

PEDALLING AWAY THE YEARS SAFELY

Older cyclists more prone to accidents but that shouldn't deter them from riding

Cycling is ideal for the over-50 crowd looking for a workout that's easy on the joints but challenging enough to keep the heart, lungs and legs in great shape. That doesn't mean older cyclists are naturals on a bike. A study out of the Netherlands reported that cyclists over the age of 55 have more single-sided bike accidents (accidents that involve the cyclist only) than their younger counterparts.



PETER MCCABE/MONTREAL GAZETTE FILES A study out of the Netherlands reported that cyclists over the age of 55 had more accidents not involving other riders than younger age groups due to slower reaction time and less flexibility, but the benefits of being physically active as we age outweigh the risks, the study concludes.

Admittedly, the study was done in the Netherlands where there are more bikes than residents and it's not uncommon to see cyclists of all ages negotiating the streets of their cities and towns.

But with our aging society encouraged to be active, an investigation into the cycling characteristics of older riders could help reduce the risk of falls and injury and make cycling safer and more enjoyable as the years add up. Hence the decision by Dutch researchers to take a look at the differences between how older and younger cyclists control their bike when the unexpected happens.

It's not a mystery that balance is the key to staying upright on a bike, but given the physiological changes that occur with age, it's worth exploring the cycling mechanics of the young and not so young. So while older cyclists are likely to react slower than younger cyclists, there's little known about whether the loss of muscle and flexibility — that are also a function of age — are a factor in their increased accident risk.

To explore the differences between younger and older cyclists, the Danish researchers created a unique setup in their lab. The front wheel of a TrekL200 city bike, equipped with a straight handle bar, was positioned on a treadmill with the rear wheel on a set of bike-training rollers.

The objective was for the front wheel to have a feel similar to that of road conditions so that the cyclists' response to changes in speed and equilibrium would elicit as natural as possible a reaction. Thirty subjects, half of which were in their mid-20s and half age 54 to 62, familiarized themselves with the lab setup before being outfitted with reflective markers as part of a 3D motion-capture system.

The study protocol involved cycling at variable but imposed speeds with changes in stability so that steering and other pre-emptive responses, including trunk and lower body movements, could be monitored.

Right off the bat the older cyclists had difficulty in the lab setting. They needed more time to become familiar with the setup and found cycling at lower speeds more challenging than the younger cyclists, which warranted adjustments to the lab protocols for the more mature group.

The older cyclists also deviated more often from the prescribed speeds which the researchers suggests is due to an increased difficulty in managing more than one task while on a bike. Younger cyclists demonstrated better proficiency when combining cognitive and physical tasks, a dual role that is key to safe cycling when sharing the road with vehicles and responding to changing road conditions.

Other mechanical differences between those in their 20s and 50s were also noted — including a more outward knee movement and more pronounced changes in steering angles and steering power among the 50-plus cyclists when balance was challenged.

As for the younger cyclists, they were more inclined to use their core (increased side-to-side movement in the trunk) to right their bike, while the older squad did so only at certain speeds. This difference in technique implies that age is associated with less flexibility in the core; it may also explain why older cyclists use their knees and more aggressive steering adjustments to check their balance while on two wheels.

“The results suggest that older adults need more effort to counteract the perturbations (especially at high frequencies) and they rely on different balance strategies compared to young adults,” said the Danish research team.

Not all cyclists approaching their golden years exhibit the same set of cycling behaviours. In fact, there was more variability in the performance of the older group of subjects than in the young adults, which suggests that age-related changes in cycling don't hit at a one specific time in life and are more pronounced in some than in others.