



## **DEVON ANDERSON**

Oregon Health & Science University, School of Medicine, Biomedical Engineering

### **Degrees:**

B.S. in Biology and Mathematics, Colby College  
B.E. in Engineering Sciences, Dartmouth College

### **Advisor:**

Brian Johnstone, Ph.D.

### **Scholar Award Donors:**

Sheila and Keith Barnes  
Julie and Wayne Drinkward

### **About the Scholar:**

Devon is developing a tissue engineering approach of building three-dimensional articular cartilage constructs from adult stem cells in order to repair damaged cartilage in degenerative joint diseases and focal traumatic defects. Specifically, he is applying engineering principles to evaluate the effect of mechanical and low oxygen environments on the maturation of cartilage tissue toward native cartilage. As an MD/PhD student interested in a career as an orthopaedic surgeon in an academic research environment, Devon is committed to musculoskeletal engineering research that is directly translatable to patient therapies. Devon spends his free time adventuring throughout the Pacific Northwest on foot, bike, and ski.

### **Benefits to Society:**

Musculoskeletal pain, specifically from degenerative joint diseases such as osteoarthritis, is the leading cause of disability in the United States yet medicine lacks long-term therapies for damaged cartilage repair. Recreating healthy cartilaginous tissue from a patient's bone marrow derived stem cells would offer a personalized therapy to each suffering individual. Application of engineering principles toward the development of articular cartilage is an obvious approach as the tissue's physical form is derived from its mechanical function. Devon's doctoral research will contribute to the understanding of how mechanical function influences the regeneration of articular cartilage in the laboratory.

### **Awards and Honors:**

N.L. Tartar Research Fellow, Oregon Health and Science University  
MD/PhD Scholarship, Oregon Health and Science University  
Collegiate Inventor's Competition Finalist and 2<sup>nd</sup> Place winner, USPTO and Invent Now  
Thayer Corporate Collaboration Council Engineering Design Prize, Dartmouth College  
Asaph H. Hall 1955 Fellow, Dartmouth College

### **Publications and Posters:**

**Anderson, DE** and BV Watts (2013) Application of an engineering problem-solving methodology to address persistent problems in patient safety: A case study on retained surgical sponges after surgery. *Journal of Patient Safety* 9(3): 134-139.

Currier, JH, **DE Anderson**, and DW Van Citters (2010) A proposed mechanism for squeaking of ceramic-on-ceramic hips. *Wear* 269 (11-12): 782-789.