

# WARM-UP AND INJURY PREVENTION GUIDE



DEVELOPED BY SA  
COUNTRY BASKETBALL  
& SOUTH AUSTRALIAN  
SPORTS MEDICINE  
ASSOCIATION



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# BASIC PRINCIPLES OF WARM UPS

## Why were these warm-up and injury prevention exercises chosen?

The exercises are “evidence-based” or “best practice”. They are designed to prevent the most frequent types of injury in basketball, i.e. ankle sprains and knee ligament injuries. The exercises lead to a strengthening of the core and leg muscles, and in addition, static, dynamic and reactive neuromuscular control, coordination, balance, agility and jump technique are improved.

## Who should do these warm-up and injury prevention exercises?

These warm-ups are for men and women of all levels of play and all ages from amateur to recreational players. The exercises in this guide should be performed as a warm-up prior to every training session, and in a shortened version before each match.

# BASKETBALL INJURY FACTS:

- Studies have found that knee injury and ACL injury are 2.3 times more common in girls than in boys and relative risk of ACL injury was 5.4 times higher in female than males.<sup>5</sup> The mean age of female basketballers with ACL injury at a university sports medicine clinic was 17 years (95% CI, 14–20 years).
- Australian direct hospital costs between 1 July 2002 and 31 June 2003 for basketball and netball were \$2.7 million and \$2.4 million, respectively.<sup>8</sup>
- ACL rupture and Achilles tendon injury also have long-term complications. Most people with ACL rupture have radiographic features of knee osteoarthritis at 10–15 year follow-up.<sup>23</sup> Achilles tendon ruptures may re-rupture: 12.1% if managed conservatively, and 2.2% if surgically treated.<sup>24</sup>
- A study which collected data from 100 nationally representative US **high schools** showed that injury rate during competition was 3 times higher than that in practice. <sup>26</sup>
- **The same study showed the following breakdowns of most common injuries across the board:**
  - Ankle/foot (39.7%),
  - Knee (14.7%),
  - Head/face/neck (13.6%),
  - Arm/hand (9.6%), and
  - Hip/thigh/upper leg (8.4%)

## The most frequent injury diagnoses were:

Ligament sprains (44.0%),  
Muscle/tendon strains (17.7%),  
Contusions (8.6%),  
Fractures (8.5%), and  
Concussion<sup>7</sup>

# KNEE AND ANKLE INJURY PREVENTION

## LATERAL HIGH KNEES



Move sideways up the court extending one knee at hip height every second step. Do this as quickly & as many times as possible.  
Repeat 1/3 way down the court.

Repeat in opposite direction with other leg.

## GLUTE KICKS



Jog up the court reaching and flicking or kicking glute with heel of feet

Continue up and back 1/3 of the court

## WALKING LUNGES



Lunge forward with one leg, ensure a 90 degree front knee bend, back is straight and knee and ankle in straight line. Stand up and lunge forward with other leg.

To half court and walk back

# KNEE AND ANKLE INJURY PREVENTION

## WALKING LUNGES INTO CALF RAISES



Step forward, lift one knee hip height, and extend opposite heel off the ground to stretch through calf.

Straight from lunge, powerful push into single leg calf raise. Then back down into lunge with other leg..

To half court and walk back

## SQUATS WITH SIDE STEP



With back straight as possible, knees comfortable width apart, squat in place, then side step twice, turn 180 degrees and repeat. Ensure knees are not too far over toes, in straight line over ankles and feet are flat.

To half court and back

## CALF STRETCH 'SHOO THE CHICKENS'



Calf: toe pointed up, lean forward to stretch calf, reach for toe with straight back. Avoid knee hyperextension.



# KNEE AND ANKLE INJURY PREVENTION

## GLUTE SIT



Gluteal: cross leg over knee and drop hips/ 'sit'. Single leg balance, aim to keep back straight (avoid leaning), knee tracking over ankle.

## SUPERMAN



Bring foot to backside with one hand. Push hips forward to stretch quad. Lean forward and stretch arm out for balance. Keep body straight and not leaning. If falling over, release hand and put foot down.

## PARTNER JUMP TO BUMP



One partner two footed jumps straight up. Partner on side gives slight bump. Jumping athlete aims to land softly on two feet. Aim to keep body strong and as straight as possible from the bump.

Repeat 5 times then swap

# KNEE AND ANKLE INJURY PREVENTION

## SINGLE LEG HOP TO 2 FOOT LANDING



Jump off one leg forward at a controlled distance. Ensure knees over ankles on soft landing.

Repeat 5 times off each leg

## 180 DEGREE JUMP TO LAND



Feet just wider than shoulder width apart. Jump up and turn 180 degrees in the air. Stop where you land. Even if 180 degrees is not reached. Avoid spinning body further than feet. Controlled soft landing. Repeat 5 times. Add in ball catch on landing.

Repeat 5 times

## LATERAL LEAPS



Leap diagonally left and right towards half court. Combine height and length and hold landing on one foot before leaping again.

To half court.

# STRENGTH AND INJURY PREVENTION

## GLUE BRIDGE



With hips and feet square and knees bent. Raise hips to form straight line from back to knees.  
Repeat 10 times

## SINGLE LEG GLUTE BRIDGE



With hips and feet square and knees bent. Raise hips to form straight line from back to knees. Extend one leg out straight, keeping in line with back and hips.  
Repeat 5 times each leg

## GLUTE BRIDGE WITH BALL



With hips and feet square and knees bent. Place a ball under feet, ensuring feet are flat on ball. Raise hips to form straight line from back to knees. Extend one leg out straight, keeping in line with back and hips.  
Repeat 5 times each leg

## FOREARM PLANK



Place forearms on the ground with the elbows aligned below the shoulders. Ground the toes into the floor and squeeze glutes. Neutralize the neck and spine by looking at a spot on the floor about a foot beyond the hands.

Hold the position for 20 seconds.



# STRENGTH AND INJURY PREVENTION

## PLANK WITH BALL ROLL



Roll ball under body using fingertips while in plank position on hands. Ensure core is kept tight and body doesn't sway.  
Switch hands 5 times

## PUSH UPS



Begin with hands outside shoulder width and align with chest. have weight on toes pointed down. Lower body as much as possible then push back up.  
Minimise hip swivel, keeping elbows in. Beginners can start on knees.

Repeat 10 times

## T-BAR ROTATIONS x LEG EXTEND OPTION



Start in push up position; rotate body out and arm extended. Hold when on side. Maintain straight line between shoulders, hips and ankles.

Option 2: Raise outside leg and slowly lower.

Repeat 5 times each side

## SIDE LUNGES



Start feet facing forward outside shoulder width apart. Lunge to one side with knee over ankle and shoulders up. Should feel stretch through inside of opposite leg.

Repeat 10x each side

# REFERENCE

EXERCISE	NOTES	REPS OR LENGTH
<b>WARM UPS</b>		
Jogs	Slow pace especially for young athletes	½ court up and back 4 times
Lateral High Knees	Move sideways up the court extending one knee at hip height every second step. Do this as quickly & as many times as possible.	1/3 way down the court. Repeat in opposite direction with other leg.
Glute Kicks	Jog up the court reaching and flicking or kicking glute with heel of feet	Continue up and back 1/3 of the court
Walking Lunges	Ensure a 90 degree front knee bend, back is straight and knee and ankle in straight line	Half court and walk back
Calf Raises	Step forward, lift one knee hip height, and extend opposite heel off the ground to stretch through calf.	Half court and walk back
Walking Lunges into Calf Raises	Straight from lunge, powerful push into single leg calf raise. Then back down into lunge with other leg.	Half court and walk back
Squats with side step	With back straight as possible, knees comfortable width apart, squat in place, then side step twice, turn 180 degrees and repeat. Ensure knees are not too far over toes, in straight line over ankles and feet are flat.	Half Court
Calf and Gluteal Stretch	Gluteal: cross leg over knee. Single leg balance, aim to keep back straight (avoid leaning), knee tracking over ankle. Calf: toe pointed up, lean forward to stretch calf, reach for toe with straight back. Avoid knee hyperextension	Half Court
Superman Stretch	Bring foot to backside with one hand. Push hips forward to stretch quad. Lean forward and stretch arm out for balance. Keep body straight and not leaning. If falling over, release hand and put foot down. Avoid hopping.	Half Court
Sprint Efforts forward	Begin with fast feet on the spot. Then on go, full effort sprint to the 3pt line.	Half Court
Sprint Efforts Backwards	Begin with fast feet on the spot. Then on go, full backwards run to the 3pt line.	Half Court
Sprint Efforts Sideways	Begin with fast feet on the spot. Then on go, full effort side steps to the 3pt line.	Half Court

KNEE AND ANKLE INJURY PREVENTION		
Partner Jump to Bump	One partner two footed jumps straight up. Partner on side gives slight bump. Jumping athlete aims to land softly on two feet. Aim to keep body strong and as straight as possible from the bump.	Repeat 5 times then swap
Single Leg hop to 2 foot landing	Jump off one leg forward at a controlled distance. Ensure knees over ankles on soft landing.	Repeat 5 times on each leg
180 degree jump to land	Feet just wider than shoulder width apart. Jump up and turn 180 degrees in the air. Stop where you land. Even if 180 degrees is not reached. Avoid spinning body further than feet. Controlled soft landing. Repeat 5 times. Add in ball catch on landing.	Repeat 5 times
Lateral Bounding	Take a couple of short steps on a diagonal. Then hop and land on outside foot. Cut back in other direction and land on opposite foot. Repeat going backwards.	Half court and walk back
Glute Bridge	<b>With hips and feet square and knees bent. Raise hips to form straight line from back to knees</b>	Repeat 10 times
Glute Bridge Single Leg	PROGRESS WITH SINGLE LEG EXTENTION	Repeat 10 times each leg

## RESOURCES:

<https://www.youtube.com/watch?v=CpHm3yeM9Sc>

<https://www.youtube.com/watch?v=5h1csQRvEVg&t=136s>

<https://www.youtube.com/watch?v=Xe1HNzyohog&t=26s>

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