



# 7 TIPS TO GET THE MOST OUT OF YOUR BODY ON YOUR BIKE

PART 1: FITTING YOUR BIKE

By **CATHERINE GAUTHIER**  
**GRAHAM NELSON**  
**RUSSELL VISSER**

[WWW.NWPG.COM.AU](http://WWW.NWPG.COM.AU)

# 7 TIPS TO GET THE MOST OUT OF YOUR BODY ON YOUR BIKE

Whether you are a commuting cyclist, a recreational cyclist or a competitive cyclist, knowing more about bike fitting, cycling position and the important cycling muscles will help you to enjoy your ride even more. While cycling, the body and the bike need to work in perfect harmony to increase efficiency. These tips will give you simple and practical information to improve your cycling capacity and to avoid injuries. When fitted properly and pedalling smoothly, you will decrease your energy expenditure so you can aim ride longer, ride more often and even beat your mates.

## Fitting your bike

Being fit on your bike

**#1 Fit your bike according to your need and your utilisation**

#5 Strengthening should start with core stabilisation

**#2 Begin with static fitting using angles of knee, trunk and shoulder**

#6 Focus on a smooth pedal stroke with a high cadence

**#3 Assess dynamic fitting by looking at lateral movements and tension in shoulder and neck**

#7 Prevention is better than cure: consult early if you have any issues before it leads to pain and stops you from cycling.

**#4 Change your bike fitting gradually and off season if possible**

## PART 1: FITTING YOUR BIKE

### #1 Fit your bike according to your need and your utilisation

Before changing your bike fitting, think about your objective when cycling; if leisure and comfort is your priority over performance, a recreational fit which is a more upright and relaxed position is appropriate. On the other hand, if performance and aerodynamics prevail, a competitive position is best. However, an aggressive position will put more strain on the body so taking good care of your body is essential.

### #2 Begin with static fitting using angles of knee, trunk and shoulder

Proper saddle height and handle bar positions are critical for comfort and efficient pedalling. The first step is to position the saddle followed by the handlebars with body measurements called “static fit”.

**Saddle height:** Over the years, several techniques have been used to set the saddle height regarding leg length to measure the distance between the top of the saddle and the pedal surface when aligned with the seat tube. However, recent studies<sup>1,2,5,7,8,9</sup> have shown that a fit directly on the bike measuring the knee angle tends to be more accurate because it takes into account the length of the crank and the foot as well as possible leg length discrepancies.

The optimal saddle height to decrease stress on the knees and improve cycling economy using the Holmes et al.<sup>4</sup> method would be:

- Recreational rider: 30° to 35° of knee bending
- Competitive rider: 25° to 30° of knee bending

These angles are measured when the cyclist is seated with the pedal at the bottom dead centre (6 o'clock) and the foot parallel to the ground. For a competitive rider, the slightly more extended knee will allow the leg to produce more power at minimal aerobic cost<sup>2</sup>. The angles must be measured with both legs since there might be some discrepancies. If the difference is significant and you have already experienced discomfort, especially in the knees when cycling, you would benefit from a more specific bike fitting by a specialist.



**Handlebar position:** The handlebar has a considerable effect on back and upper body comfort, aerodynamics and energy expenditure. Therefore, the position will greatly differ from a recreational and competitive cyclist. The simplest way to position the handlebar properly is to measure trunk bending and shoulder flexion.

Recreational rider: more upright position reduces the stress on the arms, shoulders, neck and back but reduces aerodynamics

- Trunk forward bending: 10° to 40°
- Shoulder flexion: 80° to 90°
- Hand position: slightly wider than the shoulder<sup>1,5</sup>



Competitive rider: more outstretched posture to increase aerodynamics

- Trunk forward bending: 50° to 60°
- Shoulder flexion: 90° to 100°
- Hand position: wider than the shoulder by about 2 cm<sup>1,5,6,9</sup>



For a competitive cyclist, this positioning should result in the handlebar being 5 to 8 cm below the top of the saddle.

To make your measurement simple, you can use any free inclinometer app on a smartphone. These general static fitting tips are a good start to ensure proper fitting and avoid injuries. Although, numerous other factors such as individual physical characteristics need to be considered to optimise the bike fit.

### **#3 Assess dynamic fitting by looking at lateral movements and tension in shoulder and neck**

When the static fit is completed, assessment of the position needs to be done while cycling. This part is usually done on a stationary trainer or roller. There are now numerous tools and software to dynamically assess the bike fitting using a 3D camera, power meters, wind tunnel and all kinds of sensors to track legs, arms and trunk movement which can help the process<sup>9</sup>.



Before using all this hi-tech equipment, the focus should be on two main aspects to ensure a good position; shoulder and neck tension and lateral movements. While cycling, the position should be one which can be sustained for a long period of time without tensing up the shoulders. This will prevent strain developing in the shoulders, neck and back. The second important aspect is to minimize lateral movements of the pelvis and shoulders to avoid losing energy and power by inefficient movement patterns. If the static and dynamic fitting do not correlate, it is most likely due to individual physical characteristics. Therefore, slight changes should be made during the dynamic fit to address the two aspects previously discussed.

### **#4 Change your bike fitting gradually and off season if possible**

The new cycling position might feel strange or uncomfortable at the start because the body needs to adapt to these changes. This explains why changes in bike fitting should be gradual and done in the off-season for a competitive cyclist to allow adaptation of the body and avoid injuries<sup>9</sup>.

See the [PART 2: BEING FIT ON YOUR BIKE](#) for more details on the main muscles and joints involved in cycling and more tips on how to train appropriately and prevent injuries.

#### **NEED HELP TO FIT YOUR BIKE?**

If you have trouble fitting your bike, you will certainly benefit from specialised help. The first step is to get your body assessed by a physiotherapist to find possible restricted joint mobility, decreased muscle flexibility and weakness. We can also assist you to make sure your bike is properly fit according to your body characteristics which can differ from the standard recommendation.

You can also consult a physiotherapist before the onset of pain by having a screening assessment to find out which areas in your body are accumulating strain. Intervention to decrease tension in your body and making sure muscles are working properly is the best way to avoid overuse injuries leading to the necessity of taking time off the bike.

As physiotherapists, we are specialists in the assessment and care of the musculoskeletal system. We can assess all the essential aspects of your body that can affect your cycling. With a thorough body assessment, we can pick up what can trigger pain or alter your performance. Whether your joint mobility, muscle strength or flexibility, core stability or patterns of movement are problematic; we are the experts who can fix these dysfunctions.

Contact us to fit your bike, prevent pain and injuries stopping you from cycling, to improve your performance or to get on top of your injuries and avoid recurrences.

Northwest Physiotherapy Group

Phone: 9370 5654

Website: [www.nwpg.com.au](http://www.nwpg.com.au)

Email: [catherine@nwpg.com.au](mailto:catherine@nwpg.com.au)

To know more about cycling injuries, bike fitting and performance; follow the links below to find ongoing updates on new trends and most recent research.

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