

EDITORIAL NOTE: Symposium on Biomechanics of the Knee

There has been a surge of activity in the Orthopaedic research community in recent years on the biomechanics of human joints, particularly of the knee joint. Bioengineers have been a major part of this activity. To further this effort and help identify future research directions, a special symposium on biomechanics of the knee was held at the Winter Annual meeting of ASME in December 1984. Most of the presentations were directly engineering in nature; but because the main motivation of much of this work is solution of clinical problems, we invited two physicians active in research and clinical treatment of knee pathology to present keynote addresses at the symposium.

Dr. Frank Noyes is a Clinical Professor of Orthopaedics at the University of Cincinnati and Director of the Midwest Institute of Orthopaedics/Cincinnati Sports Medicine Center, and has been a leading researcher in knee biomechanics, particularly as it relates to traumatic ligamentous injury and repair. In his presentation, he clarified the different approaches and points of view to knee research and identified

clinical problems in need of further work. Dr. Richard Brand is Professor of Orthopaedic Surgery at the University of Iowa. He has done extensive research on total joint replacement and human locomotion; he is active clinically in joint replacement. In his paper, he questions the conventional view of knee ligaments as passive mechanical structures, and proposes that it may be necessary to include the neural system in an accurate biomechanical view of knee ligaments. Both of these investigators bring a valuable, sophisticated clinical perspective to knee joint biomechanics. The following texts of their presentations are presented with the hope that they can help guide research by the engineering community and help it maintain a focus that can lead to solution of significant medical problems.

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Symposium Organizers