

Paralympic guide running: making the sense of sensor-based technologies

Valentina Presta Alessandro Guarnieri (1) , Prisco Mirandola (2), Marco Vitale (3)

- (1) University of Parma, Department of Medicine and Surgery, Ph.D., Via Gramsci, 14 - 43126 Parma (Italy)
(2) University of Parma, Department of Medicine and Surgery
(3) University of Parma, Department of Medicine and Surgery
University of Parma, Department of Medicine and Surgery

Type of Contribution:

Age Range High School, Adult, Older Adult

Population Visual Impairment

Physical Activity Visual Impairment

Session Activity Research Presentation (20 minutes)

The guide running is a unique dyad in sport activities involving visually impaired or blind individuals with non-disabled ones. The blind runner can optionally run with the sighted guide in different types of races (from marathon to sprinting activities), and they are linked together with a tether during the side-by-side running, resulting in a “co-running”. Running techniques are widely studied in literature by using inertial and wearable systems; however, scarce attention has been dedicated to the co-running performance evaluation by such technologies. Therefore, we asked if it was sufficient data to hypothesize the usefulness of sensor-based technologies in visually impaired athletes during the co-running. We explored the existing literature trying to identify the current use of technological systems in visual impairment and/or blind athletes, potentially transferable to the co-running. Current research is substantially dedicated to i) external guiding systems (i.e., real-time locating system, electromagnetic sensors, drones, auditory and vibrotactile navigation systems, etc.) possibly connected with ii) wearable markers. Both the visually impaired or blind athlete and the guide can be monitored with the aforementioned systems; however, only few of these systems were used to evaluate the synchronous relationship during guide running and the co-running performance. Furthermore, the current technological systems and sensors seems to have the primary aim to facilitate the blind or visually impaired runner regardless the sighted guide. Therefore, there is a lack of information on the guide performance and on her/his speed of adaptation to the running modification of the blind or visually impaired runner, which is a primary condition for a successful co-running. At the same time, it could be recommended to further investigate and improve the co-running performance - also starting from the co-training - with the objective measurement of wearable markers.