IMPACT

Orthopaedic Research and Education Foundation

OREF

Volume VI | Spring 2004 | No. 3

David L. Glaser, M.D.

Cell Heritage Research Could Lead to New Therapies to Benefit Patients

A team of researchers, led by **David L. Glaser, M.D.**, will study the heritage of cells involved in bone and tendon formation and healing, possibly leading to new treatments for orthopaedic patients.

Dr. Glaser was awarded one of OREF's newly created Clinician Scientist Awards. Through this award, funded by the **Dr. Zachary B. and Mrs. Kathleen Friedenberg Endowment Fund**, Dr. Glaser will receive $100,000 per year for the next three years. The award is meant to supplement his salary, allowing him to spend more time in the laboratory.

"There is such tremendous pressure to generate clinical revenue, that in 2004, an orthopaedic surgeon cannot spend a minute of his time doing anything that is not financially productive," Dr. Glaser said. "The OREF award will allow me to devote substantial time to this project. You need to be able to spend several days in the lab to be productive. An afternoon here or even a single day is not enough."

With the OREF Clinician Scientist Award protecting his time in the laboratory, Dr. Glaser, an assistant professor of orthopaedic surgery at the University of Pennsylvania, will be studying the stem cells — cells that morph, or differentiate into specific cell-types that in turn make up specific tissues — responsible for the formation and repair of musculoskeletal tissue, such as bone, tendon and cartilage.

In normal circumstances, stem cells within the body repair damaged tissue and synthesize new tissue. But very little is known about where those stem cells originate. Dr. Glaser's research will investigate the sources of these stem cells.

"The body has many stem cell sources, or niches," said Dr. Glaser. "Depending on what type of tissue you're making, the body will contribute various cell types from these niches."

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OREF Endowment

Insurance Policy Provides Large Donation to OREF

Thomas A. Einhorn, M.D.

When **Thomas A. Einhorn, M.D.** decided to make a large gift to OREF's Unrestricted Endowment Fund, he knew it would be a substantial investment.

But when **Tom Coffman**, OREF Senior Vice President, Endowments, suggested donating an insurance policy as a deferred gift, Dr. Einhorn realized he could give even more than he had originally anticipated.

"I never dreamed I could be this type of donor," he told Mr. Coffman.

Dr. Einhorn, who is a member of OREF's Board of Trustees and is also a member of the Shands Circle recognition society, purchased a $250,000 insurance policy and designated OREF as both the owner and beneficiary.

(continued on page 6)

INSIDE

Victor M. Goldberg, M.D.
Board Chair

Clinician Scientist Awards are an OREF Milestone

In this edition of *Impact*, we focus on the work of **Dr. David Glaser**, one of our three new Clinician Scientist Award recipients. These newly created awards are an important milestone for OREF, each providing $100,000 per year for the next three years to talented clinician scientists who are pursuing exciting research areas in our specialty. Subsequent editions of *Impact* will focus on the research being conducted by **Drs. Parvisi and Slauterbeck**.

"These new OREF awards will allow them to concentrate on their research by relieving some of the financial pressures required to maintain their practices."

David L. Glaser, M.D., University of Pennsylvania, will focus his research on "The Origin of Cells Within Post-Natal Musculoskeletal Tissue Formation and Repair." He will investigate the cells and cellular interactions involved in bone and tendon formation and healing. A better understanding of how this healing process takes place could lead to treatments that facilitate healing and have a significant impact on the quality of patient care.

Javad Parvizi, M.D., Rothman Institute at Thomas Jefferson University, is examining "Smart Orthopaedic Implants with Modified Biological Surfaces." This research seeks to develop implants that have active biological surfaces that will help patients in two distinct ways. Antibiotics will be linked directly to the titanium implant surface to control infection, and additional treatments will promote bone growth. This is another example of a basic science approach that can lead to improved patient care.

James R. Slauterbeck, M.D., Texas Tech University Health Sciences Center, will concentrate his efforts on "Gender Effects on Anterior Cruciate Ligament Remodeling." Dr. Slauterbeck's research proposes to identify the differences between the male and female genes and hormones associated with anterior cruciate ligament (ACL) remodeling. The results of this research could begin to explain why female athletes suffer more ACL injuries than males. Given the rapid growth of athletic activities for women, especially at the high school level and below, this work could have significant impact in the years ahead, and the information gained could help any female who suffers ACL damage for any reason.

These three clinician scientists are already accomplished researchers. These new OREF awards will allow them to concentrate on their research by relieving some of the financial pressures required to maintain their practices. Funding of these awards has been made available by generous OREF patrons. Dr. Glaser's award is funded by the **Dr. Zachary B. and Mrs. Kathleen Friedenberg Endowment Fund**. Dr. Parvizi's award is funded annually by the ***Journal of Bone and Joint Surgery (JBJS)***. Dr. Slauterbeck's award is funded by the **Dr. Dane and Mrs. Mary Louise Miller Endowment Fund**.

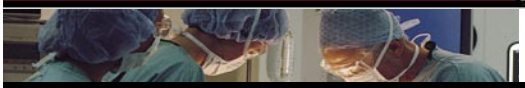
I commend these three fine physicians for their commitment to orthopaedic research just as I extend gratitude on behalf of the OREF Board of Trustees to Dr. and Mrs. Friedenberg, *JBJS*, and Dr. and Mrs. Miller.

Sincerely,

Victor M. Goldberg

Victor M. Goldberg, M.D.

In 2004 OREF awarded $3.4 million in research grants and awards.



Annual Campaign and Endowment Contributions

OREF raised more than $12 million in 2003, in what by all accounts was a very successful year. The vast majority of these gifts are long-term commitments that fund the OREF endowment. The OREF endowment is comprised of a general OREF fund and 25 others that have been formed to support a broad range of organizations and causes in orthopaedics.

"The sooner we start funding these proposals, the sooner the benefits can accrue to you and your patients."

Funding our endowment (and those of our partner orthopaedic organizations) is a long-term commitment for OREF. Typically these gifts are in the form of life insurance designations, bequests, and other planned giving vehicles, although liquid assets may also be used to fund endowments. Growth of our endowment will help ensure the success of OREF in the years ahead.

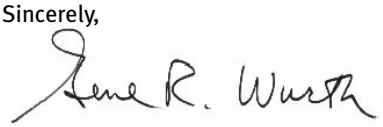
While growth of the endowment is important, there is also significant need for support of **OREF's Annual Campaign**. The three Clinician Scientist awards, plus other awards funded directly by Zimmer, Aventis and others are the only awards that are not funded by your contributions to OREF's Annual Campaign. OREF, in total, awarded $3.4 million to fund grants in 2004. Of this, $1.7 million was derived from physician contributions to our Annual Campaign, with the rest of the funding provided by corporate sponsors and endowments.

We are very proud of the $12 million total support raised for OREF in 2003. But while our endowment fund is growing, our annual research requests also require attention. Each year we receive about three times as many requests for support as we can fund. These are most often very good proposals; we simply cannot fund them all. We often wonder what great new advances will remain uncovered because we can't fund more.

The sooner we start funding these proposals, the sooner the benefits can accrue to you and your patients. Please consider a gift to our Annual Campaign to support our current research program.

Once again, thank you for your continued support of OREF. If you have the capacity to endow a Career Development or Clinician Scientist Award, please contact **Tom Coffman** at coffman@oref.org or (847) 384-4349 or me at wurth@oref.org or (847) 384-4346.

Sincerely,



Gene R. Wurth
President/CEO

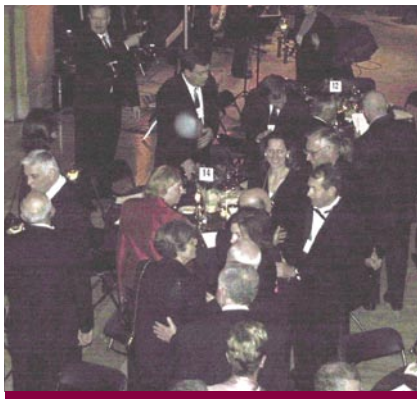
Gene R. Wurth
OREF President and CEO

OUR MISSION

The Orthopaedic Research and Education Foundation (OREF) is an independent organization that raises funds to support research and education on diseases and injuries of bones, joints, nerves, and muscles. OREF-funded research enhances clinical care, leading to improved health, increased activity, and a better quality of life for patients.

Shands Dinner is The Place To Be:

Record Turnout Enjoyed Evening of Dining, Dancing



"We are planning to make our 2005 Shands Circle Dinner a true Gala, an even bigger and more spectacular event than this year's Dinner."

Dinner, dancing and jazz music set the scene as we talked with old friends and met new ones, shared stories and enjoyed the warm San Francisco evening. It's no wonder so many people considered the Shands Circle Dinner *the place to be* during the Academy's Annual Meeting.

The Old Federal Reserve Bank provided the perfect ambiance for the Dinner, the invitation to which is one of the many benefits of belonging to the Shands Circle.

This year, nearly 300 members and their guests attended the Dinner, which is not surprising considering the near record-setting growth of the Shands Circle in 2003. More than 60 members joined last year, making it the second-largest one-year total in the Shands Circle's 10-year history and bringing membership to more than 350.

The Shands Circle Dinner, held on March 11, 2004, began with a cocktail reception that lasted until the dining room doors opened to reveal a breathtaking view of elegantly decorated tables set around a stage for the entertainment portion of the evening.

Wine complemented the meal, catered by Grace Street Catering, perfectly. **Bill Tipton, M.D.**, former Executive Vice President of the AAOS and a Shands Circle member as well as a **Monticello Vineyard** investor, arranged for the Vineyard to provide OREF with a significant discount for the wine.

Contributions and discounts such as this help to defray the cost of the dinner, allowing OREF to complete its mission of supporting research that enhances clinical care, leading to improved health, increased activity, and a better quality of life for patients.

After dinner, both **Nancy Hays**' singing and, later, the **Black Market Jazz Orchestra** motivated Shands Circle members to dance. Everyone remained in high spirits throughout the night.

Kimberly J. Templeton, M.D.

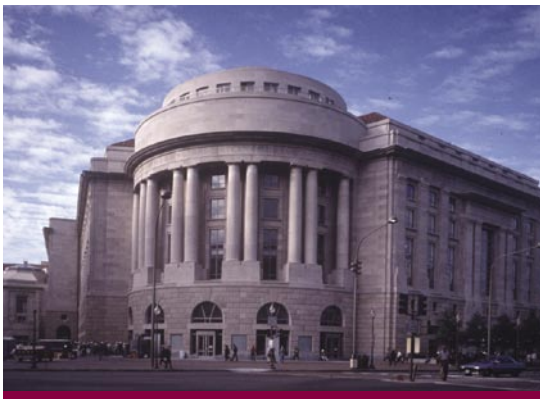
New Shands Member Emphasizes Diversity

Although **Kimberly J. Templeton, M.D.** had never contributed to OREF, her desire to provide funding for her passion, encouraging women and minorities to pursue careers in orthopaedics, led her directly to the Alfred R. Shands Jr. Circle, OREF's highest-level recognition society.

"I'm very hands-on," said Dr. Templeton, vice president of the Ruth Jackson Orthopaedic Society, which provides support and networking for female orthopaedic surgeons. "When **Laura Tosi, (M.D.)** asked me to give to OREF, I wanted to be sure I would have a say in how the money is directed."

To make sure her donation would fund educational programs for women and minorities, Dr. Templeton pledged to give $20,000 to OREF over the next two years. She intends to establish an endowment that will fund educational programs geared toward young women and minorities to inform them about medicine and the orthopaedic profession.

"By setting up an endowment fund with OREF, I'll ensure the money is available to provide funding for programs geared toward high school and college-aged women and minorities," Dr. Templeton said. "That's when students begin thinking about their careers, making it a good time to introduce them to the orthopaedic specialty. I want to make sure that if there are programs that pursue this type of education, the funding is there to support them."



Ronald Reagan Building & International Trade Center

Next year will mark **OREF's 50th anniversary. To celebrate, we are asking each Shands member to encourage one person to join the Circle in 2004**. We are planning to make our 2005 Shands Circle Dinner a true Gala, an even bigger and more spectacular event than this year's Dinner. We have reserved the **Ronald Reagan Building & International Trade Center** as the venue for the traditional Thursday evening event during the Annual Meeting in Washington, D.C. next year.

In addition to an invitation to the Shands Circle Gala, Shands Circle members also receive access to OREF's VIP Suite at the Annual Meeting and priority reservations at preferred hotels.

Thank you to everyone who joined the Shands Circle last year. For those considering membership, please join in 2004 to receive an invitation to the Shands Circle Gala, surely once again *the place to be* at the Academy's Annual meeting.

Sincerely,

Charles A. Rockwood, M.D

Charles A. Rockwood. M.D.

Alfred R. Shands, Jr. Circle

To learn how to join the Shands Circle, or for more information on how to make contributions toward the 2005 Shands Gala, please contact **Tom Coffman**, OREF Senior Vice President, Endowments at (847) 384-4349 or coffman@oref.org or **Robin Russell**, Coordinator, Shands Circle at (847) 384-4358 or russell@oref.org.

Dr. Templeton's decision to make a Shands Circle level donation to OREF came not only from her desire to teach women about orthopaedic medicine but also from learning by example. She is the first person to receive Kansas University's Daugherty Professorship for Women in Medicine and Science.

Believed to be the first of its kind in the United States, the endowed Daugherty Professorship established by **Joy McCann Daugherty** and her husband, **Robert Daugherty, Jr., M.D.**, recognizes a Kansas University female faculty member who has demonstrated outstanding leadership and provided mentoring.

With the Daughertys as her role models, Dr. Templeton decided to become a Shands Circle level donor.

"Giving at this level makes a statement about what is important to you and it encourages others to get involved and do the same," she said. "Joining at the Shands level and establishing an endowment is a way for me to encourage young women and minorities to go into medicine in general, and more specifically, into orthopaedic medicine."

Dr. Templeton also noted the overall importance of supporting orthopaedic education.

"Support of orthopaedic education at all levels is important because that will shape future orthopaedic surgeons who will eventually become colleagues," she said.

By becoming a Shands Circle member, Dr. Templeton will be able to pursue her passion of advocating diversity within orthopaedics as well as ensure funding for future research and education. ■

Insurance Policy Provides Large Donation to OREF (continued)

The number and amount of grants OREF awards annually is based on available funds. Dr. Einhorn's large gift to OREF's 2003 Unrestricted Endowment Fund will be invested to earn income each year. As the invested principal grows in perpetuity, OREF will be able to support more research grants, thereby ensuring the future of orthopaedic research.

"With more funding, we can increase the number of grants awarded," said Dr. Einhorn, who also serves as Vice Chair of Grants on OREF's Board. "There is nothing more disappointing than when we are unable to fund worthy grant applications because today, we do not have the resources."

Dr. Einhorn, who received a Career Development Award from OREF early in his career, said his large gift is his way of expressing gratitude toward OREF for that grant.

"When I started my career 22 years ago, I wanted more than anything else to impact my specialty through research," Dr. Einhorn said. "It was OREF that stepped up to the plate and provided support to help me realize my dream. OREF expressed a vote of confidence in me, and my research experiments and resultant data led to achieving funding from the National Institutes of Health."

Because OREF is the only independent, surgeon-driven organization supporting orthopaedic research in the musculoskeletal area, Dr. Einhorn encourages his peers to consider investing in the Foundation as a way of protecting and ensuring the future of their specialty.

"To ensure the future of our specialty, we need to invest in its Foundation of research, which is OREF," he said.

In addition to purchasing a new policy, life insurance may be used in other ways to support OREF. Donors may name OREF as the beneficiary or co-beneficiary of an existing life insurance policy or assign ownership of an obsolete policy to OREF. Other assets, such as stock, patents and real estate can also be used to make large deferred gifts to the Foundation.

"While I have additional goals for my research and my career in general, I can now say this is the appropriate manner to give back," said Dr. Einhorn. "It's my way of thanking OREF for the confidence it had in me — of giving OREF a return on its investment." ■

Dr. Einhorn, and his Fellow, Dr. Eric Bonenberger, review the post-operative radiograph of a patient. Dr. Einhorn, assisted by Dr. Bonenberger, had just performed a total hip replacement on the patient who had developed traumatic arthritis three years after treatment of a severe fracture of the acetabulum.

To learn how to join the Shands Circle, or for information about making endowment gifts to OREF, including donating a life insurance policy, please contact **Tom Coffman,** OREF Senior Vice President, Endowments at (847) 384-4349 or coffman@oref.org or **Robin Russell,** Coordinator, Shands Circle at (847) 384-4358 or russell@oref.org.

Life Insurance: Three Ways to Make a Major Gift with Ease

by Tom Coffman, Senior Vice President, Endowments

One asset that nearly everyone has, and eventually outgrows the need for, is life insurance. Your reasons for owning certain policies may not be issues anymore, but what effect will these policies have on your estate? The benefits of your insurance policies may be cut in half if left to face federal estate taxes. A charitable organization like OREF, however, can fully benefit from unwanted or unneeded policies.

Nothing is easier than changing a beneficiary designation to ensure an insurance settlement passes in whole or part to a favorite charitable organization. As a planning option, insurance proceeds can be split up among many beneficiaries, but changing a revocable beneficiary designation generates no income tax deduction.

Charitable Options

The use of life insurance to fulfill your philanthropic intentions or create a legacy to honor your life's work makes perfect sense for a number of situations. Take a look at three common scenarios that can make the most of life insurance.

1. Your favorite charitable organization depends on you for support and guidance, much like a key employee in a commercial enterprise. An insurance contract provides the opportunity to guarantee ongoing support for a specific project that is important to you or to advance their reputation for excellent programs and services. By leveraging small amounts of annual premiums, you may find that a larger gift develops over time.

2. If you have old policies once acquired for other reasons (e.g., mortgage or debt risks, education for children, survivor income security or veteran's policies), you may no longer need the coverage and choose to transfer ownership to a charitable organization such as OREF. Consider transferring the ownership of the contract to us. In addition to removing the asset from your estate, it will often generate an income tax deduction equal to the lesser of cost basis or fair market value of the policy if all of the rights of ownership are completely transferred.

3. Another use of life insurance is to offset charitable gifts of assets by replacing the wealth so your heirs aren't unduly affected. These so-called *wealth replacement* policies are very popular when working with large bequests and charitable remainder trusts or gift annuities.

Should you consider the gift of an insurance policy? A good place to start is to review what policies you have in place; don't forget any group or employer plans. Look carefully at the ownership and beneficiary designations. Oftentimes you discover the beneficiaries listed no longer need the insurance benefits or, due to family changes, need to be updated.

These policies offer a great opportunity to introduce a charitable gift into the equation. Consider naming a charitable organization such as OREF for a portion of the death benefit, or maybe choose to transfer the ownership of the entire policy by absolutely assigning it to us. Either way, you have left a legacy that exemplifies the caring nature of your life's mission and helps to ensure the fulfillment of our mission to assist others.

Summary

Billions of dollars of life insurance are in force in this country, and frequently these policies are no longer needed for their original purpose. If you would like to explore the use of insurance along with other gift options in your philanthropic plans, we would be happy to answer any questions you might have and show how this generous act can fit your circumstances. ■

In many instances, a new life insurance policy or an old policy that you no longer need is a wise choice as a charitable gift. Here's why:

1. *You can support the charitable organizations you value while, at the same time, protecting the inheritance you've set aside for loved ones.*
2. *Major gifts of life insurance avoid court challenges by acquisitive relatives.*
3. *Make a major gift with life insurance and be confident the cause you support will receive the size of gift you intended.*
4. *A life insurance gift is not subject to probate, publicity or delay.*

Male Preferred Age	*$50K*	*$100K*	*$250K*	*$500K*
45	*$630*	*$754*	*$1,700*	*$3,280*
50	*$810*	*$941*	*$2,167*	*$4,215*
55	*$941*	*$1,203*	*$2,823*	*$5,525*
Female Preferred Age	*$50K*	*$100K*	*$250K*	*$500K*
45	*$493*	*$555*	*$1,200*	*$2,275*
50	*$610*	*$690*	*$1,550*	*$2,950*
55	*$725*	*$866*	*$1,975*	*$3,825*

Above figures represent an annual premium based on a person qualifiying for a preferred rating. A higher premium over a shorted pay period my result in a higher death benefit available to the Foundation.

Documentary Offers Insight to Hip, Knee Replacement

Anyone considering total joint replacement surgery will be able to view a first-of-its-kind documentary that addresses concerns of hip and knee patients when it airs on Public Broadcasting System affiliated stations this summer.

Funding through OREF by individual and corporate donors, including **Dr. and Mrs. Dane Miller, DePuy Orthopaedics, Smith and Nephew Orthopaedics, Stryker,** and **Zimmer Inc.**, made this documentary possible.

> *"Once the pain is gone you take on a whole new look."*

The American Association of Hip and Knee Surgeons (AAHKS), in conjunction with Peter Rosen Productions of New York, filmed the documentary, *Total Joint Replacement: A Patient's Perspective*, which focuses on hip and knee replacement surgery. The film is unique because for the first time stories are told from the patients' point of view.

The documentary features four patients who have opted to have total joint replacement surgery. In the film, **Linda, Sophia** and **Eugene** each have total hip replacements, while **Mae** has both of her knees totally replaced.

Patients describe how they made the decision to have surgery and how they felt anticipating and recovering from their respective operations.

"It is not an easy decision to go for surgery," Sophia says in the film. Sophia works for the New York City Department of Transportation, a job that requires walking. "But once I [made] the decision, I hoped I would be walking like a normal person, not like a crippled one."

According to an AAHKS news release, the film will give potential patients "insight into how the surgery helps patients to lead more productive and healthy lifestyles."

As the patients tell their stories, beginning six weeks before and ending four months after surgery, their friends and families notice a difference not only in the way they move but also in their overall demeanor.

"The funny part is, the people that I work with, after I got back [from having surgery] said that I looked good," Eugene says in the documentary. "I couldn't understand what they meant by that, but the point they were trying to make was the expression on my face, from being in that constant pain. Once the pain is gone you take on a whole new look."

Information about AAHKS, including more information about the documentary, is available on its website at www.aahks.org and www.aahks.org/documentary/index.asp, and information about Peter Rosen Productions can be found at www.peterrosenproductions.com ■

AAHKS documentary participants: From l-r: Dr. Clifford W. Colwell, Jr.; OREF Vice President of Corporate Relations Judy Sherr; Dr. Chitranjan S. Ranawat; Dr. Thomas P. Sculco; OREF Senior Vice President, Endowments Tom Coffman; and Producer Peter Rosen

OREF Grant Applications Available Online

Since 1955, OREF has awarded more than 1,900 grants totaling more than $55.7 million. In 2004, OREF awarded $3.4 million to fund 134 grants.

Beginning May 1, 2004, grant applications and guidelines for receiving 2005 funding through OREF may be downloaded at www.oref.org. Please contact **Carmen Metoyer**, Grants Secretary, with any questions at metoyer@oref.org or by calling (847) 384-4351 ■

Aircast Provides Strong Support for Synergistic Mission

G.W. Jim Johnson, III

For over 30 years Aircast, Inc, has provided patients of medical professionals with functional treatment options. Most joint injuries heal faster if the joint is used, yet protected from further injury.

Aircast products effectively deliver this protection while allowing joint movement. These devices, including the famous Air-Stirrup® Ankle Brace, enhance the quality of patient care.

G.W. Jim Johnson, III, Chairman and CEO of Aircast, spent a few minutes with *Impact* to tell why he and his company are so committed to OREF.

***Impact*: Why is Aircast such a strong supporter of OREF?**

Mr. Johnson: Aircast's and OREF's missions are synergistic. OREF perfectly matches Aircast's mission for science-based solutions.

***Impact*: How do you view the role of OREF in the orthopaedic community?**

Mr. Johnson: OREF has a special relationship with the orthopaedic community as it continues to leave the largest attributes to successfully provide world-class education and research initiatives. This relationship is regarded as the most valued in the orthopaedic community.

***Impact*: What do you think is OREF's strongest asset?**

Mr. Johnson: I think that OREF engages the greater orthopaedic community by allowing an impressive array of funding mechanisms. The whole is greater than the sum of its parts. So I see OREF's strongest asset as being a funding source, whether through Shands, corporate partnership, or annual private membership donations, in order to provide meaningful activities, including research grants and education initiatives.

***Impact*: What do you think OREF's role will be 10 years from now?**

Mr. Johnson: OREF's role will be an order of greater magnitude by virtue of its incredible initiatives such as the Shands Circle, Annual Campaign and a continued focus on blue ribbon funding initiatives.

I would challenge anyone looking to find a global organization like OREF. OREF is unsurpassed in donating back to the community through quality peer-reviewed grants and education initiatives.

***Impact*: Would you like to see more brace companies support OREF?**

Mr. Johnson: Yes. Members of industry with the orthopaedic community must act responsibly. And it is imperative that we support an organization that gives back to its constituents.

***Impact*: Why should other orthopaedic companies support OREF?**

Mr. Johnson: The publicly traded medical device space in orthopaedics is financially robust. This is due in part to the aging baby boomer generation. It is the responsibility of this sector to invest in its constituency. For the orthopaedic industry OREF does a magnificent job of representing our constituency. ■

AIRCAST INCORPORATED

David L. Glaser, M.D. (continued)

Using what he terms an "elegant transgenic mouse model," Dr. Glaser will trace the lineage of these cells. Transgenic mice have been engineered so that specific cell populations are labeled, or tagged. No matter what the cells become, the researchers will know where they came from.

"We'll be able to see the ancestry of the cells so that, as they differentiate into bone, tendon, or muscle, we'll know what type of cells they were before they became what they are now," Dr. Glaser said.

For example, Dr. Glaser would be able to tell that the cells active in repairing tendon tissue were derived from endothelial cells if the cells in the newly formed tendon are flagged with the endothelial cell label.

Dr. Glaser and his team will primarily use three tissue formation and repair models to test their hypothesis that muscle satellite cells, pericytes, endothelial cells and bone marrow cells participate in the formation of musculoskeletal tissue and are active in tendon healing and fracture repair.

One model will create heterotopic ossification — bone formation outside of the natural skeleton. In another model, Dr. Glaser will create a patellar tendon injury. Researchers will also use a tibia fracture model.

"My research is geared toward trying to define the normal or physiological cells responsible for the postnatal repair of either fractures or the formation of new bone," Dr. Glaser said.

Once these tissue formation and repair models have been created, Dr. Glaser and his team will use light microscopy and standard histology to study the tissue's structure and immunohistochemistry to analyze the cells involved in healing the injuries created in the models.

They will apply the information they collect from this analysis to tissue engineering therapies that heal, or help heal musculoskeletal injuries and anomalies.

"In orthopaedics, people are talking more and more about tissue engineering and trying to improve healing of tissue, and perhaps even de novo synthesis of tissue, meaning creating new tissue from its component pieces," Dr. Glaser said. "Once we've identified the sources for these stem cells and have identified what these stem cells are, we'll be able to specifically use them or target them in our tissue engineering programs to either stop formation of bone outside the natural skeleton, or augment formation of bone or augment tendon healing."

Although stem cell therapy is not a new concept, being selective about which stem cells are used is. Because stem cells may be derived from many sources, including bone marrow, muscle, fat, peripheral blood, and even teeth, selecting the correct stem cell source could make treatment more effective.

> *"I think it's a pivotal award. Without it I predict I would have been drawn into the clinical machine."*

"I hope our research opens up a new thought process in how people look at stem cells. Stem cell A and stem cell B might be able to be induced to form the same cell, however, they might have different potentials. If you want to use stem cells in therapies, it might make a difference in which stem cells you choose," Dr. Glaser stated.

Such stem cell therapies could be used in common surgeries, such as procedures that repair the rotator cuff — the group of tendons that stabilize the shoulder.

Preventing heterotopic ossification, either after joint replacement surgery, following an injury, or in rare diseases, such as such as fibrodysplasia ossificans progressive, may be another application for selective stem cell therapy.

"I hope to open the door to more productive stem cell therapies so that we can augment healing and repair of all musculoskeletal tissue," Dr. Glaser said.

Dr. Glaser is grateful for the Clinician Scientist Award. Without it, he fears that his research may not have been possible.

"I think it's a pivotal award. Without it I predict I would have been drawn into the clinical machine. There is significant pressure to do an extra few cases or see an extra 20 to 30 patients a day. This [award] will allow me to protect my time and really focus on the work."

(continued next page)

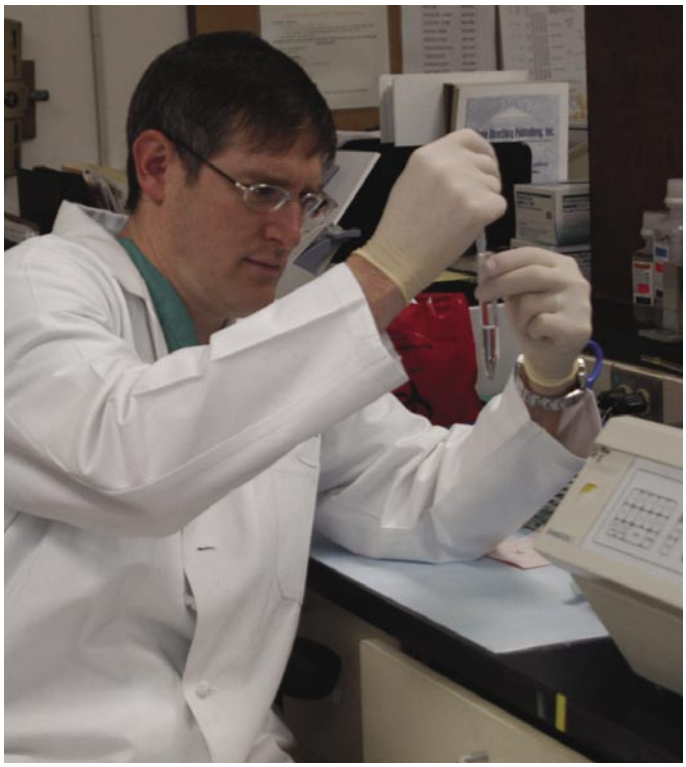
"I hope to open the door to more productive stem cell therapies so that we can augment healing and repair of all musculoskeletal tissue."

He also said that the Clinician Scientist Award provides a "tremendous opportunity for young clinician scientists" in that it could be the start of a full-fledged research program.

"Once that program starts to develop and expand, it will hopefully just continue to grow," Dr. Glaser said. "And hopefully it will lead to an NIH-funded award, which will lead to another, and another, and it might eventually lead to a program that would include many orthopaedic surgeons, grad students, and post doctoral fellows. It has far-reaching effects, far beyond what you would expect from just an initial few thousand dollars."

Dr. Glaser encourages others to fund research, observing that many major orthopaedic advances have come from individuals who have taken what they've observed in their clinics back to the lab to investigate.

"Many advancements in orthopaedics come from taking a clinical problem, bringing it to the laboratory, investigating it, and then going back to the clinic to apply what was learned. It leads to new breakthroughs and better care for patients. Everybody benefits."



Dr. David Glaser isolates cells using a density gradient. By studying the heritage of cells involved in bone and tendon formation and healing, Dr. Glaser's research could lead to new treatments for orthopaedic patients.

Dr. Zachary B. And Mrs. Kathleen Friedenberg established the Clinician Scientist Award category in 2002. Their donation to OREF's 2003 fund made **Dr. David L. Glaser**'s Clinician Scientist Award possible.

Dr. and Mrs. Friedenberg established an endowment fund that will award Dr. Glaser $100,000 per year for the next three years.

Because of the example set by Dr. and Mrs. Friedenberg, the ***Journal of Bone and Joint Surgery*** and **Dr. Dane and Mrs. Mary Louise Miller** have also established endowments that will fund two more Clinician Scientist Awards in 2004.

For information about making endowment gifts to OREF, or funding a Clinician Scientist Award, please contact **Tom Coffman**, OREF Senior Vice President, Endowments at (847) 384-4349 or coffman@oref.org.

OREF Exhibit, Events Successful at AAOS Annual Meeting

With a new exhibit complemented by traditional events such as the Leadership Breakfast and Shands Circle Dinner, OREF captured attention at the 2004 AAOS Annual Meeting in San Francisco.

Bone and Joint DECADE 2002 – USA – 2011

RIGHT – Every year OREF's Leadership Breakfast provides an atmosphere that generates dialogue between industry and medicine. At the 2004 Annual Meeting, more than 200 orthopaedists and industry leaders attended OREF's Leadership Breakfast at the W Hotel in San Francisco.

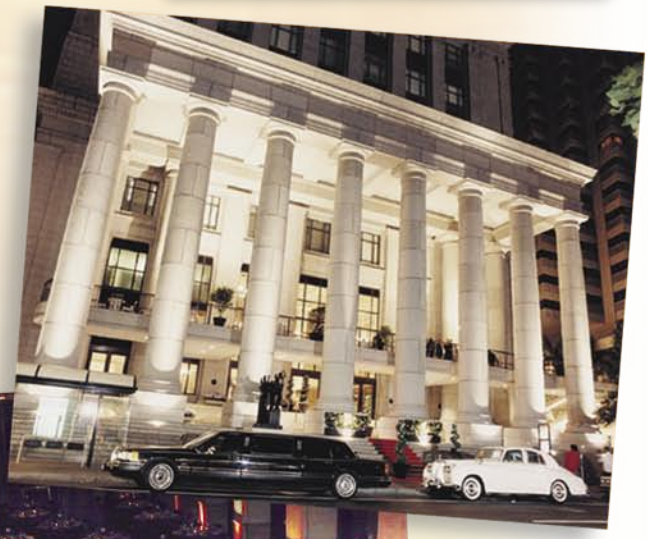
OREF Exhibit

ABOVE – The new OREF exhibit, which told the Foundation's story by highlighting funded research and quoting donors and grant recipients, attracted many visitors as they traversed between exhibit halls. Here, Jean McGuire (left) talks with Dr. Peleg Ben-Galam and his wife.

RIGHT – After a light breakfast, (l-r) OREF Board of Trustees Chair-Elect Dr. Charles Rockwood; MTF Vice President of Marketing Tom Shaffer; Dr. Wei Zhu; and MTF Vice President of Scientific Affairs Dr. Hans Burchardt proudly display OREF's plaque recognizing MTF's platinum sponsorship. Dr. Zhu is this year's MTF-sponsored Research Grant recipient.

Shands Circle Dinner

Leadership Breakfast

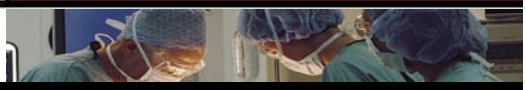


RIGHT and BELOW – With its beautiful ballroom and magnificent columns, the Old Federal Reserve Bank provided the perfect ambiance for the Shands Circle Dinner.

LEFT - OREF Vice Chair, Grants Dr. Tom Einhorn with Jennifer Zar and the COX-2 US Medical Marketing & Sales Team at the Pfizer Inc exhibit.

ABOVE - The Shands Circle Dinner, a black-tie optional affair, has become one of the places to be during the AAOS Annual Meeting. This year, more than 300 Shands Circle members and spouses attended.

ABOVE - Zimmer's Vice President of Corporate Research Cheryl Blanchard engages OREF Vice Chair of Corporate Relations Dr. John Callaghan at the Leadership Breakfast.



2003 Corporate Associates

OREF is proud to acknowledge these distinguished companies for their generous support. A strong and productive alliance with industry enables OREF to fund quality programs that advance the orthopaedic profession, ultimately leading to improved patient care.

Diamond Level ($200,000 or more)

AIRCAST INCORPORATED

Aventis

BIOMET / EBI A BIOMET COMPANY

DePuy a Johnson & Johnson company / DePuy Spine a Johnson & Johnson company

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Platinum Level ($100,000 – $199,999)

Bristol-Myers Squibb Company

MTF

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KYPHON

SYNTHES

Medtronic SOFAMOR DANEK

Wyeth

MERCK

Silver Level ($10,000 – $49,999)

The Alliance for Better Bone Health (Procter & Gamble and Aventis)
Arthrex
AstraZeneca
Centerpulse
Champion Exposition Services
Depuy Mitek
Exactech
Genzyme Biosurgery
MicroAire
Organon Sanofi~Synthelabo
OrthoLogic
Wright Medical Technology

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Aesculap
Aptic Superbones
Arimed Orthopaedics
ArthroCare
Blackstone Medical
Boehringer Ingelheim
Centerpulse Spine-Tech
DeRoyal
Encore Medical
ESKA America
Hapad
HealthTronics
Hologic
IGEA, S.R.L.
Innomed
KMedic
Lee Perfect Transcription
Maine Orthopedic Review Course
MEDSTRAT
Orthopedic Network News
OTI
Pacific Research Labs/ Sawbones
PAK Manufacturing
Parallax Medical
Precimed, Inc.
Purdue Pharmaceuticals
Regent Medical
ScienceCare
Spinal Concepts
Symmetry Medical
Synthes Spine
TissueLink

To learn more about the Corporate Associates Program, contact Judy Sherr, VP, Corporate Relations at (847) 384-4356 or sherr@oref.org.

Please Support OREF's 2004 Annual Fund

PERSONAL DATA (Print name clearly as you wish to be recognized in the OREF Annual Report.)

Name: _____

A PREFERRED ADDRESS: ❑ HOME ❑ BUSINESS

Address: _____

_____

City: _____ State: _____

ZIP: _____ Phone: _____

Fax: _____

E-mail: _____

B ANNUAL GIVING LEVELS:

Order of Merit—Summa Cum Laude	$5,000 & Above
Order of Merit—Magna Cum Laude	$2,500-4,999
Order of Merit—Cum Laude	$1,000-2,499
Honor Roll	$500-999
Supporting	Up to $499

❑ Enclosed is my check for the 2004 calendar year in the amount of $ _____ .

❑ I would like to pledge $ _____ for 2004.

❑ Please remind me of my pledge during the month of _____ .

❑ Charge my contribution of $ _____ to my: ❑ Visa ❑ Mastercard ❑ AMEX

Signature: _____

Print name as it appears on credit card: _____

Account No. _____

(For AMEX: Please include both embossed and printed numbers, and AMEX Credit Card billing address)

City: _____ *State:* _____ *ZIP:* _____

Expiration Date: _____

❑ *Please send me an Order of Merit Certificate.*

C MEMORIALS AND TRIBUTES

(Please check one): My contribution is in:

❑ Memory of ❑ Tribute to

Honoree: _____

Please send an acknowledgement of this memorial/ tribute to: _____

Address: _____

City: _____ State: _____ ZIP: _____

D DESIGNATED GIVING PROGRAM

Order of Merit members (contributions of or exceeding $1,000 annually) have the opportunity to designate support for specialty societies through their annual contribution to OREF.

NOTE: Contributions less than $1,000 may not be designated.

❑ I understand that a minimum of **$500** of my annual *Order of Merit* contribution is **unrestricted** to OREF. I have indicated below the total amount I'd like to designate to OREF and to these specialty societies:

$ _____ OREF
$ _____ American Academy of Orthopaedic Surgeons
$ _____ American Association for Hand Surgery
$ _____ American Association of Hip and Knee Surgeons
$ _____ American Foundation for Surgery of the Hand
$ _____ American Orthopaedic Association
$ _____ American Orthopaedic Foot and Ankle Society
$ _____ American Orthopaedic Society for Sports Medicine
$ _____ American Shoulder and Elbow Surgeons
$ _____ American Spinal Injury Association
$ _____ Arthroscopy Association of North America
$ _____ Cervical Spine Research Society
$ _____ Hip Society
$ _____ International Society of Arthroscopy, Knee Surgery, and Orthopaedic Sports Medicine
$ _____ J. Robert Gladden Orthopaedic Society
$ _____ Knee Society
$ _____ Limb Lengthening and Reconstruction Society
$ _____ Mid-America Orthopaedic Association
$ _____ Musculoskeletal Tumor Society
$ _____ North American Spine Society
$ _____ Orthopaedic Learning Center
$ _____ Orthopaedic Rehabilitation Association
$ _____ Orthopaedic Research Society
$ _____ Orthopaedic Trauma Association
$ _____ Pediatric Orthopaedic Society of North America
$ _____ Ruth Jackson Orthopaedic Society
$ _____ Scoliosis Research Society
$ _____ Society of Military Orthopaedic Surgeons

$ _____ Total Gift

E ENDOWMENT INFORMATION

(Please visit www.oref.org for the most current endowment listings.)

I wish to make a contribution of $ _____ to an existing OREF endowment: _____

(Print clearly the name of the endowment.)

❑ Please contact me about establishing an endowment.

❑ Please send me information about the Alfred R. Shands, Jr. Circle.

For more information, please contact **Ed Hoover** at hoover@oref.org
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OREF

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Discovering the *Future* of Orthopaedics

Shark Bite Victim Still Catching Waves

Last Halloween, **David Rovinsky, M.D.**, an orthopaedic surgeon, was ready to perform complete knee arthroscopy on **Tom Hamilton** when Wilcox Memorial Hospital in Lihue, Hawaii (on Kauai) received a call that a 13-year-old shark bite victim was being rushed to the E.R.

Mr. Hamilton, who was having surgery so he could again surf with his daughter, worried about who the shark's victim might be. He knew his daughter had been out surfing that morning.

The shark attack victim was Mr. Hamilton's daughter, **Bethany**. "It was the hardest news I ever had to break to a patient. I was in tears," said Dr. Rovinsky.

Dr. Rovinsky postponed Mr. Hamilton's operation to treat Ms. Hamilton. He credits **Holt Blanchard**, father of Ms. Hamilton's best friend and surfing buddy, **Alana Blanchard**, with saving Ms. Hamilton's life.

The shark had severed Ms. Hamilton's arm just below the deltoid muscle.

Mr. Blanchard helped Ms. Hamilton paddle to shore and used a surf leash as a tourniquet to lessen the bleeding.

Dr. Rovinsky operated on Ms. Hamilton, controlling the larger blood vessels to stop the bleeding, treating the nerves to keep her from having phantom pain, and cleaning the wound to prevent infection. Three days later Dr. Rovinsky flapped the wound closed to give Ms. Hamilton a good seal.

Dr. Rovinsky may perform further surgery on Ms. Hamilton to help her fit a prosthetic arm.

"Because Bethany only has about 2 inches of shaft remaining, there is not much of a lever arm for her to manipulate a prosthetic," explained Dr. Rovinsky. "I can only promise her an inch, and she would need about 3 inches to give her a good lever arm. But kids with one arm can do 95 percent of what two-arm kids can do. There's a long list of things Bethany will have to do differently, but the list of things she won't be able to do is very short."

Bethany Hamilton still rides the waves.

Even without a prosthetic Ms. Hamilton is already back on her surfboard and entering competitions.

"She can paddle out with one arm, get up on a wave, which is amazing, and once she's up, she really rips," observed Dr. Rovinsky, who had been surfing with Ms. Hamilton a week before this interview.

As an avid surfer himself, Dr. Rovinsky said the way Ms. Hamilton has handled herself is inspirational.

"The only time she ever cried was when I removed her stitches and told her she couldn't go in the water for a week," he said, noting that support from her family and friends and her faith helped her through.

For more information about or to support Bethany Hamilton, please visit her Web site at www.bethanyhamilton.com ■