

Emerging Spinecare Trends

Future Non-Operative Treatment Emphasis

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In the future, priority will be placed on the delivery of conservative methods of treatment which promote favorable tissue repair and neuromuscular performance. Physical rehabilitation will focus on improving stability and function using techniques such as unstable base training, core muscle strengthening, enhanced coordination methods, and approaches which improve reaction time. Surgery will prioritize the use of motion preserving implants while moving toward the application of biological solutions to promote functional tissue regeneration and repair. Spine surgery will be used to set the stage for functional restoration includes novel approaches for providing biological scaffolds for tissue repair and adaptation.

Non-operative spinecare will require a more diverse team of individuals than invasive or operative care. Future spinecare settings which provide the full spectrum of care will have to have an integrated multidisciplinary team. Non-operative spinecare of the future will incorporate physical performance testing. This may be done in human performance labs developed as part of centers of excellence. They will likely include a gait lab as well as methods for objectively evaluating neuromuscular performance. The later will be used to help identify and monitor performance (fatigue) induced muscle weakness (paresis) secondary to spinal cord and/or spinal nerve compromise. Protocols will be incorporated to stress the neuromuscular system so that neurological deficits associated with a spine disorders can be identified early. Physical performance testing facilitates and/or protocols will become an important part of conservative treatment approaches. It will help serve as an important part of the foundation for evidence-based non-operative spinecare.

Future non-operative treatment approaches will place greater emphasis on weight management and clinical nutrition. Nutritional and nutraceutical approaches will be used to reduce inflammation and to promote favorable tissue anabolism. In some cases these approaches will be used with conservative pharmaceutical measures. Greater emphasis will be placed on the evaluation and treatment of spinal segment mobility. The approach will not be limited to looking for gross spinal instability which requires surgical stabilization.

In the future greater emphasis will be placed on soft tissue subsequently exercise/fitness specialists and massage therapists will become an important extension of the spinecare team. A healthy spine is dependent upon adequate muscular strength, muscular endurance, optimum body composition, cardiovascular endurance, segmental stability and overall flexibility. It is well accepted that the tissues of the spine repair and remodel based upon the stresses placed upon them. Proper posture and exercise facilitates a favorable tissue remodeling process. In the future healthcare professionals will develop a growing appreciation for the effect of exercise on tissue remodeling and neuroplasticity both of which will influence on the outcome of spinecare.

Invasive intervertebral disc treatment will incorporate various methods to help repair and seal the annulus while preserving segmental motion. Future approaches will incorporate advances in molecular therapy, gene therapy, as well as various cell-based therapies. Diffusion tensor imaging (DTI) will be used to assess water movement and the integrity microarchitecture within the intervertebral disc. Advanced imaging such as MRS and DTI will help direct minimally invasive approaches.

