

Cycling

A. History

Cycling became popular gradually in Europe since Scotch Kirkpatrick Macmillan made the first practical bicycle in 1839. According to records, the earliest cycling competition was the 2km two-wheeler race held on 31st May 1868 in St. Cloud Park, France. From 1889 to 1890, F. Peter Lake created the time trial and promoted its development.

In 1893 and 1895, the first World Amateur Cycling Championship and the first World Professional Cycling Championship were founded respectively, both are held every year. In the first Olympic Games in 1896, cycling was included in the official competition. To optimize the organization of competitions and further promote the development of cycling, the International Cycling Union (UCI) was established on April 14, 1900.

In the early stage of the development of the Olympic Games, there were only two sub-categories of track and road competitions. Additionally, the distance and performance statistics of the small items vary greatly, the distances are not the same, or they are calculated according to the metric system or the British and American systems. After the 1950s, the UCI standardized the Olympic cycling competition's project settings and competition methods. At present, the Olympic cycling competition mainly includes three parts: track competition, road competition and mountain competition.

B. Basic Skills

Riding Posture

- The upper body is leaned forward to reduce air resistance
- The waist is slightly bent to avoid transiting a large amount of body weight onto the handle
- The head is not extended too much to ensure the chest is not being compressed for normal breathing
- The arms are flexed, the elbow joints are slightly separated to the sides, and the knee joints of the two legs are kept slightly bent for better support and balance



Pedalling technique

1. Step: Step on the pedal by downward movement of muscles
2. Raise: Raise the pedal from the lowest point to the highest point by bending the legs
3. Push: Push the pedal forward when the pedal is at the highest point

- Feet posture
 - Low cadence (<85 turns/min): Heel down and toes up when pushing, toes down sharply when raising
 - Medium cadence (85-105 turns/min): Feet are almost level, similar posture as low cadence, but a much smaller area for movement
 - High cadence (>105 turns/min): Heel keeps up for all movements

Grip Position

- Upper handle
 - o The most comfortable gripping method as the body is the most relaxed in this posture
 - o Not suitable for competition
- Brake levers
 - o The most common gripping method in competitions
- Lower handle
 - o The most suitable gripping method for the sprint section and competitions
 - o The most aerodynamic

Braking

- The braking force of the front brake is about one third higher than the rear brake
- Brake with two hands, straighten your arms and move your hips back out of the seat
- Never pull to the limit without relaxing
- Light brakes when downhill

Passing the curve

- Slow down before entering the curve
- Release the brake before the turn starts
- Perform slight movement of the handle accordingly
- Grip the lower handle when passing a curve at sprint section or downhill
- Tilt your body by shifting the centre of gravity closer to the inner curve

Uphill

- Take deep breathe when going up the slope
- Do not hold your breath
- Do not push too hard
- Try to keep the same movement as you are cycling on the ground
- Do not suddenly increase the strength, increase gradually according to the speed

C. Competition

Road cycling

Road cycling has been part of the Olympic Games programme since its first edition.

1. ROAD RACE (part of the Olympic programme)
 - The riders start together in a bunch
 - The courses are of varying distances with several different formats: one-day races from one point to another or on a circuit or stage races
2. INDIVIDUAL TIME TRIAL (part of the Olympic programme)
 - Raced over 40-50 km (at the UCI World Championships and Olympic Games)
 - The riders set off individually at regular intervals (1-2 minutes)
 - The competitor completing the course in the fastest time is the winner
3. TEAM TIME TRIAL
 - The principle is the same as for the individual time trial but this is raced by teams of a minimum of 2 riders and a maximum of 10 riders

Track cycling

Track cyclists are powerful athletes, generally with far more muscle bulk than “road racers”

Ten events are divided into three families:

1. SPRINT EVENTS
 - **INDIVIDUAL SPRINT** (part of the Olympic programme)
 - o Flying start 200 m time trials
 - o Followed by knockout heats of 2-3 laps
 - o The best two riders fight it out in the final. Sometimes riders will come to a standstill in an effort to make their opponent take the lead, which is the least advantageous position before the final sprint to the finish line
 - **TEAM SPRINT** (part of the Olympic programme)
 - o Raced by teams of three riders over three laps of the track (for women, 2 riders over 2 laps)
 - o Each rider leads for a lap before dropping back
 - o After the heats, the 2 best teams line up to contest the final
 - **KILOMETRE** (or 500 m for women)
 - o This is an individual time trial from a standing start. The competitor with the fastest time is the winner

- **KEIRIN** (part of the Olympic programme)
 - o Keirin racing originated in Japan
 - o Between 3 and 7 riders compete in a sprint race of 750 m after having followed in the slipstream of a pacing motorbike for the first 1,500 m. The motorbike gradually increases the speed from 30 to 50 km/h (25 to 45 km/h for women)

2. ENDURANCE EVENTS

- **INDIVIDUAL PURSUIT** (part of the Olympic programme)
 - o Two riders start on opposite sides of the track and compete over 4 km (3 km for women)
 - o The winner is the rider who manages to catch his/her opponent or who records the fastest time
- **TEAM PURSUIT** (part of the Olympic programme)
 - o Two teams of 4 riders (3 riders for women) start on opposite sides of the track and compete over 4 km (3 km for women)
 - o The winning team is the one that manages to catch its opponents or that records the fastest time
- **POINTS RACE** (part of the Olympic programme)
 - o The final result is determined according to points gained during sprints (one every 10 laps on a 250 m track) and by laps won
 - o At the UCI World Championships, the distance is 40 km for men and 25 km for women
- **MADISON** (part of the Olympic programme)
 - o Up to 18 teams of two riders take part in this relay race contested by means of intermediary sprints
 - o While one team member races, the other slows down to take a rest
 - o The classification is established according to the distance covered and the points won in the sprints. The Madison is held over distances of 25-50 km for Elite Men depending on the competition
- **SCRATCH RACE**
 - o This is a race for up to 24 individual riders over 15 km for men and 10 km for women

3. COMBINED EVENT

- **OMNIUM** (part of the Olympic programme)
 - o The omnium is made up of 4 events and is disputed on 1 consecutive day
 - o The final classification is established by adding up the finishing places
 - o The winner is the rider who has the lowest total

Mountain Bike

- The first mountain bike competitions were held in California (USA) in the early 80s
- The first World Championships officially recognized by the UCI dates back to 1990
- Officially become an Olympic sport at the Atlanta Olympics in 1996
- **CROSS-COUNTRY** (part of the Olympic programme)
 - o Cross-country races are held over undulating circuits (with technical descents, forest roads, rocky paths and obstacles) of 5 to 9 km
 - o The race varies from 1 h 45 minutes to 2 h 30 minutes
- **CROSS-COUNTRY MARATHON**
 - o A long version of cross-country held over a course of 60 to 120 km
 - o A special feature is that riders from all categories race together
 - o Held in a mountainous region
 - o In contrast to the Olympic cross-country format, the riders never pass the same point twice
- **DOWNHILL**
 - o A race against the clock in which the rider negotiates a succession of fast and technical passages
 - o The participant demonstrates courage as well as sharp technical and piloting skills in order to affront tree roots, banked sections, bumps, jumps and other natural obstacles along the way
 - o Speeds reach around 80km/h in the men's races and 70km/h for women
- **FOUR-CROSS** (also known as "4-cross" or "4X")
 - o Four participants set off together to ride down a track that alternates banked corners and jumps
 - o The races are very rapid (between 30 seconds and one minute) and give rise to fierce and closely contested confrontations between the riders
 - o The winner is the first to cross the finish line
 - o The four-cross races take place over several qualifying rounds

D. Equipment and Facilities

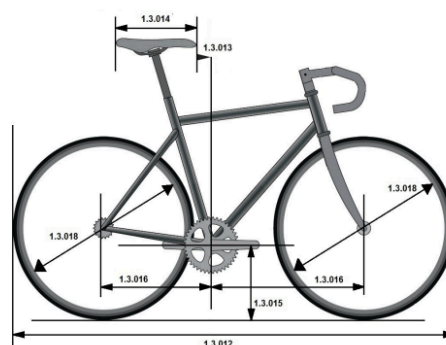
Road cycling

1. Venue

- Track for road races required 18km long while track for time trials only required 14.8km long
- The same venue can be used for both road races and time trials
- The venue can be streets or roads in the city yet they have to be kept secret

2. Bicycle

- A bicycle shall not measure more than 185 cm in length and 50 cm in width overall. A tandem shall not measure more than 270 cm in length and 50 cm in width overall
- The weight of the bicycle cannot be less than 6.8 kilograms



3. Accessories

- Helmet
- Goggles
- Cycling shoes
- Jersey with sleeves and shorts



Track cycling

1. Venue

- Wood surface track with a perimeter of 250m
- The entire track is tilted, with 42° at turning points and 12.4° for other areas
- The brightness of the venue during competitions has to be at least 1400Lux

2. Bicycle

- Constructed of straight or tapered tubular elements such that the form of each element except the chain stays and the seat stays encloses a straight line
- Two wheels are of the same size (66/68cm diameter)
- Without speed variator and brakes



3. Accessories

- Cycling shoes
- Jersey with sleeves and shorts

Mountain Bike

1. Venue

- The track consists of difficult and dangerous sections
- Each section contains a steep slope of 310m
- The track includes obstacles such as canyon
- Road signs are placed every km on the track to notify competitors

2. Bicycle

- Bicycles of similar structures to road cycling and track cycling, but much more solid
- A shock absorber can be installed at the rear
- A straight handlebar and strong brakes are used
- Broad and thick tyres are used

3. Accessories

- Helmet
- Repair tools and extra tyres
- Jersey with sleeves and shorts



E. Safety in Cycling

- Before cycling
 - Wear a bright coloured and correctly fitted safety helmet that complies with international standards
 - Wear bright, light-coloured, fluorescent or reflective and well-fitted clothing, or a reflective belt, particularly at night or in poor light
 - The cycle must be fitted with a warning bell and a rear red reflector.
 - Make sure the brakes are suitably adjusted and in proper working order, and can stop the wheels effectively
 - Tyres should be in good condition with clearly visible tread pattern and are properly pumped up
- When cycling
 - While riding at night or in poor visibility, a white lamp in the front and a red lamp at the rear must be switched on. Suitably dip your cycle lamp so as not to dazzle other road users
 - Must keep at least one hand on the handlebars at all times
 - Always keep both feet on the pedals

- o Keep a safe distance from any vehicles in front of you.
- o Do not lead any animal
- o Do not wear earphones or any audio devices or use mobile phone
- o Must not carry any passenger
- Braking
 - o In general, apply the rear brake first, then the front brake
 - o Apply the rear brake smoothly and gradually for slowing down
 - o The front brake is more powerful and efficient. However, if you apply it too hard, the cycle will stop more abruptly and the rear wheel may lift off the ground causing you to lose control or even fly over the handlebars, particularly when going downhill at speed
 - o Control your speed by braking appropriately when going downhill or before rounding a bend
 - o Only brake when the front wheel is straight

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Book

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Website

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