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Statement
of

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Before the

Senate Appropriations Committee
Subcommittee on Defense

On the Subject of

The Need for Peer Reviewed Extremity Trauma Research by the Department of Defense
Fiscal Year 2009 Department of Defense Appropriations

Public Witness Hearing
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192 Dirksen Senate Office Building

Chairman Inouye, Vice Chairman Stevens, Members of the Senate Defense Appropriations Subcommittee, we thank you for the opportunity to testify today. I am Andrew N. Pollak, M.D., and I speak today on behalf of the American Academy of Orthopaedic Surgeons (AAOS), of which I am an active member, as well as on behalf of military and civilian orthopaedic surgeons involved in extremity trauma research and care.

I am Chair of the Academy's Extremity War Injuries and Disaster Preparedness Project Team, past-chair of its Board of Specialty Societies, and a subspecialist in orthopaedic traumatology. I am Associate Director of Trauma and Head of the Division of Orthopaedic Traumatology at the R Adams Cowley Shock Trauma Center and the University Of Maryland School Of Medicine. My Division at Shock Trauma is responsible for providing education and training in orthopaedic traumatology to residents from eight separate training programs nationally, including the Bethesda Naval, Walter Reed Army and Tripler Army orthopaedic residency programs. In addition, Shock Trauma serves as the home for the Air Force Center for the Sustainment of Trauma and Readiness Skills (CSTARS) program. I also serve as a Commissioner on the Maryland Health Care Commission and on the Board of Directors of the Orthopaedic Trauma Association.

Senators, on behalf of all the military and civilian members of the American Academy of Orthopaedic Surgeons, please allow me to take this opportunity today to sincerely thank you both as well as the Members of this Subcommittee for your vision and leadership in providing funding in Fiscal Years 2006, 2007 and 2008 for the Army's peer reviewed medical research program on extremity war injuries.

We are very grateful for the dedicated work of Senators Tom Harkin and Kay Bailey Hutchison – both Members of this Subcommittee – in sponsoring a "Dear Colleague" letter this year supporting a request of $50 million for this critical peer reviewed research program. I am proud to say Subcommittee Member Senator Barbara Mikulski also supported the request which was signed by the following additional Senators, and we are very thankful for their support: Senators Barrasso, Brown, Cardin, Chambliss, Colman, Cornyn, Durbin, Inhofe, Isakson, Kennedy, Sanders, and Stabenow.

Mr. Chairman, we very respectfully commend the committee's work in including additional resources for this important research in the FY2008 Supplemental Appropriations Bill currently under negotiation and we strongly urge your continued support of this program for Fiscal Year 2009 at an annual operating level of $50 million. We request that you continue that level of resources until the Department of Defense begins to include funding for extremity trauma research in its regular budget request to this Committee.

Our message is simple:

- the state of the science must be advanced to provide better treatment options for our wounded service members who suffer extremity trauma;
- the current peer reviewed research program has a very large backlog of unfunded, top quality research proposals that must be addressed; and,
- the Defense Department must be convinced to actively budget for extremity trauma research, but until that occurs, we believe that the Congress has an obligation to ensure that the necessary resources are appropriated and directed.

As these combined wars enter their sixth year, there continues to be a profound need in the nation for focused medical research to help military surgeons find new limb-sparing techniques with the goal of avoiding amputations and preserving and restoring the function of injured extremities.

Chairman Inouye, we know of your experience with extremity trauma during war and appreciate the fact that you have both personal and professional perspectives from which to address this issue.

You may remember that last year we were accompanied by CBS News Correspondent Kimberly Dozier, who was recovering from severe wounds to her legs and head sustained on the streets of Baghdad while covering American soldiers on patrol with Iraqi security forces on Memorial Day 2006. She had been imbedded with the Army's 4th Infantry Division. The patrol was the victim of a car bombing which critically injured Kimberly and killed her cameraman, soundman, a U.S. Army captain they were following and his Iraqi translator. I am happy to report that Ms. Dozier is back to work reporting for CBS. In fact, she recently won the prestigious Peabody Journalism Award for her coverage last year of U.S. military women who had lost limbs in the line of duty in Iraq. She is truly one of those rare individuals willing to put herself in harm's way to chronicle the work of our brave American servicemen and women in Iraq.

Ms. Dozier wrote about her experiences in surviving and recovering from the blast of a 500-pound car bomb remotely detonated on a Baghdad street. In a Washington Post Op-Ed article Sunday, Sept. 30, 2007, titled "What I Faced After Iraq," she discussed the many medical decisions that have to be made by surgeons in the repair and recovery phases of treating wounded soldiers. She also detailed many important clinical questions that arise where much more medical research is needed. "Like me, future victims of extremity war injuries will desperately need the kind of knowledge that could be gained from adequate research, "she concluded.

During the past year there have been many other accounts of the challenges to recovery faced by our wounded warriors with extremity injuries. The powerful HBO documentary by James Gandolfini, "Alive Day Memories: Home From Iraq," was one of those. The film contains interviews with 10 members of the Army and Marines who survived severe injuries. Each has their "Alive Day" --the day they narrowly escaped dying. Many spoke of the types of extremity injuries that have been sustained by our troops in Iraq and Afghanistan.

Military researchers have documented that fact that approximately 82 percent of war injuries suffered fighting the global war on terror involve the extremities – often severe and multiple injuries to the arms and legs.

In fact, House Report 110-279 (July 30, 2007, page 402) accompanying the FY 2008 Defense Appropriations Bill states that "Extremity injuries are the number one battlefield injury…dynamic research and treatment is necessary to provide service members the greatest ability to recover from injuries sustained on the battlefield."

By funding the Peer Reviewed Orthopaedic Extremity Trauma Research Program operated on behalf of all services by the Army's Medical Research and Materiel Command, your committee is directly advancing the state of the science in this field. Your action will directly result in improved treatments for our wounded warriors now and in future conflicts.

It is important to point out that unique to this conflict is a new type of patient, a warfighter with multiple and severely mangled extremities who is otherwise free of life-threatening injury to the torso because of improvements in protective body armor and the excellent care quickly delivered through the echelon treatment system. Such injuries are rarely, if ever, seen in civilian surgical hospitals, even in Level 1 trauma centers. Current challenges that often compound the battlefield injuries include serious infections due to the nature of the injuries and the environment where they are sustained, and the need for immediate transport for more complex surgery.

The Academy's interest in this effort began in the very early days of Operation Enduring Freedom when our deployed military Academy members began to report the great clinical needs that were emerging as they went about their work in surgeries to save injured servicemen and women. Soon studies on the nature

of injuries in Iraq and Afghanistan documented the high proportion of extremity injuries as well as the severity of injuries.

I was fortunate to travel to Landstuhl, Germany and Iraq last August to initiate the Distinguished Visiting Scholars Program. This program is a joint initiative between the AAOS and the Orthopaedic Trauma Association. The activity allows civilian orthopaedic trauma specialists with demonstrated clinical expertise and national recognition for their teaching abilities to volunteer two weeks at a time to be away from their practices performing surgeries at Landstuhl Regional Medical Center. I also had the privilege of performing surgical operations in Balad, Iraq as part of a request by Air Force Surgeon General James Roudebush to evaluate the trauma care being delivered at the Air Force Theater Hospital and to investigate the feasibility and value of extending the Distinguished Visiting Scholars Program into Iraq and Afghanistan. Based on my experiences in Balad, I can assure this committee of the outstanding quality of trauma care being delivered by the military health system there.

On January 23 and 24 of this year, the third annual Extremity War Injuries Scientific Symposium was held in Washington, DC, sponsored by our Academy, along with the Society of Military Orthopaedic Surgeons and the Orthopaedic Trauma Association. This combined effort of the two associations and the United States military began in 2006 in an initiative to examine the nature of extremity injuries sustained during Operation Enduring Freedom and Operation Iraqi Freedom and to plan for advancing the state of the science and treatment of these injuries. The 2008 meeting was attended by over 175 military and civilian leaders in extremity medical research and treatment from around the world. We were very fortunate to have had Joint Chiefs Chairman Adm. Michael Mullen, Senator Tom Harkin, and Assistant Secretary of Defense for Health Affairs Dr. Ward Casscells each speak to the conference audience about their perspectives on injuries being sustained by our armed forces.

This conference series has produced a widely referenced scientific publication describing the clinical challenges posed by extremity war injuries, and a research agenda to guide the scientific community and the managers of the Peer Reviewed Orthopaedic Extremity Trauma Research Program in planning and executing the program.

Orthopaedic Trauma from Operation Iraqi Freedom and Operation Enduring Freedom:

The likelihood of surviving wounds on the battlefield was 69.7 percent in WWII and 76.4 percent in Vietnam. Now, thanks in part to the use of body armor, "up-armored" vehicles, intense training of our combat personnel and surgical capability within minutes of the battlefield, survivability has increased dramatically to 90.2 percent as of February 2007.

The Armed Forces are attempting to return significantly injured warriors to full function or limit their disabilities to a functional level in the case of the most severe injuries. The ability to provide improved recovery of function moves toward the goal of keeping injured warriors part of the military team. Moreover, when they do leave the Armed Forces, these rehabilitated warriors have a greater chance of finding worthwhile occupations outside of the service to contribute positively to society. The military believes that it has a duty and obligation to provide the highest level of care and rehabilitation to those men and women who have suffered the most while serving the country and our Academy fully supports those efforts.

It probably comes as no surprise that the vast majority of trauma experienced in Iraq and Afghanistan is orthopaedic-related, especially upper and lower extremity and spine. A recent article in the Journal of Orthopaedic Trauma reports on wounds sustained in Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) based on data from the Joint Theater Trauma Registry, a database of medical treatment information from theater of combat operations at U.S. Army medical treatment facilities. From

October, 2001 through January, 2005, of 1566 soldiers who were injured by hostile enemy action, 1281 (82%) had extremity injuries, with each solider sustaining, on average, 2.28 extremity wounds. These estimates do not include non-American and civilians receiving medical care through U.S. military facilities. (Owens, Kragh, Macaitis, Svoboda and Wenke. Characterization of Extremity Wounds in Operation Iraqi Freedom and Operation Enduring Freedom. J Orthopaedic Trauma. Vol. 21, No. 4, April 2007. 254-257.)

An earlier article reported on 256 battle casualties treated at the Landstuhl Regional Medical Center in Germany during the first two months of OIF, finding 68 percent sustained an extremity injury. The reported mechanism of injury was explosives in 48 percent, gun-shot wounds in 30 percent and blunt trauma in 21 percent. As the war has moved from an offensive phase to the current counter-insurgency campaign, higher rates of injuries from explosives have been experienced. (Johnson BA. Carmack D, Neary M, et al. Operation Iraqi Freedom: the Landstuhl Regional Medical Center experience. J Foot Ankle Surg. 2005; 44:177-183.) According to the JTTR, between 2001 and 2005, explosive mechanisms accounted for 78 percent of the war injuries compared to 18 percent from gun shots.

While medical and technological advancements, as well as the use of fast-moving Forward Surgical Teams, have dramatically decreased the lethality of war wounds, wounded soldiers who may have died in previous conflicts from their injuries are now surviving and have to learn to recover from devastating injuries. While body armor is very effective in protecting a soldier's torso, his or her extremities are particularly vulnerable during attacks.

Characteristics of Military Orthopaedic Trauma:

At this point we there have been about 36,000 casualties in the Global War on Terror. As mentioned earlier, the vast majority have injuries to their extremities – often severe and multiple injuries to the arms, legs, head and neck. Most wounds are caused by exploding ordinance—frequently, improvised explosive devices (IEDs), rocket-propelled grenades (RPGs), as well as high-velocity gunshot wounds. Military surgeons report an average of 3 wounds per casualty.

According to the New England Journal of Medicine, blast injuries are producing an unprecedented number of "mangled extremities" – limbs with severe soft-tissue and bone injuries. ("Casualties of War – Military Care for the Wounded from Iraq and Afghanistan," NEJM, December 9, 2004). The result of such trauma is open, complex wounds with severe bone fragmentation. Often there is nerve damage, as well as damage to tendons, muscles, vessels, and soft-tissue. In these types of wounds, infection is often a problem. According to the JTTR, 53 percent of the extremity wounds are classified as penetrating soft-tissue wounds, while fractures compose 26 percent of extremity wounds. Other types of extremity wounds composing less than 5 percent each are burns, sprains, nerve damage, abrasions, amputations, contusions, dislocations, and vascular injuries.

The sheer number of extremity injuries represents a staggering health burden. Between January 2003, and February 2007, over 14,500 U.S. Warriors have been wounded severely enough to require evacuation out of theater. In addition, 780 American patients have lost one or more hands or feet (major limb amputation).

Military versus Civilian Orthopaedic Trauma:

While there are similarities between orthopaedic military trauma and the types of orthopaedic trauma seen in civilian settings, there are several major differences that must be noted.

With orthopaedic military trauma, there are up to five echelons of care, unlike in civilian settings when those injured are most likely to receive initial treatment at the highest level center. Instead, wounded warriors get passed from one level of care to the next, with each level of care implementing the most

appropriate type of care in order to ensure the best possible outcome. The surgeon in each subsequent level of care must try to recreate what was previously done. In addition, a majority of injured soldiers have to be "medevaced" to receive care and transportation is often delayed due to weather or combat conditions. It has been our experience that over 65-percent of the trauma is urgent and requires immediate attention.

Injuries from IEDs and other explosive ordnance in Iraq and Afghanistan differ markedly from those of gunshot wounds sustained in civilian society. The contamination, infection and soft-tissue injury caused by exploding ordnance requires more aggressive treatment and new techniques, especially when the individual is in proximity to the blast radius.

Warriors are usually in excellent health prior to injury. However, through the evacuation process they may not be able to eat due to medical considerations resulting in impaired body nitrogen stores and decreased ability to heal wounds and fight infections. This presents many complicating factors when determining the most appropriate care.

The setting in which care is initially provided to wounded soldiers is less than ideal, to say the least, especially in comparison to a sterile hospital setting. The environment, such as that seen in Iraq and Afghanistan, is dusty and hot, leading to concerns about secondary contamination of wounds in the hospital setting. For example, infection from acinetobacter baumanni, a ubiquitous organism found in the desert soil of Afghanistan and Iraq, is extremely common. In addition, the surgical environment is under constant threat of attack by insurgents. Imagine teams of medical specialists working in close quarters to save an injured serviceman while mortars or rockets are raining down on the hospital. Finally, the forward-deployed surgical team is faced with limited resources that make providing the highest level of care difficult.

While, as I have stated, there are many unique characteristics of orthopaedic military trauma, there is no doubt that research done on orthopaedic military trauma benefits trauma victims in civilian settings. Many of the great advancements in orthopaedic trauma care have been made during times of war, including principles of debridement of open wounds, utilization of external fixation and use of tourniquets for control of hemorrhage which has been used extensively during the current conflict as well as in civilian care.

Future Needs of Orthopaedic Extremity Trauma Research:

As mentioned earlier, an important development in this scientific effort has been the convening of the annual Extremity War Injury Symposia, which began in January of 2006. These widely attended medical conferences in Washington, D.C. bring together leading military and civilian clinicians and researchers to focus on the immediate needs of personnel sustaining extremity injuries. Discussions at the conferences has confirmed that there is tremendous interest and much untapped research capacity in the military and civilian research community in the nation.

These extraordinary scientific meetings were a partnership effort between organized orthopaedic surgery, military surgeons and researchers. They were attended by key military and civilian physicians and researchers committed to the care of extremity injuries. The first conference addressed current challenges in the management of extremity trauma associated with recent combat in Iraq and Afghanistan. The major focus was to identify opportunities to improve care for the sons and daughters of America who have been injured serving our nation. The second focused on the best way to deliver care within the early echelons of treatment. The third explored the wide spectrum of needs in definitive reconstruction of injuries. Scientific proceedings from the symposia have been published by our Academy and made available to the military and civilian research community. Each conference has continued to refine the list of prioritized research needs which I will summarize:

1) Timing of Treatment
Better data are necessary to establish best practices with regard to timing of debridement, timing of temporary stabilization and timing of definitive stabilization. Development of animal models of early versus late operative treatment of open injuries may be helpful. Prospective clinical comparisons of treatment groups will be helpful in gaining further understanding of the relative role of surgical timing on outcomes.

2) Techniques of Debridement
More information is necessary about effective means of demonstrating adequacy of debridement. Current challenges, particularly for surgeons with limited experience in wound debridement, exist in understanding how to establish long-term tissue viability or lack thereof at the time of an index operative debridement. Since patients in military settings are typically transferred away from the care of the surgeon performing the initial debridement prior to delivery of secondary care, opportunities to learn about the efficacy of initial procedures are lost. Development of animal models of blast injury could help establish tissue viability markers. Additional study is necessary to understand ideal frequencies and techniques of debridement.

3) Transport Issues
Clinical experience suggests that current air evacuation techniques are associated with development of complications in wound and extremity management although the specific role of individual variables in the genesis of these complications is unclear. Possible contributing factors include altitude, hypothermia and secondary wound contamination. Clinical and animal models are necessary to help develop an understanding of transport issues.

4) Coverage Issues
Controlled studies defining the role of timing of coverage in outcome following high-energy extremity war injuries are lacking. Also necessary is more information about markers and indicators to help assess the readiness of a wound and host for coverage procedures. Additional animal modeling and clinical marker evaluation are necessary to develop understanding in this area.

5) Antibiotic Treatments
Emergence of resistant organisms continues to provide challenges in the treatment of infection following high-energy extremity war injuries. Broader prophylaxis likely encourages development of antibiotic resistance. In the context of a dwindling pipeline of new antibiotics, particularly those directed toward gram-negative organisms, development of new technologies to fight infection is necessary. This patient population offers opportunity to assess efficacy of vaccination against common pathogens. Partnerships with infectious disease researchers currently involved in addressing similar questions warrants further development.

6) Management of Segmental Bone Defects
A multitude of different techniques for management of segmental bone defects is available. These include bone transport, massive onlay grafting with and without use of recombinant proteins, delayed allograft reconstruction, and acute shortening. While some techniques are more appropriate than others after analysis of other clinical variables, controlled trials comparing efficacy between treatment methods are lacking. Variables that may affect outcome can be grouped according to patient characteristics including co-morbidities, injury characteristics including severity of bony and soft-tissue wounds, and treatment variables including method of internal fixation selected. Evaluation of new technologies for treatment of segmental bone defects should include assessment of efficacy with adequate control for confounding variables and assessment of cost-effectiveness. Partnerships with other military research programs may be particularly effective in improving clinical capabilities in this area.

7) Development of an Animal Model
A large animal survival military blast injury model is necessary to serve as a platform for multiple research questions including: VAC v. bead pouch v. dressing changes; wound debridement strategy; effect of topical antibiotics; modulation of inflammatory response; timing of wound closure; and vascular shunt utilization.

8) Amputee Issues
Development and validation of "best practice" guidelines for multidisciplinary care of the amputee is essential. Treatment protocols should be tested clinically. Studies should be designed to allow for differentiation between the impacts of the process versus the device on outcome. Failure mode analysis as a tool to evaluate efficacy of treatment protocols and elucidate shortcomings should be utilized. Clinically, studies should focus on defining requirements for the residual limb length necessary to achieve success without proceeding to higher level amputation. Outcomes based comparisons of amputation techniques for similar injuries and similar levels should be performed. Use of local tissue lengthening and free tissue transfer techniques should be evaluated. In the context of current results and increasing levels of expectation for function following amputation, development of more sensitive and military appropriate outcomes monitors is necessary.

9) Heterotopic Ossification
This condition, known as "H.O." by the many soldiers who experience it, is abnormal and uncontrolled bone growth that often occurs following severe bone destruction or fracture. Animal models of heterotopic ossification should be utilized to develop early markers for heterotopic ossification that could identify opportunities for prevention. Better information is needed about burden of disease including prevalence following amputation for civilian versus military trauma and frequency with which symptoms develop. Treatment methods such as surgical debridement, while effective, necessarily interrupt rehabilitation. Prevention could expedite recovery and potentially improve outcome.

The Peer Reviewed Orthopaedic Extremity Trauma Research Program:

Sen. Inouye, the AAOS and military and civilian orthopaedic surgeons and researchers are very grateful for your Subcommittee's vision in creating the Peer Reviewed Orthopaedic Extremity Trauma Research Program in the FY 2006 Defense Appropriations Bill. This is the first program created in the Department of Defense dedicated exclusively to funding peer-reviewed intramural and extramural extremity trauma research. Having the program administered by the US Army Institute of Surgical Research ensures that the funding closely follows the research priorities established by the Armed Forces. USAISR has extensive experience administering similar grant programs and is the only Department of Defense Research laboratory devoted solely to improving combat casualty care. Military orthopaedic surgeons, in addition to personnel at the U.S. Army Medical Research and Materiel Command, Ft. Dietrick, have also had significant input into the creation of this program and fully support its goals.

The design of the program fosters collaboration between civilian and military orthopaedic surgeons and researchers and various facilities. Civilian researchers have the expertise and resources to assist their military colleagues with the growing number of patients and musculoskeletal war wound challenges, to build a parallel research program in the military. As can been seen in reviewing the growing numbers of research applications submitted under each RFP, civilian investigators are interested in advancing the research and have responded enthusiastically to engage in these efforts, and this will also provide wide ranging spin-off benefits to civilian trauma patients.

This activity is a targeted, competitively-awarded research program where peer reviewers score proposals on the degree of 1) military relevance, 2) military impact, and 3) scientific merit. Military and civilian orthopaedic surgeons are highly involved in defining the research topics and in evaluating and scoring the proposals. This unique process ensures that projects selected for funding have the highest chance for improving treatment of battlefield injuries.

The program's first Broad Agency Announcement for grants was released on February 13, 2006, and identified the following basic, transitional and clinical research funding priorities: improved healing of segmental bone defects; improved healing of massive soft tissue defects; improved wound healing; tissue viability assessment and wound irrigation and debridement technologies; reduction in wound infection; prevention of heterotopic ossification; demographic and injury data on the modern battlefield and the long-term outcomes of casualties (i.e. joint theatre trauma registry); and improved pre-hospital care of orthopaedic injuries.

Almost 100 pre-proposals were received for consideration, with 76 invited to compete with a full proposal. An upper limit of $500,000 was established for any one grant, to give a reasonable number of grantees an opportunity to participate. Ordinarily grants would be awarded for much higher amounts to support the research required. Larger multi-institutional studies had to limit what they were proposing.

Sixty proposals were evaluated and found meritorious and militarily relevant, however only 14 grants could be funded for their first year of research based on available funding. The amount that would have been needed to fund the remaining 46 grants totals $44,852,549.

A second call for proposals was issued by the Army on March 29, 2007 based on funding provided in the FY 2007 Appropriations bill. This request for proposals generated 144 "pre proposal" applications. Of those selected to provide full applications, 96 research leaders from around the country had their projects judged by reviewers to be scientifically meritorious, with a total cost of $125 million ready for award. However, available funding allowed only 12 new grants to be funded.

Significant new funding from the Congress would allow for more robust numbers of grants, a broader scope of work and increased multi-institutional collaboration. Clinical trials and more in- depth tracking of long term outcomes would also be possible – important components in rapidly advancing the state of the science.

Conclusion

With extremity trauma being the most common form of injury seen in current military conflicts, it is crucial that significant funding be directed specifically to the advancement of research. The AAOS has worked closely with the top military orthopaedic surgeons, at world-class facilities such as the U.S. Army Institute of Surgical Research, Brooke Army Medical Center, Bethesda Naval Hospital, Landstuhl Regional Medical Center and Walter Reed Army Medical Center to identify the gaps in research and clinical treatment -- and the challenges are many.

Extremity trauma research currently being carried out at those and other facilities, and at civilian medical centers, is vital to the health of our soldiers and to the Armed Forces' objective to return injured soldiers to full function in hopes that they can continue to be contributing soldiers and active members of society.

The 17,000 members of our Academy thank you for sustaining the Peer Reviewed Orthopaedic Extremity Trauma Research Program. While Congress funds an extensive array of medical research through the Department of Defense, with over 80 percent of military trauma being extremity-related, I can assure you

that this type of medical research will greatly benefit our men and women serving in the Global War on Terror and in future conflicts.

Funding is needed to support critical research outlined in the targeted research plan developed through scientific collaboration at the Extremity War Injury Symposia. Research in the management of extremity injuries will lead to quicker recovery times from blast injuries for our wounded warriors, improved function of limbs that are saved, better response rates to infection, and new advances in amputee care in cases where amputation remains the only option.

As I have demonstrated, the interest and capacity of the U.S. research community is very strong. During the past two years, the Defense Department has been able to fund 26 top research projects -- but another 177 approved, highly-scored projects have been turned away because of limited funding. The result: over $157 million in urgently-needed, high quality research has gone unfunded and this situation will continue in Fiscal Year 2009 unless the program receives the significant resources needed to achieve an operating budget of $50 million.

Mr. Chairman and Mr. Vice Chairman, the American Academy of Orthopaedic Surgeons, as well as the entire orthopaedic trauma community, stands ready to work with this Subcommittee to identify and prioritize research opportunities for the advancement in the care of extremity war injuries. Military and civilian orthopaedic surgeons and researchers are committed to pursuing scientific inquiry that will benefit the unfortunately high number of soldiers afflicted with such trauma and return them to the highest level of function possible. This investment to improve treatment for our soldiers will be well spent. It is imperative that the federal government -- when establishing its defense health research priorities in the future -- continues to ensure that research on treating extremity war injuries remains a top priority and that the large backlog of unfunded research is eliminated. We appreciate your consideration of our perspective on this critical issue and urge your continued action on behalf of our nation’s wounded warriors.