A GUIDE TO SAFER SPORT

Fitness, Injury and Improving Performance

COACHES, MANAGERS and PARENTS

Francis Crosslé & Phillip Richardson APA Sports Physiotherapists

*Including a special section on **CONCUSSION** by Dr Martin Raftery*
Sports & Exercise Physician, Chief Medical Officer, World Rugby

Editor: Brad Forrest - Sports Journalist

SOUTHSIDE PHYSIOTHERAPY & SPORTS INJURY CENTRE (ABN 23 902 132 482)
82 Burraneer Bay Rd Cronulla NSW 2230 *www.ssphysio.com.au*
Ph: 02 9527 4099 Fax: 02 9523 0322 *info@ssphysio.com.au*

Contents

Welcome to the first Guide to Safer Sports Handbook produced by Southside Physiotherapy & Sports Injury Centre, incorporating the Shire Rehabilitation Centre.

It has been compiled by Francis Crosslé and Phillip Richardson, Australian Physiotherapy Association Sports Physiotherapists.

Our Aim is to provide a handy reference on aspects of training, fitness and injury guidance, as well as the latest information on the physical enhancement of performance for sports coaches, managers and parents.

Coaches and managers of local sports teams may not have the high level resources that professional coaches have access to. In addition, we often encounter parents who have questions they are uncertain about regarding their children's physical problems sustained while playing sport.

It is intended this Handbook will help fill that gap by providing advice to those less well resourced.

Concussion, particularly for young sports people, is potentially one of the most serious injuries anyone can sustain. Dr Martin Raftery, Chief Medical Officer, World Rugby, is a world authority on the management of concussion and has contributed a significant section in this Handbook that is essential reading for everyone involved in all categories of sports.

To create this resource, we have referenced our own 50 years of combined experience and up-to-date advice from around the world.

Finally, it is encouraged in this Handbook to try to make coaching and playing ***FUN*** for your players—you may even get fewer injuries and you will certainly have more participants who are more likely to remain sports people all their lives.

Please note: ***this booklet should serve as a guide only.***

When in doubt always seek advice from
Southside Physiotherapy & Sports Injury Centre or your GP

SECTION A: FITNESS

Introduction

At the start of the season and regardless of what level of sport played, the most important responsibility a coach has is to the individual player's safety and wellbeing - or - as you are aware the coach's "duty of care".

Pre-Season

Many responsibilities are involved and one of the most important during pre-season training is to ensure each player is maximally prepared by confirming her/his players are not carrying any injuries and then to develop their optimal fitness. ***Structured training sessions*** pre-season and during the season are the vital venue for maximising fitness.

Training Sessions

The training session should consist of four components:

- **Warm Up**
- **Fitness and/or strength training (resistance, weights)**
- **Sports Specific Training**
- **Cool Down**

Maximising fitness is necessary for achieving several objectives:

- **ensuring the health of players**
- **minimising injury potential**
- **improving performance**
- **maximising enjoyment -** an important aspect sometimes forgotten.

Ideally, in younger sports persons:

- **the number of training sessions (including weight training)** should be at least two**,** each lasting for 60-90 minutes maximum, per week
- **this amount of training is necessary** for the body to improve its physiological (fitness) status by reacting positively to the increased physical loading incurred during training

Warm-ups & Cool-downs

- warm ups and cool downs are critical parts of training and playing sport- about 10 minutes pre- and post-game/training
- the purpose of the warm-up is to allow the athlete to prepare for an increased level of activity
- stretching must always be included in all training and playing - see **"Stretching"** segment
- warming up muscles and joints before all exercises may help reduce the risk of injury
- helps prepare mentally and also neuro-muscular firing patterns, enhancing coordination
- prepares joints/ligaments for full ranges of movement - so the limbs can move more efficiently when increased loading occurs during training or the game
- warm-ups typically consist of 5-10 minutes of cardio e.g. running, skipping, ergo-rowing, swimming or cycling
- cool-downs after activity encourage drainage of lactic acid and minimises delayed onset of muscular soreness (DOMs)
- a good example of a Warm Up Program is available on our website under "Dynamic Stretching" or see "Suggested Websites" on page 30

NOTE: the "Suggested Websites" programs have been developed for the benefit of senior coaches to train senior players. Therefore, the intensity, duration and timing may need to be adapted for your own individual requirements when dealing with younger sports people. Do not attempt a complete program on an initial training session. Start slow and graduate the intensity of the drills and exercises that are appropriate to the age group in your team.

Fitness Components

The key mechanisms (not in order of importance) to gaining overall fitness are:

1) **Strength & Power (resistance training)**
2) **Flexibility**
3) **Endurance**
4) **Agility**

1) Strength & Power

Strength, resistance or weight training is promoted not only for sport but also as part of a comprehensive health program for ***everyone.*** For example, senior citizens even in nursing homes are encouraged to exercise lifting light weights. Not only are they good for you physically but research has indicated they provide a good mental boost as well.

Strength/Resistance Training Defined

- strength is the amount of force required to push, pull or lift.
- power = (force x speed) - or - how quickly you can exert that maximum force
- both these factors are essential for all sports – develop more power and you will get better - it is as simple as that

The most common method of achieving improved strength is by:

- lifting weights
- exercising with rubber bands (Theraband) resistance
- in some cases, using body weight e.g. push ups, chin-ups, burpees, squats, lunges etc.

When first undertaking a strengthening/weight program:

- do not undertake a self-managed program from pictures on the Internet
- obtain instruction only from a qualified instructor or consult with Southside Physiotherapy

The Younger Sports Person and Resistance Training (Weight Training)

Resistance or weight training *(not to be confused with the sport of Weight Lifting)* can be undertaken by pre-adolescents provided several key criteria are observed:

- only undertake when injury free
- lifting maximal weights ***must not*** be the overriding goal because of potential injury
- always undertake a 10 minute general warm up before a resistance program
- programs must be properly designed and supervised by a qualified instructor or consult with Southside Physiotherapy
- correct technique including proper breathing is paramount—poor technique can lead to injury
- light weights to be lifted at all times and undertake slow movements only
- constant safety checks are to be carried out to ensure equipment quality and correct techniques are practised
- stretching exercises of all the major muscle groups must be undertaken at the end of the session
- ***Recommended website:*** www.strengthandconditioning.org / Australian Strength and Conditioning Association Position Stand - *see* - Resistance Training for Children and Adolescents National Conference Presentation Dr Greg Wilson PhD.
- *In regard to injuries, and weight lifting at an early age, it is worth reading commentaries by Greg Wilson on this website.*

As an approximate guide to parents who do not have resistance training experience, in order to obtain benefits, it is recommended a maximum of up to 8 repetitions, 1-2 sets, twice per week be undertaken for each exercise for younger sports people.

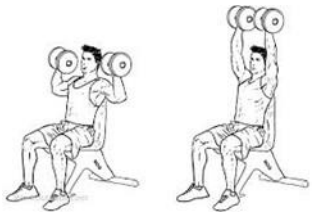
If fitting the time in for resistance training is a problem, splitting the exercises illustrated into ½ one day and the other ½ the next day may be a solution.

Which Resistance Exercises Should be Undertaken?

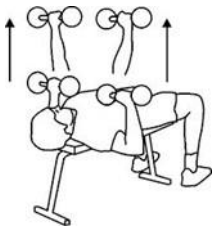
There are an infinite number of resistance exercises, techniques and recommendations. The best idea is to keep it simple and realise that while there is not much variety in the exercises listed, they cover the main muscle groups and are the most efficient for training purposes.

Remember:

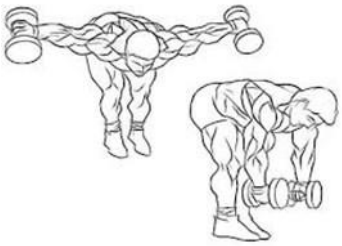
- warm up and stretch first
- don't lift heavy weights
- breath properly - do not hold your breath
- as a guide, undertake 8 repetitions and 2 sets per exercise
- cool down after by static stretching



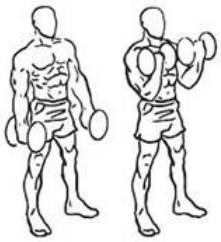
Over head press - for deltoids and triceps. This can be done in standing also



Bench press - for pec. major, deltoids and triceps . This can be done with a straight bar



Bent over 'flys'' - for back and shoulder girdle muscles - remember to bend the knees a little. *This is a very important exercise, often forgotten, but particularly in the throwing sports .e.g. cricket, netball, baseball etc.*



Bicep curls - on the up lift, curl your wrists and strengthen the wrist muscles too

Hamstring curls - make sure full range of movement is undertaken. Don't lift hips off the bench

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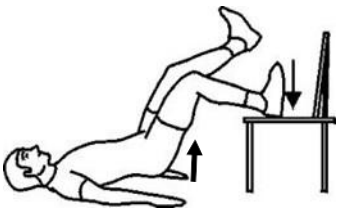
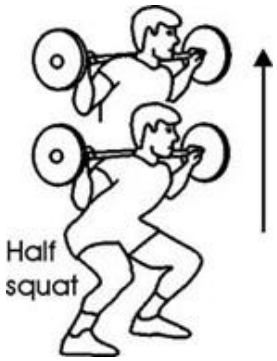
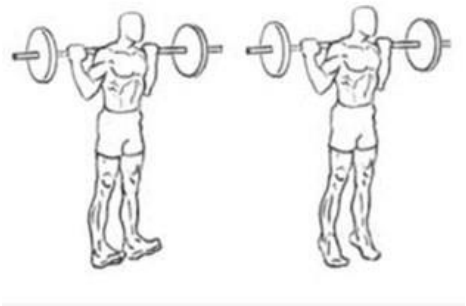


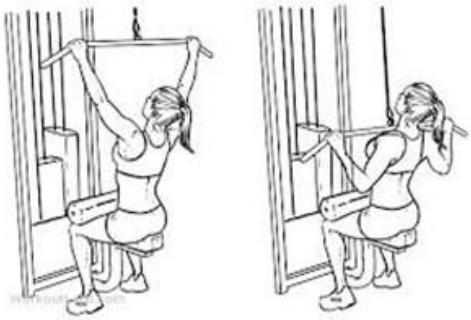
Hamstrings - you can strengthen hamstrings this way if you don't have access to gymnasium equipment



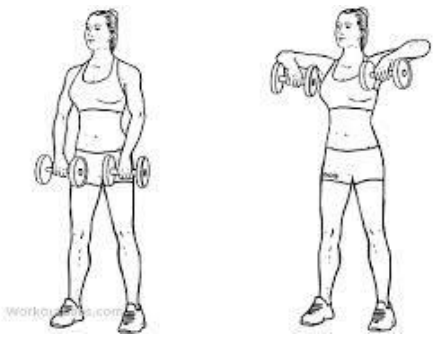


Squats - for quadriceps and buttocks. Dumbbells held down by the hips are as effective

Heel raises - for calf muscles. A small step should be under the ball of the feet. Make sure full range of movement is undertaken.



Lat pull downs - for the powerful latissimus dorsi muscle and helps strengthen other trunk muscles. Rubber bands can be substituted if gymnasium equipment is not accessible



Upright rows - for deltoids and upper and mid trapezius. A straight bar can also be used instead of dumbbells.

*For those training younger sports people, to make weight training a bit more **fun,** undertake functional/dynamic strength exercises using weighted balls, plates, sand bags.*

These types of training are a bit more stimulating and keep them interested.

Power Training

Power training can be practised by undertaking plyometric exercises such as those illustrated. This can also be a fun component of a training session as it combines fast, rapid movements such as hopping, bounding, jumping and involve game skills. Good programs can be found on the internet appropriate to the younger sports person.

If in doubt, consult Southside Physiotherapy & Sports Injury Centre

2) Flexibility and Stretching Exercises

Flexibility or stretching exercises are to be included into each training session and on game days and always be part of a warm-up or cool-down. Flexibility exercises are encouraged at any age.

Stretching Rules

- warm up first (unless it's after a game) with five minutes of moderate cardio activity
- stretch to the point of firmness and try to relax the muscles being stretched
- do not hold your breath - concentrate on slow, regular breathing
- ***Partner*** *stretching should be undertaken with care as younger sports people can become over enthusiastic and cause their partner injury by pushing a joint/muscle complex into extremes.*

There are two main types of stretches:

a) dynamic
b) static

Generally, it is agreed among researchers that:

- *dynamic* stretching (see next page for definition and examples) should be undertaken pre training/sport
- *static* stretching is more appropriate post training/sport.

a) **Dynamic Stretching** - utilizes momentum to propel the limbs and muscles into an extended range of movement. This is not the time to focus on becoming more flexible but rather maximising current ranges of movement in preparation for the game ahead.

- dynamic stretching should be part of a *supervised* warm up
- target shoulders, neck, thoracic and lumbar spines, hips, hamstrings, inner thighs and calves.
- these exercises can be more sports specific
- dynamic stretching exercises are available on our website ***www.ssphysio.com.au*** for you to print off and take to training

Dynamic stretching has a more significant effect *pre game* than static stretching. They have beneficial effects on:

- increasing the blood supply to the muscles
- improving fascial (the connective tissue) flexibility
- improving muscle extensibility and full range of motion across joint(s) and nerves
- lubricating the joints
- improving neural firing and coordination of the muscles
- mental preparation
- may help prevent injury

b) **Static Stretching** - a sustained stretch of the muscles while the body is **not** moving

- how long should a static stretch be held? There are no definite rules but to be effective, it is recommended each stretch should be held firmly (no pain) for longer than 30 seconds
- keep in mind, static stretches held longer than 30 seconds tend to 'switch' the muscle off
- therefore, this type of stretch should ***not*** be undertaken pre training/game
- beneficially, it is this type of stretch than can improve the flexibility of muscle groups
- static stretches are an essential part of the cool down (see below)
- static stretches can be utilised at home for specific muscle groups to assist injury prevention as well as healing e.g. Achilles tendonitis, hamstrings, shoulders and back

Which static stretch exercises should be undertaken?

- systematically work through the stretches by targeting each major muscle group - starting from the ground and working up the body:

Calves

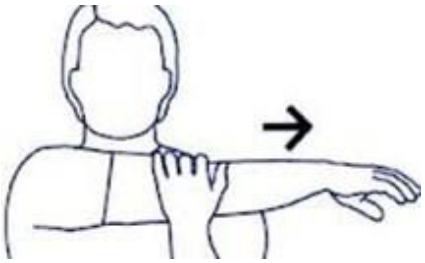
Hamstrings

Quadriceps

Deep hip flexor

Gluteals

Shoulders:



NOTE: Static stretching is an essential part of the cool-down. They help free muscle tension built up during the game. They help release a build-up of lactic acid from hard working muscles following training/sport - these exercises should take 10 minutes to complete.

How much should each type of stretching exercise be undertaken both at training and game time?

- dynamic stretching is to be a routine part of a ***supervised*** warm-up - each exercise about 6 reps and about 10 minutes in total
- a static stretch for each muscle group should be undertaken at least once during cool-down, about 10–12 minutes in total

While on the Bench

When on the substitute bench, players should change posture, complete mini jogs and dynamic stretch every five minutes. Remember to ***keep warm!***

3) Endurance

- Endurance or aerobic ('Aero' is the Greek word for 'air') training is an essential part of all regular training sessions - its purpose is to increase cardiorespiratory fitness of a sportsperson so their physical ability to compete in a game is maximised
- aerobic training improves the way our body utilises oxygen for the combustion of fat and carbohydrates to generate energy over a sustained period of time
- this enhances sports performance
- training for endurance is also related to better health and should be a life-long activity, particularly as we grow older
- in most cases, training for endurance entails some distance running
- for guidelines on the distance a healthy, younger sports person should progressively train up **to** run, Brukner & Khan (Clinical & Sports Medicine) recommend: age 9 to 11yrs - 5km; age 12 to 14yrs - 10km; age 15 to 16yrs - 21km in one session
- other types of aerobic training can be ergo. rowing, swimming, cross trainer, cycling, treadmill or skipping

Some useful techniques promoting endurance training are:

- ***interval training*** - involves a series of short periods of medium intensity then high-intensity (e.g. sprinting) workouts, interspersed with short periods of rest e.g. jog 50 metres; sprint 200 metres; walk backwards 50 metres - vary these distances, speeds and short rest periods and repeat over 15 - 20 minutes, several times per week.

- ***fartlek method*** (Swedish for speed play) which is similar to interval training only less structured - it can include longer distance running with surging or changes of pace within the run, or sprinting up hills for example.

Interval and fartlek types of training can be combined with plyometric exercises to add a bit of fun to the training session. There are numerous examples on the internet.

4) Agility

Is the ability for the body to move and change direction quickly and efficiently during sport. Agility can be improved at training sessions and incorporated in plyometric type exercises as well:

- running patterns such as figure of eights and then in reverse, side stepping, cutting around cones and other drills can be incorporated
- it's a good idea to be sports specific in these sessions

Remember, if training young people, the coach can develop this type of training into games or small competitions within a team to make the session fun and enjoyable for them.

SECTION B: INJURIES

N.B. ***This section is a guide only - it is not intended to be used as a treatment reference.***

NOTE: ANYONE INVOLVED IN SPORT SHOULD UNDERTAKE A FIRST AID COURSE

1) CONCUSSION

One of the most serious injuries that can occur in sport is concussion. In recognition of this, we have enlisted one of the world's leading experts on this subject, Dr Martin Raftery, Sports and Exercise Physician, who is World Rugby Chief Medical Officer. You might recognize Martin's name being the former Medical Officer for St George Dragons and the Wallabies. Martin's contribution is both thorough and user friendly. For anyone involved in coaching or managing any type of sports person, this is a must read. For further information or to complete concussion education modules for parents, referees, healthcare professionals and medical practitioners go to: http://www.irbplayerwelfare.com/

What is Concussion?

- Concussion is a traumatic brain injury resulting in a disturbance of brain function. There are many symptoms of concussion, common ones being headache, dizziness, memory disturbance or balance problems.
- Loss of consciousness, being knocked out, occurs in less than 15% of concussions.
- Loss of consciousness is ***not*** a requirement for diagnosing concussion.
- Typically standard brain scans are normal.

What causes concussion?

Concussion can be caused by a direct blow to the head, but can also occur when blows to other parts of the body result in rapid movement of the head e.g. whiplash type injuries.

Who is at risk?

Concussions can happen at any age. However, **children and adolescent athletes**

- are more susceptible to concussion
- take longer to recover
- have more significant memory and mental processing issues.
- are more susceptible to rare and dangerous neurological complications, including death caused by a single or second impact

Athletes with a history of **two or more concussions** within the past year are at greater risk of further brain injury and slower recovery and should seek medical attention from practitioners experienced in concussion management before return to play.

How to recognise a concussion.

If any of the following signs or symptoms are present following an injury the player should be suspected of having a concussion and **immediately removed from play or training**.

Visible clues of concussion - What you see

Any one or more of the following visual clues can indicate a concussion:

i. Dazed, blank or vacant look
ii. Lying motionless on ground / Slow to get up
iii. Unsteady on feet / Balance problems or falling over / Incoordination
iv. Loss of consciousness or responsiveness
v. Confused / Not aware of plays or events
vi. Grabbing / Clutching of head
vii. Seizure (fits)
viii. More emotional / Irritable than normal for that person

Symptoms of concussion - What you are told

Presence of any one or more of the following signs & symptoms may suggest a concussion:

ix. Headache
x. Dizziness
xi. Mental clouding, confusion, or feeling slowed down
xii. Visual problems
xiii. Nausea or vomiting
xiv. Fatigue
xv. Drowsiness / Feeling like "in a fog" / difficulty concentrating
xvi. "Pressure in head"
xvii. Sensitivity to light or noise

Questions to ask - What questions to ask

Failure to answer **any** of these questions correctly may suggest a concussion.

"What venue are we at today?"

"Which half is it now?"

"Who scored last in this game?"

"What team did you play last week / game?"

"Did your team win the last game?"

RECOGNISE AND REMOVE

and

IF IN DOUBT, SIT THEM OUT

On field management of a suspected concussion at training or during a match

Any athlete with a suspected concussion should be **IMMEDIATELY REMOVED FROM PLAY**, using appropriate emergency management procedures.

Side line management of a suspected concussion.

Athletes with a suspected concussion:

- should not be left alone in the first 24 hours
- should not consume alcohol in the first 24 hours and thereafter should avoid alcohol until provided with medical or healthcare professional clearance or if no medical or healthcare professional advice is available the injured player should avoid alcohol until symptom free
- should not drive a motor vehicle and should not return to driving until provided with medical or healthcare professional clearance or if no medical or healthcare professional advice is available should not drive until symptom free

If **ANY** of the following are reported then the player should be transported for urgent medical assessment at the nearest hospital:

- Athlete complains of severe neck pain
- Deteriorating consciousness (more drowsy)
- Increasing confusion or irritability
- Severe or increasing headache
- Repeated vomiting
- Unusual behaviour change
- Seizure (fit)
- Double vision
- Weakness or tingling / burning in arms or legs

Managing a concussion or suspected concussion – REST THE BODY, REST THE BRAIN

Rest is the cornerstone of concussion treatment. This involves resting the body, 'physical rest', and resting the brain, 'cognitive rest'. This means avoidance of:

- Physical activities such as running, cycling, swimming etc
- Cognitive activities, such as school work, homework, reading, television, video games etc

This complete rest should be for a minimum of 24 hours.

Before restarting activity the player must be symptom free at rest. Medical or approved healthcare provider clearance is recommended before re-starting activity.

Children and adolescents should be managed more conservatively. The International Rugby Board recommend children and adolescents, should not play or undertake contact training for a minimum of two weeks **following cessation of symptoms**. Students must have returned to school or full studies before re-commencing exercise.

After the minimum rest period AND if symptom free at rest a graduated return to play (GRTP) program should be followed.

Returning to Play after a Concussion

If any symptoms are present or reappear, contact training and playing must be avoided.

- A minimum **complete rest period** of 24 hours is recommended for adults but a longer "complete rest period" is recommended in children and adolescents.
- Rest from playing or contact training is recommended for a minimum of two weeks following cessation of symptoms in children and adolescents.
- A Graduated Return to Play (GRTP) must be completed:
    - ✓ for ALL players diagnosed with a concussion
    - ✓ for ALL players even suspected of having concussion during a game or training at which there is no appropriately qualified person present
- A GRTP should only be commenced after the completion of the rest period recommended **and** only if the player is symptom free and off medication that modifies symptoms of concussion.

Any player with a second concussion within 12 months, a history of multiple concussions, players with unusual presentations or prolonged recovery must be assessed and managed by health care providers (multidisciplinary) with experience in sports-related concussions and no further participation in contact sport should take place until the player is cleared by a doctor with experience in concussion management.

GRTP Protocol - each Stage is a minimum of 24 hours

Graduated return to play (GRTP) program

A graduated return to play (GRTP) program is a progressive exercise program that introduces an athlete back to sport in a step wise fashion. This should only be started once the athlete is symptom free and off treatments that may mask concussion symptoms, for example drugs for headaches or sleeping tablets.

Stage	Rehabilitation Stage	Exercise Allowed	Objective
1	Minimum rest period	Complete body and brain rest without symptoms	Recovery
2	Light aerobic exercise	Light jogging for 10—15 minutes, swimming or stationary cycling at low to moderate intensity. No resistance training. Symptom free during full 24- hour period	Increase heart rate
3	Sport-specific exercise	Running drills. No head impact activities	Add movement
4	Non-contact training drills	Progression to more complex training drills, eg. Passing drills. May start progressive resistance training	Exercise, coordination and cognitive load
5	Full Contact Practice	Normal training activates	Restore confidence and assess functional skills by coaching staff
6	Return to Play	Player rehabilitation	Recover

It is recommended that, in all cases of suspected concussion, the player is referred to a medical doctor for diagnosis and guidance as well as return to play decisions, even if the symptoms resolve.

WHEN AN ACUTE INJURY OCCURS:

IMPORTANT: NEVER move a player with a suspected neck or spinal injury, or an unconscious player - call for an ambulance.

When a player is not moving and not responding the game must be stopped and attendants must act quickly.

The DRSABCD protocol must be followed:

- **D**anger: ensure the area is safe for everyone
- **R**esponse: look for a verbal response from injured player

***If no response*:**

- **S**end for help (call 000)
- **A**irways: with player in recovery position, open and clear airways
- **B**reathing: check for breathing—look, listen, feel
- **CPR**: compressions 30 : 2 breaths
- **Defibrillation**: apply defibrillator - **follow voice prompts**

NOTE: The valuable app *FirstResponder* is aimed at parents, coaches and managers. It walks the user through some red flags in the initial assessment of a head injury and contains warning signs of neurological injury on the sports field. This app also helps determine if there is a risk of longer term problems on reaching home. It is non- technical, easy to use and highly recommended.

2) MUSCULOSKELETAL

THERE ARE 5 MAIN STEPS FOR COMPLETE RECOVERY FROM INJURY

1) commence **immediate management** of the injury
2) promote quality **healing** - while relieving pain, bruising and swelling, ensure scarring and adhesions are minimized
3) commence **rehabilitation** immediately - basic exercises for:
   - restoring joint range of movement, strength, coordination and flexibility commenced
   - progress as recovery occurs
4) advice given for a **graduated return** to training and then sport
5) appropriate **bracing/strapping** may need to be applied initially to protect the injury

Getting Better Is Not Just Getting Rid Of Pain and Swelling Because The Absence of Pain and Swelling Does Not Indicate a Full Recovery

During The Recovery Process, Muscles Weaken and Shrink, Joints Become Stiff, Neuromuscular Co Ordination Is Lost and Flexibility Is Reduced - Complete Restoration Of These Losses Is Necessary For A Safe And Permanent Return To Sport

FOR EXPERT ADVICE CONTACT SOUTHSIDE PHYSIOTHERAPY

Musculoskeletal injuries are usually soft tissue injuries - muscles, ligaments and tendons or hard tissue injuries such as bone fractures.

INJURY MINIMISATION

- various factors can cause injuries - some can be predicted (see Section D)
- accidental trauma such as head clashes or spraining an ankle caused by landing on an opponent's foot and rolling an ankle - are difficult to predict
- many other injuries are a consequence of *bio mechanical* imbalances and/or *energy leakages* and screening for them is a possibility (See Section D)
- a thorough warm-up has long been recognised as essential to reduce injury potential
- good hydration pre, during and post-game/training is essential - as an approximate guide: 300 ml. per 20 minutes is recommended pre, during and after sport/training. See www.ausport.gov.au
- fair play = respect all the rules, opposition and referee
- protective gear when appropriate

Musculoskeletal Injuries:

Sudden, painful, musculoskeletal injuries are managed on field using the ***TOTAPS*** protocol:

Talk:	ask severity of pain and where it is
Observe:	compare with uninjured side - does it look different? Look for any deformity, swelling? if 'yes', do not continue the game
Touch:	*gently,* to assess for pain
Active movement:	by the player and without assistance and requires full movement - there should not be any pain
Passive**:**	requires you to move the injured part through full range without any pain
Skill test:	stand, walk then jog then run at full speed - without pain at each stage

If the player is unable to respond to any of the last three of the **TOTAPS** tests, the player should be removed from the field with care.

After **TOTAPS**, when the injured player is home, the ***RICER*** protocol must apply for the next 3 to 4 days. Remember to consult with Southside Physiotherapy immediately.

Rest	
Ice:	10 minutes on - 10 minutes off - at least for the first 48 hours
Compression:	with a firm bandage - but do not impede lymph or venous return
Elevation:	until swelling subsides
Referral:	to Southside Physiotherapy or your GP

Example of RICER protocol for an injured knee

45° elevation - knee supported,
damp cloth between ice & skin

Light compression bandage

For at least 48 hours after injury, the ***No HARM*** protocol must apply to facilitate reduced swelling, reduced bleeding and promote quality repair and regeneration:

No Heat: can cause increased swelling and bruising

No Alcohol: causes increased capillary bleeding

No Running/Activity: can cause re injury

No Massage: can cause disruption to the repair process

Professional management for these injuries must be obtained

- refer to Southside Physiotherapy ASAP or your GP.

TAPING AND BRACING - the decision to tape should be left to qualified health care providers

- correct taping and bracing is an important subject and should only be applied by trained personnel
- otherwise it can be ineffective and dangerous due to it not providing correct support

- sports tape can cause skin reactions - a small piece can be trialled for several hours before a full strapping is applied - questioning re skin reactions to *Band Aids* is also helpful

- strapping tape is almost always rigid for proper support - not the elastic type which will '*give*'
- neoprene (wet suit material) sleeves while keeping the part warm, does not provide sufficient support and should not be substituted for proper strapping

When to See Southside Physiotherapy or your GP

Sports injuries that:

- do not allow the player to continue the game
- results in the player coming off at some other stage during the game
- causes pain, swelling or loss of function
- result in an pain that lasts for more than two days

For acute musculoskeletal injuries eg. sprained ankle

- **do not** wait for the pain and bruising to subside before consulting our Physiotherapists
- remember, all professional sports teams now employ full-time Physiotherapists, to facilitate correct injury management ***immediately*** after an injury occurs

What will the physiotherapist do?

- obtain a detailed history
- undertake a thorough physical examination
- establish an accurate diagnosis and time frame for a graduated return to sport
- implement strategies to reduce pain, swelling and bruising
- promote good healing and scar minimisation, instruct self-management strategies
- commence a targeted, exercise rehabilitation program, starting from basic levels and progressing to state of the art, individualised, specific exercises that will return the player to preinjury (and even better) playing status in the shortest possible recovery time

Treat and Train

During recovery from injury, it is possible to maintain some fitness by:

- ***Treat and train*** advice - i.e. some form of fitness may continue while the injury is being treated
- ***Treat and train*** not only maintains some fitness but also enhances the healing process by encouraging a good blood supply to the injured area
- ***Treat and Train*** injury management must be undertaken only under expert guidance by our Physiotherapists

Returning to Sport - When?

When to safely and permanently return to sport following an injury must be considered with care. A graduated return rather than a sudden return to full activity must be planned for:

- advice from our treating Physiotherapist must be obtained
- the type and severity of injury must be considered
- depends on the age and development of the younger sports person
- as an approximate guide, the following factors can be taken in to consideration on when to return to initial training before resuming sport

✓ no pain felt for two weeks

✓ normal, full range of joint movement

✓ no bruising or swelling

✓ normal, full strength compared with uninjured side

✓ normal sprint speed over 50 -100 metres

✓ able to complete two full training sessions - pain free

✓ when in doubt - seek advice from Southside Physiotherapy

On-Field Training Drills for Return to Sport

The following is an example of a set of exercises that can be practised as a preparation for a return to sport. No pain should be felt with these exercises:

- to rehabilitate after an injury or surgery
- as a warm-up prior to training or playing session
- start out slower with fewer reps and build gradually as fitness improves

1)Warm up: (50m each)

- jog in straight line to end of field x 2
- shuttle runs (side to side) x 1 (increase reps as able)
- backwards running 4 x ¼ lengths of the field

2)Stretching (30 sec hold, x 4 reps each)

- calf stretch
- quadriceps stretch
- hamstring stretch
- inner thigh stretch
- hip flexor stretch
- gluteal stretch

3)Strengthening

- walking lunges
- Russian hamstrings (only if able)
- walking single leg heel raise

4)Plyometrics

- sideways hops over small cones - both legs
- forward/backward hops over small cones - both legs
- single leg hops over small cones
- vertical jumps/squat jumps
- scissor jumps/lunge jumps

5)Agilities

- shuttle run forwards/backwards (50m x 1)
- curve running (50m x 2)
- bounding runs (50m x 2)

SECTION C: FOR PARENTS: THE YOUNGER SPORTSPERSON

Please note*: *this section is a guide only and is meant to provide only generalised information for parents and Coaches/Managers to be aware of in regard to her/his duty of care. It is not a treatment guide.

1)Too Much Sport for Young People?

Engaging in sport at an early age is highly desirous for many reasons including health and psychological benefits.

- activity guidelines developed by the Dept. Health and Ageing 2010, recommend children 5-12 should spend no more than two hours per day in front of any type of electronic media/device especially during daylight hours

General:

Coaches and parents must be aware that the structure of and bone growth in the younger sports person have components that are unique to this age group.

Growth and rates of maturity in children vary widely and must also be factored into all topics noted below. Consequently, care should be taken in regard to the total amount of time taken up with both training and playing.

For example:

- many younger sports people train/play concurrent sports often year round. Those in rep teams undertake extra training and playing.
- over-use injuries are a possibility when younger bodies are subject to excessive time on the field and/or in the gymnasium
- there are no definitive guidelines on how much is too much sport in this age group - but training for ***maximum performance*** should not be undertaken in pre and early adolescents - rather, train for participation and enjoyment reasons
- therefore, they must never undertake ***overload training*** as mature age athletes do in regard to running above average endurance times or lifting heavy weights - train only to a comfortable, medium level
- any complaint of pain, swelling, tenderness on palpation or difficulty of movement requires early assessment and referral to Southside Physiotherapy or the player's GP

2)Common Sites of Injuries

This **limited** advice only, applies to those types of injures that are more common in the pre and early adolescent sports person and does not apply to obvious, traumatic incidents:

Growing Pains:

- 'growing pains' are a common slang term often applied to low grade, niggling type complaints in this group of sports people
- complaints of 'growing pains' should never be ignored as they can grow into or masquerade as more serious conditions
- pains that reoccur or last for more than two days should be referred to our Physiotherapists or your GP
- 'growing pains' may occur during or after sport, but they can also occur spontaneously

More common sites of pain and possible problems include:

Feet	- stress fractures - pain along the foot when walking as well as on touch
Heels	- Achilles tendon (Severs condition)
Shins	- shin splints
	- stress fractures - pain anywhere down the shin
Knees	- pain and/or swelling on the front of the shin, just below the knee cap (Osgood Schlatter's condition)
	- pain around the knee cap or front of knee (patellofemoral joint dysfunction)
	- pain just below the knee cap (patella tendonitis)
Hips	- persistent hip pain with or without a limp must never be ignored and always be referred to our Physiotherapists or your GP for investigation and correct diagnosis and management
	- pain at the front of the hip and often spreading downwards or inwards - (rectus femorus tendon irritation)
Spinal pain	- must always be referred to our Physiotherapists or your GP for investigation, accurate diagnosis and management
Shoulders	- a feeling of 'giving', pinching or slipping (instability) - should always be referred for correct diagnosis and management to our Physiotherapists or your GP
Upper limbs	- pain anywhere in the arms/wrist (fractures are common and nearly always require an X ray) - must always be referred for correct diagnosis and management to our Physiotherapists or your GP

SECTION D: MUSCULOSKELETAL SCREENING & IMPROVING PERFORMANCE

Improving Performance and Beyond

Do you want to maximise and even better your sporting ability and at the same time minimise injury?

To achieve this there are several key programs that can be undertaken.

- ***Core Strengthening*** - maximising Core strength is an essential aspect of modern athletic training in all sports
- ***Bio mechanical imbalance analysis*** - detecting and measuring underlying, abnormal movement patterns and asymmetries

1)Core Strengthening Explained

- the 'Core' refers to the lower trunk or centre of the body
- a strong Core refers to the ability of trunk muscles to strongly and efficiently (neurologically) stabilise the trunk and pelvis during dynamic movements of the rest of the body including the arms and legs
- a weak Core results in→ *inefficient movement→ energy leakage→ poor performance→ potential injury*
- a strong Core results in → *better technique→ better performance→ reduced fatigue → reduced injury potential*

The **muscles** involved in strengthening the Core are specific to the trunk stabilising process and include:

- ✓ ***transverse abdominis*** - the inner abdominal muscle
- ✓ ***multifidus*** - the deep back muscles
- ✓ ***pelvic floor*** - for both genders and all ages
- ✓ ***diaphragm*** - breathing muscle

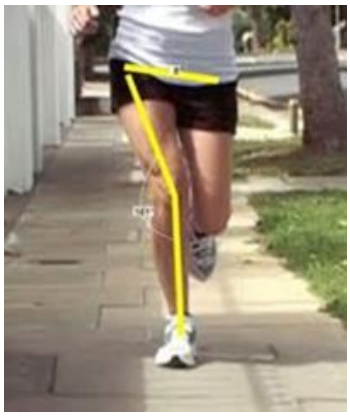
- strengthening the Core involves learning how to isolate and *voluntarily* recruit ("turn your core on") these muscles
- just doing sit-ups minimally contributes to Core strength because mostly the muscles involved are not Core muscles
- Core strength training can commence pre adolescence
- must be taught by a qualified instructor - Southside Physiotherapy and Sports Injury Centre

FOR MORE INFORMATION CONTACT

SOUTHSIDE PHYSIOTHERAPY& SPORTS INJURY CENTRE

2)Bio Mechanical Imbalances Explained

This refers to musculoskeletal (or bio mechanical) abnormalities, large or small, in the physical makeup of our bodies. Asymmetrical bio mechanics results in faulty movement patterns that can result in reduced performance and injuries. For example, one hamstring being weaker or tighter than the other, or one ankle may have less movement than the other, or the Core maybe weak causing abnormal hip movements when running.



This illustrates a runner's faulty bio mechanics - or energy leakage. Note the 'knocked knee' pattern. Potentially, this may cause injuries anywhere throughout the leg chain, from the ankle up to the back. It will also result in reduced athletic performance.

Detecting and Minimising Bio Mechanical Imbalances

Southside Physiotherapy & Sports Injury Centre have aligned themselves with cutting edge expertise and technology from leading sports institutions from around the world to bring to Cronulla the latest in bio mechanical assessment and screening.

There are two main screening tools:

a) Y Balance Test Protocol

The Y Balance is a thoroughly researched, yet easy way to demonstrate a person's functional asymmetry and risk of injury as well. The Y Balance Test Protocol has been developed through years of research for detecting bio mechanical imbalances and at the same time testing for injury recovery status.

- investigations have found that accurate injury prediction and recovery status is possible using the Y Balance Test composite score
- assessing for asymmetry is possible when the age, gender, and sport specific risk are used for each athlete
- upper limb testing can also be undertaken using the Y Balance

b) Functional Movement Screen (FMS)

Functional Movement Screen is a more detailed, quantitative tool than the Y Balance Test screen. It adds another perspective of human movement that helps clarify and measure problems as well as to improve performance and resistance to injury.

- research has demonstrated that right-left asymmetries and other limitations can increase injury potential and decrease athletic performance
- the FMS provides a detailed analysis of human movement patterns with respect to functional performance and injury prevention

For some years, Southside Physiotherapy & Sports Injury Centre have been utilizing these assessment tools in our rehabilitation gymnasium, for managing injuries as well as assessing patients in preparation for our popular ***Dynamic Spines*** trunk strengthening rehabilitation classes.

Many major USA baseball, football, ice hockey and basketball teams employ these tools to assess players' fitness status for draft transfers, potential for injuries and athletic ability.

For Elite Athletes

The FMS screening system is in the latest forefront of diagnostic analysis/physical assessment now available. Elite athletes wishing to perform at an even higher level are now able to gain access to information that will provide both data and corrective training programs in our facility.

FOR INFORMATION AND ENQUIRES REGARDING THESE SCREENING TOOLS CONTACT

SOUTHSIDE PHYSIOTHERAPY & SPORTS INJURY CENTRE

Suggested Web Sites

1) Warm up & Cool Down

http://ssphysio.com.au/home

http://smsmf.org/smsf-programs/pep-program

http://www.fifa.com/aboutfifa/footballdevelopment/medical/playershealth/the11/

2) Strength

http://www.strengthandconditioning.org/resistance-training-for-child-and-youth (Australian Strength and Conditioning Stand - resistance training for Children and Adolescents National Conference Presentation prepared and presented by Dr Greg Wilson PhD)

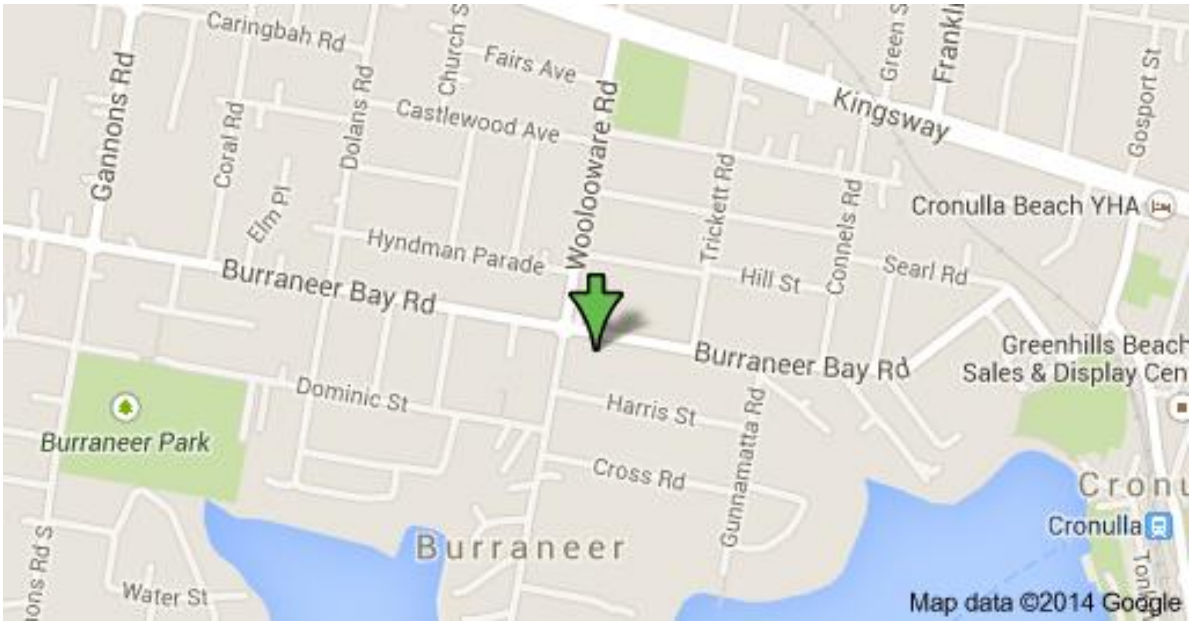
http://www.ausport.gov.au/participating/coaches/tools/coaching_children/Weight_training

3) Concussion

http://www.irbplayerwelfare.com/

Southside Physiotherapy & Sports Injury Centre

Our Location



82 Burraneer Bay Road

CRONULLA NSW 2230