



GIPPSLAND POWER U18 TAC CUP GIRLS



PRE-SEASON TRAINING PROGRAM 2017/2018

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WELCOME

Welcome to the Gippsland Power Football Club.

The aim of Gippsland Power is to maximize each player's football and personal development. Our ability to fulfil this aim has established our reputation as being the leading elite football development program in Gippsland

We the staff are dedicated to assisting in the smooth running of the Club so as to provide the best environment for you the players to succeed.

Below are contact numbers for you to call if you are unable to attend training.

TALENT MANAGER:

Peter Francis

5134 8133 Work

0419 103 177 Mobile

FEMALE TALENT MANAGER:

Chelsea Caple

0407 406 096 Mobile

COACH:

Scott Armour

0408 394 007 Mobile

WELFARE OFFICER

David Hobbs

0427 235 470 Mobile

PARENTS

Support from the Parents is essential if we are to continue to be a competitive force.

The Club and the Staff will do all they can to provide an appropriate environment for the development of the girls as footballers and as growing ladies.

It is also important to have faith in the Coaching Staff and allow them to carry out their training and match day duties without interference.

The temptation to talk to the girls during matches can be distracting to the players and the Coaching Staff. Certainly, discuss football with your girls as often as you wish but trust the Coaches to do the job on match days.

We look forward to meeting you all this year, and should you have any queries please do not hesitate to contact us at any ti .

Peter & Chelsea
Talent Managers

U18 TAC Cup Girls - Coaches' Message

Welcome to the Gippsland Power Girls Development Academy / TAC Cup Squad. For me it is an honour to be the Head Coach of the Girls Program and I am excited about the season ahead and am really looking forward to working with you.

Some of you have been involved in Power programs in the past so you are aware of the requirements and the expectations of you. For those new to Gippsland Power, this will be the most demanding football program that you will have experienced but you will see results.

Training:

We can only train as a group once a week so we must make the most of this. As a coaching group we will have every minute planned and we expect that you try to make the most of every minute. To be able to achieve this we must start at 5:30pm each training night. This means arriving earlier 10 minutes or more before so you can get organised and be ready at 5:30pm. If you are going to be late, or are unable to attend, make sure that you contact Chelsea or myself. You should take responsibility for keeping us informed, rather than having your parents ring for you.

Appropriate football attire is to be worn. This does not include board shorts or long shorts. As training progresses, competitive work will be introduced, so girls should avoid wearing loose fitting clothing that can be easily torn. In addition, earrings are not to be worn in case of injury. Each player should bring the following to each training session.

- Football
- Football boots (clean and in good condition) and running shoes
- Gippsland Power Shorts
- Gippsland Power T-shirt
- Mouthguard
- Water bottle

We have some great coaching staff assisting this year. We welcome back Brett Van Berkel and Trevor Cox and welcome Peter McKenna to Gippsland Power. We are also fortunate to have Pete Francis and Leigh Brown join us at most of the training sessions.

Girls, the future of women's football is really exciting and you are in the talent pathways at a fantastic time to potentially take your football higher than Gippsland Power. Set your goals high and believe in them. But remember that to achieve long term success you must have a short term focus and a willingness to work hard. To work hard means to give 100% effort to everything you do.

It will be an exciting year ahead with plenty of individual and team highlights. But the nature of Sport means that there will likely be times of disappointment whether through injury, poor performance or non-selection. Please remember that it is not these set-backs that will decide your eventual success with football this year but it is the way in which you handle the set-backs that determine your path.

Finally, we are all involved with football because we love it. We will do everything we can to help make your involvement enjoyable this year. Having a passion for your sport is so important because without it you will find it difficult to achieve to the level that you expect.

Scott Armour

Head Coach – Gippsland Power Girls

U18 TAC GIRLS IMPORTANT DATES

Pre Christmas 2017 - Commencing Tuesday 14th November 2017 and concluding Tuesday 19th December 2017

2018 - Commencing Tuesday 30th January 2018 and concluding after last match, 12th/13th May 2018.

U15 DEVELOPMENT SQUAD IMPORTANT DATES

Pre Christmas 2017 - Commencing Tuesday 14th November 2017 and concluding Tuesday 19th December 2017 (not required to attend Friday Satellite training)

2018 - Commencing Tuesday 30th January 2018 and concluding Tuesday 20th February 2018

TRAINING PROGRAM

Monday	Tuesday	Wednesday	Thursday	Friday	Sat/Sun
See Program	Gippsland Power U18 TAC Cup Girls & U15 Development Squad Training Nights	See Program	See Program	Gippsland Power U18 TAC Cup Girls Training Nights (satellites)	See Program

PLEASE NOTE: ALL PLAYERS MUST BRING THEIR OWN FOOTBALL, FOOTBALL BOOTS, RUNNERS, GIPPSLAND POWER SHORTS, GIPPSLAND POWER TSHIRT AND WATER BOTTLE TO ALL TRAINING SESSIONS.

TUESDAY TRAINING NIGHTS

Skills training will be on Tuesday nights from 5.30pm to approx. 7.00pm commencing Tuesday 14th November 2017. See the calendar for details of the sessions.

Training location -

Gippsland Power Centre of Excellence
Morwell Recreation Reserve,
Travers St, Morwell

FRIDAY SATELLITE TRAINING NIGHTS

Satellite training will be on Friday nights from 5.00pm at five various locations across Gippsland, commencing Friday 17th November 2017. ****please note U15 development squad are not required to attend Friday satellite training.**

Training locations - (Coaches contacts will be advised on training newsletter)

Bairnsdale Football Ground
Gippsland Grammar Oval, Princess Hwy Sale
Leongatha Football Ground
Churchill Football Ground
Garfield Recreation Reserve

GIPPSLAND POWER U18 TAC CUP GIRLS FOUNDATION TRAINING PROGRAM 2017-2018

Sporting performances are governed by three general factors: skill, physiological fitness and psychological preparation. While each of the three general factors is important in any sport, there are differences in the degree to which optimal performance relies on any one of them. Think carefully about the relationship between these components but remember that fitness is the energiser of sports performance.

Coming to Gippsland Power F.C. unprepared for the opportunity offered is a recipe for disaster. Unfortunately, many recruits still come down to get fit instead of being 85-90% of their maximal fitness when they arrive. A first impression is usually a lasting impression and unfit players coming to a new club and striving to keep up can so easily become injured, miss vital training sessions, lose confidence and finally forfeit what chance they have been given in the first place.

You have to prove to the coach and selectors, in the brief pre-season period, that you are capable of meeting team requirements both physically and mentally.

The purpose of this program is to guide your foundation training so that you are prepared for pre-season training when it commences.

It is expected that every player will arrive to pre-season training with some type of foundation work completed. Organise somebody to train with; it is never easy to train by yourself.

The following program is a seventeen week guideline of the work to be performed between November and the championships. The first ten weeks is the foundation phase, while weeks eleven to seventeen are the extra sessions required during the preseason training period. This sets out the quantity and quality of running and resistance training to be performed week by week.

All training sessions must be preceded with a warm-up and ended with a stretching session as set out below.

This program has been prepared by: Chelsea Caple, BExSc, MBus(SportMgt), Physical Activity Australia Registered Exercise Professional.



WARM-UP

WARM UP -

TIME: ~10-12 minutes

- ~3minutes easy pace jogging – 1 lap
- Accelerations – 3 x (10m easy, 10m @70%, 10m easy, 10m @80%)
- Walking leg/toe touches – 20m
- High Knee Skips – 20m
- Heel Flicks – 20m
- Side Skips – 20m
- Accelerations – 3 x (10m easy, 10m @80%, 10m easy, 10m @90%)

*It is vitally important that you are properly warmed up prior to each session.

CONDITIONING

Exercises:

- 20 Squats
- 20 Push ups (on knees)
- 20 Mountain climbers each side/leg
- 20 Squat jumps
- 15 Walking lunges each leg
- 10 Burpees
- 20 single hand catches throwing a tennis ball against a wall whilst balancing on one leg each side/leg *picture below
- 15 hip abduction/adduction(each side) *picture below
- 30-60 sec Front Support hold * picture below
- 30-60 sec plank
- 30-60 sec side plank (each side)

(Repeat 3-4 times with 2 minutes recovery at end of each set)

Each set will take ~8mins

STRENGTH/PLYOMETRICS #1

This program is ONLY to be completed after being taken through the program on a Tuesday skills night.

Exercises:

- 20 Long jumps
- 20 Ski Jumps
- 20 Single leg squats (each leg) *picture below
- 16 Jump lunges
- 15 Kneeling, fall and catch (plyometric press up) *picture below
- 15 Candle stick rolls
- 10 Burpees w/ push up
- 10 explosive hop (each leg)
- 15 hip abduction/adduction(each side) *picture below
- 30-60 sec plank
- 30-60 sec side plank (each side)

(Repeat 2 times with 2 minutes recovery at end of each set)

Each set will take ~8mins

STRENGTH #2

This program is ONLY to be completed after being taken through the program on a Tuesday skills night.

Exercises:

- 20 Single leg squats (each leg) *picture below
- 15 Caterpillars *picture below
- 15 Single leg deadlift *picture below
- 15 Standing, fall and catch (AGAINST WALL) (plyometric press up) *picture below
- 15 Five point lunges
- 10 Burpees
- 15 hip abduction/adduction(each side) *picture below
- 30-60 sec Front Support hold *picture below
- 30-60 sec plank
- 30-60 sec side plank (each side)

(Repeat 2 times with 2 minutes recovery at end of each set)
Each set will take ~8mins

EXERCISES

Hip abduction adduction 01142



Tips

Start with the head supported on the arm with the hips & shoulders square.

FRONT SUPPORT HOLD

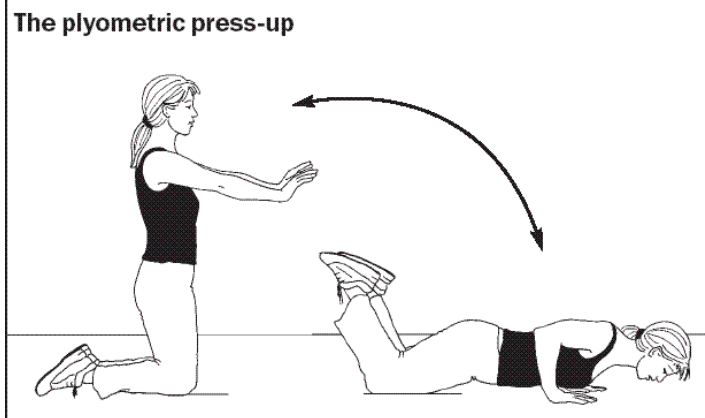


Tips

Assume a front support position with the hands under the shoulders & neutral curves in the spine.

Maintain a rigid torso & the neutral spinal curves then lift the knees off the ground to assume a push up position. Remain in this position for the prescribed time then return to the start.

Single hand catches on one leg



CATERPILLAR



SINGLE LEG SQUAT



SINGLE LEG DEADLIFT



RUNNING PROGRAM

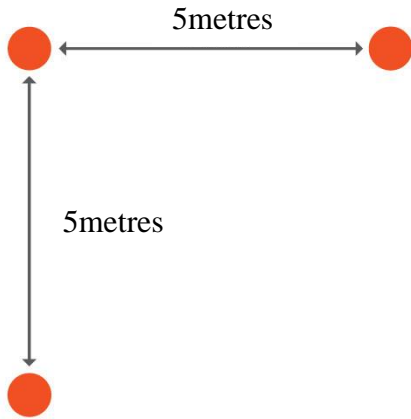
Aerobic/Endurance	WORK/RUN	REST/WALK	Duration/Distance/Notes
Notes: If your body feels tired/sore replicate the corresponding session on a bike or in the pool.			
Session A	1 min	5 mins	15 mins work / 15 mins rest *Work/Run efforts to be completed at 65-75% effort. *Can repeat if needed
	2 mins	4 mins	
	3 mins	3 mins	
	4 mins	2 mins	
	5 mins	1 mins	
Session B	2 mins X8	2 mins X8	16 mins work / 16 mins rest *Work/Run efforts to be completed at 65-75% effort.
Session C	6 mins	90sec rest	30 mins work / 9 mins rest *Work/Run efforts to be completed at 65-75% effort.
	6 mins	90sec rest	
	5 mins	90sec rest	
	5 mins	90sec rest	
	4 mins	90sec rest	
	4 mins	90sec rest	
Session D	10 mins	5 mins	35 mins work / 14 mins rest *Work/Run efforts to be completed at 65-75% effort.
	10 mins	4 mins	
	10 mins	3 mins	
	5 mins (↑80% effort)	2 mins	

Speed	WORK/RUN	REST	Duration/Distance/Notes
Session E	150m	90sec rest	2.4k work / 9 mins rest *Work/Run efforts to be completed at 80-90% effort. If you can't measure distance - 150m ~ 1/2 lap of oval 400m ~ 1 lap of oval 650m ~ 1 1/2 lap of oval
	400m	90sec rest	
	650m	90sec rest	
	650m	90sec rest	
	400m	90sec rest	
	150m	90sec rest	
Session F	50m	150m	670m work / 670m rest *Work/Run efforts to be completed at 80 - 90% effort.
	80m	120m	
	100m	100m	
	120m	80m	
	140m	60m	
	60m (↑95% effort)	60m	
	60m (↑95% effort)	60m	
	60m (↑95% effort)	60m	
Session G	300m	90sec rest	2.25k work / 13 mins 30sec rest *Work/Run efforts to be completed at 80-85% effort.
	250m	90sec rest	
	200m	90sec rest	
	300m	90sec rest	
	250m	90sec rest	
	200m	90sec rest	
	300m	90sec rest	
	250m	90sec rest	

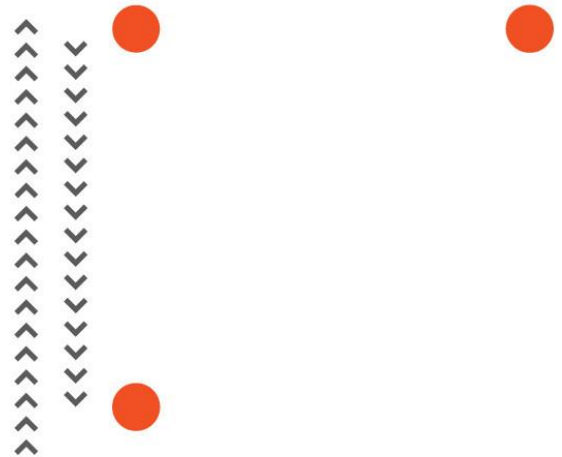
	200m	90sec rest	
Session H	600m	90sec rest	2k work / 7min 30sec mins rest
	500m	90sec rest	
	400m	90sec rest	
	300m	90sec rest	
	200m	90sec rest	

Fartlek	WORK/RUN	REST	Duration/Distance/Notes
Session I	15 secs	15 secs	5 mins work / 3 mins rest *Work/Run efforts to be completed at 80 - 90% effort.
	30 secs	15 secs	
	45 secs	15 secs	
	15 secs	15 secs	
	30 secs	15 secs	
	45 secs	15 secs	
	2 mins rest and complete again		
Session J	100m ~ 25secs	600m ~ 2min 40sec	2.1k OR 8mins 25 secs work / 2.1k OR 8mins 25 secs rest *Work/Run efforts to be completed at 70-80% effort.
	200m ~ 40secs	500m ~ 2min	
	300m ~ 1min	400m ~ 1min 40sec	
	400m ~ 1min 40 sec	300m ~ 1min	
	500m ~ 2min	200m ~ 40secs	
	600m ~ 2min 40sec	100m ~ 25secs	
Agility/ Recovery	WORK/RUN	REST	Duration/Distance/Notes
Session K	10 x 100m	Walk back rest	1k work / 1k rest *Work/Run efforts to be completed at 70% effort.
Session L 3 CONE L DRIL *see below	<p>The L-Drill is also known as the 3 cone and is used by football coaches to measure agility, change of direction and balance. The total distance covered is 30 metres, broken into six 5 metre short sprints.</p> <p>Set Up: To set up the L-Drill, you need 3 cones set up 5 metres apart from each other in the shape of an L. This will end up looking like you are one cone short of a complete square.</p> <p>The Drill: Touch the line at the first cone with your hand. Return to the starting cone and touch that line with the same hand. Complete 5 reps of the L in a set. Complete 5 sets.</p>		

K 3 CONE / L-DRILL



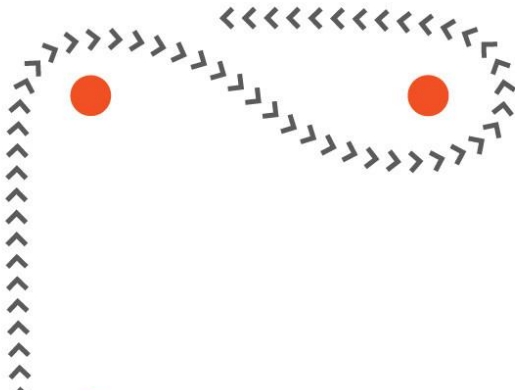
1



Note: Whichever hand you choose to touch the line with has to be used both times.

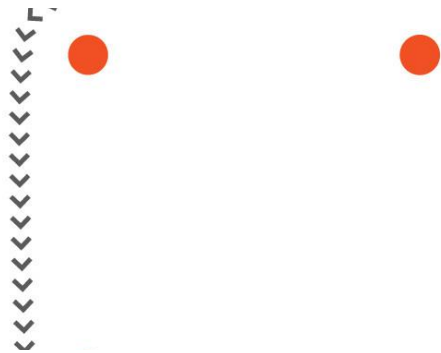
Sprint around the middle cone and figure 8 around the far cone.

2



Make a turn at the middle cone and finish through the line. Use your speed to accelerate as fast as you can around that middle cone.

3



Timing: The clock starts at first movement and stops when you have crossed the finish line after the full 30 yards. Make sure that every step you take is efficient, you are racing against the clock.

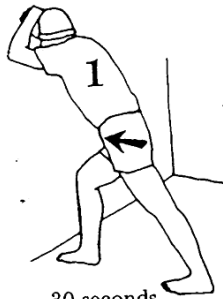
You have everyday to prepare...

STRETCHING PROGRAM:

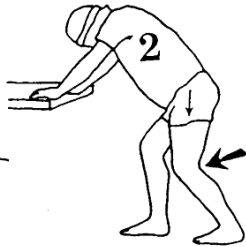
This is to be completed as part of the cool down after each session.

Running

Approximately 9 Minutes



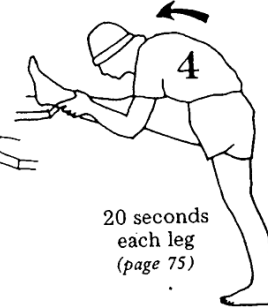
30 seconds
each leg
(page 71)



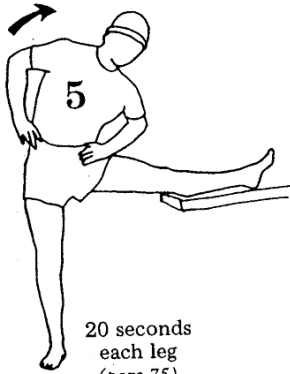
15 seconds
each leg
(page 71)



20 seconds
each leg
(page 73)



20 seconds
each leg
(page 75)



20 seconds
each leg
(page 75)



20 seconds
each leg
(page 74)



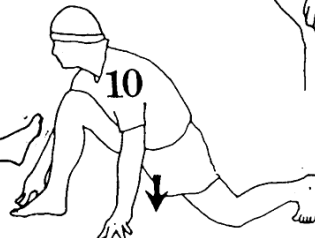
30 seconds
(page 65)



30 seconds
(page 56)



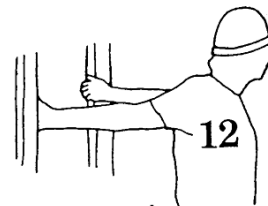
15 seconds
each side
(page 59)



20 seconds
each leg
(page 48)



15 seconds
each arm
(page 41)










20 seconds
(page 44)

RECOVERY PROGRAM

50 POINT RECOVERY CHECKLIST

Every time that your Calendar says, "Recovery Program" choose three to five recovery strategies below to ensure you get **50 or more recovery points**.
You can also include these strategies after any other training session throughout the week.

Recovery Strategy	Description	Recovery Points												
<u>Compression Garments</u> 	Worn during travel (more than 2 hours)	10 points												
<u>Compression Garments</u>	Worn during sleep (8 hours)	15 points												
<u>Contrast Shower (hot/cold)</u>  Alternating Hot & Cold Showers	Alternate 2 min hot / 30sec cold Repeat 4-7 times Remember to finish on cold	10 points												
<u>Ice Bath</u> 	7-10 mins in water temperature of 12-15 degrees	5 points												
<u>Pool Recovery</u> 	20-30 mins is recommended. Alternate swim strokes, running and walking in hip deep water, dynamic stretching.	15 points												
<u>Beach Session</u> 	10-20 minutes is recommended, which should involve having the hips submerged under the water and light activity (walking, dynamic stretching.	15 Points												
<u>Hydration Status</u> Urine Color Chart <table border="1" style="font-size: small; width: 100%;"> <thead> <tr> <th>Urine Color</th> <th>Possible Meaning</th> </tr> </thead> <tbody> <tr> <td>Clear</td> <td>Good hydration, overhydration or mild dehydration</td> </tr> <tr> <td>Pale Yellow</td> <td>Good hydration or mild dehydration</td> </tr> <tr> <td>Bright Yellow</td> <td>Mild or moderate dehydration or taking vitamin supplements</td> </tr> <tr> <td>Orange, Amber</td> <td>Moderate or severe dehydration</td> </tr> <tr> <td>Tea-Colored</td> <td>Severe dehydration</td> </tr> </tbody> </table>	Urine Color	Possible Meaning	Clear	Good hydration, overhydration or mild dehydration	Pale Yellow	Good hydration or mild dehydration	Bright Yellow	Mild or moderate dehydration or taking vitamin supplements	Orange, Amber	Moderate or severe dehydration	Tea-Colored	Severe dehydration	Calculate pre- and post-game bodyweight Fluid ingestion = 1.5 x kg lost Eg. Pre- game weight 62kgs Post-game weight 60kgs Weight lost =2kgs Fluid ingestion = 1.5 x 2kg =3L	10 points
Urine Color	Possible Meaning													
Clear	Good hydration, overhydration or mild dehydration													
Pale Yellow	Good hydration or mild dehydration													
Bright Yellow	Mild or moderate dehydration or taking vitamin supplements													
Orange, Amber	Moderate or severe dehydration													
Tea-Colored	Severe dehydration													
<u>Massage – deep tissue</u> 	Deep Tissue Massage (30mins)	15 points												
<u>Massage – self massage</u> 	Tennis Ball, Foam Roller (15-20mins)	10 points												
<u>Nutritional supplementation</u>	Pre game - during game - post game. Bar/Banana – Gatorade or Lollies - Low Fat Milk	5 points												

INFORMATION SHEET- RECOVERY:

Recovery methods can be *passive* or *active*. **Passive** recovery is the most basic form of recovery and includes sleeping, and basically 'doing nothing'. This method has its place but is proven not to be as effective as **active** recovery methods. Avoid any intensive exercise within 24 hours hard training session. For strength training allow for 48 hours rest for exercises using similar muscles.

Passive recovery – Sleep

Sleep is the most beneficial form of recovery. Athletes should follow these guidelines:

- i. Sleep 8-10 hours every day (80-90% at night, 10-20% during 'day naps' between sessions)
- ii. Try to go to bed and get up at regular times
- iii. Start to relax and 'wind down' 20-30mins before bed
- iv. Don't force sleep – go to bed when ready

Active recovery – various methods

- i. **Cool down:** EVERY session should have cool down component lasting 5-10mins.
- ii. **Water immersion (pool/ocean recovery):** A minimum of 10minutes is required to achieve the effect from water pressure. Recommended time for a session is 15-20minutes immersion with light activity (i.e. leg swings, walking, swimming etc)
- iii. **Cryotherapy (ice/ice baths):** most commonly used method for recovery – Some tips:
 - a) Ice baths: 10-15minutes of 'exposure' i.e. underwater
 - b) Ice baths: temperature between 10⁰-15⁰ **NO LESS – buy a thermometer and check**
 - c) Ice: follow protocol of 15minutes 'on', 30minutes 'off' *5reps
- iv. **Contrast therapy (hot-colds):** involves a combination of hot and cold techniques, which possibly creates a 'pumping action' of fluid and nutrients to improve recovery. Some tips and benefits of contrast therapy:
 - a) Faster recovery of strength and power factors
 - b) Decreased stiffness and pain, fast removal of wastes
 - c) Ratio of 3:1 (hot:cold) i.e. 2mins hot:30min cold
 - d) 15-20minutes. 'Hot' temp = 37-44⁰ 'Cold' temp = 10-20⁰
 - e) Can be easily done in shower. ALWAYS start with hot and end with cold.
 - f) Remember no hot water if you have a corky or muscle damage.
- v. **Massage:** Massage can have several benefits both physiologically and psychologically. Tips and benefits of massage:
 - a) Has been shown to significantly reduce soreness and improve strength and power performance
 - b) Reduces anxiety, stress, tension
 - c) Should last at least 20-30minutes
 - d) Ideally should be massaged within 1-2hours of a highly fatiguing session
 - e) 'Relaxation' massage should be considered as well as 'sports' massage
- vi. **Compression Garments**

Compression garments and bandages may aid recovery by reducing swelling. They also act as a pump, squeezing blood flow out of muscles during normal activities.

Different recovery techniques will work better for each individual. Try all and see which one works best for you

INFORMATION SHEET- HYDRATION & NUTRITION:

Hydration is one of the most important factors for high quality training and high performance. Particularly when the weather is warm, **hydration** can dictate how comfortable you are during a session and how well you perform. Some rules about hydration:

1. Start drinking **EARLY IN THE DAY** (soon after you wake up) and drink **REGULARLY**
2. Aim to drink at least 2-3litres of water per day, more on running days
3. Drink a variety of fluids that you enjoy the taste of
4. Drink fluids that are cold instead of room temperature
5. On training days consume fluids with carbohydrates (i.e. Gatorade, Powerade)
6. If you have lost 1kg of body weight you need to consume 1.5L of water to replace the fluids lost within 4-6hours post exercise.

Alternative **hydration** methods are being explored in the hot weather, such as the use of slushies/slurpees before and after training sessions. On days where the temperature is 32^o or above, some useful advice:

- a) Consume 500ml-1litre of slushie/slurpee 30-45mins before a session
- b) Consume 500ml-1litre of slushie/slurpee immediately after a session in conjunction with normal fluids

**If possible try to avoid caffeinated and sugary drinks on a regular basis as they dehydrate you.*

NUTRITION FOR RECOVERY:

Nutrition is equally as important as recovery sessions. The food taken in following a heavy session will impact on how quickly an athlete grows and repairs.

- i. Before a session – aim to leave at least an hour between food and a session. The food should be a *snack only* that has carbohydrates and protein that is also low fat.
- ii. After a session – aim to intake carbohydrates and proteins immediately (within 15mins) in food and liquid

INFORMATION SHEET- HEALTHY EATING CHOICES:

1. Eat smaller meals, more frequently	<ul style="list-style-type: none"> ✓ Keeps your metabolism at constant rate ✓ Large meals cause sharp rise then fall in metabolic rate ✓ Burns energy more efficiently ✓ Helps to maintain blood sugar more effectively therefore feelings of energy throughout the day
2. Drink 2-3 litres of fluid daily	<ul style="list-style-type: none"> ✓ Also keeps metabolism more constant ✓ Helps digestion including bloating ✓ Assists training capabilities
3. Avoid fried foods	<ul style="list-style-type: none"> ✓ Contain large amounts of oil and butter ✓ Worse at take away where you don't know portions used ✓ Choose grilled or even pan-fried options where possible
4. NO chips/fried potatoes	<ul style="list-style-type: none"> ✓ Extremely high in fats and carbohydrates (i.e. extremely energy dense food) ✓ Little nutritional value ✓ Wasted energy
5. Avoid white flour products	<ul style="list-style-type: none"> ✓ Examples include: white bread (the devil), pastries (i.e. pies, sausage rolls, muffins) ✓ Poor nutritional content for amount of energy ✓ Difficult to digest ✓ Absorb other macronutrients such as fat easily

6. Limit starchy carbohydrates after 4pm	<ul style="list-style-type: none"> ✓ 'Starchy carbohydrates' = pastas, potatoes, pastries, breads ✓ Significant energy consumed before bed when metabolism will be almost shutting down – difficult to burn energy
7. NO soft drink/juice/cordial	<ul style="list-style-type: none"> ✓ Sugarless options are OK ✓ Sugar contains significant amounts of energy and can be stored as adipose tissue (fat) eventually if not utilised
8. Choose sugary treats over fatty ones	<ul style="list-style-type: none"> ✓ Treats like lollies, biscuits (except shortbreads) ✓ Have high sugar but little fat ✓ Fat contains double the energy per gram than sugar ✓ Not to be eaten as a meal! Treat/snack only
9. Aim for Low-GI foods and foods high in protein	<ul style="list-style-type: none"> ✓ Protein helps build lean mass which helps to maintain body composition ✓ Low-GI examples = Basmati rice, vegetables (not potato), legumes (i.e. beans), meats, dairy (choose low fat) ✓ May help energy levels for longer

General Notes:

- i. Get into a routine with eating and training
- ii. Aim to do strength training in the mornings – drastically increases metabolism throughout the day compared to training later on
- iii. Eat foods you enjoy
- iv. Eat meals that are rich in nutrients and will keep you fuller longer. **Example:** Spaghetti with Napoli sauce vs. Spaghetti with Napoli sauce + tuna *or* minced meat + beans

WHAT TO DO IF YOU SUSTAIN AN INJURY OVER THE BREAK

In the unfortunate circumstance where you get injured over the break, you should cease all training immediately and contact your coach when you are aware of the specific injury sustained.





11

FACT SHEET

FUELLING FITNESS FOR THE FUTURE

Sports Dietitians
AUSTRALIAwww.sportsdietitians.com

Eating & Drinking During and After Sport

During most sport your body will steadily burn a fuel mixture of carbohydrate (as glycogen) and fat. If your sport is no longer than an hour, you will perform well without having to replace those fuels until you have finished. Your next meals, if well chosen, will replace all the fuel you have used. On the other hand, you will be sweating and losing fluid very soon after you start any exercise. This fluid must be replaced as soon as possible during exercise, because even minor dehydration can impair your performance. See fact sheet number 1 on [Fluids in Sport](#).

If your sport or training takes longer than an hour then you may benefit from consuming some carbohydrates during sport in addition to fluids eg sports drinks. The decision will depend on the:

- intensity of the exercise (higher intensity burns glycogen more quickly);
- duration (the longer the event, the more glycogen burned);
- ambient temperature (the hotter it is, the quicker glycogen will be burned); and
- how well you have eaten before sport (more pre-event carbohydrate means more available glycogen).

Carbohydrate consumed during an event may improve endurance by:

- a) sparing muscle glycogen. In low intensity exercise the carbohydrates taken during the event can be re-made into glycogen for later use.
- b) keeping blood glucose (sugar) levels normal during moderate to high intensity exercise and providing extra fuel for empty muscles, so delaying fatigue.

Fluids

There is no doubt you need them. Water is good for replacing fluid losses. However, sports drinks have a number of advantages, including a taste that encourages better fluid intake, and the addition of carbohydrates for glycogen fuel replacement. Glycogen replacement is beneficial if the event is an hour or more. Drink before, during and after exercise. Don't wait until you are thirsty. If you feel thirsty then you are already too dehydrated to perform at your best. (See fact sheet #1).

Sport less than 90 minutes

Most team sports and individual events are completed within 90 minutes of action eg netball, squash, football, soccer, hockey or a 10 km jog. Fluids are always very important in any exercise.

A sports drink provides some carbohydrate as sugars and can help delay fatigue in a short event or team game. It should not be necessary to eat any solid food in sports less 90 minutes duration, as eating well before the event will have a big impact on sports performance, and a sports drink provides plenty of opportunity to refuel during the event. If you fatigue during the event then you probably haven't:

- eaten enough carbohydrates beforehand;
- taken enough sports drink;
- trained enough; or
- you have overtrained

You will perform better by rectifying these problems and refuelling and re-hydrating during the game.

Sport longer than 90 minutes

Generally, these are endurance events. Most fit people can exercise for 90 minutes or more if they are well fuelled with carbohydrates before they start. Unfortunately, there isn't a never ending supply of glycogen fuel, so in endurance events it is recommended that extra carbohydrate is consumed, usually in the form of a sports drink or easy-to-eat food bar or sugar confectionery.

The sugars found in a sports drink will help delay fatigue and allow you to compete at your optimal pace for a longer time. If you eat solid food to supply additional carbohydrate, then it will need to be a choice that you feel comfortable with. For example, jelly beans, jelly snakes, muesli bars (low fat, of course) and bananas are popular solid foods with long distance cyclists. Studies of athletes show that around 30-60g of carbs per hour should be consumed in an endurance event to delay fatigue. This is the equivalent to 500- 1000 mL of sports drink or 10-20 jelly beans. You should experiment to find a fuel replacement schedule that suits your individual needs.

Ultra-endurance events

For events over four hours, the ultra-endurance athlete trains and competes at a lower intensity than short-distance events and most team games. During exercise at less than 70% maximum heart rate digestion can still occur, so the athlete can consume high carbohydrate foods with small amounts of protein and fat eg muesli bar, breakfast bar, sports bar, jam sandwich and hot soups (if the event is held in cold conditions).

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Commercial liquid meals are popular with ultra-marathoners. Ultra-endurance athletes should invest the help of an experienced sports dietitian due to their very high energy and nutrition requirements. Many will need over 20 000 kJ (4 800 Calories) a day just to maintain their body weight and get enough carbohydrates.

As glycogen stores get low, protein is used as a muscle fuel. Even if glycogen stores are reasonable, a small amount of protein is used as a fuel source near the end of endurance events, therefore endurance athletes need more protein than sedentary people (see fact sheet #6 on protein).

Why should I eat and drink after exercise?

When you have completed a training session or an event you will have used:

- muscle glycogen;
- body fat (usually a small amount);
- some protein (mainly in endurance events or weight training); and
- lost some fluids

Most importantly, fluids and carbohydrates need to be replaced soon after exercise. Muscle glycogen is likely to be depleted and these are restored by consuming food or drinks containing carbohydrate. Fluid must be replaced as quickly as possible because being even slightly dehydrated will affect your performance, your recovery and your daily activities, such as thinking and driving a car. Fortunately, even if you are quite lean, you will likely have plenty of body fat stores for endurance work, and these can be replaced at your next meal. Protein is another nutrient that can easily be replaced at your next meal (note that many carbohydrate foods also provide protein eg breads, pasta, rice, legumes).

When should I eat and drink after exercise?

To take advantage of the body's desire to replace glycogen stores after exercise, we recommend that a post-event snack be eaten within two hours after exercise, although the first 30 minutes may be the most crucial time. The body replaces glycogen at the quickest rate when carbohydrate foods and drinks are eaten soon after exercise. This becomes very important when an athlete trains or competes two or more times a day and they need to replace glycogen quickly. A larger meal can be consumed later when an athlete has cooled down and feels more comfortable. Muscle glycogen can generally be replaced at 5% per hour, so it takes about 20 hours to replace an empty glycogen fuel tank.

What should I eat after sport?

As a guide, your choice of meal or snack should be:

- high in carbohydrate;
- moderate protein;
- include plenty of fluids; and
- food & drinks you enjoy

Don't fall for the trap of eating anything you fancy because 'you deserve it'. For most events, the emphasis is on replacing carbohydrates and fluids. Athletes who find it difficult to eat solid food after exercise should try liquid sources of nutrition.

Liquid meals, such as commercial high carbohydrate drink supplements and home-made fruit smoothies (a blend of milk and fruit), fruit juice and sports drinks help an athlete to both refuel and replace fluids even when they are not as hungry. Try to eat 1-2 g of carbohydrate per kg body weight in the two hours after exercise. This will equate to around 50-160 g carbohydrate for most people. There may be some good reasons for choosing carbohydrate foods that are also good sources of other nutrients such as protein and vitamins or minerals. Speedy intake of these nutrients may assist in a variety of recovery activities, such as rebuilding protein or assisting the immune function. Nutritious carbohydrate foods and meal ideas are provided below.

Post-exercise snack ideas

- Sports drinks
- Banana sandwich
- Fresh fruit, canned fruit
- Fruit juice
- Sweet muffins
- Fruit bar
- Breakfast bar, muesli bar
- Sports bar
- Low-fat flavoured yogurt
- Fresh fruit salad with low-fat yogurt or low-fat dairy dessert
- Smoothie, based on reduced-fat milk, low-fat yogurt and banana/mango/berries
- Soy smoothie, based on reduced-fat soy beverage and blended fruit.

Example high carbohydrate meals & snacks

- Baked potato (1 med) + baked beans & mushrooms = 30 g carb
- 200mL low fat yogurt + 1 Tbsn dried fruit = 35g carb
- Fruit smoothie (200 mL low-fat milk + banana) = 37 g carb
- Breakfast cereal (1 cup) + 150 mL low-fat milk + tinned peach (1 whole) = 40 g carb
- Raisin bread (2 slices) + ricotta cheese + jam = 45 g carb
- Ham & salad roll + fresh fruit = 50 g carb
- Spaghetti or baked beans (1 cup) + 2 slices toast = 55 g carb
- Breakfast cereal (2 cups) + 200 mL low-fat milk + tinned fruit (1/2 cup) = 70 g carb
- Toast (2 slices) with honey, jam or marmalade + fruit juice (1 glass) = 70 g carb
- Steamed rice (1.5 cup) + stir-fried vegetables = 85 g carb

Summary points

- During sporting activities, it is important to replace lost fluid as soon as possible
- In longer activities, both fluids and carbohydrates will need to be replaced to enhance endurance ability
- Consume 30-60 g carbohydrate per hour during endurance events.
- For the quickest replacement of glycogen stores, eat 1-2 g of carbohydrate per kg body weight soon after finishing exercise

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Fluids in Sport

Why fluid is important

Water is essential to maintain blood volume, regulate body temperature and allow muscle contractions to take place. During exercise, the main way the body maintains optimal body temperature is by sweating.

Heat is removed from the body when beads of sweat on the skin evaporate, resulting in a loss of body fluid.

Sweat production, and therefore fluid loss, increases with a rise in ambient temperature and humidity, as well as with an increase in exercise intensity.

Drinking fluid during exercise is necessary to replace lost sweat. This action will reduce the risk of heat stress, maintain normal muscle function, and prevent performance decreases due to dehydration. In most cases during exercise the rates of sweat loss are higher than the rate you can drink, so most athletes get into fluid deficit. Therefore, fluid guidelines promote drinking more fluid to reduce the deficit. However, it is also possible to over-hydrate during exercise, so athletes with low sweat losses need to drink at a more moderate rate.

The dangers of dehydration

- As dehydration increases, there is a gradual reduction in physical and mental performance. There is an increase in heart rate and body temperature, and an increased perception of how hard the exercise feels, especially when exercising in the heat.
- Studies show that loss of fluid equal to 2% of body mass is sufficient to cause a significant decrease in performance (that's a 1.4 kg loss in a 70 kg athlete).
- Dehydration of greater than 2% loss of body weight increases the risk of nausea, vomiting, diarrhoea, and other gastro-intestinal problems during exercise.
- Dehydration reduces the rate of fluid absorption from the intestines, making it more difficult to reverse the fluid deficit. You may end up feeling bloated and sick if you delay fluid replacement.
- It is impossible to 'train' or 'toughen' your body to handle dehydration. Don't bother trying!

The dangers of over hydration

Drinking more fluid than is comfortable, in any condition interfere with good performance. In cool weather or when the exercise pace is gentle, the rate of sweat loss may be quite

low. It is unnecessary and potentially dangerous to drink at rates that are far greater than sweat losses. Such over-hydration during exercise can cause a dilution of blood sodium levels (hyponatraemia). Symptoms include headaches, disorientation, coma, and in severe cases, death.

Estimating your fluid losses

Fluid is lost from the body mainly as sweat and urine.

Other minor losses come from breathing, spitting, vomiting and other insignificant sources. Sweat losses can be monitored to give you an idea of how much fluid to replace during training sessions and competition. Weigh yourself before and after the session, using accurate scales. If possible, weigh naked or in minimal clothing, and be sure to towel dry any excess sweat (so you are not weighing sweat lost into your clothing).

- Your weight change during exercise reflects your total fluid loss; i.e. the difference between your sweat losses and fluid intake.

- As a general rule, aim to keep this weight loss less than 1kg. (1kg = 1 litre of fluid)

- You can also express fluid loss or dehydration as a percentage of your initial weight. This is how to calculate % dehydration:

$100 \times (\text{pre-exercise wt (kg)} - \text{post-exercise wt (kg)}) / \text{pre-exercise weight (kg)}$ e.g. If you weigh 80 kg before sport and 78 kg afterwards, then your % dehydration is:

$$100 \times (80 - 78) / 80 = 200 / 80 = 2.5\%$$

Aim to keep this well under 2%.

- Total sweat loss can be estimated by considering fluid and food consumed, as well as weight change:

Total sweat loss (in mL) =

$$1000 \times [\text{pre-exercise wt (kg)} - \text{post-exercise wt (kg)}] + \text{fluid intake (mL)} + \text{solid food eaten (g)}$$

e.g. If you weigh 80 kg before sport and 78 kg afterwards, drank 700 mL fluid and ate 50 g jelly beans, then your total sweat loss is:

$$(1000 \times 2) + 700 + 50 = 2750 \text{ mL}$$

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- Knowing your rate of sweat loss helps you develop a general fluid intake plan. You should aim to drink at the maximum amount that is comfortable and practical for your sport, but a bit less than your sweat losses.
- Remember that weight loss during exercise is primarily water loss (not fat loss), and needs to be replaced soon after finishing exercise.

How Much Fluid & When?

Drinking fluid during exercise helps to prevent a drop in performance caused by dehydration, and fluid after exercise will re-hydrate you. The amount of fluid and the timing of drinks depend on the individual and the sport. Here are some tips:

- Always start exercise well hydrated; this will lower the risk of becoming dehydrated during sport. There is minimal performance benefit to being over-hydrated as drinking excessive amounts of fluid before exercise causes increased urination and feelings of bloatedness.
- Develop a plan for drinking during exercise based on your own sweat rates.
- Immediately after exercise, monitor your weight change to estimate your final fluid deficit. During recovery, you will continue to lose fluids through sweating and urine losses, so plan to replace 150% of this fluid deficit over the next 2-6 hours. For example, if you lost 1 kg (1000 mL), you will need to drink 1500 mL to fully re-hydrate. Drink fluids with your recovery snacks and the following meal to achieve this goal.
- Different sports pose different challenges and opportunities for optimal hydration. For team and racquet sports there are formal breaks between play, with substitutions and time-outs, all offering an opportunity to drink. Some individual sports require you to drink on the move. Be smart and practice strategies to get maximum benefit from fluid intake with minimal fuss and discomfort. Try special squeeze bottles, or hands free drink pouches if practical.
- Thirst is not an effective indicator of hydration status while exercising. There is usually a significant fluid loss before you feel thirsty. When drinking, your thirst will be satisfied well before these losses have been fully replaced.
- Sweat rates vary between people - even people exercising side by side. In general, however, sweat rates increase with the intensity of exercise, and in a hot, humid exercise environment. Aerobic training and acclimatisation to a hot climate both help an athlete to sweat earlier and at higher rates during exercise. Being able to sweat enables your body to get rid of the heat that your muscles produce during exercise.
- Athletes who undertake high intensity exercise in hot conditions can lose 2-3 litres of sweat each hour! Typically, though, most exercisers can expect to lose around a litre of sweat per hour.
- Children and the elderly have lower sweat rates, and are therefore less able to regulate their body temperature when they are hot.

What is the best fluid to drink?

As there are many drink options available you now need to think about which is best for you.

Plain water alone is an effective drink for fluid replacement, especially in low intensity and short duration sports. However, if carbohydrate and electrolytes are added to water, as in a sports drink, performance can be enhanced, especially in high intensity and endurance sports.

If a drink tastes good, athletes will consume more of it, therefore promoting re-hydration. Carbohydrate in fluid provides a muscle energy source as well as enhancing flavour. This can be one advantage of a sports drink over plain water.

Electrolytes such as sodium are lost in sweat and need to be replaced during and after prolonged exercise. Sodium in fluid improves hydration as it stimulates the thirst mechanism, promotes both carbohydrate and water uptake in the intestines and reduces the volume of urine produced post-exercise.

For more information please see the SDA fact sheet # 19 on [Sports Drinks](#).

Caffeine

Caffeine is a diuretic, meaning it increases the volume of urine produced (fluid lost) by the body. Recent research has shown, however, that caffeine-containing fluids can be used as a re-hydration beverage. The increase in fluid lost as urine is not greater than the amount of fluid that is consumed from drinks such as tea and coffee. Non-caffeinated fluids (e.g. water, sports drinks, juice, cordial) are more effective for hydrating, and are therefore still the preferred choice, but the regular caffeine drinker does not need to avoid caffeine-containing drinks completely.

Alcohol

Alcohol will act as a diuretic and interfere with re-hydration and other recovery processes. If you choose to drink alcohol after exercise, look after your recovery needs first (i.e. replacing fluids and energy) and then enjoy an alcoholic beverage in sensible amounts (maximum four standard drinks for men and two for women).

Fluid Guidelines Summary

Dehydration impairs performance and mental skills, especially in hot weather.

- Monitor your typical sweat losses during exercise and develop a hydration plan for before, during and after exercise that replaces these losses.
- Aim to have minimal weight (fluid) loss during exercise, preferably less than 1kg.
- During exercise, drink at a rate that is comfortable and practical to replace most of your sweat losses.
- Do not drink at a rate that exceeds sweat losses.
- Be aware of greater fluid losses in hot and humid environments.
- Water is an excellent fluid for low intensity and short duration sports.
- Sports drinks are ideally suited to high intensity and endurance sports.
- Tea and coffee are helpful in replacing lost fluids
- Drink alcohol sensibly

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