Differences between male and female cyclists' performances under the acute influence of alcohol

It is well-known that the average man and the average woman possess different performances, which can depend on the demanded task or physical peculiarities, e.g. average body fat resp. muscle mass or average height. If one takes a look at the list of athletic sport's world records one can gain the impression that men are generally higher physically performing than women. Cycling's records do not make an exception to this impression.

However gender-specific differences are much lesser evident when the task is not mainly based on physical efforts, e.g. when examining memory tasks or tasks regarding divided attention. And the issue becomes even more complicated if these tasks are to be carried out under the influence of alcohol.

While trying to determine the threshold for the absolute inability to ride a bicycle, 78 test subjects (37 females, 41 males) were allowed to drink alcohol until their personal limit. Before the alcohol consumption started and at each assumed step of around 0.3 g/kg blood alcohol level (BAL) the test persons were asked to complete a complex cycling course and accompanying general medical and ophthalmological tests. Of course, due to the lower body weight and the relatively higher percentage of body fat an average woman needs to consume a lesser amount of alcohol than an average man to achieve the same BAL. The data was not only evaluated for all test persons but also gender separated. Some remarkable differences could be observed.

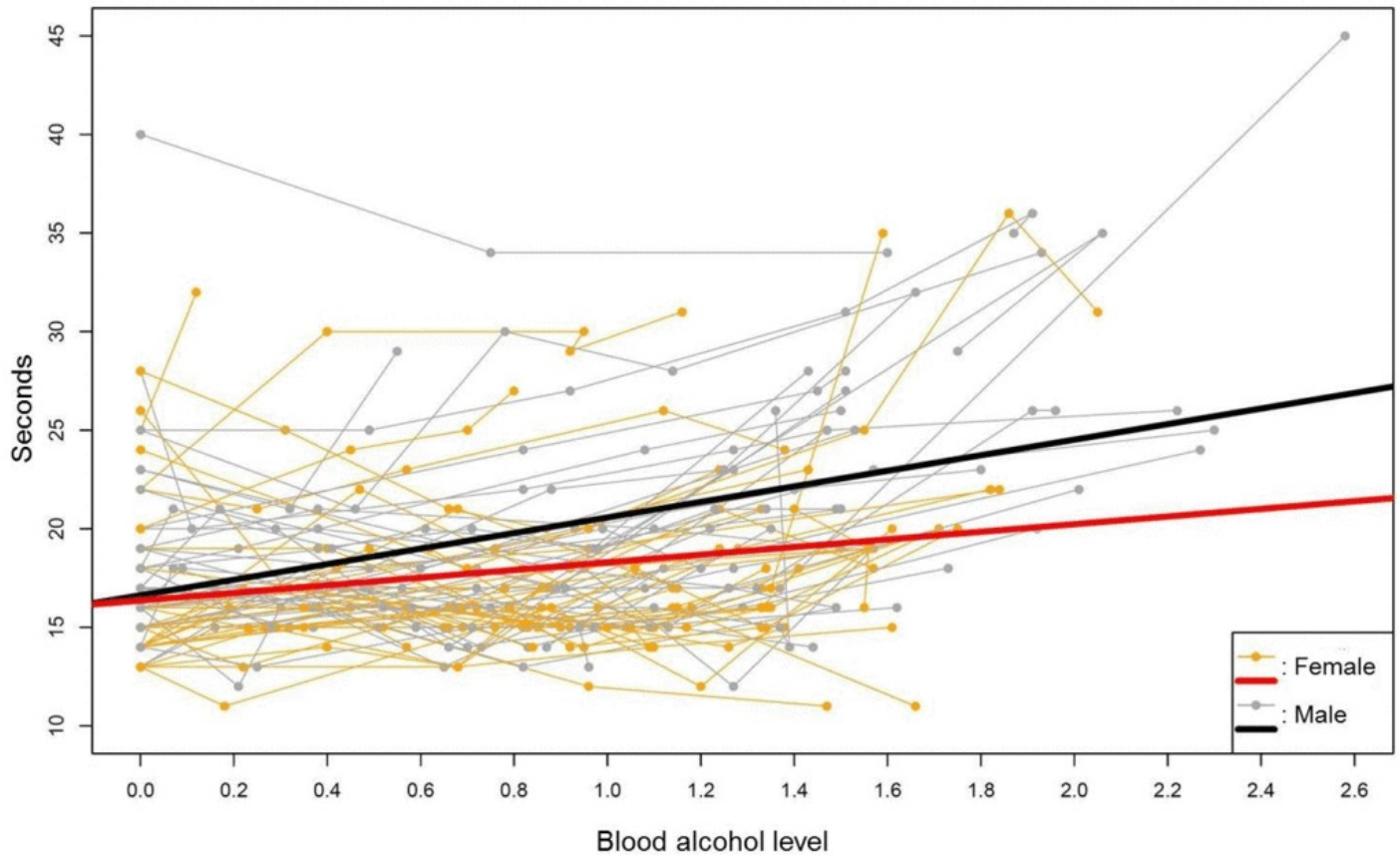

Fig. 1. Time needed to read out a text of 50 words

For instance, male test subjects gained less demerits from cycling faults than the female ones, both in the state of sobriety and when alcoholised under comparable BAL. Under alcoholisation women exhibited disturbed functions earlier than men and could therefore be identified as alcoholised faster in the medical examination reports. The gender-specific differences became most apparent when looking at the overall performance, which included the performance of the general medical examination, and the cycling performance: no man was able to achieve his sober overall performance at BAL of at least 1.4 g/kg, while no woman could achieve her sober overall performance at BALs as low as 0.8 g/kg. Additionally six men, but no woman, were able to ride their bicycles almost unremarkful under the influence of very high BALs above 1.6 g/kg. However women beat men both in the state of sobriety and under the influence of alcohol when the task was to read out a text of 50 words as fast as possible (Fig. 1).

Concludingly, the physical advantages of men in comparison to women increase under the influence of alcohol as well as women's leading position becomes unchallenged when the task is reading.

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