

## **Purpose**

To provide an indication of posture positions in relation to the bike being used within the Deakin RIOT lab to inform model dynamics.

## **Details**

Three different poses have been documented:

1. Standard position
2. Slight tuck position
3. Aero position

Key physical features of the riders:

1. Hip
2. Knee
3. Metatarsal ('front ball of the foot')
4. Head (atypical position due to varying lengths of upper torso).

Key Angles:

1. The 'ground level' has an angle of ZERO degrees.
2. When the crank arm is position parallel to the ground level, the knee should track over the ball of foot/pedal.
3. Back position – the spine should be in a neutral position, not bent, essentially straight. The diagram details the angle of the back at an estimated 25 degrees; however, the seat height will impact the angle of the spine. Generally, when the angle of the spine is  $\geq 25$  degrees, this means the rider is in a 'standard' position. Anything less than 25 degrees, means the rider is beginning to 'tuck' into a more aerodynamic position (to increase speed)
4. When in an aero position, the rider typically will shift the hips forward and the angle of the spine will reduce; The head position of the rider will be atypical due to the varying length of a rider's upper torso. Also, the knee will track in front of the ball of the foot/pedal.

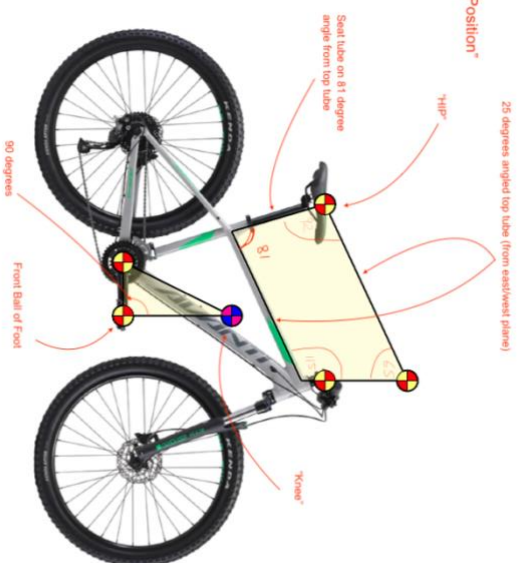
## **Bike Information**

Assuming a small or medium frame is being used. Refer to attachments.

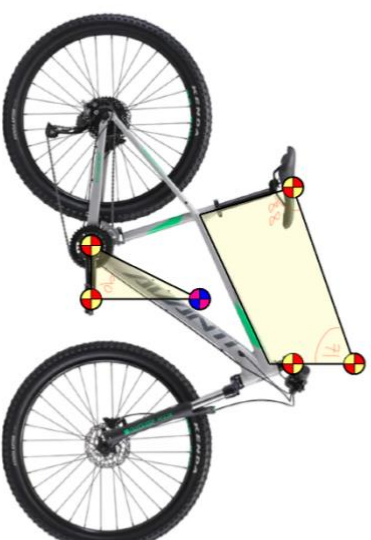
## **Posture Information**

Posture information cited from de Vey Mestdagh (1998) study focusing on optimum cycling posture.

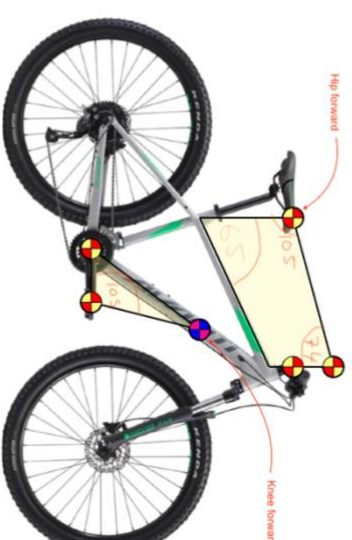
### 1. "Standard Position"



### 2. "Slight tuck"



### 3. "Aero"



## **References**

DE VEY MESTDAGH, K. 1998. Personal perspective: in search of an optimum cycling posture. *Applied Ergonomics*, 29, 325-334.

# MONTARI 2 MOUNTAIN BIKE



## SPECIFICATIONS

Category	MTB
Family	Sport MTB
Model	Montari 2 Mountain Bike
Sizes	S, M, L, XL, XXL
Colour	Grey, Matt Titanium / Orange
Frame	ADT 6061 Formtech Alloy, Replaceable Hanger, internal brake cable
Fork	SR Suntour XCT30, 100mm Travel, Lock-out
Front Derailleur	Shimano Altus
Rear Derailleur	Shimano Altus 9sp Shadow
Shifters	Shimano Altus 18sp
Crankset	Shimano MT101 36/22T
Brakes	Shimano MT200 Hydraulic Disc, 160mm Rotors
Brake Levers	Shimano MT200 Hydraulic
Wheelset / Rims	Weinmann XRD28 Double-wall Alloy 32H
Hubs	Shimano TX505 Alloy Centrelock Cassette 32H
Spokes	Stainless Steel

GEOMETRY		XS	S	M	L	XL	XXL
1	Seat Tube Length (C-Top)	360	400	445	480	525	565
2	Horizontal Top Tube Length	555	570	590	605	620	625
3	Standover Height	722	738	763	784	814	843
4	Head Tube Length	110	115	125	125	135	145
5	Head Angle	69.5	69.5	70	71	71	71.5
6	Seat Angle	73.3	73.5	73.5	73.5	73.5	73
7	BB Drop	55	52	52	70	70	70
8	Chainstay Length	433	433	433	443	443	443
9	Wheelbase	1055	1072	1087	1098	1114	1107
The following are not displayed.							
	Fork Offset	42	42	42	46	46	46
	Stem Length	60	60	75	75	90	90
	Crank Length	170	170	175	175	175	175
	Wheel Diameter	27.5	27.5	27.5	29	29	29



Cassette	Shimano HG200 Cassette, 11-36T, 9sp
Handlebar	Alloy 31.8 with 9deg back sweep and 12mm riser, S=660mm, M-XXL=680mm
Handlebar Stem	Zero 31.8mm Alloy Ahead, 6 deg
Headset	Semi-Integrated Aheadset 1-1/8"
Grips	Zero Strike Dual Compound
Pedals	Nylon platform with ball bearings
Tyres	Kenda Aptor 27.5x2.20 or 29x2.20" MTB tyre with AV tube
Saddle	Zero Zealth Sport
Seat Post	Zero Alloy 27.2mm
Bottom Bracket	Cartridge
Chain	KMC Z-9