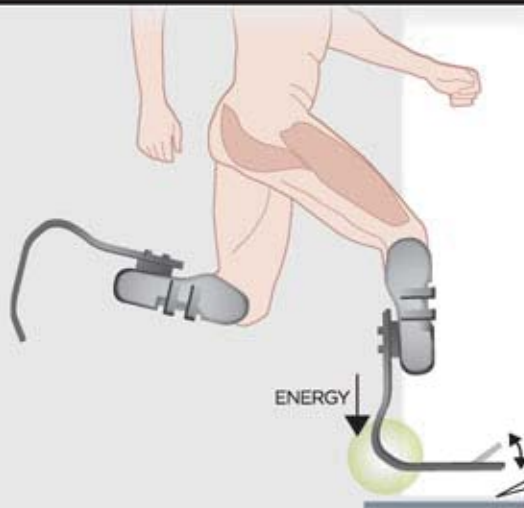


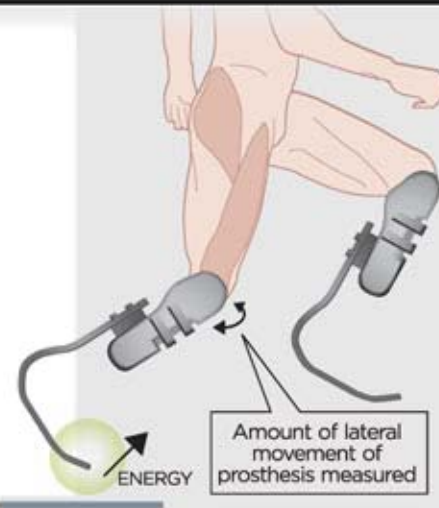
# How the Cheetah blades measure up

Oscar Pistorius was tested over two days in Cologne last week alongside six 400 metres runners of similar ability (ie with times around Oscar's personal best of 46.34sec to determine whether his "Cheetah" blades give him a mechanical advantage over runners with normal limbs. One of the key tests involved Pistorius running over a force plate, with 12 infrared motion control tracking cameras and four high speed cameras, allowing detailed two-dimensional and three-dimensional analysis of his stride



## Stage 1

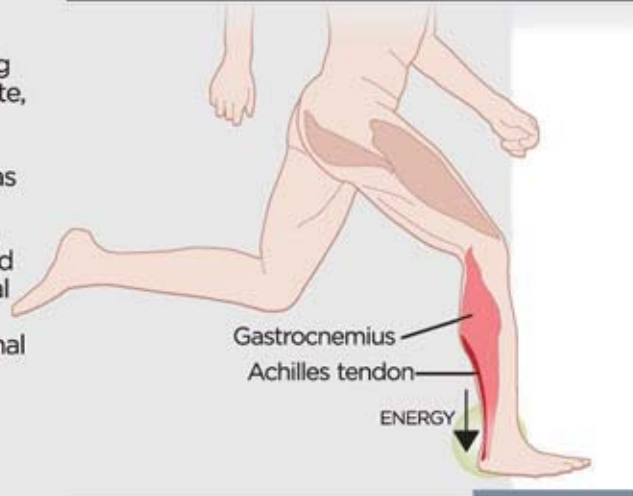
The heel-less "foot" of the blade lands and deflects, loading energy from the stride. The blade absorbs much of the shock, but the knee-joint, upper leg and back must compensate. With no ankle they must also give stability to reduce energy loss



## Stage 2

Like a spring the Cheetah "toe" releases energy. The degree and rate of deflection and release - ie the degree of spring - will be a key piece of data in determining whether the blades give Pistorius an advantage over able-bodied athletes

## The Cheetah



The leg lands and loads energy. A sprinter must absorb about four times his own bodyweight in each landing. The Achilles tendon performs the role of the Cheetah, absorbing the impact and storing energy. The runner has to brace his ankle and run on his toes as much as possible



Through the stride, the gastrocnemius (major muscle at the back of the calf) fires, giving the Achilles more energy. Then the major muscles that produce a sprinter's speed take over - the gluteus maximus (backside) and quadriceps (thighs). Energy loss in each stride for a sprinter (from loading to release) is typically between 25-30%

## Natural leg