

WHERE IS iFESs HEADING?

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Functional Electrical Stimulation (FES) systems restore movement or sensory function, which is lost or impaired by disease or injury of the neural or neuromuscular system. The most common approach is to apply electrical currents to the neural tissue in order to control the movement of muscles or to activate parts of the sensory system. In general, in the field of FES, integration of stimulation systems with sensory systems and control systems is necessary to move forward. Novel FES systems are emerging from a wide range of new exciting research: e.g., new (nano)technology will make it possible to do natural-like interfaces to the nervous tissue, and recent discoveries within neuroscience on the plasticity of the brain have renewed the interest in applying pattern electrical and magnetic stimulation of nerve tissue to influence the cortical and spinal reorganization after injuries. Combined with new biotechnology-based drug treatments, FES can likely significantly influence a functional reorganization and thereby reduce the disability for brain-injured patients. Overall remarkable developments are indeed to be expected in the near future in this respect, of which I will address some in my presentation. Improved technologies and increased understanding of the biology give the natural background for further developments towards clinically useful and commercially viable FES systems. One important focus for FES research is therefore the integration of engineering and neuroscience research and education efforts in order to transfer the results to clinical environment and manufacturing. Secondly, it is very important to increase the awareness of the national and international funding agencies of the great potential for FES in restoring sensory-motor functions. The International Functional Electrical Stimulation Society (IFESS) has a very important responsibility and role to play in this process. With the annual meetings, IFESS has established a forum that through tutorials, publications, and the exchange of information among clinicians, scientists, engineers, students, and industry representatives help in this integration between various FES fields – this IFESS2002 meeting in Ljubljana is a very special one for this commitment as it was in Slovenia in 1993 that the decision was taken to establish IFESS. On top of the research and teaching commitment, the society must continuously make the scientific, clinical, and industrial communities and the public aware of the improvement of high quality FES research for the quality of life for disabled people.