



Smart Goni

The purpose of the FIT KIT SYSTEMS Smart Goniometer is to check and adjust the bicycle saddle position through assessing the leg angles at 3 positions. By ensuring the rider has a bio-mechanically sound starting point for lower leg joint angles, the risk of injury is greatly reduced.

The Smart Goni is a quick check tool for assessing lower leg angles. The Smart Goni is best used to establish an initial position on a bike, rather than to fine tune a position for a rider.

Using the Smart Goniometer and its unique 3 indexed positions, the technician is able to quickly observe the overall angles, without the time consuming use of a conventional goniometer and plumb bob.

With the 3 Positions quickly available on this Goniometer, the Fitting Technician only needs to click the tool to the angle they want to observe or measure, and find the basic information needed to set the bicycle saddle height, or fore/aft for the proper beginning fit.

The fitting technician should take care to use the parameters as guidelines only while they fine-tune the proper bicycle fit. A small variation of the rider's body angles will not be detrimental to outcome.

Position 1 is approx. 90 degrees, Position 2 is approx. 120 degrees, and Position 3 is approx. 150 degrees. Following any saddle adjustment, the angles can quickly be rechecked, due to the easy indexing feature of the Smart Goniometer.

Step 1:

Identify and locate the center points of:

- hip (center of head of the greater trochanter)
- knee (pivot point)
- outside of the ankle bone (lateral malleolus)

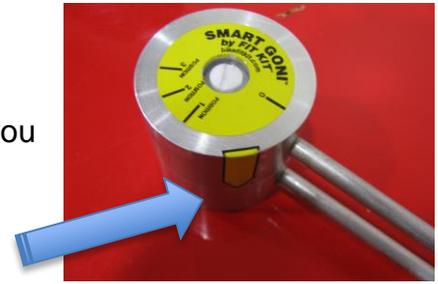
You can use body marker dots on these locations as a reference.



Step 2:

Gently pull apart the disc bodies of the Smart Goniometer to advance to the desired position of 1, 2, or 3.

Do this by noting the pin location arrow (yellow) which is where you want to flare open the body in order to change the position.



Place the hinge point of the Smart Goniometer on the center of the knee, and allow the generous 2' extensions to extend through the body markers on the joints of the hip, and the anklebone. This will work on either the right or left leg.



Position 1:

With the crank arm even with the down tube and the foot level, the angle formed by the femur (thigh) and the lower leg should be approx. 90 degrees.

Less than 90?
Move seat up and/or back.

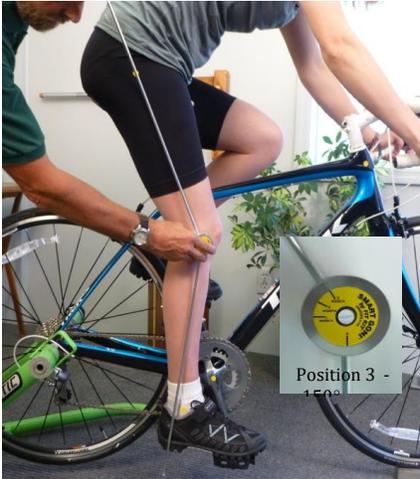


Position 2:

With the crank arm parallel to the ground, or the 3 o'clock position with the foot level, the angle formed by the femur (thigh) and the lower leg should be approx. 120 degrees. When the lower extension of the Goniometer is positioned through the center of the anklebone, and hinge on the knee, observe the upper extension of the Goniometer to see where it lies in relation to the the center of the head of the trochanter.



If the arm is above the dot, the saddle may need to be raised. As it is raised, it is also comes forward. If the arm extension is below the center of the head of the trochanter, the saddle may need to be lowered. As it is lowered, it travels back.



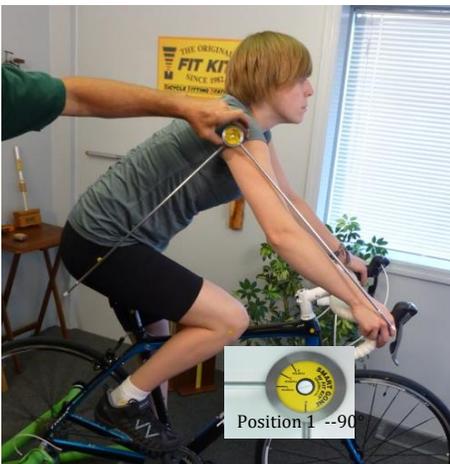
Position 3:
 With the crank arm at the bottom of the stroke, and the foot level, the angle formed by the femur (thigh) and the lower leg should be approx. 150 degrees, (this will allow a slight bend in the knee)



The objective is to position the saddle so that all 3 positions look acceptable. This tool is intended to help prevent problems, more so than diagnose knee or saddle position issues.

Upper Body Position:

Smart Goni **Position 1** (approx. 90 degrees.)



The Smart Goniometer can also be used to quickly check the upper body position, which affects the rider's reach and drop to the bars.

With the hands on the brake hoods, place the center of the Smart Goniometer on the shoulder and one extension passing through the hip, (trochanter). The other extension should pass generally through the rider's first knuckle. Riding style and flexibility are the main determining factors in reach and drop to the bars.

This procedure should be used as a guideline only.