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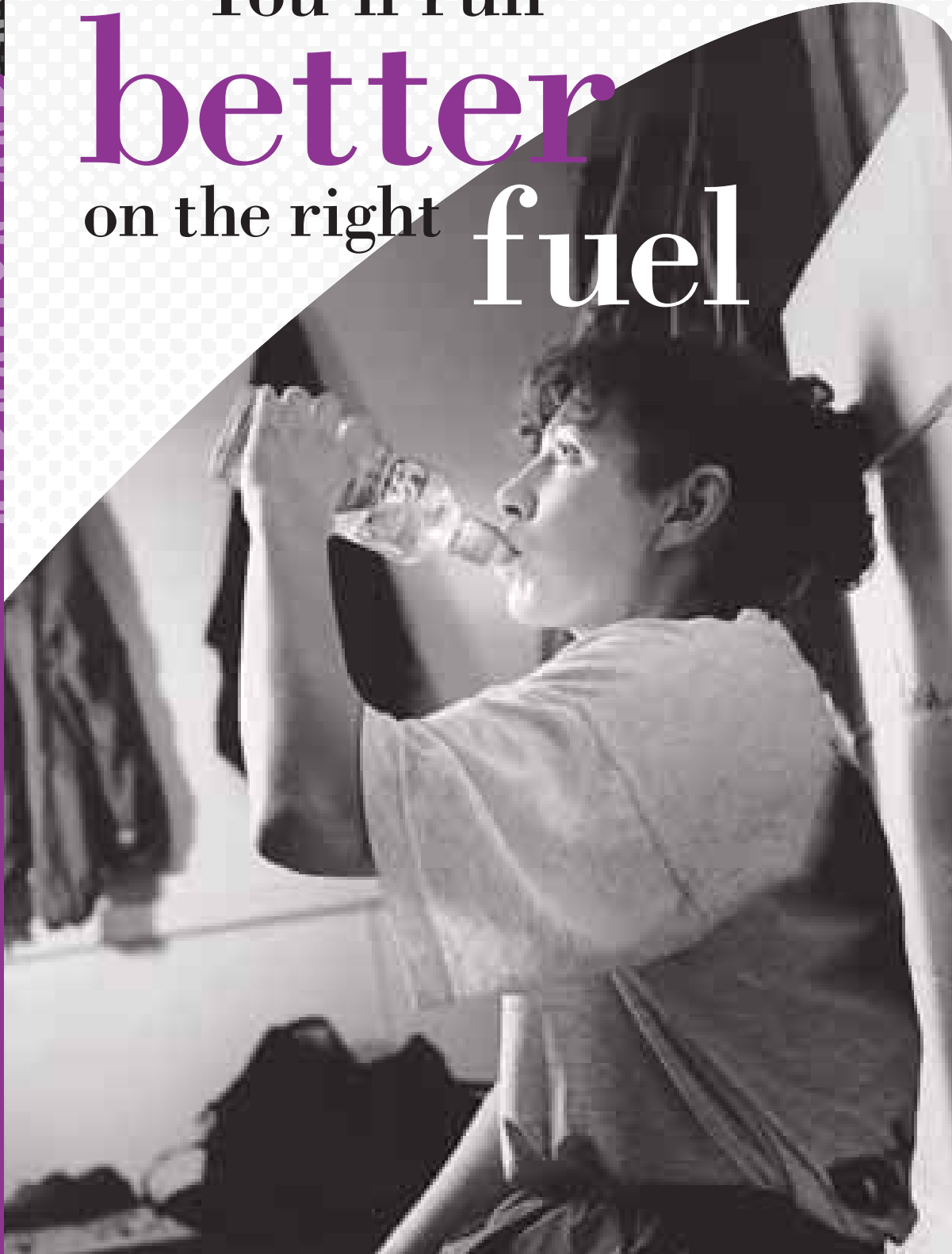
## HYDRATION AND NUTRITION

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### HYDRATION AND NUTRITION

Hydration (drinking adequate fluid) and nutrition (the foods you eat) are critical parts of the sporting experience. Hydration replaces fluid lost during sweating and maintains sports performance, while nutrition provides an essential fuel supply for exercise, promotes a nutritional environment that allows players to recover more efficiently between training sessions, and satisfies the basic nutrient requirements of good health and growth and prevention of lifestyle diseases.

You'll run  
**better**  
on the right **fuel**



Maintaining ideal hydration and nutrition levels requires the attention of both coaches and players before, during and after exercise. This includes training as well as competitive games and events.

### Fluids and dehydration

Dehydration has a significantly detrimental effect on sports performance. It:

- Decreases concentration levels, leading to increased clumsiness
- Decreases endurance capacity
- Decreases performance levels through increased fatigue and headaches
- Decreases the ability to judge accurately the distance from other players or balls when catching a ball or tackling another player
- Delays recovery.

### GOOD HYDRATION STRATEGIES:

- Replace sweat losses and promote recovery
- Reduce the effect of fatigue and allow players to maintain a high level of concentration and therefore performance.

### Encourage players to:

- Pre-hydrate! Drink fluids before starting a training session or competition and during the day
- Drink small amounts where possible throughout the game e.g. breaks in play, half-time, time-outs, rests

- Increase fluid intake in hot and humid conditions
- Replace every kilogram lost during exercise with 1.5 litres of fluid
- Drink fluid that is flavoured and cool
- Drink well formulated (4-8% carbohydrate) sports drinks during activity lasting longer than one hour.

### Players should avoid:

- Caffeine, energy drinks (e.g. Red Bull, V), smart drinks and alcohol after exercise as these increase fluid losses
- Sharing drink bottles between players so that flu, hepatitis and other infections don't spread between players.

Follow these simple guidelines for adults participating in exercise

500-600ml	Two hours before exercise.
500ml	15 minutes before exercise.
150-350ml per 15-20 minutes	During exercise as tolerated. Use breaks in play as opportunities to take extra fluid. It is especially important to drink enough fluid in endurance and high-intensity exercise.
1-1.5 litres per kg of body weight lost	After exercise drink fluids to rehydrate and produce a clear or pale urine. Drink more than thirst dictates. Sports drinks are suitable.

### NOTE:

- Plain water is appropriate for exercise lasting less than one hour. Drinks containing 4-8% carbohydrate and 0.5-0.7g/litre sodium are recommended for intense exercise lasting longer than one hour.
- As children are less effective at sweating and produce more heat during exercise than adults, hydration and fluid intake are particularly important when exercising in hot/humid climates. Children may need to be encouraged to drink more fluids (flavoured and cool beverages are preferred). Children can use well formulated sports drinks. Sports drinks (e.g. Replace, Powerade) should contain 4-8% carbohydrate and 0.5-0.7g/litre sodium. Sports waters (e.g. Mizone, loaded water) contain little or no carbohydrate (less than 4%) and no sodium – only fluid to rehydrate, flavouring and sometimes added vitamins. Check the labels if you are unsure. Sports waters are not suitable for endurance events as a sole source of nutrition (food must be consumed), but are ideal for workouts at the gym or training lasting around one hour.

## Nutrition for exercise

### GOOD NUTRITION:

- Increases energy levels, leading to more active participation
- Helps in the development of strong bones, which reduces the possibility of fractures
- Helps repair damaged muscle tissue
- Allows the body to recover between physical activity sessions
- Provides for growth.

### POOR NUTRITION:

- Decreases concentration through decreased energy levels
- Causes poorly developed muscles and bones, and may lead to iron deficiency
- Decreases a player's endurance capacity.

### HIGH-CARBOHYDRATE FOODS

Carbohydrates are mainly used for energy during moderate to high-intensity exercise. High-carbohydrate foods include bananas, fruit, pasta, bread, rice, potato and breakfast cereals. Make these foods the main part of meals and snacks.

Specialised sports bars, gels and sports drinks containing carbohydrate are available, convenient and easy to transport to training, games and for use in recovery.

### FOODS CONTAINING PROTEIN

Protein is essential to build, maintain and repair the body's tissue. Foods high in protein are eggs, chicken, fish, red meat, legumes (such as dried beans) and dairy products (choose lower-fat versions).

Dairy products also provide a valuable source of calcium, while meats provide zinc and iron.

#### Encourage players to:

- Ensure that over half their food intake comes from carbohydrate-based foods (i.e. eat 6-10g carbohydrate/kg of body weight)
- Increase their intake of carbohydrate foods a few days (two to three) before an endurance event or tournament
- Ensure their diet contains 1.2-1.7g protein/kg body weight
- Eat enough food to provide sufficient energy for training and games
- Maintain a hydrated state.

#### Players should avoid:

- Foods high in fat and fibre before and during exercise.

### NOTE:

- If players have any doubts about their food intake, are newly vegetarian or have low-energy intakes (for example, to make a weight category or reduce body fat levels) they should talk to a sports dietitian to ensure they are meeting all their energy and nutrient requirements (especially for calcium, iron, carbohydrate and protein).
- The indiscriminate use of vitamin tablets or iron supplements is not recommended without appropriate investigation and medical advice. Excess iron can be dangerous to some people. As supplements may contain banned substances, players are advised to seek professional advice before consuming them.

### FOODS CONTAINING 50G CARBOHYDRATE INCLUDE:

- 2 bananas
- 4-5 weetbix
- 1 cup cooked rice
- 1 1/2 cups cooked pasta
- 1 cup kumara
- 2 1/2 cups porridge or other cereals
- 2 1/2 potatoes
- 2 cups yoghurt
- 3 apples
- 2 muffins
- 2-3 crumpets
- 4-5 slices bread
- 1 large bagel
- 600ml sports drink
- 600ml flavoured milk
- 500ml fruit juice or cordial
- 1 1/2 - 2 gels or carbo shots
- 1 1/2 - 2 muesli bars or sports bars (check the labels)

### PROTEIN CONTENT OF FOOD:

100g lean red meat	27g	1 cup yoghurt	10g
2 slices (30g) ham	3g	30g cheese	8g
1 hamburger	18g	2 slices bread	5g
100g tofu	8g	1 cup rice	5g
100g chicken	33g	1 cup pasta	5g
100g white fish	23g	2 weetbix	8g
100g canned salmon	20g	1 potato	2-3g
12 mussels	20g	1/2 cup baked beans	7g
100g canned tuna	26g	1/2 cup peas	5g
1 egg	6g	1 tbsp peanut butter	5g
1 egg white	3g	2 tbsp milk powder	5-6g
1/2 cup bean salad	9g	2 tbsp protein powders (average values)	5g
1 glass flavoured milk	7g		

Fad diets and programmes promoting a rapid weight loss tend to place the energy intake of active people and athletes at risk and possibly increase the risk of fatigue, increasing the risk of injury. Players wishing to train hard and reduce body fat or weight should seek advice from a sports dietitian or a sports medicine doctor.

For more information on hydration and nutrition contact: a sports dietitian.

## A sample day's diet for a player in training or competition

### DIARY NOTES

7.30	
7.45	<b>BREAKFAST</b>
8.00	
8.15	Fruit juice, cereal or porridge, lower-fat milk, yoghurt,
8.30	
8.45	fresh or canned fruit, toast, drink (tea, coffee, milo,
9.00	
9.15	milk or juice and water). Other options include canned
9.30	
9.45	spaghetti or baked beans and fruit smoothies.
10.00	
10.15	<b>SNACK</b>
10.30	
10.45	Fruit or muesli bar/energy bar, drink, bagel, sandwiches,
11.00	
11.15	rolls, fruit muffins, fruit juice and water.
11.30	
11.45	<b>LUNCH</b>
12.00	
12.15	Rolls or sandwiches, sushi, rice dishes, fruit,
12.30	
12.45	possible muffin/cake/biscuit or other sweet item, pasta dishes
1.00	
1.15	with lower-fat, tomato-based sauces, drink and water.
1.30	
1.45	<b>SNACK</b>
2.00	
2.15	Fruit or muesli bar/energy bar, drink, bagel, sandwiches, rolls, canned rice
2.30	
2.45	pudding, fruit muffins, fruit juice and water. Eat one-two hours before
3.00	
3.15	training or workouts.
3.30	
3.45	<b>RECOVERY SNACK</b>
4.00	
4.15	Sports drink, fruit juice, cordial and water with banana,
4.30	
4.45	muffin, fresh fruit, canned fruit, canned rice pudding,
5.00	
5.15	<b>DINNER</b>
5.30	
5.45	jam or honey sandwiches.
6.00	
6.15	Large serving of carbohydrate (e.g. potatoes, pasta, rice, couscous,
6.30	
6.45	taro, kumara) to cover half the plate, lean low-fat meat/chicken/fish
7.00	
7.15	or other protein-rich food (trim parts, seafood such as mussels, eggs,
7.30	
7.45	chilli beans, legumes, tofu), two-three other vegetables (at least one
	green and one coloured) or salad, and drink (water, juice, smoothie).

### THE 10-POINT ACTION PLAN FOR SPORTS INJURY PREVENTION

1

SCREENING

2

WARM-UP, COOL-DOWN AND STRETCH

3

PHYSICAL CONDITIONING

4

TECHNIQUE

5

FAIR PLAY

6

PROTECTIVE EQUIPMENT

7

HYDRATION AND NUTRITION

8

INJURY REPORTING

9

ENVIRONMENT

10

INJURY MANAGEMENT

### NOTE:

1. Try to eat at least two hours prior to training and three to four hours prior to competition and keep food choices at this time low in fat. Drink plenty of water and sports drinks.
2. Vegetarian athletes are at extra risk of iron deficiency and should have a blood count and ferritin test annually. See your doctor to arrange this.