

# Cycle Clips



## Introduction to cycling and effective Bikefit (Part two)

In the second instalment of his introductory article examining cycling and effective bikefit; Nicholas Dinsdale, Bikefit expert and graduate sports therapist (Member of The Society of Sports Therapists) will be examining the individual elements that make up an effective assessment.

### Bikefit considerations

From the conception of the bicycle in the 19th century through to the modern-day carbon cycle, cycling has been a marriage between an adaptable human body and an adaptable machine. The rider makes contact with the cycle at three points; handlebars saddle and pedals (foot/pedal interface). Optimum settings at these three points, with respect to each cycling discipline, will help optimise pedalling efficiency, power output, and comfort - with less injury.

### Bikefit should be specific to your chosen discipline

Many Bike-fitters fail to provide a bikefit specific to the chosen discipline. Thus, they deliver a generic bikefit - which may be beneficial but not necessarily optimum for your chosen discipline. Therefore, if seeking a professional bikefit...make sure the provider is capable of delivering a fit which is specific to your chosen discipline.

### Foot/Pedal Interface - cornerstone to effective bike-fitting

The foot/pedal interface is arguably the foundation and 'cornerstone' to effective Bikefit and should represent the starting point of the fit process. The foot/pedal interface comprises: limb alignment, foot alignment, shoe design, shoe insert, pedal system with accompanying float, and cleat position in five separate directions.

Cycling is very repetitive; during one hour of cycling, a rider may average up to 5,000 pedal revolutions. The slightest amount of anatomic misalignment at the foot/pedal interface, can lead to injury, reduced performance and pain. The foot/pedal interface, often ignored by many bike-fitters, is the mechanical link between the leg and the cycle. Less than 5% of cyclists have a perfect foot position when placed on the pedal (foot/pedal interface). Moreover, the structure and function of the foot dictate how effectively pedal forces are transmitted via the foot/pedal interface down to the cranks, and potentially, how deleterious

(harmful) forces are transmitted up the kinetic-chain - impacting on the knee, hip, pelvis, lower back and neck.

### Saddle position

Correct saddle position is a crucial and fundamental adjustment for optimal performance



Matthew Bottrill

and to minimise risk of developing knee injuries from overuse. Adjustments in saddle height serve to enable the muscles to work optimally in the longitudinal reach; and crucially there is only one optimum saddle height for each of us - but this can and does vary for different cycling disciplines. The correct saddle

position enables the rider to generate efficient power, whereas the foot/pedal interface dictates how efficiently the power is transferred to the rear wheel.

### Musculoskeletal Screening (Pre-Bikefit Screening)

Pre-Bikefit 'musculoskeletal screening' is frequently neglected, undervalued or simply misunderstood by cyclists and bike-fitters alike. Although musculoskeletal screening should be a logical component of the Bikefit process, few Bike-fitters provide this essential service component, which ideally should be performed by qualified clinicians. Pre-Bikefit musculoskeletal screening is designed to complement and enhance the Bike-fitting process (enhance the marriage between an adaptable human body and an adaptable machine).

The purpose of pre-screening the cyclist is to identify potential musculoskeletal deficits/problems that are prevalent in many cyclists. The findings are then incorporated into the subsequent Bikefit to optimise the process, which is specific to the individual cyclist. Club level cyclists and/or older cyclists are likely to benefit the most from pre-screening. They are more likely to have lower-limb/foot misalignment problems, and especially older cyclists, while having similar limb and foot misalignment problems, are more likely to have degenerative changes in lower-limb joints, which can disrupt normal pedalling. Previous fractures of the leg and even factors such as hip replacements in older cyclists commonly alter leg-lengths, which in turn, disrupt normal pedalling biomechanics.

### Marginal gains - opportunity

The concept and importance of marginal-gains have been well defined by Sky Pro-Cycling team director David Brailsford: "Marginal-gains can represent the difference between success

and failure."

For the most competitive cyclists, an effective and specific Bikefit which incorporates musculoskeletal screening and addresses the foot/pedal interface can provide those elusive but sought after 'marginal-gains'.

### Summary

An effective Bikefit package should include comprehensive musculoskeletal screening, ideally performed by an appropriately qualified clinician with cycling specific knowledge. The subsequent Bikefit should incorporate the above findings to address any musculoskeletal deficits/problems. If necessary, a personalised rehabilitation programme with stretching and strengthening exercises should also be provided. The Bikefit should start by addressing the foot/pedal interface, which incidentally takes most of the time allocation. Thereafter, the saddle and reach position should be optimised with respect to the specific (chosen) cycling discipline.

### A recent success

In January 2013, Whitwick born cyclist Matthew Bottrill (Drag2ero) approached Nick Dinsdale (NJD Sports Injury Clinic) for a full musculoskeletal screening and Bikefit.

Bottrill was advised by his coach to contact Nick for a full check-up, especially because he had been suffering from a niggling knee problem.

After the Screening and Bikefit, Bottrill reported an improvement in pedalling efficiency and power with improved symmetry.

Nick also agreed to supply/sponsor Bottrill with special Cycling Inserts.

On Sunday June 23, Matthew Bottrill finally won gold in the 50 mile national time trial championship to add to his silver medals in the national 10 mile and 25 mile championships.

This was a remarkable performance considering he had only three days recovery after taking the silver medal in the British professional time trial championships, won by grand tour stage winner (Giro 2013) Alex Dowsett (Movistar).

## Quesada to the Guardamar castle via the Canal Road

This week we have a gentle 20-kilometre ride that should take a leisurely three hours to complete.

Route designer Gary Routledge from Cyclogical in Quesada said that this is a nice, short route that is perfect for an early summer morning.

From the arches in Quesada cycle straight up the main street - Calle Las Naciones - passing the bar/restaurant with the same name, past the Patagonia Steak House and keep cycling for around one km until you come to a sharp bend to the right that heads to the shops at Doña Pepa.

After this bend take the second on the left (this is the canal road) follow it past the exits for Pueblo Bravo and Lo Pepin until you come to a no-entry sign which says camino/canal road.

Follow this road for a couple of kilometres until you come to a junction and turn left. You now have a

great downhill cycle for another couple of kilometres. At the end of this road you join the back road to Rojales (which is a nice road for the return journey).

Turn right at the next junction - the road runs parallel to the N332 - until the roundabout and go straight across.

You should now see the castle - cycle uphill towards it until you come to the road that goes directly there. Take this

road and cycle up as far as you can.

Lock your cycles somewhere secure and walk around enjoying the fantastic views. From this point you can make your way home by following the same route, or take the back road to Rojales or follow the river.

It is not advisable to cycle back along the N332 due to the amount of traffic.



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Members of The Society of Sports Therapists

We specialise in working with Cyclists

- Musculoskeletal Screening of Cyclists (unique)
- Bikefit (specific to cycling discipline)
- Rehabilitation programme for cyclists
- Prevention & Management of Sports Injuries

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