

## Editorial

# Welcome to a New Journal

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Thanks to the movies and television, the term “forensic medicine” is fairly well understood to mean the application of *medical* knowledge to answer certain questions of civil and criminal law – like time of death, cause of death, and so on. By contrast, the term “forensic biomechanics” is relatively new to the legal industry, but it has gained in popularity during the past decade, as the general field of biomechanics has grown and matured.

Stated simply, forensic biomechanics applies biomechanical knowledge to answer certain *scientific* questions of civil and criminal law. *Note:* this field does not attempt to address the diagnosis, treatment, or medical management of any given individual. Rather, it relies on the engineering training of forensic biomechanists to understand the *mechanics (statics, dynamics, and deformability) of biological materials* – specifically, how and why they “fail” under “loading.” By “loading,” we mean “subjected to compressive or tensile forces, torques, bending moments, shearing stresses, vibration, impacts, ‘repetitive’ disturbances, ‘environmental insults,’ etc.,” by “fail,” we mean “unable to tolerate such loading without temporary or permanent, acute or chronic damage to the biological tissue(s) involved.” The key, in all cases, is to *rigorously define all terms, quantify them*, and identify a *mechanism of failure* for the types of loading under consideration. Thus, forensic biomechanics deals with subject matter such as:

- identifying work-related (or not) musculoskeletal disorders (*WMSDs*) and *meaningful*, potential “*risk factors*” for such disorders;
- *constitutive modeling* (stress-strain, stress-strain-rate behavior) of anatomic tissues;
- defining and quantifying the *envelope of human performance capabilities* – i.e., how much force, torque, velocity, acceleration, vibration, etc., the human body or various of its parts can tolerate without failing – as a function of *relevant* variables/parameters/states of health and tissue properties (such as moments of inertia);
- quantifying the deformation mechanics of biological materials and *identifying mechanisms of failure* as

they relate to both acute and degenerative anatomic/physiologic afflictions;

- modeling and analyzing *static and dynamic human performance* under a variety of conditions, such as workplace/industrial environments and accident situations (motor vehicle, slips and falls, recreational, airline, athletic, etc.);
- *medical malpractice litigation* involving prosthetic/orthotic devices and/or diagnostic/therapeutic clinical equipments;
- biomechanics and legitimacy of *personal injury issues*, and, also, *criminal issues* such as assault/rape/murder;
- biomechanical basis of *safety standards and regulations*;

... and much more. Indeed, the field of Forensic Biomechanics has matured to the point where Ashdin Publishing, a company based in France, has launched a new *Journal of Forensic Biomechanics* and I would like to welcome you to the inaugural volume of this important new Journal.

All articles published in Ashdin journals are open access and distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. For more information regarding the Journal of Forensic Biomechanics, including our distinguished Board of Associate Editors, I invite you to visit our website: <http://ashdin.com/journals/jfb/jfb.htm>

I also invite you to consider submitting a manuscript to be considered for potential publication in this peer-reviewed Journal.

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Editor-in-Chief