



Track Cycling

Characteristics of the Sport

Overview

Track cycling is raced on tracks called velodromes. These can be indoor or outdoor and are usually 250 – 500 metres in diameter. Track bikes are fixed gear bikes without brakes. In sprint events, athletes generally use large gears which take enormous amounts of power to get going! With fixed gears, cyclists are forced to continue to pedal, even when slowing down. Speeds of 40-60 km/hr are common in endurance events.

Track cycling involves a number of sprint and “track endurance” events. Both individual and team events exist. These include pure sprint events such as the individual and team sprints; long sprints such as the 500 m and 1000 m time trials and the Kieren; middle distance events such as the individual and team pursuits; and endurance events such as the Madison, scratch, handicap and points races.

The main events are summarised below. Further detail about the events can be found at the Cycling Australia website www.cycling.org.au

Event	Gender	Distance	Time Taken	Key Nutrition Considerations
Sprint	Men	3 laps	< 60 secs	Preparation
	Women			
Team Sprint	Men	3 laps	< 60 secs	Preparation
	Women	2 laps	< 60 secs	
Time Trial	Men	1000 m	60+ secs	Preparation Recovery between heats and finals
	Women	500 m	33+ secs	
Standing Lap	Men	1 lap	>15 secs	Preparation
Kieren	Men	2000 m	~ 2 mins	Preparation Recovery between heats and finals
	Women	2000 m	2 mins +	
Individual Pursuit	Men	4000 m	4 mins 20+ secs	Preparation Recovery between heats and finals
	Women	3000 m	3 mins 30+ secs	
Team Pursuit	Men	4000 m	4 mins+	Preparation Recovery between heats and finals
Scratch Race	Men	15 km	15+ mins	Preparation Hydration
	Women	10 km	15+ min	
Points Race	Men	40 km	40+ mins	Preparation Hydration
	Women	25 km	30+ mins	
Madison	Men	50 km	45+ mins	Preparation Hydration

FACT SHEET





Training

Training varies according to the type and number of events being raced. Sprint track cyclists generally focus on short high quality repetitions with long recovery, as well as strength training to build lean body mass. For longer sprint events, athletes also include some longer sessions and endurance rides. Longer track events such as the Points Race, Madison, and Kieren are generally suited to endurance trained road cyclists, who compete in the off season or during major events such as Olympics and World Championships. With a good endurance base and short periods of sprint training, road cyclists can excel in track endurance events. (See the Road Cycling Fuelling Your Sport Fact Sheet www.ais.org.au/nutrition/FuelFactSheets.asp for further details).

Competition

Elite track cyclists compete at World Cups, World Championships, Commonwealth Games and Olympic Games. Cyclists are often required to complete a number of heats and finals over one or many days. Competitive recreational cyclists may compete weekly during the racing season. Cyclists often compete in several events and are required to contest a number of heats and finals.

Physical Characteristics

The physique of sprint track cyclists is characterised by large muscle mass and low body fat levels. A high percentage of fast twitch muscle fibres helps maintain high cadences.

Endurance track cyclists are typically lean and light, similar to road cyclists.

Common Nutrition Issues

Training Nutrition

Sprinters need to optimise muscle mass and minimise body fat levels to achieve an optimal power:weight ratio. This requires a carefully balanced intake. Consuming excess total energy can lead to an increase in body fat. However, restricting energy intake in an attempt to achieve an ultra lean physique can cause loss of muscle mass. Sprinters need to consume a variety of nutrient-dense foods and match carbohydrate needs to their training load. Protein requirements are similar to other sprint athletes, being around 1.6-1.8g/kg of body weight.

Overall, a healthy balanced diet containing a wide variety of nutrient dense wholegrain breads and cereals, fruits and vegetables will help a sprint cyclist meet their nutritional requirements and manage weight. Regular serves of lean meats, poultry, fish, eggs, legumes and low-fat dairy products will help to meet protein, calcium and Iron requirements.

If body fat levels become a problem, it may be necessary to increase energy expenditure. The addition of some extra long sessions or cross training sessions may be required to get weight down.

Recovery is crucial to track cyclists. Recovery can be optimised by consuming a mix of carbohydrate and protein before and after training sessions. The report, Nutrition for Optimal Recovery, on the AIS Sports Nutrition website provides further details (see <http://www.ais.org.au/nutrition/FullText.asp>)

Endurance track cyclists are best referred to the road cycling fact sheet for training nutrition advice.

FACT SHEET





Preparation for Competition

Body fuel stores are not a limiting factor for single sprint events. However, when contesting a number of races over a day, fuel demands can be high. Cyclists should aim to begin competition hydrated, with a comfortable stomach and with sufficient fuel on board. In most cases, track cyclists can prepare for competition by maintaining their usual healthy eating habits. Generally, carbohydrate loading is not required for sprint events. Longer events such as the Madison may be an exception.

Competition Day Food and Fluids

Pre-competition meals should be familiar and individualised. For sprinters, the meal does not necessarily need to be a high energy meal but should contain foods that the athlete enjoys and tolerates. For longer track endurance events the pre-competition meal should contain plenty of carbohydrate to top up fuel stores.

Track bikes do not have bidon cages and it is often unnecessary or impractical to drink during a race. Therefore “Pre” and “Re” Hydration strategies are especially important for longer events and multiple race competition days. Fluid loading or “hyperhydration” strategies can be employed for longer races. A sports dietitian should be consulted for individual assistance with fluid loading.

Sprinters need to assess the opportunities between events to eat and drink. The aim is to consume sufficient food and fluid throughout the day to ensure the cyclist is in peak condition at the end of the day when the competition really counts.

Travelling

Elite track cyclists compete worldwide. Athletes often fly in to compete only 1-2 days before racing. Managing jetlag, in particular minimising dehydration, is important to see cyclists ready for competition on arrival. Athletes who travel regularly, need to be aware that traveling reduces training loads therefore reduces energy requirements. This is also a consideration for endurance trained road cyclists coming back to compete on the track. Adjusting food intake to accommodate the reduced requirements can help avoid unwanted weight gain.

Supplements

There are a number of supplements that may appeal to track cyclists trying to gain an edge over their competitors. However, the majority of these are not supported by scientific evidence. Some products that may be useful to cyclists are described below. It is important to note that supplements can be only useful as an addition to quality training and a good diet. Most junior and recreational athletes will gain more benefit from perfecting training and dietary practices than from using any particular supplement. For further details, see the AIS Sports Supplement Program (www.ais.org.au/nutrition/Supplements.asp)

Supplement	Suggested Uses
Carbohydrate Gels	Compact energy source for a quick carbohydrate hit, Potentially useful for multi-event competition days and as an energy source for athletes who have trouble with solid foods before competition
Sports and Cereal Bars (e.g. PowerBars)	Good source of carbohydrate for fuelling and refuelling. Suitable protein/carbohydrate mix to facilitate recovery from resistance training sessions. Handy snack between events and on longer training rides.

FACT SHEET





Supplement	Suggested Uses
Liquid Meal Replacements (e.g. PowerBar Protein Plus)	Recovery from resistance training and heavy training sessions. Can be used between events if short breaks don't allow time to eat. Pre-race when solid food is not tolerated.
Sports Electrolyte Drinks	Between events for rehydration and refuelling, especially in hot environments. Good for pre-race hydration
Glycerol	Hyperhydration for prolonged events such as Madison, 40km Points races
Bicarbonate	High intensity short duration track events such as(e.g. pursuits) to neutralise lactic acidosis

Case Study

Chris is a 21 year old recreational track cyclist who competes regularly in local track meets. His favourite event is the 4000 m individual pursuit but he also competes in the shorter handicap and scratch races. At most meets, Chris will compete in 2-3 events over the day. Most meets are at outdoor velodromes.

The biggest meet of the summer was held in an indoor velodrome. The temperature outside was 35°C but felt cooler inside the velodrome without the sun beating down. Chris' first event was the 4000 m individual pursuit qualifying rounds at 1:30pm. Chris won his heat and progressed through to the semi-finals later in the afternoon. Twenty minutes later, Chris had a 3 km handicap race. Not wanting to cool down, Chris hopped on to his rollers and continued to 'turn the legs over'. He took a few mouthfuls of water from a bidon offered by his dad before it was time to race again. Backing up from the pursuit was tough and Chris didn't feature in the contenders. After the race, Chris warmed down for 10 minutes on the rollers, taking a few mouthfuls of water from his bidon. He then went to find a quiet place in the stands to have a quick nap before the pursuit semis.

The semi finals of the pursuit were at 3:30 pm so Chris began to warm up on the rollers at 3:15 pm. He had a few mouthfuls of water, but nothing to eat as he didn't want the feeling of food in his stomach when racing hard. Again, Chris had a good race and won through to the final, although he noticed he was feeling a bit lightheaded after the race.

Chris was excited to have made it through to his first individual pursuit final and used up some nervous energy by chatting with his mates. One of his mates suggested that bicarbonate might help Chris perform well in the final. The mate usually had good tips so one hour before the final Chris took two heaped tablespoons of sodium bicarb powder and washed it down with about a half a bidon of water. The taste was a bit strange but he thought it would help so put up with it.

As the final approached, Chris became increasingly nervous and began to feel problems 'brewing' in his stomach. He was also feeling lightheaded and was having trouble getting his mind on the job. During his warm up, Chris had to take a trip to the toilet 'for a nervous one'. As the final started, Chris wasn't feeling as good as he had earlier in the day and as he got through the first 1000 m he began to feel unwell and knew his chance of winning the final was over. He finished second and as soon as he got back to the pits he headed again to the toilet.

Chris was disappointed that he had wasted an opportunity to perform well. He decided it was time to get serious and make an appointment with a Sports Dietitian. The Sports

FACT SHEET





Dietitian pointed out a few obvious flaws in Chris' nutrition strategies on the day. These included his failure to refuel during the afternoon and poor hydration practices. It was likely that dehydration caused several of the symptoms noticed at the end of the day. When Chris considered how much time he had spent on the bike, including racing and warming up and down, he realised that he had spent nearly 2 hours riding. Even though the meet was in an indoor velodrome the temperature was still above 30°C. In these conditions, Chris needed to increase his fluid intake. The use of a sports drink with some electrolytes would also have helped.

Chris' final mistake was to try something new (bicarbonate) during a big competition. Training partners aren't always the best source of nutrition information. Chris had taken a large dose of sodium bicarbonate and had drunk too little fluid to prevent it causing stomach upset. The Dietitian pointed out that using a product like bicarbonate is of little value until basic strategies such as food and fluid intake are well managed. When his overall nutritional management had improved, the Dietitian suggested that Chris trial the use of sodium bicarbonate in training. The appropriate dose and management were discussed to give the most benefit in future competitions without the side effects. For more information on sodium bicarbonate, see the Fact Sheets for the AIS Supplement Program (www.ais.org.au/nutrition/SuppFactSheets.asp). Sodium bicarbonate is not recommended for junior athletes.

FACT SHEET

