Junior Development Programme

Carnegie Caulfield Cycling Club

3. Which gear combinations give the junior rollouts?

This is the $64 question which cannot be answered precisely. Junior riders should be able to tell you why from their maths classes. The rollout is a mathematical relationship between the relative size of the chainwheel (front) and cogs (rear), and the circumference of the wheel. While the relative size of the front and rear gears is reasonably fixed for given numbers of teeth, the circumference of wheels is surprisingly different and is largely dependent not only on the size of the wheel (e.g. 700C for most road bikes, 650C for junior and triathlon/ time-trial bikes) but also the tyre that is fitted.

For instance, a 23mm width tyre has a higher profile (and therefore greater circumference) than a 20mm tyre. But tyres by different manufacturers, even though they are for the same size wheel (e.g. 700C) will have different profiles (and circumferences).

Therefore, the only accurate way of measuring this is to roll the bike out along a tape measure.

However, *as an indication only*, we have provided below a chart showing common combinations that will get you pretty close to the correct junior rollouts. ***You must however check by measurement whether your tyre/wheel combination actually produces the result shown***.

	Age Group	**<U13**	**U15**	**U17**	**U19**	
	Rollout (m)	**5.50**	**6.00**	**6.50**	**7.93**	
	Chainwheel (no. teeth)	Rear Cog (no. teeth)	Rear Cog (no. teeth)	Rear Cog (no. teeth)	Rear Cog (no. teeth)	
	36	14, 15	13	12,13	11	
	39	16	14,15	13	11	
	42	17	15,16	14	12	
	44	18	16	14	12,13	
	48	N/A	18	16	14	
	50	N/A	18	17	14	
	52	N/A	N/A	18	15	
	53	N/A	N/A	18	15	
Note:	Where two rear cog sizes are given, the smaller one is very close to the limit and may breach the rollout with certain tyres. In any event, ***always*** measure the bike for rollout to ensure compliance Above combinations based on 700C wheel with a 23mm tyre					

If the combinations shown in the table go slightly over the rollout limit, try lower profile (i.e. thinner) tyres. For example, the difference between a 23mm tyre and a 20mm tyre on a 44x17 combination can be 6cm!

If you have different wheel or tyre sizes, Cycling Australia have a very useful dynamic calculator where you can enter the diameter of your wheel/tyre combination and it will calculate the rollout. Here is the link:
http://www.cycling.org.au/Content/NavigationMenu/SportDevelopment/Coaching/Gear_Chart/Rolloutmm.xls