

Rider Prescription for Foot/Pedal Interface issues

According to some research studies approximately 85% of cyclists would benefit from using some form of varus wedge, either for use with one foot or both feet. Plastic varus / valgus wedges come in two types. These are; Specialized BG In-Shoe Wedges, sometimes called BG shims (Figure 1a) and Cleat Wedges (Figure 1b).



Figure 1a
Specialized In-Shoe BG Wedges

Both types of varus wedges are designed to cant (tilt) the foot, thereby address any malignment of the lower-limb and foot. These simple wedges improve pedalling symmetry, which, in turn, can dramatically improve your pedalling efficiency. Thus, improve your power output and reduce the risk of overuse injury. The vast majority of cyclists require 'Varus' wedges (thick part placed under the big-toe). Valgus wedges fit under the little toe.



Figure 1b
Cleat Wedges shown in position

Benefits

Wedges cant the foot, and in doing so, optimise biomechanical foot/knee/hip alignment. During a 25 mile time trial, a rider may average up to 5,000 pedal revolutions. The smallest amount of malalignment in the lower-limb / foot, can lead to knee and pelvic problems, and more importantly, reduced power output. In most cyclists, the foot tends to collapse inwards under high pedal loads. This causes the knee to rotate internally, and to move inwards towards the top-tube during the downstroke of pedalling – see figure 2a. This abnormal knee motion is more apparent during intense work efforts. Abnormal knee motion not only results in wasted energy which means power loss (red arrow A). Malalignment is responsible for transferring abnormal stresses upwards into the lower-back and pelvic region. These abnormal stresses often lead to pelvic disruption, pelvic asymmetry. As such, the rider will appear twisted in the saddle. Figure 2b shows the correcting effect of using a **varus** wedge. The foot is supported and prevented from collapsing inwards. Consequently, the knee alignment is corrected, thus, the knee moves up and down in a vertical plane throughout the pedal revolution.

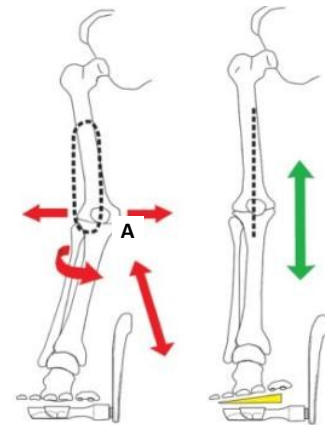


Figure 2a

Figure 2b

Prescription (suggested):

Patient Name:	John North	Date:	9th Jan. 2012
Cycling Shoe	Non-Specialized BG shoes / Specialized BG shoes with SPD cleat		
	Right Shoe	Left Shoe	
Number of Cleat Wedges	Varus / Valgus	1 Varus / Valgus	
Number of In-Shoe BG Wedge	1-2 Varus / Valgus	1-2 Varus / Valgus	
VV1 MTB Cleat required	YES	YES	

Sources

Specialized In-Shoe BG wedges – come in packs containing about 6 wedges per pack, available in different shoe sizes, and can be purchased for approximately £15 from: <http://www.xxxxxxxxxxxxxxxxxxxxxxxxxxxxx>

Cleat Wedges – can be purchased in packs containing 8 wedges. These are available in 2 hole, 3 hole and 4 hole designs to suit different pedal systems, and can be purchased for £21: <http://www.xxxxxxxxxxxxxxxxxxxxxxxxxxxxx>

VV1 MTB Cleat – for use with SPD pedals in place of plastic wedges. Each cleat has a 1 degree tilt ground in to provide Varus or Valgus tilt. Available from:

<http://www.xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>

Key Points

1. When using Specialized BG shoes, one less cleat wedge is required. This is because the Specialized BG shoe has the equivalent of one '*varus*' wedge built into the sole of the shoe.
2. Use '*Cleat-Wedges*' as the main wedge to control pronation.
3. Use '*In-Shoe BG Wedges*' to fine tune thereafter. These can be easily inserted and removed from the shoe during a training ride. They can be used either varus or valgus to increase or reduce control.
4. '*VV1 MTB Cleats*' (below) are used specifically with SPD pedals. The wedge is ground into the steel cleat, thus, in most cases negates the need for plastic wedges.