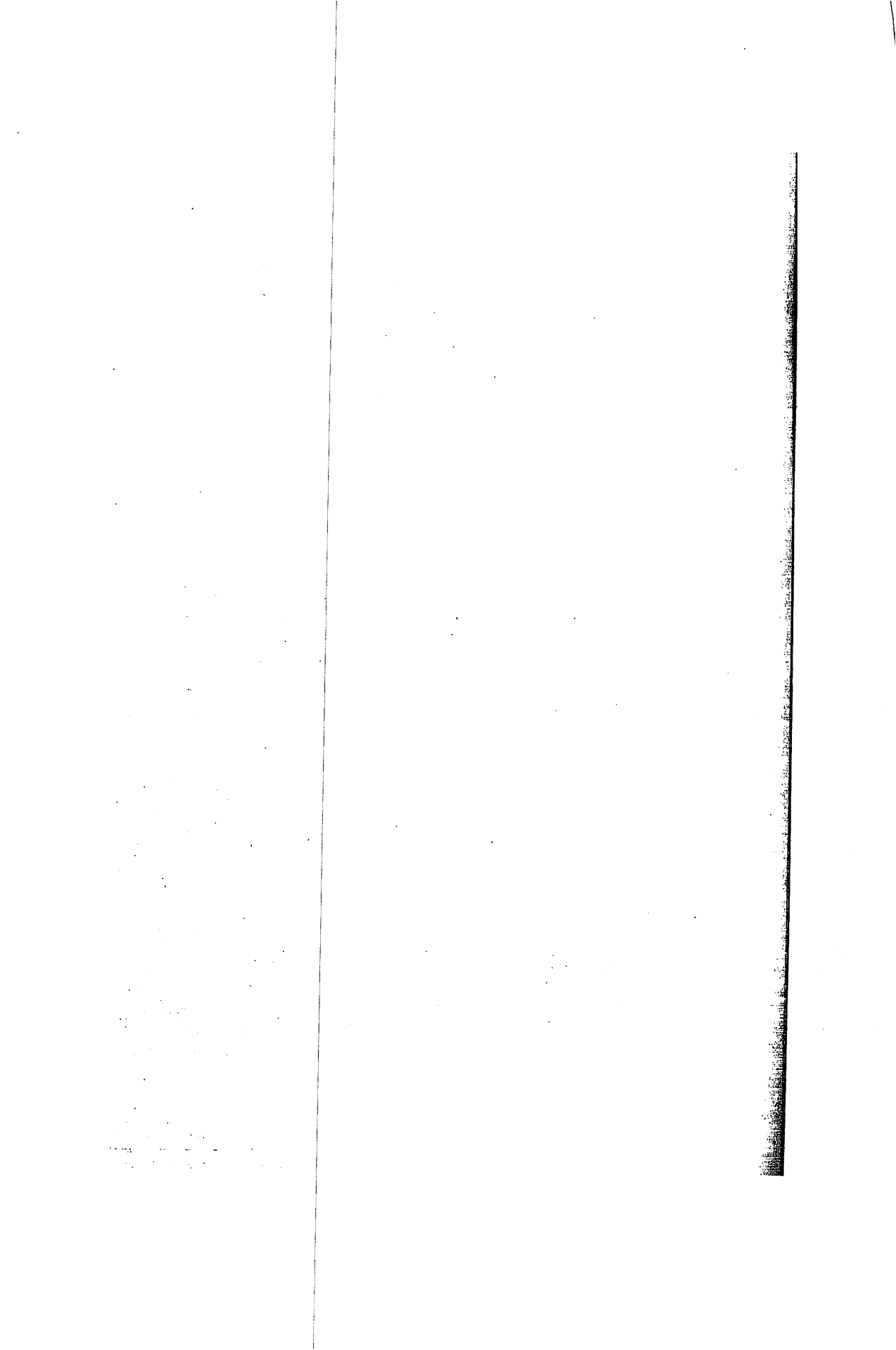
Attention

1. Make sure the upper body position remains perpendicular
2. The pelvis, knees and feet must remain parallel when running
3. Do not bend your knees inside
4. Make sure you don't lose the ball.

PTP 3



- 1 P1 passing ke P2
- 2 kemudian P1 berlari mendekati P2
- 3 P2 dribbling dan P1 bertahan pasif/cover (man to man)
- 4 P2 memberikan bola ke P1 setelah sampai A1, supaya bisa bergantian



Pemasaan Neuromuskular untuk Mencegah Cidera
dan Meningkatkan Performa pada Olahraga Futsal

Futsal Injury Prevention and Enhance Performance

FIVE

BUKU PETUNJUK

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FIVE Futsal Injury Prevention and Enhance Performance

Undang-Undang Nomor 12 tahun 1997 tentang Perubahan Undang-Undang Nomor 6 Tahun 1987 tentang Hak Cipta sebagaimana telah diubah dengan Undang-Undang Nomor 7 Tahun 1987:

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Futsal Injury Prevention and Enhance Performance
Pemanasan Neuromuskular untuk Mencegah Cidera
dan Meningkatkan Performa pada Olahraga Futsal

BUKU PETUNJUK FIVE

FIVE Futsal Injury Prevention and Enhance Performance

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DAFTAR ISI

Kata Pengantar	vii
Pendahuluan	ix
Tentang FIVE	1
BAGIAN 1	
CARDIOVASCULAR WARM UP	7
BAGIAN 2	
DYNAMIC STRETCHING	9
BAGIAN 3	
STRENGTHENING	19
BAGIAN 4	
BALANCE, AGILITY & COORDINATION	31
BAGIAN 5	
PREPARE TO PLAY (PTP) - WITH THE BALL	43

KATA PENGANTAR

“Buku Petunjuk FIVE Futsal Injury Prevention and Enhance Performance. Pemanasan Neuromuskular untuk Mencegah Cedera dan Meningkatkan Performa pada Olahraga Futsal” ini merupakan panduan dalam menerapkan pemanasan neuromuskular FIVE pada pemain futsal berusia muda dan amatir.

FIVE (Futsal Injury Prevention and Enhance Performance Program) merupakan sebuah pemanasan neuromuskular yang diciptakan melalui serangkaian penelitian dari dosen FIK UNY yang dibiayai dari Kementerian Riset, Teknologi dan Pendidikan Tinggi (Ristekdikti) Republik Indonesia. Disebut pemanasan neuromuskular karena memang diterapkan diawal sesi sebelum berlatih futsal (pemanasan), dan menggabungkan beberapa latihan yang berfokus pada kekuatan, kelincahan dan keseimbangan untuk meningkatkan kemampuan sistem neuromuskular.

FIVE telah disusun secara ilmiah dan metodologis melibatkan praktisi olahraga berbagai bidang terkait yaitu dokter olahraga, pelatih fisik, akademisi dan pelatih futsal sehingga diharapkan FIVE dapat disebarluaskan dan diterapkan oleh pemain berusia muda dan amatir dalam menurunkan angka kejadian cedera.

FIVE Futsal Injury Prevention and Enhance Performance

Kami sadar bahwa FIVE masih jauh dari sempurna sehingga perlu banyak perbaikan dan penelitian lanjutan. Selanjutnya saran dan kritik sangat kami harapkan agar dapat melakukan perbaikan untuk FIVE dan buku petunjuk ini.

Akhir kata, kami berharap semoga FIVE dan buku petunjuk ini dapat berkontribusi bagi kemajuan olahraga futsal khususnya dalam menurunkan angka kejadian cedera dan meningkatkan performa atlet berusia muda dan amatir

Yogyakarta, Oktober 2018

Tim Penyusun

PENDAHULUAN

Futsal adalah olahraga yang populer di Indonesia. Data dari *google trend* menunjukkan bahwa Indonesia berada di peringkat kedua dalam pencarian topik tentang futsal. Olahraga ini tidak hanya sebagai hobi tetapi juga gaya hidup (Bancin, 2009). Fakta ini tentunya sejalan dengan program pemerintah terutama Kementerian Kesehatan untuk menekan beban biaya kesehatan melalui gaya hidup aktif dan kementerian pemuda dan olahraga melalui gerakan "Ayo Berolahraga".

Futsal merupakan potensi baik dalam aspek olahraga prestasi maupun rekreasi/kesehatan. Ditinjau dari aspek olahraga prestasi, banyaknya kaum muda yang memainkan olahraga ini akan memperbanyak calon pemain futsal yang bertanding level profesional. Perkembangan prestasi futsal di Indonesia juga bisa dikatakan cukup baik. Data terakhir menunjukkan tim nasional futsal kita berada di peringkat ke 50 dunia, peringkat 10 Asia dan peringkat 3 Asia Tenggara.

Ditinjau dari aspek olahraga rekreasi/kesehatan, olahraga ini mampu meningkatkan aktivitas fisik di waktu senggang (*leisure time physical activity*) dan mendukung gaya hidup aktif sehingga mampu meningkatkan keberagaman masyarakat dan mencegah berbagai macam penyakit tidak

menular seperti stroke, diabetes, obesitas, penyakit jantung coroner dll.

Popularitas futsal sebagai pilihan olahraga masyarakat memberikan pilihan yang dilematis. Penelitian menunjukkan bahwa futsal adalah olahraga yang memiliki angka kejadian cedera yang cukup tinggi terutama pada pemain berusia muda. Penelitian menunjukkan bahwa futsal adalah 1 dari 10 olahraga yang berisiko tinggi terjadi cedera (Shmikli, 2009). Rodigro (2006) menyatakan bahwa penyebab tingginya angka cedera pada pemain futsal berusia muda diduga karena terdapat ketidakseimbangan kekuatan otot (*muscle inbalance*) dan kebugaran muskuloskeletal yang masih rendah. Pemberian latihan yang berfokus pada peningkatan kondisi fisik dan kebugaran otot terbukti mampu menurunkan risiko terjadinya cedera pada pemain muda. Penelitian Mandelbaum *et al* (2007) yang dilakukan kepada 1.041 pemain sepakbola wanita berusia 14-18 tahun selama dua musim kompetisi menunjukkan bahwa kelompok yang mendapatkan intervensi berupa program latihan kekuatan, pliometrik, dan kelincahan memiliki angka cedera lutut yang lebih rendah dibandingkan dengan kelompok kontrol yaitu 2 berbanding 32 cedera lutut pada tahun pertama dan 4 berbanding 35 cedera lutut pada musim kedua. Hasil tersebut serupa dengan penelitian yang dilakukan oleh Olsen *et al* (2005) pada pemain bola tangan dan Brushoj *et al* (2008) pada populasi militer.

Pemanasan neuromuskular adalah salah satu upaya yang dapat dilakukan untuk menurunkan risiko terjadinya cedera. Program ini adalah memadukan pemanasan (*warming up* dan *stretching*) dengan beberapa komponen latihan yang dapat

memperbaiki kekuatan dan keseimbangan otot. Latihan ini sangat praktis, tidak memerlukan peralatan tambahan apapun dan dapat diterapkan setiap sesi latihan. Pengembangan program pemanasan neuromuskular pada cabang olahraga sepakbola melalui FMARC (FIFA-Medical Assessment and Research Centre) terbukti mampu menurunkan angka kejadian cedera pada atlet sepakbola (Soligard, 2009).

Melihat hasil positif dari pemanasan neuromuskular FIFA 11+ dalam menurunkan angka kejadian cedera, tim peneliti bersama praktisi futsal mencoba menciptakan pemanasan neuromuskular yang spesifik untuk olahraga futsal. Pemanasan ini diberi nama FIVE yang merupakan singkatan dari Futsal Injury Prevention and Enhance Performance. Sesuai dengan kepanjangannya, peneliti berharap FIVE mampu memberikan kontribusi dalam olahraga futsal sebagai pemanasan neuromuskular yang mampu menurunkan angka kejadian cedera dan meningkatkan performa atlet futsal berusia muda dan amatir.

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TENTANG FIVE

FIVE (Futsal Injury Prevention and Enhance Performance) adalah sebuah pemanasan neuromuskular yang diciptakan khusus untuk olahraga futsal sebagai upaya mencegah terjadinya cedera dan meningkatkan performa atlet futsal berusia muda dan amatir. FIVE dilakukan pada sesi pemanasan sebelum berlatih futsal.

FIVE disusun dan telah divalidasi oleh beberapa ahli seperti : Pelatih Tim Nasional Futsal Indonesia, Instruktur Pelatih AFC (Asian Football Federation), Dokter Spesialis Kedokteran Olahraga, Dosen Ilmu Keolahragaan, dan Pelatih Strength and Conditioning. FIVE juga telah di *recognize* oleh federasi olahraga futsal yaitu AFI (Asosiasi Fusal Indonesia) yang berada dibawah PSSI (Persatuan Sepakbola Seluruh Indonesia)

FIVE merujuk pada angka 5, dimana jumlah tersebut adalah jumlah 1 tim dalam bermain futsal. Sesuai namanya, FIVE terdiri dari 5 bagian pemanasan neuromuskular yang terdiri dari :

1. Bagian 1 : *Cardiovaskular warm up*

Bertujuan untuk meningkatkan denyut jantung dan suhu agar tubuh siap berolahraga

FIVE Futsal Injury Prevention and Enhance Performance

2. Bagian 2 : *Dynamic Stretching*

Bertujuan untuk meregangkan otot dan mempersiapkan sistem otot-tulang berolahraga

3. Bagian 3 : *Strengthening*

Bertujuan untuk meningkatkan kekuatan otot (strength) terutama otot ekstremitas bawah dan batang tubuh (core)

4. Bagian 4 : *Balance, Plyometric & Agility*

Melatih keseimbangan, daya ledak (power) dan kelincahan. Aspek ini sangat penting digunakan dalam olahraga futsal

5. Bagian 5 : *Prepare to play (with the Ball)*

Mempersiapkan olahragawan untuk siap bermain futsal dengan gerak-gerak dasar bermain futsal menggunakan bola

Petunjuk Latihan FIVE

- FIVE bisa diselesaikan selama 20 menit dan dilakukan sebagai sesi PEMANASAN setiap kali memulai latihan futsal.
- FIVE direkomendasikan untuk diterapkan 2-3 kali perminggu saat latihan rutin, selama 12 minggu untuk mendapatkan hasil yang optimal.
- FIVE tetap dapat digunakan sebagai pemanasan saat tim futsal hendak bertanding, namun latihan dilakukan **tanpa menerapkan bagian 3 (Strengthening)**, karena komponen tersebut dapat menyebabkan kelelahan

(fatigue) sehingga berpengaruh terhadap pertandingan yang akan dihadapi.

- FIVE terdiri dari 5 bagian yang setiap bagiannya memiliki beberapa gerakan latihan. Berikut adalah rincian gerakan FIVE.

Bagian 1 : Cardiovascular warm up

Jogging 4 x 16 m

Bagian 2 : Dynamic stretching

- a) Hip in – Hip Out : 4 x 16m*
- b) High Heel – But Flicks : 4 x 16m*
- c) Smooth Swing Carrioca : 4 x 16m*
- d) Groin – Hamstring Swing : : 4 x 16m*

Bagian 3 : Strengthening

- a) Single toe raises :3-5x masing-masing kanan dan kiri*
- b) Nordic hamstring :*
Pemula : 3-5 kali
Target akhir : 12-15 kali
- c) Copenhagen exercise :*
Pemula : 3-5 kali tiap sisi
Target akhir : 10 – 13 kali tiap sisi
- d) Bounding side : 2 x 16 m*

FIVE Futsal Injury Prevention and Enhance Performance

e) Plank

Pemula : 2 x 20'-30'

Lanjutan : 2 x 40'-60'

f) Side plank

Pemula : 2 x 20'-30'

Lanjutan : 2 x 40'-60'

Bagian 4 : Balance, Agility & Coordination

a. Dynamic body contact : 2 x 16 m (sisi yang bergantian)

b. 4-types agility training : masing-masing tipe dilakukan 1 kali

1. Type A :

5x vertical jump -forward zig zag - sprint

2. Type B :

(position to lateral) 5x forward backward hop- forward backward zigzag to the 4th cones - sprint to the 6th cones

3. Type C :

(Position to the back) 5x lateral hop - backward zigzag to the 4th cones- sprint to 5th cones;back to 4th cones;sprint to 6th cones.

4. Type D :

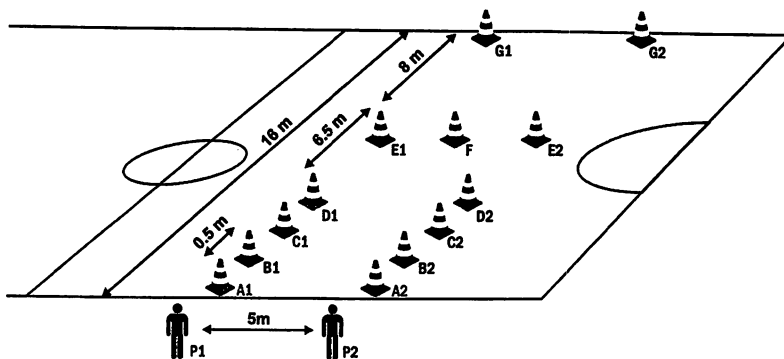
5x fwd backward hop - zigzag to 4th cones- sprint to the middle 5th cones ; sprint to the 6th cones

Bagian 5 : Prepare to play (PTP) With the Ball.

Dilakukan masing-masing 1 set/kali.

- a) PTP 1 : Passing – sprint – forward dribbling
- b) PTP 2 : Passing - Plant and cut - backward dribbling
- c) PTP 3 : Man to man (offensive and defensive)

Setting Lapangan FIVE :



- Lapangan futsal diasumsikan memiliki ukuran standar, sehingga bila ukuran lapangan belum standar pelatih dapat memodifikasi setting lapangan agar tercapai ukuran-ukuran lintasan yang diperlukan
- Persiapkan 13 cones dengan ketentuan sebagai berikut
 - Cone A merupakan titik awal dari setiap latihan FIVE yang dilakukan

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- Cone G merupakan titik akhir dari setiap latihan FIVE yang dilakukan
- Cone F terletak ditengah diantara cone E1 dan E2
- Setiap atlet berpasangan sesuai lintasan di cone A1 dan A2
- Lakukan setiap gerakan sesuai panduan dengan penekanan :
 - Kualitas gerakan yang baik dan benar
 - Memperhatikan aspek teknik dan tujuan dari gerakan tersebut
 - Lakukan sesuai kemampuan. Bila dirasa set atau repetisinya terlalu berat maka boleh dilakukan sesuai kemampuan

BAGIAN 1

CARDIOVASCULAR WARM UP

Tujuan

Mempersiapkan sistem jantung-paru untuk berolahraga dan meningkatkan suhu tubuh.

Instruksi

Berlari lurus dari titik awal *cones* hingga titik akhir kemudian kembali ke titik awal. Pertahankan kecepatan lari secara konstan dengan 70-80% kecepatan maksimal.

Lakukan sebanyak dua set (4 x 16 m).

Perhatian

1. Pastikan posisi tubuh bagian atas tetap tegak lurus
2. Panggul, lutut dan kaki harus tetap sejajar saat berlari
3. Lutut jangan menekuk masuk ke dalam



GERAKAN SALAH



GERAKAN BENAR

BAGIAN 2 DYNAMIC STRETCHING

a. *HIP-IN dan HIP-OUT*

Tujuan

Memberikan perengangan dinamis terutama pada otot panggul, pantat, paha bagian dalam dan paha bagian luar

Instruksi

Hip-In

Berlari lurus kemudian setiap 4-5 langkah berhenti dan angkat lutut ke arah samping. Putar lutut ke depan kemudian turunkan kaki. Kembali berlari dan setiap 4-5 langkah lakukan hal yang sama pada kaki sisi lain. Ketika telah sampai ke titik akhir, maka kembali ke titik awal dengan gerakan *Hip-out*.

Hip Out

Berlari lurus kemudian setiap 4-5 langkah berhenti dan angkat lutut ke arah depan. Putar lutut ke arah samping kemudian turunkan kaki. Kembali berlari dan setiap 4-5 langkah lakukan hal yang sama pada kaki sisi lain. Ketika telah sampai ke titik awal, maka kembali ke titik akhir dengan gerakan *Hip Out*

Hip-in dan *Hip-out* dilakukan secara bergantian sebanyak dua kali, sehingga total gerakan dilakukan sebanyak 4 x 16 m

Perhatian

1. Pastikan kesejajaran panggul, lutut dan tungkai yang menopang tubuh
2. Hindari posisi menekuk ke dalam atau ke depan pada lutut yang menopang tubuh

GERAKAN BENAR



| Hip-in |



| Hip-out |

GERAKAN SALAH



b. HIGH HEEL - BUTT FLICKS

Tujuan

Memberikan peregangan dinamis terutama pada otot panggul, paha depan dan pantat.

Instruksi

High Heel

Berlari lurus sembari mengangkat lutut kedepan dengan ketinggian sejajar panggul ($\pm 90^\circ$) kaki kanan dan kiri secara bergantian hingga titik akhir. Ketika telah sampai ke titik akhir, maka kembali ke titik awal dengan gerakan *butt flick*

Butt Flick

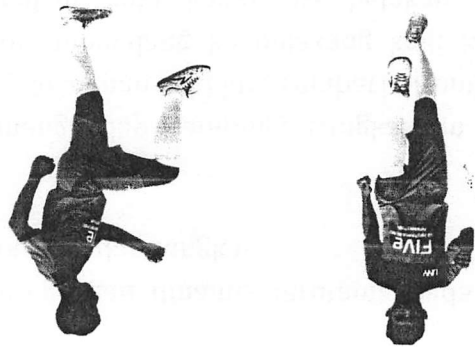
Berlari lurus sembari mengangkat tumit kaki kanan dan kiri ke arah pantat secara bergantian hingga menuju titik awal.

High heel dan *butt flick* dilakukan secara bergantian sebanyak dua kali. Jadi masing-masing sebanyak 4 x 16 m.

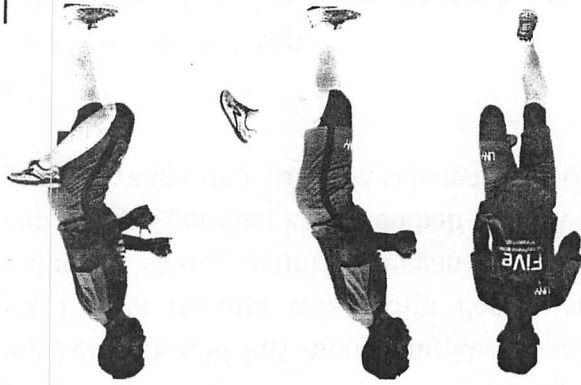
Perhatian

1. Pastikan kesejajaran panggul, lutut dan tungkai yang menopang tubuh
2. Hindari posisi menekuk ke dalam atau kedepan pada lutut yang menopang tubuh

GERAKAN BENAR



High Heel |



| *Butt Flicks*

GERAKAN SALAH



c. SMOOTH SWING CARRIOCA

Tujuan

Memberikan peregangan dinamis terutama pada otot panggul, perut bawah, dan tungkai

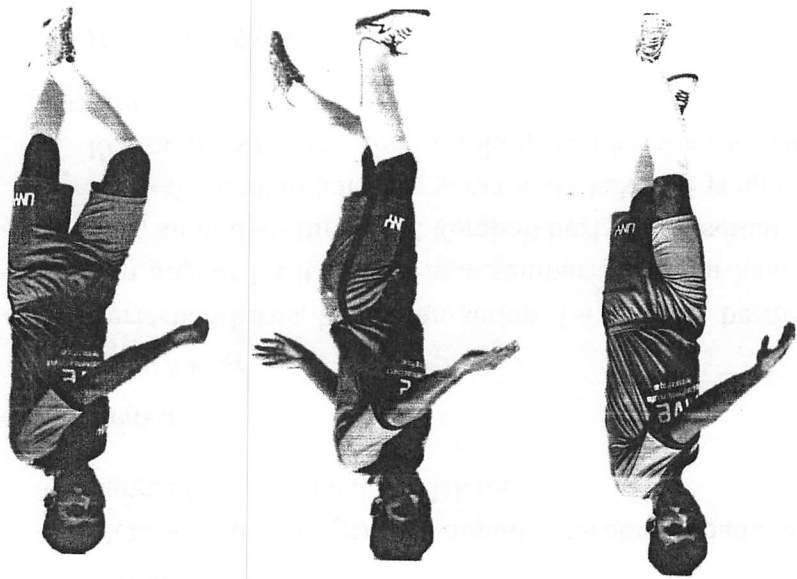
Instruksi

Posisi badan menghadap samping, Langkahkan kaki kanan menyilang ke depan kaki kiri, sembari disambung gerakan kaki kiri menyilang ke belakang kaki kanan kemudian silangkan kaki kanan ke belakang dan disambung kembali kaki kiri menyilang ke depan dan seterusnya hingga menuju titik akhir. Posisi lengan diangkat dengan santai, ayunkan lengan ke samping berlawanan dengan gerakan kaki. Kembali ke titik awal dengan gerakan yang sama. Lakukan sebanyak 4 x 16 m.

Perhatian

1. Pastikan badan tetap tegap.
2. Lakukan gerakan kaki dan tangan secara bergantian dengan santai
3. Jangan putar badan dengan keras dan tiba-tiba.

GERAKAN BENAR



d. GROIN -HAMSTRING SWING

Tujuan

Memberikan peregangan dinamis terutama pada otot pangkal paha dan paha belakang

Instruksi

Groin Swing

Berlarilah lurus, kemudian setiap 3-4 langkah berhenti dan angkat lutut ke sisi luar sembari lecutkan kaki ke atas, kemudian turunkan. Kembali berlari dan setiap 3-4 langkah lakukan hal yang sama pada kaki sisi yang lain. Ketika selesai pada *cone* terakhir, lari kembali ke *cone* awal.

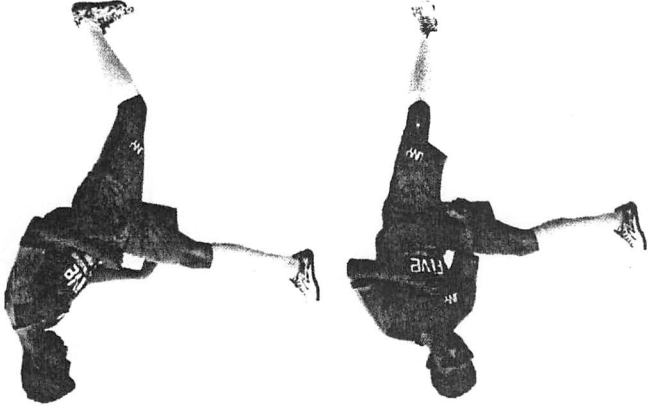
Hamstring Swing

Berlari lurus kemudian setiap 3-4 langkah berhenti dan angkat lutut ke depan sembari lecutkan kaki ke atas hingga kaki lurus, kemudian turunkan. Kembali berlari dan setiap 3-4 langkah lakukan hal yang sama pada kaki sisi yang lain. Ketika selesai pada *cone* terakhir, lari kembali ke *cone* awal.

Groin swing dan *hamstring swing* dilakukan secara bergantian sebanyak dua kali, sehingga total gerakan dilakukan sebanyak 4 x 16 m

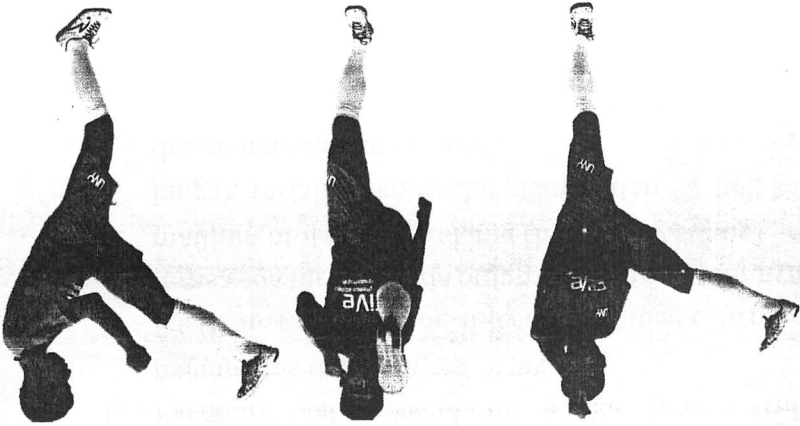
Perhatian

1. Pastikan saat melecutkan tungkai bawah, tubuh bagian atas dalam posisi lurus.
2. Pastikan tungkai yang dilecutkan hingga lurus dan terasa ada tarikan pada otot paha dalam (*groin swing*) maupun otot paha belakang (*hamstring swing*).
3. Jangan terlalu mencondongkan badan ke belakang, depan maupun ke samping.



GERAKAN SALAH

| *Groin Swing* | | *Hamstring Swing* |



GERAKAN BENAR

FIVE Futsal Injury Prevention and Enhance Performance



BAGIAN 3

STRENGTHENING

a. ***SINGLE TOE RAISES***

Tujuan

Memberikan penguatan pada otot paha dan betis.

Instruksi

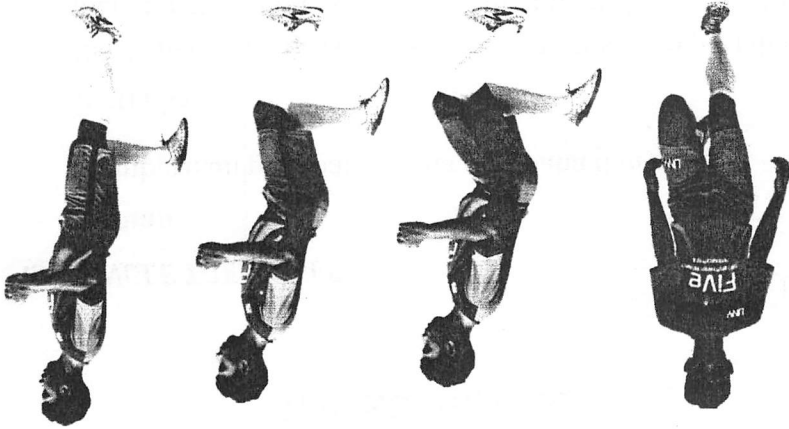
Berdirilah dengan satu kaki. Tekuk lutut secara perlahan, jika memungkinkan hingga membentuk sudut 90°. Kemudian, luruskan kembali lutut sembari angkat tumit hingga maksimal. Saat lutut lurus, turunkan tumit. Ulangi gerakan yang sama 3-5 kali untuk masing-masing kaki kanan dan kiri.

Perhatian

1. Pastikan kesejajaran panggul, lutut, dan kaki tumpuan.
2. Condongkan badan sedikit ke depan dan jaga tetap stabil dan hadap ke depan.
3. Tekuk lutut secara perlahan kemudian luruskan sedikit lebih cepat.

- 4. Jaga lutut agar tidak menekuk ke dalam.
- 5. Saat menekuk lutut, posisi kaki tidak jinjit.

GERAKAN BENAR



GERAKAN SALAH



b. *NORDIC HAMSTRING*

Tujuan

Memberikan penguatan pada otot hamstring

Instruksi

Berlututlah pada permukaan yang lunak dengan posisi lutut, panggul, dada dan kepala dalam posisi sejajar. Pasangan berlutut di belakang, dengan kedua tangan memegang bagian atas engkel sambil menekan ke bawah dengan tumpuan badan.

Pertahankan posisi tubuh dalam posisi lurus antara kepala hingga lutut. Perlahan jatuhkan badan ke depan, pertahankan posisi tersebut dengan otot. Saat tidak mampu menahan dalam waktu yang lama, dengan perlahan pindahkan beban pada lengan, jatuhkan badan dan tahan badan dengan tangan.

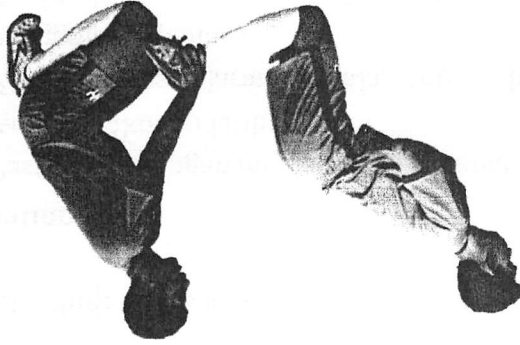
Repetisi:

Pemula : 3-5 kali

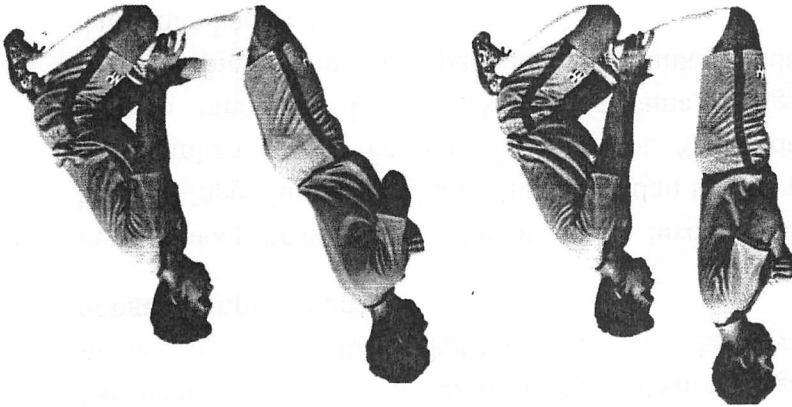
Target akhir : 12-15 kali

Perhatian

1. Pastikan pasangan menjaga dengan kuat kaki pemain yang melakukan latihan.
2. Pastikan kesejajaran kepala, tubuh bagian atas, panggul dan paha.
3. Gerakan hanya menggunakan sendi lutut.



GERAKAN SALAH



GERAKAN BENAR

4. Lakukan latihan dengan perlahan di awal, jika merasa lebih nyaman gerakan dapat dipercepat.
5. Jangan angkat kepala ke belakang dan jangan menekuk sendi pinggul.

c. ***COPPENHAGEN EXERCISE***

Tujuan:

Memberikan penguatan pada otot paha dalam.

Instruksi

Barbaringlah dengan posisi miring dengan kedua kaki lurus. sangaah tubuh dengan siku. Pasangan berada di belakang untuk mengangkat dan menahan kaki yang berada di atas.

Angkat pinggul dan tungkai yang berada di bawah, hingga tubuh sejajar. Siku sebagai tumpuan, sejajarkan dengan bahu. Angkatlah tungkai yang berada di atas, pasangan memegang bagian paha dan betis hingga membentuk posisi lurus.

Angkat tungkai yang berada di bawah menuju tungkai yang berada di atas, kemudian turunkan.

Repetisi:

Pemula : 3-5 kali tiap sisi

Target akhir : 10 - 13 kali tiap sisi

Perhatian:

1. Pastikan kesejajaran bagian bahu atas, pinggul dan tungkai bagian atas harus dalam posisi satu garis lurus.
2. Jika dilihat dari atas, tubuh dalam posisi satu garis lurus
3. Siku harus tegak lurus dengan bahu.

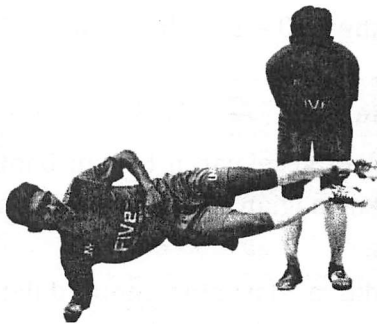
FIVE Futsal Injury Prevention and Enhance Performance

4. Saat mengangkat tungkai bawah, kunci lutut sehingga tungkai dalam posisi lurus.
5. Jangan sandarkan kepala pada bahu
6. Jangan angkat bahu atau pinggul ke depan atau ke belakang.

GERAKAN BENAR



GERAKAN SALAH



d. BOUNDING SIDE : 2 X 16 M

Tujuan:

Memberikan power melompat dan kontrol gerakan dengan satu kaki

Instruksi:

Berdiri dengan satu kaki, tekuk sedikit lutut, panggul, dan ankle dan condongkan badan ke depan.

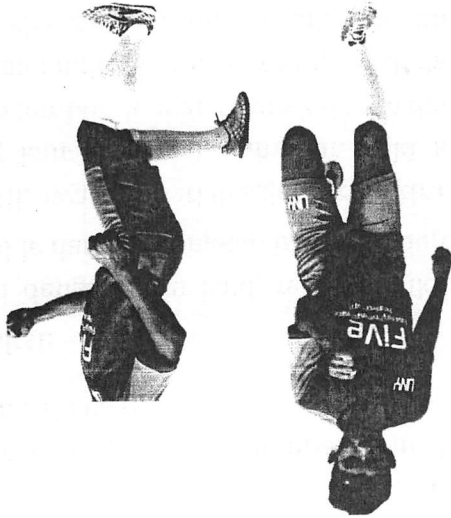
Dari titik awal lompatlah sejauh kira-kira semeter ke arah serong kanan dengan tumpuan kaki kanan, Daratkan dengan lembut dengan telapak depan dan tekuk panggul, lutut dan ankle. Tahan beberapa detik dan rubah arah ke serong kiri dengan tumpuan kaki kiri. rubah arah kembali ke serong kanan dan daratkan dengan kaki kanan begitu seterusnya hingga mencapai titik akhir. Lakukan hal yang sama saat berbalik ke titik awal.

Perhatian:

1. Jika tampak depan, panggul, lutut dan kaki harus segaris lurus.
2. Daratkan secara lembut dengan telapak depan, tekuk panggul, lutut dan ankle secara bersamaan dan condongkan badan sedikit ke depan.
3. Jaga tubuh atas tetap stabil dan menghadap depan.
4. Jangan tekuk lutut ke sisi dalam.
5. Jangan putar tubuh atas
6. Jangan jangan putar atau memiringkan panggul.



GERAKAN SALAH



GERAKAN BENAR

e. **PLANK**

Tujuan

Memberikan penguatan pada otot batang tubuh (*core*) yang penting untuk memberikan kestabilan tubuh saat bergerak.

Instruksi

Berbaringlah menghadap lantai, sanggah tubuh dengan siku dan kaki.

Angkat tubuh bagian atas, panggul, dan tungkai hingga membentuk garis lurus dan disanggah dengan siku. Siku membentuk sudut tegak lurus dengan bahu. Tarik otot perut dan dan pantat. Pertahankan posisi tersebut 20-30 detik. Kembali ke posisi awal, selingi istirahat pendek kemudian ulangi kembali latihan tersebut.

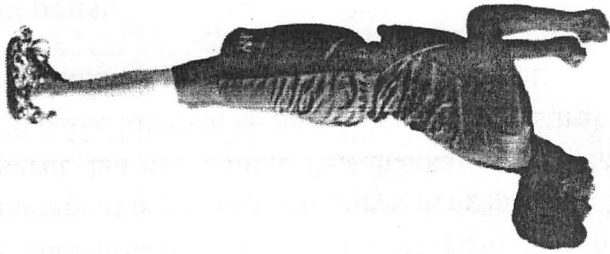
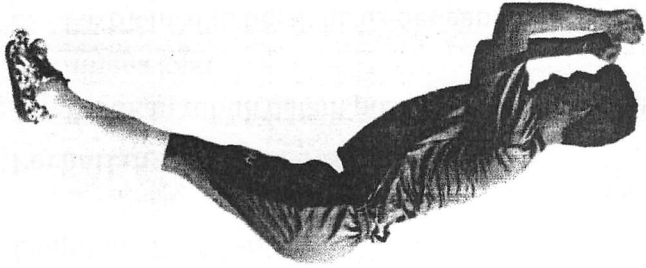
Repetisi:

Pemula : 2 x 20'-30'

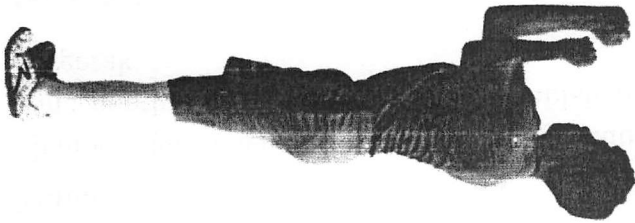
Lanjutan : 2 x 40'-60'

Perhatian

1. Pastikan tubuh dalam posisi segaris lurus dari kepala hingga kaki.
2. Pastikan siku tegak lurus dengan bahu.
3. Jangan angkat kepala ke belakang.
4. Jangan melengkungkan punggung.
5. Jangan mengangkat pantat.



GERAKAN SALAH



GERAKAN BENAR

FIVE Futsal Injury Prevention and Enhance Performance

f. SIDE PLANK

Tujuan

Memberikan penguatan pada otot batang tubuh (*core*) bagian samping yang penting untuk memberi kestabilan tubuh saat bergerak.

Instruksi

Berbaring dengan posisi miring dengan kedua tungkai lurus. Sanggah tubuh dengan siku dan tungkai bawah. Angkat ke atas panggul dan tungkai yang berada di bawah hingga tubuh membentuk garis lurus. Siku yang sebagai tumpuan sejajar dengan bahu. Pertahankan posisi tersebut 20-30 detik. Kembali ke posisi awal, selingi istirahat pendek kemudian ulangi kembali.

Repetisi :

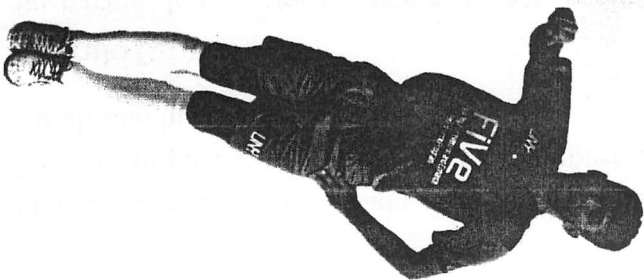
Pemula : 2 x 20'-30'

Lanjutan : 2 x 40'-60'

Perhatian

1. Jika dilihat dari depan, bahu bagian bahu atas, pinggul dan tungkai bagian atas harus dalam posisi satu garis lurus.
2. Jika dilihat dari atas, badan dalam posisi satu garis lurus.
3. Siku harus tegak lurus dengan bahu.
4. Jangan sandarkan kepala pada bahu.
5. Jangan angkat bahu atau pinggul ke depan atau ke belakang.

GERAKAN BENAR



GERAKAN SALAH



BAGIAN 4

BALANCE, AGILITY & COORDINATION

a. ***DYNAMIC BODYCONTACT***

Tujuan :

Melatih keseimbangan koordinasi dan kontrol gerak

Instruksi

Berlarilah dengan kecepatan maksimal ke depan bersamaan dengan pasangan dari *cone* pertama hingga *cone* ke-4. Pada *cone* ke-4 larilah ke titik tengah. Secara bersamaan dengan pasangan lakukan saling dorong dengan bahu masing-masing, jaga tetap saling dorong sambil lari ke depan hingga titik *cone* terakhir. Lari kembali ke *cone* awal dengan bertukar posisi dengan pasangan. Lakukan kembali latihan yang sama dengan bahu yang berbeda dari titik awal.

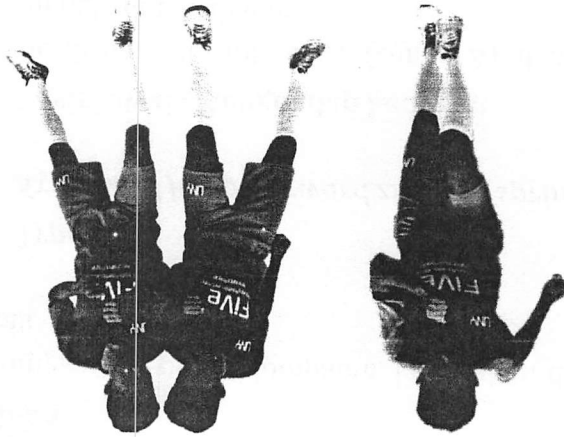
Repetisi

2 x 16 m (sisi yang bergantian)

Perhatian

1. Pastikan posisi tubuh bagian atas tetap tegak lurus
2. Panggul, lutut dan kaki harus tetap sejajar saat berlari.
3. Lakukan dorongan dengan tenaga maksimal.
4. Lutut jangan menekuk masuk ke dalam

GERAKAN BENAR



GERAKAN SALAH



b. 4-TYPES AGILITY TRAINING

Tujuan:

Meningkatkan power lompatan, kelincahan dan kontrol gerak

1. Type A :

5x vertical jump -forward zig zag - sprint

Posisi awal : Menghadap kedepan

Berdirilah di titik awal (cones A) dengan posisi menghadap kedepan.

Langkah 1 : Lompat tegak (vertical jump) sebanyak 5x

Berdiri dengan kedua kaki sejajar panggul. Secara perlahan tekuk panggul, lutut, dan ankle hingga lutut menekuk dengan sudut 110-120°. Condongkan badan ke depan. Tahan posisi ini 1 detik, kemudian lompatlah setinggi mungkin. Saat melompat, luruskan badan secara keseluruhan. Daratkan dengan lembut dengan telapak kaki bagian depan dan dengan perlahan tekuk panggul, lutut dan ankle.

Lakukan lompat ke atas di tempat sebanyak 5 kali

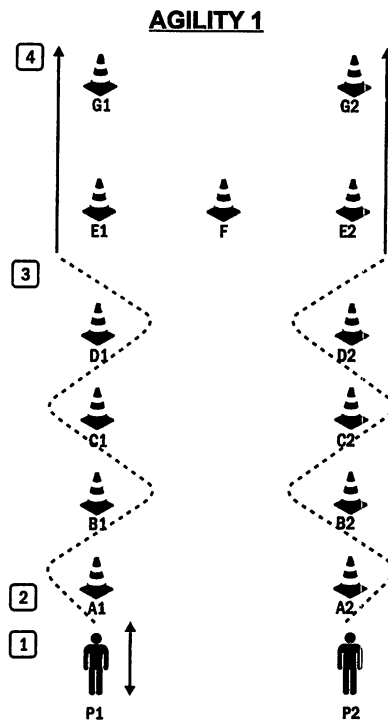
Langkah 2 : Zig Zag sampai cones D

Lakukan lari zig zag melewati 4 cones didepan hingga pada cone D

Langkah 3 : Sprint

Lakukan lari lurus kedepan dengan kecepatan maksimal (sprint) pada cones ke 4 hingga cones dititik akhir

Langkah 4 : Kembali ke titik awal di cones A



Agility Tipe A.

2. Type B :

(position to lateral) 5x forward backward hop-forward backward zigzag to the 4th cones - sprint to the 6th cones

Posisi awal : Menghadap kesamping

Berdirilah di titik awal (cone A) dengan posisi menghadap kesamping.

Langkah 1 : Lompat maju mundur (forward-backward jump) sebanyak 5x

Berdiri dengan kedua kaki sejajar panggul. Secara perlahan tekuk panggul, lutut, dan ankle hingga lutut menekuk dengan sudut 90° kemudian lompatlah kearah depan semaksimal mungkin. Begitu mendarat, lakukan lompatan ulang kearah belakang. Saat melompat, perhatikan kesejajaran lutut, tubuh dan teknik mendarat dengan baik. Lakukan lompat kedepan dan belakang di tempat sebanyak 5 kali. (3 kali ke depan, 2 kali ke belakang)

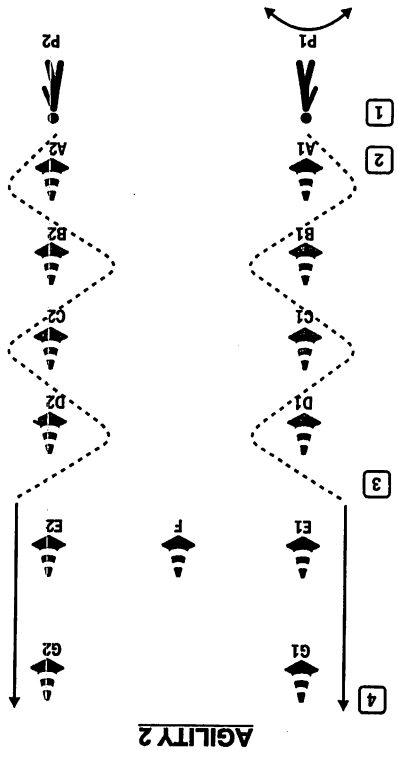
Langkah 2 : Zig Zag sampai cones D

Lakukan lari zig zag dengan posisi tetap menghadap ke samping sehingga gerakan zig zag dilakukan kedepan dan kebelakang. Zig zag depan-belakang dilakukan hingga melewati cone D

Langkah 3 : Sprint

Lakukan balik badan menghadap ke lintasan cone F, kemudian lari lurus secepat mungkin (sprint) hingga cone F

Langkah 4 : Sesampai di cone F, kembali ke titik awal di cone A



Agility Tipe B

3. Type C :

(Position to the back) 5x lateral hop - backward zigzag to the 4th cones- sprint to 5th cones;back to 4th cones;sprint to 6th cones.

Posisi awal : Menghadap ke belakang

Berdirilah di titik awal (cone A) dengan posisi membelakangi lintasan

Langkah 1 : Lompat ke arah samping (kanan-kiri) sebanyak 5x

Berdiri dengan kedua kaki sejajar panggul. Secara perlahan tekuk panggul, lutut, dan ankle hingga lutut menekuk dengan sudut 110-120° kemudian lompatlah kearah samping kanan dan kiri semaksimal mungkin. Saat melompat, perhatikan teknik mendarat dengan baik, cek kesejajaran lutut jangan sampai menekuk kedalam (valgus). Lakukan lompat samping kanan dan kiri sebanyak 5 kali. (3 kali ke kanan, 2 kali ke kiri)

Langkah 2 : Balik badan dan Zig Zag sampai cones D

Putar tubuh agar menghadap ke depan lintasan (cone A). Lakukan lari zig zag dengan posisi tetap menghadap ke samping sehingga gerakan zig zag dilakukan kedepan dan kebelakang. Zig zag depan-belakang dilakukan hingga melewati cone D

Langkah 3 : Sprint sampai cones E

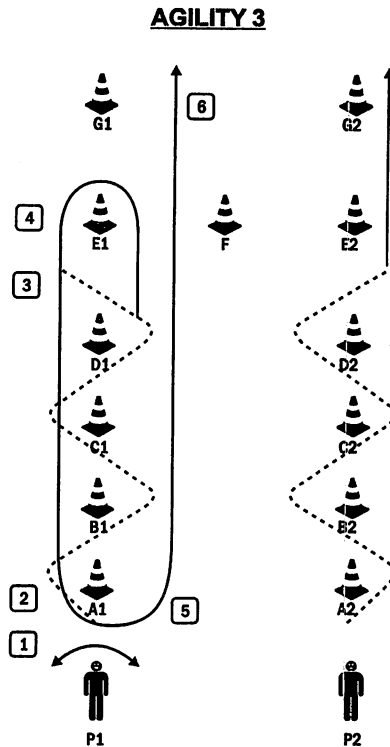
Lakukan sprint dari cone D ke cone E kemudian sprint dari cone E

Langkah 4 : Sprint ke cone A

Sesampainya ke cone E, lakukan lari sprint kembali ke cone A

Langkah 5 : Sprint 16 meter cone A ke cone G

Sesampainya di cone A, kembali lakukan sprint ke titik akhir di cone G



Agility tipe C

4. Type D :

5x fwd backward hop - zigzag to 4th cones- sprint to the middle 5th cones ; sprint to the 6th cones

Posisi awal : Menghadap kedepan

Berdirilah di titik awal (cone A) dengan posisi menghadap kedepan.

Langkah 1 : Lompat kedepan dan belakang sebanyak 5x

Berdiri dengan kedua kaki sejajar panggul. Secara perlahan tekuk panggul, lutut, dan ankle hingga lutut menekuk dengan sudut 110-120° kemudian lompatlah kearah depan melewati cone A semaksimal mungkin. Begitu mendarat, lakukan lompatan ulang kearah belakang. Saat melompat, perhatikan kesejajaran lutut, tubuh dan teknik mendarat dengan baik. Lakukan lompat kedepan dan belakang di tempat sebanyak 5 kali. (3 kali ke depan, 2 kali ke belakang)

Langkah 2 : Zig Zag sampai cones D

Lakukan lari zig zag melewati 4 cones didepan hingga pada cone D

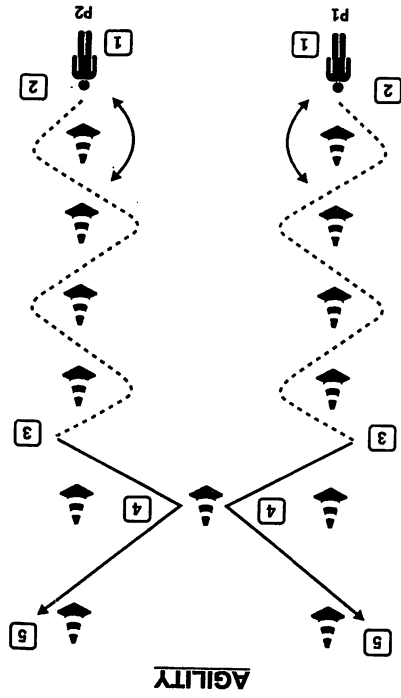
Langkah 3 : Sprint diagonal dalam ke arah cone F

Lakukan lari lurus kearah diagonal menuju cone F dengan kecepatan maksimal (sprint)

Langkah 4 : Sprint diagonal luar kearah cone G

Sesampainya di cone F, maka rubah arah sprint kedagonal luar sehingga berlari menuju cone G.

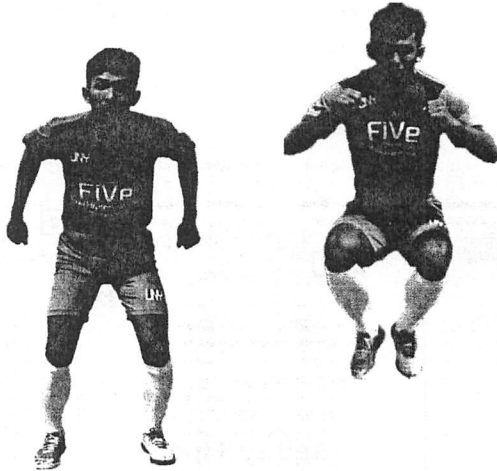
Perhatikan kesejajaran tubuh, posisi lutut dan ankle saat merubah arah harus fix dan sempurna
Langkah 5 : Kembali ke cone A
Kembali ke cone A dengan jogging ringan



Agility Tipe D

Yang Harus Diperhatikan pada Bagian 4 : Balance, Agility & Coordination

1. Saat hendak melompat, posisi awal bila dilihat dari depan maka panggul, lutut dan kedua kaki harus membentuk posisi dua garis lurus yang sejajar.
2. Saat hendak melompat, tekuk panggul, lutut dan ankle secara bersamaan dan condongkan tubuh atas ke depan
3. Melompatlah dengan kedua kaki dan mendarat dengan lembut dengan telapak kaki depan.
4. Cara mendarat dan power saat melompat lebih penting dibanding dengan tingginya lompatan.
5. Lutut jangan menekuk masuk ke dalam (valgus atau posisi X)
6. Jangan luruskan sendi lutut atau mendarat dengan tumit.



Teknik melompat

BAGIAN 5

PREPARE TO PLAY (PTP) - WITH THE BALL

a. PTP 1 : Passing - sprint - forward dribbling

Tujuan : Mempersiapkan atlet untuk bermain futsal melalui gerakan-gerakan yang spesifik digunakan dalam olahraga futsal (mengoper dan sprint)

Instruksi

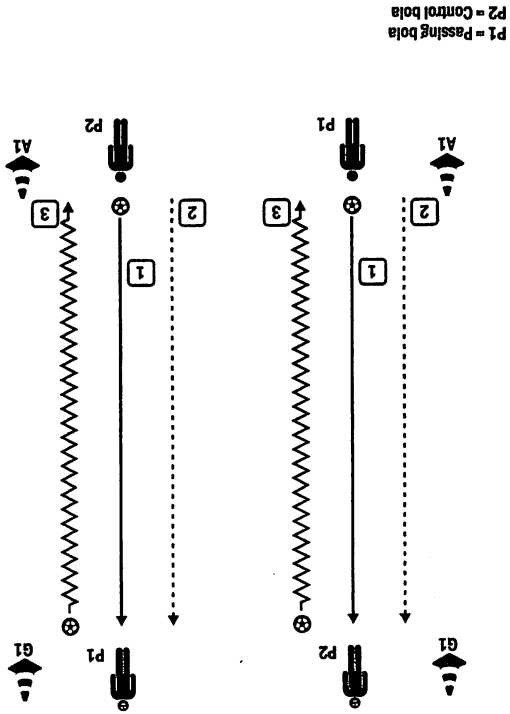
Pemain berpasangan, satu pemain berada di titik awal dan satu lagi berada di titik akhir. Pemain yang berada di titik akhir mengoper bola ke arah pemain yang berada di titik awal. Kemudian langsung berlari dengan kecepatan maksima ke titik awal. Pemain yang mendapat bola melakukan *dribbling* ke arah depan hingga ke titik akhir. Oper bola ke arah pemain yang berada titik awal dan seterusnya. Lakukan masing-masing 1 set.

- Dua pemain berpasangan (A&B) kemudian berdiri saling berhadapan dengan jarak 16 m
- Pemain A passing kepada pemain B kemudian A sprint kearah pemain B
- Pemain B melakukan dribbling depan (dengan sol) kearah pemain A setelah menerima passing dari pemain A
- Lakukan instruksi awal secara bergantian

Perhatian

1. Pastikan posisi tubuh bagian atas tetap tegak lurus
2. Panggul, lutut dan kaki harus tetap sejajar saat berlari
3. Lutut jangan menekuk masuk ke dalam

PTP 1



b. PTP 2 : Passing - Plant and cut - backward dribbling

Tujuan : Mempersiapkan atlet untuk bermain futsal melalui gerakan-gerakan yang spesifik digunakan dalam olahraga futsal (mengoper, menggiring dan sprint)

Instruksi

Pemain berpasangan, satu pemain berada di titik awal dan satu lagi berada di titik akhir. Pemain yang berada di titik akhir mengoper bola ke arah pemain yang berada di titik awal. Kemudian langsung lari dengan kecepatan maksimal ke arah serong kanan 5-7 langkah, berhenti dengan tumpuan kaki kanan dan rubah arah ke arah serong kiri. ulangi latihan hingga kembali tumpuan kaki kanan kembali. Berhenti di tengah *cone* 5. Pemain yang berada di titik awal mengoper bola ke pemain tersebut. Kemudian lakukan *dribbling* dengan mundur ke belakang menuju *cone* 6.

Repetisi

Dilakukan masing-masing sebanyak 1 set.

- Dua pemain berpasangan (A&B) kemudian berdiri saling berhadapan dengan jarak 8 m (*cones* tengah)
- Pemain A passing kepada pemain B kemudian Pemain A berlari zig zag sampai *cones* tengah lapangan
- Sementara pemain B melakukan *dribbling* mundur setelah menerima passing dari pemain A
- Setelah *dribbling* mundur selesai dilakukan, dan pemain A telah berdiri di *cones* tengah, maka pemain B melakukan passing kembali ke pemain A

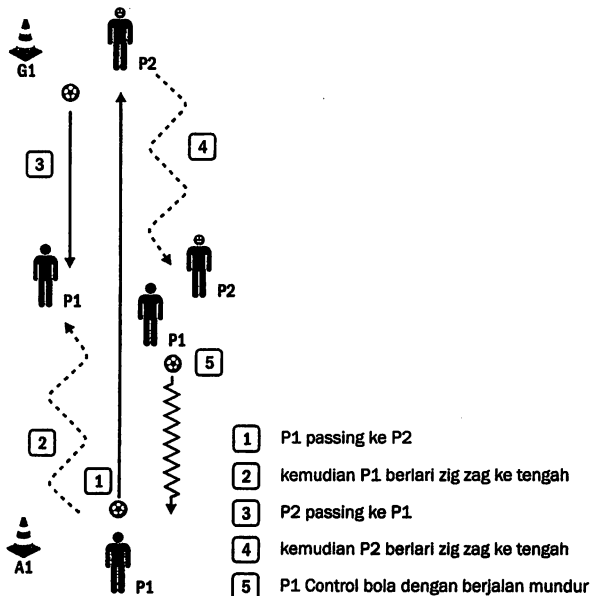
FIVE Futsal Injury Prevention and Enhance Performance

- Pemain A melakukan dribbling mundur setelah menerima passing dari pemain B sedangkan pemain B berlari zigzag kearah tengah setelah melakukan passing

Perhatian

1. Pastikan posisi tubuh bagian atas tetap tegak lurus
2. Panggul, lutut dan kaki harus tetap sejajar saat berlari
3. Lutut jangan menekuk masuk ke dalam
4. Jaga bola untuk tidak lepas

PTP 2



c. PTP 3 : Man to man (offensive and defensive)

Tujuan : Mempersiapkan atlet untuk bermain futsal melalui gerakan-gerakan yang spesifik digunakan dalam olahraga futsal (bertahan dan menyerang)

Instruksi

Pemain berpasangan, satu pemain berada di titik awal dan satu lagi berada di titik akhir.

Pemain yang berada di titik akhir mengoper bola ke arah pemain yang berada di titik awal. Bertari dengan kecepatan maksimal ke depan pemain di titik awal. Pemain yang mendapat bola melakukan *dribbling* ke arah depan dengan dihadang oleh pengoper bola hingga ke titik akhir. Pertahankan bola supaya tidak lepas.

Repetisi

Dilakukan masing-masing sebanyak 1 set.

- Dua pemain berpasangan (A&B) kemudian berdiri saling berhadapan dengan jarak 16 m
- Pemain A passing kepada pemain B kemudian A sprint kearah pemain B
- Setelah pemain A sampai pada pemain B (berjarak 1 meter)
- Maka pemain A melakukan gerakan bertahan pasif (mudur) sementara pemain B melakukan *dribbling* ke depan sampai pada titik awal pemain A
- Lakukan instruksi awal secara bergantian (Pemain A melakukan dribble dan B melakukan bertahan pasif)