

Editorial

# Special Issue: Movement Biomechanics and Motor Control

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When Applied Science invited me to organize a Special Issue on Movement Biomechanics and Motor Control, more than one year ago, I was surprised, but also flattered by the invitation. Actually, Movement Biomechanics and Motor Control was the name of my laboratory at Politecnico di Milano. The name comes from the intense activity we developed in this field many years ago, mainly thanks to my great friend Prof. Paolo Crenna, who passed away prematurely. I started contacting old friends, Prof. Marco Schieppati in particular, who suggested a number of outstanding researchers to me and accepted to work on the excellent review that you can see published in the present issue [1]. I was impressed by the warm responsiveness of most authors who accepted to contribute with their original papers. As I supposed, some of the contacted persons already had a plan of publication, but some of them accepted to change it in favor of this Special Issue. This was a sign of the interest of this topic, which is really multifaceted and still has wide areas that are worth investigating. This special issue provides a demonstration of this. The papers collected deal with anticipatory postural adjustments [2] and anticipatory locomotor adjustments [3], strategies to tackle obstacles [2–4], the effects of weight unloading on gait [5], posture control in special populations: ataxic children [6] and obese subjects [7], surface perturbation during posture [8], effects of sensory information and feedback on postural control [9,10], elderly behavior during a motor-motor double task [11], upper limb control [12,13], different aspects related to running: ankle joint dynamic stiffness [14] and fatigue [15]. There is also a flash on an ecologic condition where a pedestrian has to program its strategy to cross a road in between two moving vehicles [16], and a study on visual-manual control in monkeys [17].

While selecting the contributions I tried to comply with the main inspiration of this special issue, that was not biomechanics alone (an extremely wide area), nor motor control alone (extremely wide as well), but the integration between biomechanical and motor control aspects. Actually, all of the collected papers investigate motor control with a basis in more or less complicated movement biomechanics methodologies and use biomechanical concepts, so the purpose seems to have been fulfilled.

I am quite sure that such a wide spectrum of research studies offers a useful overview of the present interests and future perspectives in this area.

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## References

1. Ghai, S.; Nardone, A.; Schieppati, M. Human Balance in Response to Continuous, Predictable Translations of the Support Base: Integration of Sensory Information, Adaptation to Perturbations, and the Effect of Age, Neuropathy and Parkinson's Disease. *Appl. Sci.* **2019**, *9*, 5310. [\[CrossRef\]](#)
2. Artico, R.; Fourcade, P.; Teyssèdre, C.; Caderby, T.; Delafontaine, A.; Yiou, E. Influence of Swing-Foot Strike Pattern on Balance Control Mechanisms during Gait Initiation over an Obstacle to Be Cleared. *Appl. Sci.* **2019**, *10*, 244. [\[CrossRef\]](#)
3. Fiset, F.; McFadyen, J.B. The Switching of Trailing Limb Anticipatory Locomotor Adjustments is Uninfluenced by what the Leading Limb Does, but General Time Constraints Remain. *Appl. Sci.* **2020**, *10*, 2256. [\[CrossRef\]](#)
4. Baggen, R.J.; van Dieën, J.H.; Van Roie, E.; Verschueren, S.M.; Giarmatzis, G.; Delecluse, C.; Dominici, N. Age-Related Differences in Muscle Synergy Organization during Step Ascent at Different Heights and Directions. *Appl. Sci.* **2020**, *10*, 1987. [\[CrossRef\]](#)
5. Kabbaligere, R.; Layne, S.C. Adaptation in Gait to Body-Weight Unloading. *Appl. Sci.* **2019**, *9*, 4494. [\[CrossRef\]](#)
6. Farinelli, V.; Palmisano, C.; Marchese, S.M.; Strano, C.M.M.; D'Arrigo, S.; Pantaleoni, C.; Ardisson, A.; Nardocci, N.; Esposti, R.; Cavallari, P. Postural Control in Children with Cerebellar Ataxia. *Appl. Sci.* **2020**, *10*, 1606. [\[CrossRef\]](#)
7. Cimolin, V.; Cau, N.; Galli, M.; Capodaglio, P. Balance Control in Obese Subjects during Quiet Stance: A State-of-the Art. *Appl. Sci.* **2020**, *10*, 1842. [\[CrossRef\]](#)
8. Ramli, F.N.M.; Dzahir, A.M.M.; Yamamoto, S.-I. Estimation of Transition Frequency during Continuous Translation Surface Perturbation. *Appl. Sci.* **2019**, *9*, 4891. [\[CrossRef\]](#)
9. Sotirakis, H.; Hatzitaki, V.; Munoz-Martel, V.; Mademli, L.; Arampatzis, A. Center of Pressure Feedback Modulates the Entrainment of Voluntary Sway to the Motion of a Visual Target. *Appl. Sci.* **2019**, *9*, 3952. [\[CrossRef\]](#)
10. Misiaszek, E.J.; Chodan, D.C.S.; McMahon, J.A.; Fenrich, K.K. Influence of Pairing Startling Acoustic Stimuli with Postural Responses Induced by Light Touch Displacement. *Appl. Sci.* **2020**, *10*, 382. [\[CrossRef\]](#)
11. Lee, Y.-J.; Liang, N.J.; Wen, Y.-T. Characteristics of Postural Muscle Activity in Response to A Motor-Motor Task in Elderly. *Appl. Sci.* **2019**, *9*, 4319. [\[CrossRef\]](#)
12. Choi, W.; Lee, J.; Li, L. Analysis of Three-Dimensional Circular Tracking Movements Based on Temporo-Spatial Parameters in Polar Coordinates. *Appl. Sci.* **2020**, *10*, 621. [\[CrossRef\]](#)
13. Fehse, U.; Schmitz, G.; Hartwig, D.; Ghai, S.; Brock, H.; Effenberg, O.A. Auditory Coding of Reaching Space. *Appl. Sci.* **2020**, *10*, 429. [\[CrossRef\]](#)
14. Garofolini, A.; Taylor, S.; McLaughlin, P.; Mickle, J.K.; Frigo, A.C. Ankle Joint Dynamic Stiffness in Long-Distance Runners: Effect of Foot Strike and Shoes Features. *Appl. Sci.* **2019**, *9*, 4100. [\[CrossRef\]](#)
15. Luo, Z.; Zhang, X.; Wang, J.; Yang, Y.; Xu, Y.; Fu, W. Changes in Ground Reaction Forces, Joint Mechanics, and Stiffness during Treadmill Running to Fatigue. *Appl. Sci.* **2019**, *9*, 5493. [\[CrossRef\]](#)
16. Kim, H.S.; Kim, W.J.; Chung, H.-C.; Choi, G.-J.; Choi, M. Behavioral Dynamics of Pedestrians Crossing between Two Moving Vehicles. *Appl. Sci.* **2020**, *10*, 859. [\[CrossRef\]](#)
17. Sakazume, Y.; Furubayashi, S.; Miyashita, E. Functional Roles of Saccades for a Hand Movement. *Appl. Sci.* **2020**, *10*, 3066. [\[CrossRef\]](#)



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