

Editorial

Welcome to the New Open Access *Journal of Functional Morphology and Kinesiology*

Giuseppe Musumeci

Department of Biomedical and Biotechnological Sciences, Human Anatomy and Histology Section,
School of Medicine, University of Catania, Via S. Sofia 87, 95123 Catania, Italy;
E-Mail: g.musumeci@unict.it; Tel.: +39-095-378-2043; Fax: +39-095-378-2046

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With sincere satisfaction and pride, I present to you the new *Journal of Functional Morphology and Kinesiology* for which I am pleased to serve as Editor-in-Chief. I know it is a very challenging task to assume the editorial coordination of an international journal targeted to enhance the work of so many esteemed international experts and dear colleagues working on morphological and kinesiological research.

To date there have been several scientific international journals present in the literature on morphology, biomechanics, kinesiology, rehabilitation, movement and sports, but there is no journal that includes all of these fields and focuses its main attention on the morphology correlation between the musculoskeletal system and movement. The application of basic morphological sciences could add new insight to understand and develop knowledge about movement in the musculoskeletal system in both normal and pathological conditions, studying the mechanics of movement and specifically evaluating muscles, joints, and skeletal structures and their involvement in movement. For this reason, we have chosen to launch this new journal, since we believe that these fields finally deserve a dedicated journal where its broad community will be able to communicate and exchange the latest findings within a single cultural space, and to publish manuscripts that will have a high impact on the future development of the field. My aim, and that of the other editors, is that this journal will constitute a valuable tool for both learning and research, to develop as an important scientific, peer-reviewed journal that publishes original research papers, editorials, short reports, communications, critical reviews, case reports and conference proceedings. Our goal is to combine the knowledge of an ancient discipline anatomy with a modern discipline kinesiology with functional morphological study as a point of union. Since morphological study is the basis of medical sciences, this will be a multidisciplinary journal. The journal could be an interesting forum for researchers of both basic and clinical medicine to present and discuss new findings on the structural mechanisms and processes of health and disease related to aspects of morphology and kinesiology. These concepts must constitute a significant part of imprinting training,

which is necessary to help researchers to work in a more guided way, becoming increasingly more interested in a cellular/tissue approach to musculoskeletal diseases and their related physical treatments.

I would like to take this opportunity also to write a short overview of the fields of “Functional Morphology” and “Kinesiology” to help readers better understand the topics of the journal.

Functional Morphology

Functional morphology involves studying links between the framework and function of the components of an organism. The old adage “form follows function” is a guiding principle of functional morphology. The function of an organ, tissue, or other body part, dictates its form. Furthermore, the function can often be deduced from the form [1,2]. The primary duty of functional morphology is observing living organisms to appreciate how they live and function [2]. Functional morphology studies the attitude in which structures, such as muscles, tendons, and bones, can be used to produce a wide variety of different behaviors, such as moving and feeding [1]. Functional morphology takes concepts from physiology, evolution, development, anatomy and the physical sciences, and synthesizes the various ways that biological and physical factors interact in the lives of organisms. Functional morphology and biomechanics give scientists an opportunity to observe and quantify not only how animal and human skeletons and joints move and how muscles work, but also how these factors are linked to the diversity of animal and human behaviors [3]. There are two main goals for functional morphology. The first is to understand whether different body forms and physical structures (e.g., bone dimensions) match in a logical way with the functions that they appear well suited to (e.g., locomotion, feeding), and whether such matching makes sense in an evolutionary context. The second is mechanistic, namely to understand how basic functions, such as locomotion, occur by examining lower-level components, such as muscles, bones, and heart tissue [1]. There are three subfields: functional anatomy, biomechanics and evolutionary functional morphology. Functional anatomy predominated for many centuries and aimed to differentiate function from structure. While it remains today as a conceptual tool, it has largely been supplanted by direct measurements of animal and human function. Biomechanics combines the science of material properties and physics to understand animal and human movement. Finally, evolutionary functional morphology integrates principles of evolutionary theories with functional morphology. Evolutionary functional morphology has particularly prospered over recent years. The field of functional morphology has evolved from simple descriptions of external form, anatomy or movement to highly detailed empirical analyses of body movements using high-speed video (kinematics), and force plates (kinetics) [3].

Kinesiology

Kinesiology is the scientific study of human and animal movement, performance and function by applying the sciences of biomechanics, anatomy, physiology, psychology and neuroscience. It studies the mechanics of human and animal movement and specifically evaluates muscles, joints and skeletal structures, and their involvement in movement. Applications of kinesiology to human and animal health include biomechanics, orthopedics, strength and conditioning, sport psychology, methods of rehabilitation (such as physical and occupational health, and safety therapy), human motor performance, ergonomics, gait and posture, and sport and exercise [4]. The study of the physiological responses to

physical exercise and their therapeutic applications is known as exercise physiology and is an important area of research within kinesiology. This definition reflects the idea of kinesiology not just as rehabilitative, but preventative and promoting general wellness. Kinesiology places a strong emphasis on prevention and enhancement, and utilizes exercise and improved movement to achieve a better quality of life for individuals. Studies of human and animal motion include measures from motion tracking systems, electrophysiology of muscle and brain activity, various methods for monitoring physiological function, and other behavioral and cognitive research techniques [5]. Physical activity covers not just sports but also simple everyday movements, indeed, according to the World Health Organization (WHO), “any effort exerted by the muscle-skeletal system which results in a higher power consumption than that in the rest position” is classified as physical activity [6]. Adaptation through exercise is a key principle of kinesiology that relates to improved fitness in athletes as well as health and wellness in clinical populations. Exercise is a simple and established intervention for many movement disorders and musculoskeletal conditions, due to the neuroplasticity of the brain and the adaptability of the musculoskeletal system. Therapeutic exercise has been shown to improve motor control and motor capabilities in both normal and pathological populations [7,8]. There are many different types of exercise interventions that can be applied in kinesiology to athletic, normal, and clinical populations. Aerobic exercise interventions help to improve cardiovascular endurance [9,10]. Anaerobic strength training programs can increase muscular strength, power and lean body mass. Decreased risk of falls and increased neuromuscular control can be attributed to balance intervention programs. Flexibility programs can increase the functional range of motion and reduce the risk of injury. As a whole, exercise programs can reduce symptoms of depression and risk of cardiovascular and metabolic diseases. Additionally, they can help to improve quality of life, sleeping habits, immuno-system function and body composition [11,12]. Moreover, physical activity is a good way to socialize, an excellent anti-stress agent and the best aesthetic method for our body “*Mens sana in corpore sano*” [13,14]. It has been shown that there is a close correlation between motor skills, mood, attentional capacity and memory. Authors demonstrated that fitness is positively associated with higher levels of self-esteem and lower levels of anxiety, in addition to promoting a greater attention span, showing how physically active students exhibit more focus in class than sedentary students [14–16].

Conclusion

Finally, conscious of the fact that this journal can be considered a “system”, subject to the laws of evolution, we welcome criticism and suggestions for its improvement in the future and, of course, we are ready to receive high quality contributions from the scientific community. For this reason, we invite you to join us in the development and growth of this newly launched journal.

We look forward to receiving your papers, reviews and ideas for Special Issues of the *Journal of Functional Morphology and Kinesiology*.

Acknowledgements and Call for Interest

A special thanks goes to our Editorial Advisors, eminent scientists in these fields that, with their experience and important suggestions, guide us in this great enterprise; our excellent Editorial Board members whose depth of experience cover a very broad spectrum on morphology and kinesiology;

and the publishing group that, day after day, thanks to their valuable contributions, make the growth of this journal possible. Reviewing a manuscript is time-consuming and unpaid, and often reviewers are bombarded with requests to review content simultaneously from several journals. For this reason, I invite our editorial team to be scrupulous in the review process, to maintain a high standard in their role for this journal and to ensure rapid publication. I sincerely thank them in advance for offering their precious time.

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