

# Energy balance at the Tour de France

Tour de France riders burn up to 10,000 calories during a 180km-plus stage of the race – often including punishing hill climbs – so it is essential that they obtain the carbohydrates needed to maintain a good energy balance and avoid the dreaded “bonk”, or hypoglycaemia, when the body’s fuel supply runs out

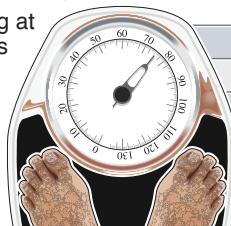
## ENERGY REQUIREMENT

Professional cyclist with resting heart rate of around 30-40 beats per minute has

**Resting Metabolic Rate (RMR)** – energy required just to sit still – of 1,500 calories per day

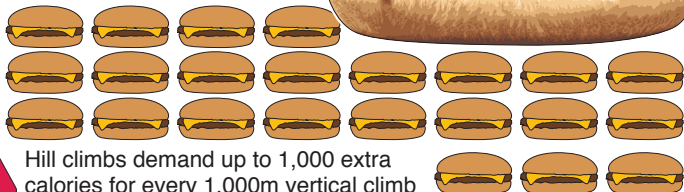
Glycogen deposits sufficient for 1-2 hours exercise

Cyclist travelling at 25km/h requires around 0.3-0.4 calories per km for each kg of body mass



Weight	Calories per km
65kg	19.5 – 26.0
70kg	21.0 – 28.0
75kg	22.5 – 30.0
80kg	24.0 – 32.0
85kg	25.5 – 34.0

75kg rider on 180km stage needs at least 4,000 calories + 1,500 calories RMR  
**Total 5,500 calories**  
**Equivalent to about 20 cheeseburgers per day!**



Hill climbs demand up to 1,000 extra calories for every 1,000m vertical climb

## COMPARING ENERGY EFFICIENCY

If cyclists could drink petrol...

Distance per litre (at 40km/h\*)

Tour de France cyclist

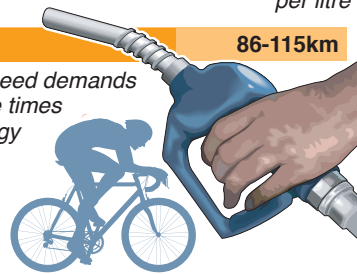
Fiat 500

22km

\*Higher speed demands up to three times more energy

86-115km

Unleaded petrol contains almost 7,750 calories per litre



Riders consume up to 50% of required carbohydrates while on road – about 30% as liquid or gel