To learn more about the activities of UAB's Injury Control Research Center, check out the informative, user-friendly Web site at http://www.uab.edu/icrc/. Every effort is made to ensure that the information on the site is kept current.

The ICRC also contributes center-specific information to the Web site of the National Association of Injury Control Research Centers at http://www.naicrc.org, which is maintained by the Center for Injury Control Research at the University of Pittsburgh, and to the VINCENT Web site (Violence and INjury Control through Education, Networking, and Training on the World Wide Web) maintained by the Injury Prevention Research Center of The University of North Carolina at Chapel Hill: http://www.ibiblio.org/vincentweb.
The term “accident” is really a misnomer. Injury-related events are predictable and preventable. Thus the injuries, like diseases, do not occur at random. The majority of injuries have traditionally been regarded as accidents.

Although injuries have traditionally been regarded as accidents, aren’t most injuries simply the result of preventable circumstances? Exposure to risk factors and inadequate safety measures are common among high-risk populations. Thus the UAB ICRC can be viewed as a community resource for obtaining injury-related information and providing community-based interventions.

Frequently Asked Questions

What is the UAB Injury Control Research Center (ICRC)?
The UAB ICRC—one of 11 nationally recognized centers which receive funding from the Centers for Disease Control and Prevention’s National Center for Injury Prevention and Control—is a broad, scientifically based unit located in the University of Alabama School of Medicine. UAB ICRC faculty conduct interdisciplinary research, training, and public service projects addressing injury control through prevention, acute care, rehabilitation, and biomechanics.

What is the center’s primary focus and what are the center’s target populations?
Center leadership has adopted a contemporary public health model applied in a community setting, focusing on injury prevention in vulnerable populations. The center’s historic focus on rehabilitation has been retained as an important research priority, with a principal emphasis on long-term rehabilitation outcomes. Target populations include children, women, the elderly, motor vehicle operators and passengers, residents of rural communities, and African-Americans, especially inner-city youths.

Why has the rate of injury not been substantially reduced in the past?
Research on injury prevention and control receives less than two cents out of every dollar spent on health-related research. Another reason, one the UAB ICRC is working to change, is that trained manpower in injury prevention has been inadequate in the past.

In what ways can the UAB ICRC serve me and my community?
UAB ICRC faculty and staff provide technical assistance to communities conducting primary prevention programs, disseminate information in support of a wide variety of injury control initiatives, and promote specific injury control interventions targeting high-risk populations. Thus the UAB ICRC can be viewed as a community resource for obtaining injury-related information and providing community-based interventions.

Are many injuries simply the result of “accidents”? Although injuries have traditionally been regarded as accidents, injuries, like diseases, do not occur at random. The majority of injury-related events are predictable and preventable. Thus the term “accident” is really a misnomer.
mission statement

The mission of the UAB ICRC is to help the nation achieve a significant reduction in injury-related morbidity, mortality, and disability, particularly in the southeastern United States, thereby reducing immeasurable human suffering as well as reducing staggering medical and societal costs resulting from injury.

objectives

Promote foundational and developmental injury control research initiatives targeting high-risk populations

Stimulate faculty development and train health care workers and other practitioners in the discipline of injury control

Maximize the efficacy and effectiveness of practices and processes in injury control

Improve practices and processes that will help injured people achieve their maximum potential

Provide technical assistance and disseminate information supporting the nation's injury control agenda

The UAB Injury Control Research Center is supported in part by Grant No. R49/CCR403641, USDHHS, Centers for Disease Control and Prevention, National Center for Injury Prevention and Control to the University of Alabama at Birmingham, Philip R. (Russ) Fine, Ph.D., M.S.P.H., director.

Katherine S. Terry, M.P.H., Editor
With a legacy of high-caliber projects dating back to 1989, the UAB Injury Control Research Center continues to be a forerunner in this vital area of research. Through the hard work of UAB and various extramural investigators, ICRC findings are making waves and turning heads in the field of injury control.

Since the last biennial report, the fledgling Southern Consortium for Injury Biomechanics at the UAB ICRC has grown exponentially. The number of participating universities and institutions is nearing 20; scientifically sound research initiatives continue to be produced, favorably peer-reviewed, and funded; and the consortium is humbled by the continued availability of federal funds to turn these strong biomechanics proposals into lifesaving, real-world applications.

This astounding growth could not have been possible without the staunch support of a long-time friend of the UAB ICRC, United States Senator Richard Shelby. It is through his vision and dedication for a safer, healthier Alabama—and nation as a whole—that much of this research is occurring here at UAB and across the country.

In addition, I wish to thank Dr. William Deal, vice president and dean of the UAB School of Medicine, for his unwavering support of the ICRC through the years. Dr. Deal's understanding of and appreciation for what we do encouraged the center to explore new frontiers in injury control, such as establishing the unique biomechanics consortium we know as the SCIB. He has continued in the tradition of Dr. Jim Pittman and Dr. Bill Koopman, whose vision enabled the ICRC dream to become reality.

Russ Fine

A rewarding investment

There are many ways to help support the different programs of the UAB Injury Control Research Center:

- Cash gifts, which provide immediate benefits, are always welcome.
- Pledges may be paid over a multiyear period.
- Appreciated marketable securities, real estate, and personal property gifts may offer special tax advantages to the donor.
- Life insurance policies may designate the UAB Injury Control Research Center as the owner and sole beneficiary.
- Life income gifts of securities, money, or property irrevocably transferred to the university can provide periodic payments to you or your designee for life.
- Charitable lead trusts provide payments to the UAB ICRC for a specific number of years.
- Bequests can be made by naming the UAB ICRC as the beneficiary in a will.

For more information or for assistance in planning your contribution, please contact either of the offices listed below:

UAB Development Office
AB 1225
1530 3RD AVE S
BIRMINGHAM AL 35294-0112
(205) 934-1806

Office of the Director
UAB Injury Control Research Center
CH119 401
1530 3RD AVE S
BIRMINGHAM AL 35294-2041
(205) 934-7845
http://www.uab.edu/icrc

“...The UAB ICRC is known universitywide, throughout the Southeast, nationally, and internationally, not only for its fine cutting-edge work, but also for its innovative multidisciplinary approach to the reduction of injury-related morbidity, mortality, and disability. Given the unique research platform of the Southern Consortium for Injury Biomechanics at the UAB ICRC, there is every reason to believe that the consortium has the potential of becoming the nation’s leading motor vehicle injury biomechanics research laboratory.”

DR. WILLIAM KOOPMAN
CHAIR, UAB DEPARTMENT OF MEDICINE
## Contents

### Dedication

Senator Richard Shelby

### Current Research

**Rehabilitation**
- A Longitudinal Study of Rehabilitation Outcomes
- Outcome of Upper Extremity Constraint-Induced Therapy
- Problem-Solving Interventions for SCI Caregivers

**Acute Care**
- Modeling of Diffuse Axonal Injury
- Eye Oximetry for Trauma Care
- Home-Health Delivered Albumin Scaffold

**Prevention**
- Violence and Competence in Minority Youth
- Center for Emergency Care and Disaster Preparedness
- State Laws Reducing Auto Fatalities
- Could Higher Gasoline Prices Save Lives?
- Southeast Child Safety Institute

### Public Service

- Southeastern Regional Injury Control Network
- UAB ICRC and the Alabama Department of Public Health
- UAB ICRC Seed Grant Program
- Alabama Smoke Alarm Initiative

### Education and Training

- Minority Enrichment Program
- Training Tomorrow’s Injury Control Workers

### Administrative and Operations Core

- UAB ICRC Director and Principal Investigator
- RUSS FINE, PH.D., M.S.P.H.
- UAB ICRC Executive Leadership
- JAY GOLDMAN, D.Sc., M.S.
- KURT DENNINGHOFF, M.D.
- Center Management Committee
- ICRC on the Web
- External Advisory Committee
- ICRC Headquarters Staff
- Associates, Affiliates, and Partners of the UAB ICRC
- Projects in Progress and Completed by the UAB ICRC since 1989

### Projects in Progress and Completed by the UAB ICRC since 1989

- Impaired Drivers Trust Fund
And although he’s earned powerful committee assignments in the process, including vice chairman of the Senate Select Committee on Intelligence and senior Republican on the Banking, Housing, and Urban Affairs Committee, Shelby has somehow managed to maintain a steady focus on the health, education, and economic progress of his home state as well. His untiring support of higher education in Alabama is only one example, and the numbers bear it out. A recent report titled *Invented Here: The 2002 Southern Innovation Index* shows that while university-performed research and development during the period from 1972 to 2000 increased by some tenfold throughout the Southeast, the universities in Alabama showed a twentyfold increase in the same categories.

The UAB ICRC has been an ongoing beneficiary of Senator Shelby’s efforts in procuring crucial funding for injury control research in Alabama.

A Birmingham native and the son of a steelworker, Shelby has a friendship with the center and a connection to its mission that run deep. Early in his life Shelby experienced firsthand the heartbreaking impact of a serious injury. A talented flanker on his high school football team, he earned a football scholarship to the University of Alabama. But during a high school all-star game, he suffered a severe knee injury and never got to play at the college level. He turned his attention to law and politics instead, and colleagues quickly recognized his skills at both. He served as a special assistant attorney general for Alabama, and after his election as state senator in 1970, fellow lawmakers selected him as chairman of the Legislative Council. During Shelby’s eight years in Montgomery, says Bob McCurley, director of the Alabama Law Institute, “He was never afraid to take on a new idea or a major revision of law. Unlike some legislators who played it safe and wanted to handle bills that were popular, he also handled bills that were difficult and that took a lot of time to understand.”

In 1979 Shelby won election to the U.S. House of Representatives and was later reelected for three more terms. He ran successfully for the U.S. Senate in 1986 and has been reelected twice since. His wife, Annette N. Shelby, Ph.D., who specializes in management communication, is a former faculty member at the University of Alabama and professor emerita at Georgetown University.

In addition to funding for education and research, two other recurring themes in Senator Shelby’s diverse legislative agenda are personal privacy and the safety and well-being of children. He has worked on behalf of missing and exploited children, and he wrote the law making it a federal crime for parents to cross state lines to avoid paying child support. In 1999, his Drivers’ Privacy Protection Act became law, ending the practice of states selling driver’s license information to marketers without citizens’ consent.

Shelby also founded the Congressional Privacy Caucus, which develops legislation, holds hearings on privacy issues, and educates congressional colleagues on the subject. Shelby and his caucus co-chair, Senator Christopher Dodd, wrote the Student Privacy Protection Act, which became law in 2001, requiring schools to develop policies for protecting students’ personal information.

It was during Shelby’s initial years of service on the Appropriations Committee, he says, when he noticed two things. A number of states were receiving significant federal support for their public universities, and Alabama was getting nowhere near its fair share. He made it a priority to remedy that imbalance, and he has succeeded dramatically.

“Senator Shelby has been instrumental in his commitment to and support of the state’s universities and research programs,” says Dr. Malcolm Portera, chancellor of the University of Alabama System. Dr. Russ Fine, director of the UAB ICRC, agrees and adds further, “We’re grateful to our longtime friend, Senator Richard Shelby, for his unwavering support of the goals and objectives of the UAB Injury Control Research Center. Senator Shelby is our voice to the nation.”

In particular, Shelby has played a crucial role in the establishment and growth of the Southern Consortium for Injury Biomechanics (SCIB), providing 100 percent of its funding through federal support. The consortium brings together many of the nation’s most highly regarded scientists under the direction of the UAB ICRC in order to dramatically reduce vehicle related injury and death through cutting-edge biomechanics research. The funding Shelby has secured enables consortium scientists to collaborate instead of compete, maximizing scarce resources and enhancing the strength of the consortium’s research capabilities. “We owe the existence of the SCIB to Senator Shelby’s vision and active efforts on its behalf nationally,” says Dr. Fine.

Characteristically, Shelby downplays personal accolades. “Any time I can do something on a national level that will bring hope and opportunity to the people of Alabama, I want to do it,” he comments. “We’re not successful every day, but the fight goes on.” Indeed. And vital public interest efforts such as UAB ICRC are the beneficiaries.
The UAB ICRC fosters a rich environment for research at UAB, as well as throughout the Southeast and the nation, by helping scientists and clinicians expand their knowledge of how injuries occur and how to treat, control, and prevent them. The wide variety of projects associated with the center reflects the broad spectrum of research taking place at UAB and within the center. The ICRC provides financial support and technical guidance to scientists exploring research initiatives in the three phases of injury control—prevention, acute care, and rehabilitation—with an ever increasing emphasis on the biomechanics of injuries, especially those resulting from motor vehicle crashes.
The Project

As a result, most statistics on injury rehabilitation focus on how quickly the disabled person returns to work or a semblance of normal life activities. Much less is known about the effectiveness of postacute, or long-term, rehabilitation care. That represents a major gap in knowledge, especially at a time when health care policy makers and third-party payers are legitimately concerned about the ongoing costs and efficiency of treatment and rehabilitation.

Working to fill that gap is the important mission of the UIAB ICRC Core Research Project known as A Longitudinal Study of Rehabilitation Outcomes. The study began more than a decade ago with in-depth assessments and interviews of a group of patients recovering from disabling injuries, and it continues to track their progress today—not only their physical health, but also the economic and social factors that can contribute to ongoing disability, medical and psychological complications, and functional limitations.

The study population was recruited from people who had suffered one of four serious and potentially disabling injuries: traumatic brain injury (TBI), spinal cord injury (SCI), intra-articular fracture of the lower extremity (IAF), and severe burns between 1989 and 1992. The project has four basic aims:

• monitoring, over time, each patient’s biological, psychological, social, and vocational functioning;
• identifying factors that help a patient regain maximum personal autonomy and independence of lifestyle;
• understanding the potential importance, on a long-term basis, of rehabilitation for severely injured people; and
• documenting and interpreting information to identify and test the most strategic points for intervention and thus help reduce residual impairments and optimize the long-term rehabilitation outcomes.

The longitudinal study has proceeded in three phases. Phase I focused on outcomes immediately following the injury, such as whether the patient was referred to and took part in formal rehabilitation, and when or if the participant returned to meaningful employment or school. The first phase also explored auxiliary aspects such as the participants’ perceptions of their quality of life, their satisfaction with life and family in the wake of the injury, and “attribution of responsibility”—who or what the patient felt had been responsible for the incident that caused the injury.

Phase II concentrated on the medical aftermath, months and years later, including whether the survivors experienced chronic pain, depression, memory loss, or other related health problems. Now Phase III is dedicated to in-depth profiling of the subjects’ psychological health, studying factors such as social integration, anxiety levels, posttraumatic stress, and depression.

Some of the study’s major findings, so far:

• Patients are more likely to participate in vocational rehabilitation if they do not have private insurance, are older, or are unmarried. Patients who see a rehabilitation specialist or have more definitive clinical evidence are also more likely to be referred to rehabilitation.
• Individuals have higher levels of self-efficacy if they are younger at the time of injury, have a shorter acute stay, are divorced 12 months after injury, have lower levels of neurological impairment, and have an unintentional injury.
• After a catastrophic injury, a person’s quality of life is affected by his or her physical limitations, employment, and degree of independence.
• Patients have higher levels of life satisfaction if they are more socially integrated. Physical limitations, sociodemographic characteristics, and degree of independence also impact life satisfaction.
• Variables related to life satisfaction, including educational level and depression, have the ability to change over time. Consequently, scores from the Life Satisfaction Index are only moderately stable over periods of a year or longer.
• Depression among survivors negatively impacts life satisfaction. A self-report of depression at 24 months after injury is associated with lower life satisfaction levels at 24, 48, and 60 months after injury.
• Patients have higher levels of family satisfaction if they are more socially integrated. Like the Life Satisfaction Index, the Family Satisfaction Scale scores are moderately stable over a year or longer.
• Preinjury characteristics, particularly being employed at the time of injury, are the strongest determinants of whether patients return to work after severe burns. For patients with TBI, level of independence is the strongest factor.
• The likelihood that an individual identified as eligible for participation of this longitudinal study through medical record abstraction would participate in the 12-month postinjury follow-up interview was influenced by age at time of injury, severity of injury, and method of payment used in the emergency department. Those patients 65+ years of age at time of injury, those with an injury severity rated as critical, and those who did not use insurance as the payment method were less likely to participate in the 12-month follow-up than their counterparts.
• The Social Security Death Index provides useful information for mortality studies among patients with TBI, but it does a poor job of identifying deaths among younger patients.

Though the study is ongoing, its findings have already been disseminated in 16 presentations, 12 published manuscripts, and five abstracts, with an additional manuscript in press and another scheduled for publication pending revisions. Another four manuscripts have been submitted for publication, and three others are in various stages of completion.

An ambulance siren. A rush to the hospital. A life saved. But then what? After the dramatic scenes of trauma care are over, the outcome of a catastrophically disabling injury quickly fades from public notice—except, of course, for the patient involved, family, and friends.

Steven G. LoBello, Ph.D., Principal Investigator

( A Longitudinal Study of Rehabilitation Outcomes )
The Project

Improving the functioning of an arm or a shoulder by constraining part of its motion? Though the concept may at first seem counterintuitive, it’s a proven rehabilitation technique. When one part of the body is weak upon recovering from an injury, restraining the stronger components makes the weak part “catch up” at a more rapid pace because it has to work harder, since the weak part can no longer can borrow strength from the stronger ones.

That’s the theory behind Constraint-Induced (CI) Movement Therapy, a rehabilitation approach designed to reduce debilitating effects on the upper extremities of patients who have suffered a neurological injury, allowing the patient much more functional independence than traditional treatment methods. By restraining the less affected parts of the body, such as the shoulder, arm, hand, or fingers, the weaker limb receives the maximum benefit from physical therapy and the maximum increase in functioning and motor ability.

Dr. Edward Taub has enjoyed impressive success using Constraint-Induced Movement Therapy on chronic stroke patients. This project, because of its obvious similarities, applies the method to patients suffering from traumatic brain injury (TBI).

Provisional results of the project suggest that Constraint-Induced Movement Therapy has been successful in improving the quality of movement as measured using the Wolf Motor Function Test. When measured using the Fugl-Meyer Motor Performance Assessment, scores increased significantly from before using CI Therapy to posttreatment for the total upper extremity, upper arm, and the wrist and hand.

Subjects also showed moderate to large increases in daily functional activities at one month after CI Therapy, as measured by Motor Activity Log scores. Both the quality of movement and the amount of use of the arm increased, suggesting that improvements made during treatment were maintained over time.

The data suggest that CI Therapy may be as useful in increasing arm function of TBI patients as the literature has reported for lower functioning stroke patients. As the project winds down, results from one- and two-year follow-up will aid in the assessment of sustained improvement in addition to cost-effectiveness and improvement in quality of life.

“Every year, thousands of families — just like yours and ours — suffer the painful tragedy of having a child or another loved one gravely injured or even killed. We have a chance to make a real difference by supporting the work of the dedicated scientists at the UAB ICRC, who are developing ways to prevent and control injuries and disabilities.”

RANDY AND KELLY OWEN

IMPROVING FUNCTION AFTER TRAUMATIC BRAIN INJURY

Sharon Shaw, Ph.D., Principal Investigator
Dave Morris, M.S., Co-Investigator
Edward Taub, Ph.D., Senior Consultant

RECENT SELECTED PRESENTATIONS:
“I am very pleased to be in a position to help assure that the Injury Control Research Center achieves its long-term goals and objectives as injury prevention and control become institutionalized at UAB. The ICRC has a great tradition and history; I am committed to helping it secure an even greater future.”

G. ALLEN BOLTON, M.P.H., M.B.A.
ASSOCIATE DEAN FOR ADMINISTRATION AND FINANCE
UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE

RECENT SELECTED PUBLICATIONS:


Under the best of circumstances, most families nowadays seem to feel there just aren’t enough hours in the day to get everything done. But when tragedy strikes and a member of the family suffers a spinal cord injury (SCI), life’s usual hurdles are immensely complicated by an entirely new layer of difficult problems and stresses.

What is the patient’s state of mind? Why does he/she act depressed, demanding, or unappreciative? There wasn’t enough time in the day before the injury, so how will all the tasks of daily life get done now? How will the patient get from place to place? And what about the caregivers? Do they feel underappreciated and overworked, guilty for not doing more, or all of the above? Where does the family turn for help in giving their loved one adequate care while squeezing in all the other demands of life?

This project, with its goal of designing a community-based intervention to help families deal with these problems, began by approaching the situation from the caregiver’s perspective and tailoring advice to accommodate the problems of a specific family and individuals. The study examines the effects of a consumer-oriented, problem-solving intervention for rural, community caregivers of people with SCI.

Participants in the study receive materials and information via in-home videoteleconferencing devices. Feedback from the caregivers helps Drs. Shewchuk and Elliott examine how caregivers of SCI survivors perceive unique problems that arise daily.

Shewchuk and Elliott are using this information to guide the development of a screening tool identifying SCI patients and caregivers who may be at risk for adverse psychological or health outcomes. Furthermore, participant response affects the design of the intervention, which encourages caregivers to divide problems into general categories, noticing trends that occur rather than focusing on a multitude of individual issues. Also, caregivers are taught to seek help from community resources and other relatives and friends when feeling distressed. The goal of this project is to enhance self-efficacy and coping skills among caregivers of SCI survivors, thereby improving the emotional and physical health status of this population and reducing expenses on the health care system.
The Project

When one vehicle strikes another object, whether another vehicle or a stationary object like a wall or tree, the damage to the vehicle and its occupants is caused by the extreme abruptness with which they decelerate. Seatbelts and airbags are designed to prevent passengers from being ejected from or thrown about inside the vehicle. Unfortunately, there is no such device to protect the human brain.

A traumatic brain injury (TBI) occurs when a sudden deceleration causes the brain to collide with the confines of the skull wall, often damaging the delicate nerves in the brain known as axons. This is called diffuse axonal injury (DAI), and it is the predominant mechanism of injury in 40 to 50 percent of traumatic brain injuries in the United States that require hospital admission. A component of DAI is believed to be present in all motor vehicle crashes in which the patient has lost consciousness. The abrupt acceleration and deceleration cause microscopic damage to brain tissue, often leading to the degeneration of axons.

While the injury to the brain is microscopic, the effects of diffuse axonal injury are very serious. DAI is associated with coma immediately following the brain injury. In addition, injury to areas such as the hypothalamus or the pituitary stalk and gland results in many of the common medical complications noted after TBI, including dysautonomia (failure of the sympathetic and/or parasympathetic components of the autonomic nervous system), hormonal changes, disorders of salt and water metabolism, and disrupted temperature regulation. Cognitive deficits, such as problems with memory and diminished capacity for processing information, are also attributed to DAI.

Originally conducted as an ICRC-sponsored project, this initiative is now funded by the National Highway Traffic Safety Administration through the Southern Consortium for Injury Biomechanics at the UAB ICRC. The project targets TBI from two different perspectives: prevention and treatment. The methodology uses the principles of physics and bioengineering to develop a reproducible, closed-head injury model of DAI in the rat that resembles human DAI, based on known changes in pathology and neurology. To date, the lack of a small-animal model that truly mimics human DAI has hampered attempts to prevent and treat the injury in humans. Thus researchers on this project and a new TBI research pathway are developing effective therapies to treat DAI and to prevent its occurrence in crashes by understanding the mechanism and redesigning future vehicles.

RECENT SELECTED PUBLICATIONS:


RECENT SELECTED PRESENTATIONS:

“The eyes are windows to the soul,” some anonymous sage has told us. As it turns out, they’re the windows to a lot more. Kurt R. Denninghoff, M.D., an ICRC assistant director, Acute Care Core director, and the center’s medical director, has worked with the U.S. Navy and Army to develop a novel method for rapidly assessing the seriousness of combat casualties.

One of an emergency medicine physician’s main concerns in performing triage is how much blood a patient has lost—a fact that’s often difficult to determine, particularly in the stress of combat situations. Denninghoff and his team have discovered that there are slight, but measurable, changes in the retina of the eye that signal severe blood loss in trauma patients.

As a result, they’ve created a noninvasive device named the “eye oximeter” that shines low-powered laser light into a patient’s eye, scanning the arteries and veins of the retina to measure the oxygen saturation of the blood. By using multiple wavelengths to analyze the differences between oxygen in retinal arteries and retinal veins, the oximeter can determine the degree of traumatic blood loss.

While the effort has received a majority of its support from the Department of Defense, it’s an extension of the technology developed by the UAB Department of Emergency Medicine, faculty from the UAB ICRC, and the University of Alabama in Huntsville.

This breakthrough holds promise not just for military use, but also for improving the monitoring and care of severely injured people in general. The UAB-based team is currently refining the techniques involved, increasing its understanding of the interactions among laser beams, red blood cells, vessels, tissues of the retina, and other structures of the eye. In fact, through recent advances in their technology, Denninghoff and his team are developing a new fundamental understanding of how light penetrates oxygenated blood in the eye.

Other improvements that are being explored include an enhanced retinal imaging system, fiber-coupled lasers, a confocal (i.e., two separate lenses focusing on the same site) laser scanning system, and a substantial reduction in the overall size and weight of the oximetry device.
The Project

People who are fighting the lifelong battle of a spinal cord injury (SCI) often face an insidious complication that, while usually not life-threatening, causes difficulty in treatment and untold suffering. Known as pressure sores, pressure ulcers, decubitus ulcers, or bedsores, these skin injuries form where bone pinches skin against a surface such as a bed or wheelchair. It’s not uncommon for patients who are frequently hospitalized with ulcers to become infected with bacteria that are resistant to antibiotics, which can make treatment difficult and enormously expensive.

Pressure ulcers are found in 20 to 30 percent of people with SCI, in 3 to 10 percent of nursing home residents, and in 3 to 11 percent of people with other acute injuries. It’s estimated that SCI patients with pressure ulcers incur hospital bills three to four times as high as SCI patients without pressure ulcers. After leaving the hospital, ulcer patients spend an estimated $15,000 each year in additional health care costs. For patients with the more severe Stage IV sores, health care costs can exceed $30,000 annually.

With these needs in mind, the purpose of this project has been to design a treatment system to speed the healing of pressure ulcers and to diminish associated health care costs by reducing hospital stays, the need for surgical intervention, and the number of procedures performed in an expensive hospital setting.

Dr. Feldman’s research builds on current clinical use of what’s known as fibrin/fibroblast growth factor regenerative scaffold. Simply put, such a “scaffold” or matrix is an improvement over traditional wound dressings because it serves as a bridge or platform on which tissue can regenerate, and it delivers fibroblast growth factor (FGF-1) to help wounds heal. This project is systematically refining properties of the matrix and FGF-1 in order to optimize absorption of the biodegradable scaffold into the body as the skin heals, and to sustain the activity of the growth factor as it stimulates tissue growth during the healing process.

In addition to advances in albumin scaffold technology, an innovative assessment tool used to measure the progression of pressure ulcer healing even has the capability to predict clinical outcomes.

Furthermore, treatment methods and assessments in this project are designed for use in a home-health environment. Thus the use of albumin scaffold has the potential to greatly reduce health care costs associated with pressure ulcers by reducing the occurrence of new ulcers and the exacerbation of existing ones outside the hospital setting.

“...ADRS for many years. The ICRC faculty and staff are networking with ADRS to reach as many Alabamians with disabilities as possible, and helping our department find and utilize additional resources to maximize our efforts.”

STEVE SHIVERS, COMMISSIONER
ALABAMA DEPARTMENT OF REHABILITATION SERVICES

USING TECHNOLOGY TO ACCELERATE
HEALING OF PRESSURE SORES

Dale Feldman, Ph.D., Principal Investigator

RECENT SELECTED PUBLICATIONS:


SELECTED DISSERTATIONS/THESSES:

The Cairns-Farmer research team examined social interactions of inner city and rural adolescents and investigated how antisocial behavior patterns are established and maintained. The multi-year study focused on middle childhood and early adolescence, and the findings suggested aggression was a route to social prominence and popularity for male (but not female) inner city youth.

Highly aggressive males tended to be central members of social structures within their classrooms and schools. In addition, highly antisocial youth, both male and female, tended to be members of peer groups with similar high-risk profiles. Work with children in elementary grades suggests that social processes in early grades help lay the groundwork for antisocial patterns across childhood and into early adolescence.

The UAB ICRC researchers also found that rural adolescents form similar social networks. Institutional practices, such as grouping students based upon behavior problems, appear to help sustain social support for problem behavior and pave the way for aggressive behavior patterns. Provisional results suggest that enhancing school engagement through special classes, such as photography and music, helps reorganize peer affiliations and relationships with teachers and peers, altering behavior patterns.

While there have been increased levels of participation in intervention activities, the critical question will be whether the changes result in sustained improvements in social affiliations and behavior.

**So What Does It All Mean?**

These companion research projects indicate that social processes—including dominant social hierarchies, antisocial affiliations and peer groups, and the collective valuation of antisocial behavior—work to support and sustain problematic behavior patterns. However, through carefully planned activities to foster students’ productive engagement, it may be possible to restructure social systems to support and enhance prosocial behaviors and values.
Sitting in a meeting room in the shadow of the Brooklyn Bridge, a UAB trio listened in stunned silence to what President Bush told the nation. Terrorists had flown fuel-packed jets into the World Trade Center towers, only five minutes across the East River.

In retrospect, it was not surprising that the director of UAB’s Center for Emergency Care and Disaster Preparedness and chairman of the UAB Department of Emergency Medicine, Dr. Tom Terndrup, was among many emergency personnel attending a meeting on public access defibrillators only blocks away from the disaster on September 11, 2001. The room of medical professionals agreed to offer their expertise to New York City officials. Terndrup and colleagues established a makeshift triage and treatment station near the World Trade Center amid thick smoke, debris, and rescue workers. Looking back, Terndrup, who is also an ICRC senior scientist, noted, “there was a surprising lack of chaos.” In large part, he attributes this to the extensive preparation by New York City firefighters, police, and paramedics for such a disaster.

This theme of being adequately prepared and trained is the underpinning of the Center for Emergency Care and Disaster Preparedness at UAB. The center was formed to address issues associated with preparation for bioterrorist attacks and other disasters through broad-based multidisciplinary research, training, and service programs. The center’s goal is to provide a formal structure to facilitate collaborative efforts among experts from a wide range of disciplines to address issues surrounding disaster preparedness.

One such collaboration has resulted in the formation of the National Health Professions Preparedness Consortium (NHPPC). Through UAB’s partnership with the Vanderbilt School of Nursing, Louisiana State University, and Noble Training Center at Fort McClellan in Anniston, Alabama, the NHPPC has developed a fictitious state with towns and cities. Within this mock community, the “town of Noble” houses the nation’s only hospital-sized facility conducting real-time training in medical responses to simulated incidences with weapons of mass destruction. The target audience for this four-day training program includes physicians, nurses, public health officials, EMS personnel, and hospital administrators. Hundreds of community health care professionals from across the country have attended the NHPPC’s courses, and training exercises continue to take place.
and their rates rise steadily after the age of 70. And because of
their more frail physical condition, older drivers are more likely
to be killed or seriously injured in a comparable car crash.

Among younger drivers, four main factors were found to be
the most significant causes of motor vehicle crashes: inexperience
on the road, a tendency toward increased risk-taking, peer pres-
sure, and alcohol-impaired driving.

For older drivers, three categories of impairments were identi-
fied as most significant in fatal crashes: deterioration of vision,
cognitive impairment, and psychomotor slowing.

The State Regulations

The project is examining six policies that may play a role in
reducing the incidence of motor vehicle deaths:

• graduated licensing for teenage drivers;
• relicensure for elderly drivers;
• alcohol taxes;
• alcohol control measures;
• speed limits; and
• seat belt laws.

Planned Future Research

at the UAB ICRC

In the future, UAB ICRC scientists plan to examine the inclusive
effects of such things as license renewal tests for the elderly, max-
imum speed limit laws, graduated driver licensing systems (par-
ticularly given their recent enactment and varying forms), and
certain DUI policies such as preliminary breath tests, sobriety
checkpoints, anti-plea-bargaining statutes, and changes in tort
liability laws on motor vehicle-related fatalities.

Studies also need to address particular methodological issues
from existing literature. There is no comprehensive study, for
instance, that examines all the policies cited above in a common
framework as they affect motor vehicle fatalities. And state-by-
state differences in the rate of motor vehicle deaths are influenced
by factors such as road conditions that are difficult to observe.
Fully specified models with better study designs should reduce
bias in the evaluation of policies.

Finally, overall, there is a dearth of information about the
effects of motor vehicle laws on the elderly. With the huge
increase in the U.S. aging population, this area of investigation
should be a top priority for the future.
A new study recently conducted by the UAB Injury Control Research Center provides evidence that higher gasoline prices may save lives.

Assistant Professor David Grabowski (Public Health) coauthored the study, which found that a 10-cent increase in gasoline prices reduced the motor vehicle fatality rate by 1.1 percent over one month and by 2.3 percent over two years. The effect on higher-risk younger adult drivers was more than twice as large.

Grabowski and study coauthor Professor Michael Morrisey (Public Health) studied monthly motor vehicle fatality and gasoline price data from various states to examine the short-run and long-run effects of changes in gasoline prices on motor vehicle-related fatality rates.

"In those states that increased gas prices, the motor vehicle-related fatalities decreased," Grabowski said.

Grabowski presented his findings at the Centers for Disease Control Safety in Numbers conference in late April.

"The reduction in motor vehicle fatalities in the past 25 years has been hailed as a major public health success story. This has been attributed to improved roads, safer vehicles and concerted efforts to reduce drunk driving. Yet, motor vehicle fatalities per capita have been stable since the early 1990s, even in the face of new policy initiatives to reduce drunk driving and to limit the driving of inexperienced teenagers," Grabowski said.

He said there were nearly 45,000 motor vehicle fatalities in the United States this past year.

From 1983-1998, he said gasoline prices decreased by a full dollar. During that same time, the decline in motor vehicle fatalities began to level off.

Grabowski and Morrisey found that a relatively modest change in gasoline prices sustained over time is comparable to enacting a strict seatbelt or DUI law.

He said lawmakers could consider higher gasoline taxes as a policy tool to further reduce motor vehicle fatalities.

"It would be a mistake to overlook raising gas prices," he said. "One could go out and raise gas taxes and potentially save lives.

"The magnitude of the long-run change in fatality rates from gasoline price changes is on a par with many of the policy interventions that states have implemented to try to reduce motor vehicle fatality rates," Grabowski said.

"A tax that yields a real increase in the price of gasoline of 10 cents per gallon, sustained over time, will reduce fatalities substantially. Moreover, it will have a disproportionate effect in reducing vehicular deaths among young adults." Grabowski said.

Higher gasoline prices also would mean energy benefits and less reliance on foreign oil sources. But, he said, there also are negative implications, such as the impact on the trucking industry and other industries dependent on travel. "The policy issue is whether the [statistical] lives saved are worth more than the travel foregone," he said.

"We're basically arguing there is definitely a safety benefit from higher gasoline prices," he said. "That's important, but that does not mean we should unambiguously raise gas prices. We have provided information on one component of the broader picture."

HIGHLIGHTING MOTOR VEHICLE SAFETY AT THE NATIONAL LEVEL

In September 2002, the UAB ICRC, along with the University Transportation Center for Alabama, the Southern Consortium of Injury Biomechanics at the UAB ICRC, and the Lister Hill Center for Health Policy at UAB, sponsored a national colloquium, The Economics of Motor Vehicle Safety. Highly regarded lecturers included Dr. Thomas S. Dee, Swarthmore College Department of Economics; Dr. Ted Gayer, Georgetown University Public Policy Institute; Dr. David Grabowski, UAB Department of Health Care Organization and Policy; and Dr. Michael Morrisey, director of the Lister Hill Center for Health Policy and UAB professor. Topics and discussions included teens and traffic safety in the United States, state laws and older driver fatalities, gasoline taxes and auto fatalities, and motor vehicle regulations and the fatality risks of sports-utility vehicles, vans, and pickups.
The Southeast Child Safety Institute has touched the lives of Alabama’s children in many ways since it was formed in 1988 at Children’s Hospital. Under the direction of Dr. Bill King, a full-time UAB faculty member, professor of pediatrics, and a senior scientist in the ICRC, the organization encompasses the Alabama Safe Kids Campaign, the Regional Poison Control Center, the Telephone Triage Program for after-hours medical consultation, and the Child Passenger Safety Center, plus other programs and services across UAB’s campus.

The Safety Institute has achieved a distinguished level of work in bicycle, pedestrian, and child passenger safety, including spearheading support for Alabama’s current bike helmet, seat belt, and child safety laws. The institute has also published numerous research papers on childhood injury epidemiology and prevention. The institute’s current focus is on child passenger safety and training child passenger safety specialists to conduct car seat installation clinics statewide.

In 2000, the Safe Kids Campaign and Children’s Hospital ran more than 15,000 radio public service announcements across the state, placed child passenger safety messages on more than 100 billboards, and conducted two car seat installation clinics each week. The impact of the 23-week campaign was impressive: Seat belt usage increased from 52 percent to 75 percent, and child restraint use rose from 53 percent to 73 percent. Incidents of trauma from car crashes in Jefferson County dropped by 28 percent. The outreach effort attracted more than 3,300 phone calls to the Child Passenger Safety Hotline and more than 1,500 appointments for the installation clinic. More than 100 personnel were trained in child passenger safety, and an additional 15 people were certified as child passenger safety technicians through the National Highway Traffic Safety Administration (NHTSA) and the American Automobile Association (AAA).

Since motor vehicle crashes are the most serious threat to child health today, Alabama Safe Kids has organized 11 chapter coalitions to focus on child passenger safety. Before the campaign, overall seat belt use in Alabama had leveled off over the previous decade. Thanks to the campaign and a change in state law, Alabama recorded the highest increase of seat belt usage in the country between 2000 and 2001, according to a NHTSA study.

For further information on child passenger safety, brochures, training, and clinic appointments, call 1-800-504-9768.

“The Southeast Child Safety Institute and its partners will continue their efforts to identify important safety issues, and to design solutions to reduce injuries and save lives.”

DR. BILL KING
CHILDREN’S HOSPITAL

<table>
<thead>
<tr>
<th>Weight</th>
<th>Infants</th>
<th>Toddlers</th>
<th>Young Children</th>
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<td>Birth to 1 year at least 20-22 lbs.</td>
<td>Over 1 year and Over 20 lbs. - 40 lbs.</td>
<td>Over 40 lbs. Ages 4-8, unless 4’9”</td>
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<th>Infants only or rear-facing convertible</th>
<th>Convertible / Forward-facing</th>
<th>Belt positioning booster seat</th>
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<tr>
<th>Seat Position</th>
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<th>Forward-facing</th>
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<th>Children to one year and at least 20 lbs. in rear-facing seats</th>
<th>Harness straps should be at or above shoulders</th>
<th>Most seats require top slot for forward-facing</th>
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<th>All children age 12 and under should ride in the back seat</th>
<th>All children age 12 and under should ride in the back seat</th>
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And though the SCIB’s mission was an earthbound one, it was nonetheless immense in scope: to use biomechanics to significantly reduce the catastrophic toll of death and injury caused by motor vehicle crashes in the United States.

The numbers are staggering. Vehicle crashes are the leading cause of traumatic brain injuries (TBI) and spinal cord injuries (SCI), the two categories of injury most likely to result in death or permanent disability. More than 50,000 people die in such crashes each year, and another 100,000 are permanently disabled. The economic costs alone are devastating, and the consequences in human loss and suffering are immeasurable.

Despite technological progress that was unimaginable only a decade or two ago, serious gaps still exist in our knowledge of how the elements of the human body react at organic and microscopic levels to the rapid and destructive impact of high-speed collisions.

In response, founders of the SCIB envisioned a unique approach: assembling some of the nation’s most highly regarded scientists to pool their knowledge and talents and collaborate, rather than compete, to solve the most troublesome problems in biomechanics that stand in the way of dramatic reductions in vehicle-related death and injury.

Now distinguished scientists from all over the country are working under the auspices of UAB’s ICRC, with federal funding earmarked specifically for enabling the consortium to maximize scarce resources in a way that is unique to scientific endeavor.

The guiding principle of the SCIB, however unique, is extremely straightforward in practice: identifying and bringing together accomplished and experienced research scientists and fusing them into a cohesive research cooperative that spans multiple institutions and crucial scientific specialties.

Thanks to the efforts, vision, and committed support of Alabama’s senior United States senator, Richard Shelby, that effort has already made remarkable strides. In the first 36 months of the SCIB’s existence, the consortium established working relationships with 19 prestigious injury biomechanics research programs representing 11 states. The organizations range from well-known academic institutions to private industry and governmental research laboratories. (See accompanying story.)

But as auspicious as that beginning is, leaders of the SCIB see it as just that—a beginning. Their plans for the next phase of the consortium’s development? Becoming the United States Consortium for Injury Biomechanics.

In a recent brief document appropriately titled Vision for the Future, the UAB ICRC sets out four concise steps for making that vision a reality:

1. National interest in becoming part of the Southern Consortium for Injury Biomechanics at UAB’s ICRC is broad-based and enthusiastic. However, the consortium’s enormous potential is presently limited only by the financial—not the intellectual—resources available to it. Thus the vision of a United States Consortium for Injury Biomechanics is quite clear and attainable.

2. The consortium’s highly innovative and demonstrably cost-effective approach to preventing vehicle-related injuries and deaths is this: fusing scientists from historically competitive settings into collaborating teams that focus their collective efforts on the most important problems, as opposed to the current federal research funding model that pits their efforts against one another. Given today’s extremely limited resources available for this much-needed research, such a collaborative model is the only kind that makes sense.

3. The consortium’s basic mechanism, conceived and successfully brought to fruition by UAB leadership in an extremely short period of time, provides the type of unfettered flexibility that cannot be achieved through traditional government-based funding programs—such as those within the National Highway Traffic Safety Administration—because of their inherent regulatory requirements and restrictions.

4. Given the consortium’s unique research platform, developed by UAB scientists, which can continue to orchestrate statewide, regional, and national efforts, there is no reason except lack of adequate support that Alabama cannot become recognized as America’s leader in motor vehicle injury biomechanics research.
A Brief Overview of Current SCIB Research Projects

I. HEAD AND BRAIN INJURY BIOMECHANICS

Pediatric Head Impact Injury
Despite significant advances, life-saving technologies such as airbags, child safety seats, restraint devices, and helmets have not been as successful as originally hoped. The reason? A lack of understanding of the precise mechanics of injuries that occur, particularly among children. This study builds on the existing expertise in adult head and neck injury at Duke University’s Injury and Orthopaedic Biomechanics Laboratory in order to provide new quantitative biomechanical data on the pediatric head and neck.

Principal Investigator: Barry Myers, M.D., Ph.D., Duke University

Numerical Performance Evaluation of SIMon
“SIMon” is the abbreviation for a crash simulation tool developed by the National Highway Traffic Safety Administration (NHTSA) to predict brain injury severity for the automobile industry. The evaluation will guide and assist NHTSA engineers in examining the numerical performance of the SIMon program’s current version.

Principal Investigator: David Meaney, Ph.D., University of Pennsylvania

Development of a Numerical Model for Investigators of Injury Predictors
Also involving SIMon, this study is the second part of a collaborative project with a goal of determining the most effective characteristics of a finite element model to predict brain injury.

Principal Investigator: Evangelos Eleftheriou, Ph.D., University of Alabama at Birmingham

II. NECK AND WHIPLASH INJURY

Computational Modeling and Analysis of Neck Injuries in Vehicular Collisions
Tensile neck injuries are among the most severe that are seen in the cervical spine. Unfortunately, only a limited amount of quantitative data are available to define tolerance of the ligamentous spine in tensile neck injuries. The goal of this study is to develop a detailed dynamic musculoskeletal model of the neck in order to improve current understanding of mechanisms associated with catastrophic neck injury and whiplash.

Principal Investigator: Barry Myers, M.D., Ph.D., Duke University
Determinations of Cervical Spine Substructure Mechanical Properties (Pending)

Injuries to the cervical spine are a significant cause of morbidity and mortality in the United States. An accurate mathematical model of the spine will help prevent such injuries. The purpose of the proposed study is to establish an efficient, in vivo cadaveric biomechanical experimental model of the spine as a method capable of quantifying both the gross structural properties of multiple- and single-motion segments as well as the structural and material properties of the constraining soft tissue for a single specimen.

Principal Investigator: Marcus Hollis, Ph.D., University of South Alabama

III. HUMAN TOLERANCE

Effects of Impact Loading on Articular Cartilage

Articular cartilage provides both a lubricating function and the ability to resist and distribute very high compressive loads. Such cartilage can undergo significant traumatic changes in response to impact forces, but the understanding of how cartilage physiology is altered by those mechanical forces representative of impact remains incomplete. The goal of the study is to establish methodologies for protecting human joints from injury following traumatic impact, and to determine tolerance criteria for articular cartilage of joints in response to impact.

Principal Investigator: Kerry Athanasiou, Ph.D., P.E., Rice University

The Effects of Orbital Muscles on Eye Injury Biomechanics

Eye injuries affect a large proportion of the population, frequently resulting in long-term disability, and are expensive to treat. Each year, some 2.4 million individuals receive eye injuries, and about 30,000 of them are left blind in at least one eye. This study examines the effect of the superior and inferior oblique eye muscles relative to eye injury biomechanics in order to determine whether the oblique muscles contribute to the most severe open-globe ruptures.

Principal Investigator: Stefan Duma, Ph.D., Virginia Polytechnic Institute and State University

Brain Cell and Tissue Injury Tolerance to Traumatic Loading

The high incidence and socioeconomic consequences of traumatic brain injury have prompted the development of many models in an attempt to understand tissue response to physical insults. The underlying mechanisms that lead to cell dysfunction and death after a traumatic insult, however, comprise extremely complex molecular and biochemical events that have not been extensively modeled in isolated cells. This study will systematically subject cell and tissue specimens to biomechanically well-defined inputs in order to develop criteria that are model-independent and based on cellular properties.

Principal Investigator: Michelle LaPlaca, Ph.D., Georgia Institute of Technology/Emory University

Evolutionary Design of Finite Element Meshes for Injury Biomechanics Research (Pending)

The method known as Finite Element Analysis (FEA) has been used in lieu of human cadaver impact and loading studies, but it remains expensive both in terms of computational time and the expertise required of the operator. This study seeks to simplify the input parameterization through the use of Evolutionary Computation (EC) techniques for finite element mesh design, with the goal of providing an affordable, accurate, responsive, and timely tool for injury biomechanics research.

Principal Investigator: Brian Carnahan, Ph.D., Auburn University

“By partnering with the UAB ICRC, many of the innovative biomechanical concepts our team at Duke has developed can be realized to help the science of injury prevention and control move forward into the new millennium.”

DR. BARRY MYERS
ASSOCIATE PROFESSOR, DEPARTMENTS OF BIOMEDICAL ENGINEERING AND ORTHOPAEDIC SURGERY, DUKE UNIVERSITY
Translating research findings into programs and initiatives that improve the lives of people in their communities is the cornerstone of the UAB ICRC’s outreach efforts. Those efforts span a wide range of categories—from traffic safety and home safety to enhancing rehabilitation services for people with catastrophically disabling injuries, and from “seed grants” targeting specific injury-related problems to a comprehensive communications network that helps coordinate efforts in state and federal agencies around the Southeast who work independently on preventing and controlling injuries.
DESPITE AGGRESSIVE EFFORTS to reduce drunk driving (in the past two decades, fatalities from alcohol-related crashes and arrests for driving under the influence of alcohol have dropped by about 25 percent in Alabama), injuries caused by alcohol abuse are still a huge burden of pain, loss, and financial expense for Alabamians.

But in recent years, a unique initiative has attempted to help repair some of the tragedy caused by drunk drivers. The Impaired Drivers Trust Fund (IDTF) was created by the Alabama Legislature in 1992, and it has since evolved into a major advocacy and service-delivery system for Alabamians who have spinal cord injury or traumatic brain injury.

A state law passed in 1993 increased the punishment for DUI violations by an additional $100 fine. The extra money goes directly into the Alabama IDTF, where it helps cover the cost of postacute medical care, rehabilitation therapies, medications, attendant care, home accessibility modifications, and equipment necessary for activities of daily living for Alabama residents who could not afford these goods and services on their own.

Although many people suffering from brain and spinal cord injuries already benefit from extensive assistance provided by the Alabama Department of Rehabilitation Services (ADRS), gaps in service nonetheless exist. The IDTF tries to correct the disparity through partnerships with the Alabama Head and Spinal Cord Injury Registry and the ADRS Service Linkage System in order to expand services to the severely disabled. These avenues include underwriting the cost of residential modifications and renovations along with providing computers, specialized communication equipment, and other devices that help disabled Alabamians function better in society.

Alabama’s governor appoints an advisory board to oversee disbursements of the trust fund, investigate needs, and report their findings to the state legislature. Dr. Russ Fine not only helped draft the trust fund-enabling legislation, but has also served on the IDTF advisory board since its inception.

THE MORE THAT SCIENTISTS and physicians learn about the human nervous system, the more they marvel at what a sophisticated network it involves, with cells and nerve fibers throughout the body interacting automatically to keep us conscious, alert, and safe, and to monitor and repair injury.

For many years, no such network existed among the many state and federal agencies in the Southeast working independently on injury prevention and control. This situation was remedied in 1991 by the creation of the Southeastern Regional Injury Control Network (SERICN), the nation’s oldest such organization and a model for subsequent regional networks.

SERICN brings together public health departments from Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee—supporting each state’s public health initiatives, providing training sessions and information exchange, and facilitating the development of statewide and interstate injury control programs.

UAB’s ICRC contributes to the network’s goal of reducing injuries by fostering interagency collaboration and underwriting network travel expenses. Other state and federal agencies are involved with SERICN, including the University of North Carolina Injury Prevention Research Center (UNC IPRC), the National Center for Injury Prevention and Control (NCIPC), the National Highway Traffic Safety Administration (NHTSA), the Children’s Safety Network (CSN), the Child Passenger Safety Council (CPSC), and the Kentucky Injury Prevention Center, to name a few.

A recent SERICN collaboration produced a daylong workshop on childhood agricultural injury prevention in the Southeast, funded by a mini-grant from the National Children’s Center for Rural and Agricultural Health and Safety (NCCRAHS). This event brought SERICN members together with agricultural extension service specialists from each Southeastern state to develop state-specific plans addressing childhood agricultural injury prevention. NCCRAHS hopes to use this model in the implementation of similar training sessions in other regions of the country as well.

After several years of affiliation with SERICN, Katherine Terry has become chair of the network for 2003-2004. The UAB ICRC is proud of her leadership role in this important gathering of injury prevention personnel from across the Southeast.

SERICN continues to make its presence known through presentations and displays at national meetings and conferences such as the Centers for Disease Control and Prevention Safety in Numbers conference in April 2003.
FROM PREVENTING FALLS to preventing house fires, from tracking trauma incidents to staving off suicides, the ICRC and the Alabama Department of Public Health (ADPH) continue to partner on a wide range of health and safety initiatives that make an impact on the lives of all Alabamians.

Among their notable successes is the Alabama Smoke Alarm Initiative (ASAI), a home fire safety education and alarm installation program. For details about the continuing success of this program, see the article in this report titled "Prevention of Fire Injuries Through Community Involvement."

Another prevention effort is the Fire Safety Workshop—a "train-the-trainer" event designed to give preschool and kindergarten teachers, day care providers, health care professionals, social workers, and other educators the tools needed to effectively teach fire safety skills to children ages three through five. More than 300 participants from a range of disciplines, organizations, and geographical areas attended the workshop, hosted by the Injury Prevention Division of ADPH, presented by the BIC® corporation, and cosponsored by the UAB Center for Community Health Resource Development, Montgomery Safe Kids Coalition, Alabama Department of Education, American Red Cross of Central Alabama, the state fire marshall’s office, the Alabama Association of Volunteer Fire Departments, United Way of Central Alabama, and the UAB ICRC.

Another cooperative effort is the Alabama Trauma Registry (ATR), established in 1999 to support and broaden the Alabama Legislature’s newly created Alabama Head and Spinal Cord Injury Registry. The focus of the project is to collect comprehensive trauma reports from state hospitals for the purpose of augmenting and enhancing education and prevention efforts of such injuries at a statewide level. In fact, the ICRC’s research design, data management, and analysis work group designed and implemented the registry, working as a contractor for the ADPH.

The ICRC also continues to work closely with the Injury Prevention Division of ADPH on a project funded by the Centers for Disease Control and Prevention that is developing a statewide injury prevention plan based on resources within the state. Core components of the plan are collecting and analyzing injury data, designing, implementing, and evaluating interventions, building a solid infrastructure for injury prevention, providing technical and training support, and affecting public policy. ICRC staff and faculty are specifically involved in developing four target areas of the prevention plan: motor vehicle crashes, falls among the elderly, residential fires, and suicide.

"Whether through improving programs in our state, training health professionals in continuing education workshops, or through development of cutting-edge data management to understand and improve the trauma systems across Alabama, the core of each of these initiatives is one uniting, inspiring hope—to save lives of Alabamians. It is a pleasure to work with the ICRC, addressing one of the major health concerns of our time."

CAROL MYINGER, M.E.D., M.P.A.
DIRECTOR
INJURY PREVENTION DIVISION,
ALABAMA DEPARTMENT OF PUBLIC HEALTH

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Important ideas often begin as small, local initiatives that recognize a unique niche or unmet need. This is the idea behind the UAB ICRC Seed Grant Program. By funding research and public service projects, the UAB ICRC offers a needed boost for researchers and others who have plenty of ingenuity but limited financial resources.

Through a helping hand from UAB ICRC seed grants, some of these initiatives are able to develop into full-scale research projects that go on to receive major funding and make substantial improvements in injury prevention and control.

The UAB ICRC Seed Grant Program plays a dual role in expanding the prevention and control of injuries throughout the Southeast. First, the UAB ICRC provides grants to faculty at UAB and other universities in the region who need funding to answer an injury-related research question. Second, the center awards seed grants to organizations seeking to provide needed injury-related public services in their communities.

**Research Seed Grants Funded by the UAB ICRC**

- Prospective Study on the Use of Bolus Intrathecal Baclofen for Spastic Hypertonia Due to Acquired Brain Injury
- Worksite Education and Exercise for Back Injury Prevention and Rehabilitation
- Incidence, Type, Severity, and Potential Risk Factors of Agricultural Injuries in Alabama
- Biomechanics of Intra-Articular Fractures of the Acetabulum
- Development of a Finite Element Model As a Predictor of Pelvic Fractures
- Design of a Biodegradable Fracture Fixation System to Reduce Complications in the Elderly
- A Critical Evaluation of Currently Available Fracture Immobilization Devices
- Improving Rehabilitation Outcomes for Burn Patients and Spinal Cord Injury Patients with Pressure Sores
- Falls Among the Elderly
- Managed Care and Rehabilitation Services
- Beer Taxes, Workers’ Compensation, and Industrial Injury
- Legal Alcohol Limits for Motorcycle Operation
- Analysis of Data on Homicide in Alabama: Implications for Prevention Strategies
- The Identification of Ecologically Relevant Classroom Indices of Risk Behavior for Adolescent Suicide
- Epidemiology of Athletic Injuries among Interscholastic Athletes in Birmingham Schools
- Development of Culturally Sensitive Educational Intervention to Affect Motor Vehicle-Related Risk Behavior in a Minority Population
- Prevention of Motor Vehicle Crashes among Teens by Reduction of Alcohol and Drug Use
- Prevention of Head and Neck Impact Injury by Improved Helmet Design
- Development of an Ocular Trauma Score (OTS)
- Evaluation of Domestic Violence Programs in the Outpatient Setting
- Pediatric Pediatric Safety Research
- Head Injury and Endotracheal Intubation Outcomes

**Public Service Seed Grants Funded by the UAB ICRC**

- CAR RESTRAINT PROGRAM
  Perry Hospital, Perry, GA
- SAFE WHILE YOU BIKE
  Davie County Health Department, Mocksville, NC
- PLAYGROUND SAFETY
  Northwest Alabama Council of Local Governments, Florence, AL
- HEAD INJURY PREVENTION
  Brain Injury Association of Mississippi, Jackson, MS
- SHAKEN BABY SYNDROME PREVENTION
  Mid-South Head Injury Association, Memphis, TN
- HEAD SMART
  Roger C. Peace Rehabilitation Hospital, Greenville, SC
- BIKE HELMET SAFETY PROGRAMS
  Richmond County Health Department, Augusta, GA
  Gulfport Police Department, Gulfport, MS
  Upper Savannah Nurse’s Association, Greenwood, SC
  Spartanburg SAFE KIDS, Spartanburg, SC
  Cobb County SAFE KIDS, Marietta, GA
- SAFETY CITY
  Lexington-Fayette Urban County Government, Lexington, KY
- HEAD INJURY PREVENTION OUTREACH PROGRAM
  South Carolina Disability Action Center, Columbia, SC
- PROJECT SAFE RIDE
  Cumberland County Health Department, Fayetteville, NC
- BIKE HELMET AND CAR RESTRAINT PROGRAM
  Mobile County Sheriff’s Office, Mobile, AL
- HEAD INJURY EDUCATION AND PREVENTION PROGRAM
  Brain Injury Association of Georgia, Atlanta, GA
PREVENTION OF FIRE INJURIES THROUGH COMMUNITY INVOLVEMENT

A whooping blast of sound in the middle of the night isn’t anybody’s idea of a pleasant wake-up call. But home smoke alarms are literally lifesavers for the hundreds of Alabamians each year who become victims of house fires.

The UAB ICRC has a long, successful history of working to prevent injuries and deaths due to house fires. The Alabama Smoke Alarm Initiative began in 1997 through the ICRC’s External Advisory Committee and in cooperation with the Alabama Department of Public Health, the UAB Center for Community Resource Development, and the Alabama fire marshal’s office. At the outset the initiative focused on six Alabama communities—in largely rural Wilcox and Perry counties—that were at especially high risk for fires because of poverty and housing conditions.

Today the ASAI provides home fire safety education and installs smoke alarms in at-risk communities—typically low-income areas with historically high fire fatality rates—and is funded by a grant from the Centers for Disease Control and Prevention. With the help of fire departments in seven Alabama counties, the ASAI has installed thousands of smoke alarms in target communities, and more than 130 lives have been saved in these homes.

The UAB ICRC has made the most of the life-saving potential of smoke alarms in one local Birmingham community as well. The president of the North Eastlake Neighborhood Association was in need of smoke alarms for the homes of students at Curry Elementary School. In response to this call for assistance, the ICRC enlisted the help of B.U.R.N.S., a burn survivor group, and the Birmingham Fire Department so that each child’s household had access to UL-approved smoke alarms.

In addition to receiving a smoke alarm, emphasis was also placed on education. A lieutenant from the Birmingham Fire Department held an engaging assembly to teach the children the dangers of fire and what to do in case of a fire—leave the home immediately and call 911. Parents were also instructed on the importance of emergency evacuation plans and shown how to properly install, use, and maintain a smoke alarm.

The UAB ICRC welcomes opportunities such as the Alabama Smoke Alarm Initiative and invitations from local communities, for it wants to improve the lives of people in Alabama communities—the cornerstone of the ICRC’s outreach efforts. The UAB ICRC is driven by its desire to make a difference and know that such activities save lives.

“Among Alabamians, there has been a reduction in the number of deaths and injuries due to fire and flames since the execution of the UAB ICRC’s EAC Alabama Smoke Alarm Initiative. The Fire Marshal’s Office is proud to incorporate and expand such a great program into its infrastructure.”

JOHN ROBISON
ALABAMA STATE FIRE MARSHAL AND MEMBER,
UAB ICRC EXTERNAL ADVISORY COMMITTEE

“Get Out! Stay Out!” Curry Elementary students learn the importance of smoke alarms and emergency exit plans in the event of a fire.
“Knowledge is power,” the familiar aphorism tells us, and one of the chief goals of the UAB ICRC is to empower both health care professionals and the general public by disseminating the wealth of information that it continues to learn about injury prevention, control, and rehabilitation. These ongoing education and training efforts include individual academic courses, conferences, seminars, fellowships, and public service campaigns that utilize the talents of celebrities who are committed to supporting the center’s mission.
THE LEADERSHIP of UAB’s ICRC has another national “first” on its list of achievements by conceptualizing, organizing, and implementing the Injury Control Minority Enrichment Program for faculty and students from Historically Black Colleges and Universities (HBCU). The program was the first of its kind, funded through a 1989 ICRC grant award from the National Center for Injury Prevention and Control.

Today this nationally recognized program encourages and enables black scholars to pursue research in the field of injury control, particularly projects that focus on the special needs of the black community, and investigate the sociological aspects of injury control in this traditionally underserved population.

The most recently affiliated fellow in the Injury Control Minority Enrichment Program is Dr. Benjamin Blagogee, a physician originally from Lagos, Nigeria. In addition to a medical degree, he obtained a Master of Public Health degree from the University of Lagos, Nigeria, prior to his arrival in Birmingham. Blagogee joined the ICRC’s program in 2002 while working on a doctoral degree in health education and promotion within the UAB School of Public Health. Since completing this degree, the ICRC’s most recent HBCU fellow has agreed to remain as a postdoctoral fellow in the UAB Center for Health Promotion.

The center’s Injury Control Minority Enrichment Program has been directed by Vee Stalker, M.P.A., and is funded annually by the ICRC. A total of 29 African-American faculty and students have participated in the center’s unique injury control research fellowship program since its inception in 1990.

The UAB ICRC is deeply committed to enhancing the awareness of injury control among health care professionals and the general public by disseminating information it continues to learn. These ongoing efforts of training and education include a variety of seminars and conferences, university courses, mentoring and fellowships. For example, soon after the ICRC was established in the late 1980s, center leadership began working with deans and interested faculty from various UAB schools, including the schools of Engineering and Public Health, to develop courses providing injury control concepts and principles for their curricula.

PARTNERSHIP WITH THE UAB SCHOOL OF PUBLIC HEALTH

In 1991 Dr. Bill King, an ICRC senior scientist, and Dr. Russ Fine began teaching the first ICRC-sponsored course in the School of Public Health, EPI 603: Injury-Epidemiologic Principles and Prevention Strategies, on an annual basis. In the mid-1990s, Dr. John Waterbor, an ICRC senior scientist and associate professor of epidemiology in UAB’s School of Public Health, assumed Dr. King’s teaching responsibilities and has continued to lead the course since that time.

During the first semester of the 2003-2004 academic year, executive leadership of the ICRC designed and offered for the first time a doctoral seminar course titled EPI 790: Doctoral Seminar in Epidemiology—Intentional Injury and Violence. The course content was geared toward not only graduate students in public health, but also students from UAB’s schools of Medicine, Nursing, and Dentistry and related disciplines such as sociology and medical sociology. In this course, special emphasis was placed on populations in which violence has a disproportionate incidence and impact. The course explored the theoretical bases underlying successful intentional injury countermeasures and addressed methods most likely to control intentional injuries.

EXCELLENCE IN TEACHING: JOHN WATERBOR

It is Dr. Waterbor’s dedication and strong rapport with graduate students in the School of Public Health that consistently has made the injury epidemiology (EPI 603) course one of the highest rated class offerings in the public health curriculum at UAB.

In addition to his ICRC appointment, Dr. Waterbor holds an appointment in the UAB Comprehensive Cancer Center. His major interests are epidemiology, intentional injury prevention (homicide and suicide), and the control of various cancers such as prostate and breast cancer. He teaches a doctoral-level course in chronic disease control, a doctoral seminar in intentional injury
mentioned above, and a course in intermediate epidemiologic methods. He also team-teaches the introductory graduate survey course in injury epidemiology and control with Dr. Russ Fine.

Along with his teaching responsibilities, Dr. Waterbor works with graduate students as director of the Cancer Research Experiences for Students (CaRES) summer internship program and is co-director of a fellowship program for doctoral and post-doctoral students that is funded by the National Cancer Institute. The UAB ICRC is proud to call him a cherished colleague and friend of many years and looks forward to continuing this working relationship in the future.

THE HISTORIC PARTNERSHIP WITH UAB’S SCHOOL OF ENGINEERING

The UAB ICRC’s affiliation with the School of Engineering has resulted in a number of courses that have been developed, revised, or enhanced to expose engineering students to injury biomechanics and other engineering issues relevant to injury prevention and control. ICRC-driven courses in UAB’s School of Engineering include BME 633: Biomechanics: Tissue Mechanics; BME 634: Biomechanics: Analytic Measures; BME 635: Biomechanics: Experimental Measures; BME 656: Biomechanics: Joint Biomechanics; and BME 690: Special Topics in Biomechanics. In addition, multiple master’s theses and doctoral dissertations have been produced from ICRC-sponsored studies and activities. The UAB ICRC is gratified by the success of these students and proud to have played a part in training future biomechanists in the field of injury control. The bond between the ICRC and UAB’s School of Engineering is best exemplified by the joint leadership role played by Dr. Jay Goldman, dean emeritus of the school.

SEMINARS AND CONFERENCES

In an effort to actively disseminate the latest injury control research findings, the UAB ICRC continues to provide opportunities for health care professionals and the general public to learn about various facets within the field. The center sponsors regularly scheduled Research in Progress seminars so that scientists are able to share their findings on injury-related research, whether funded by the ICRC or not, with the UAB community. For example, the Lister Hill Center for Health Policy at UAB, in cooperation with the ICRC, presented a national symposium focusing on the economics of motor vehicle safety in 2002. Presentations covered such timely issues as the safety of teenage drivers, how state laws affect fatalities among older drivers, the effect of gasoline taxes upon automobile fatalities, and the role of regulations with respect to higher risk vehicles such as SUVs, vans, and trucks.

The UAB ICRC participates in hosting Grand Rounds through several departments in the UAB School of Medicine, bringing in world-renowned researchers to speak on cutting edge topics such as “Biomarkers in Medicine: Head Injury and Stroke” and “Emergency Medicine Injury Control Leadership: At the Bedside and Beyond.”

Furthermore, through the ICRC’s long relationship with the Alabama Department of Rehabilitation Services (ADRS) and the Alabama Head Injury Foundation (AHIF), it regularly co-sponsors statewide and regional conferences to benefit the many populations served by ADRS and AHIF. The most recent collaborations include a two-day conference titled “Pediatric-Adolescent Traumatic Brain Injury Conference: Behavioral and Community Reintegration for Children and Adolescents with Brain Injury” and a one-day training session, “Psychiatric Disorders and Brain Injury: Challenges and Issues.” The UAB ICRC staff is always ready and willing to offer support to its affiliates as they work together to prevent catastrophic injuries and improve the outcomes of those who sustain these life-changing events.

“The education of a public health professional would be incomplete without exposure to the field of injury epidemiology. The center continues to broaden its spectrum of courses dedicated to injury prevention and control, opening doors for many students here at UAB.”

DR. JOHN WATERBOR
ASSOCIATE PROFESSOR, UAB SCHOOL OF PUBLIC HEALTH

(continued from previous page)
The UAB ICRC is a collection of highly motivated, talented scientists, clinicians, and support staff who share a unified vision and are working toward a common goal: to help the nation achieve a significant reduction in injury-related morbidity, mortality, and disability, particularly in the southeastern United States, thereby reducing immeasurable human suffering as well as reducing staggering medical and societal costs resulting from injury. As such, the most important asset of the UAB ICRC is its faculty and staff.

To support these individuals, the UAB ICRC Administrative and Operations Core continues to strive toward its objective of creating a highly productive, researcher-friendly environment for the center’s multidisciplinary work. Dr. Russ Fine, founding director of the UAB ICRC, views the administrative and operations core as a supportive entity with a primary role of ensuring that injury control scientists, staff, and community leaders receive the assistance they request and need. Dr. Fine views the administrative core as an effort within an organization driven from the bottom up, rather than from the top down. Since 1989, the UAB ICRC has successfully carried out an ambitious multidisciplinary research, education, and public service agenda through the collaborative efforts of specialists in rehabilitation, acute care, prevention, biomechanics, epidemiology, and health services/health policy-related research.

By providing support, continuity, and focus to these efforts, the UAB ICRC has established itself as a critical interface between researchers and injury control practitioners, and it also has established meaningful links with public health agencies throughout the region. The UAB ICRC Administrative and Operations Core successfully unites these diverse efforts, making the UAB ICRC truly a universitywide “center without walls.”
Russ Fine, Ph.D., M.S.P.H.

ICRC Director and Principal Investigator, Acting Rehabilitation Core Director, Director and Principal Investigator (Southern Consortium for Injury Biomechanics at the UAB ICRC), Professor of Medicine (UASOM), and Professor of Health Care Organization and Policy (SOPH)

Dr. Fine, an injury epidemiologist by training, is the founding director and principal investigator of the University of Alabama at Birmingham’s Injury Control Research Center (UAB ICRC). He supervises and directs the UAB ICRC’s overall operations and has final responsibility for decisions regarding program, management, fiscal, and policy-related matters. Dr. Fine is a graduate of Southern Illinois University, the University of Missouri Medical Center, and the University of Oklahoma Medical Center. He has experience in many areas of injury, from investigating commercial and private aviation crash sites for the Federal Aviation Administration to establishing and directing the Illinois Department of Public Health’s Statewide Pediatric Lead Poisoning Program.

He was recruited by UAB and joined the Department of Rehabilitation Medicine in early 1975, and he achieved the rank of full tenured professor in 1983. Dr. Fine served as director of research and scientific affairs, director of research for the NIDRR-sponsored Medical Rehabilitation Research and Training Center in Spinal Cord Dysfunction, co-director of the UAB Spinal Cord Injury Care System, and co-director of the National Spinal Cord Injury Statistical Center.

In 1988, Dr. Fine was appointed professor of medicine in the UAB Department of Medicine’s Division of Clinical Immunology and Rheumatology. In addition, he holds a secondary appointment in the UAB School of Public Health’s Department of Health Care Organization and Policy. He is a fellow of the American College of Epidemiology and a member of numerous other professional organizations, including the American Congress of Rehabilitation Medicine, the World Federation of Neurology, the New York Academy of Sciences, and the Society of Sigma Chi. Dr. Fine was chairman of the Governor’s Task Force on Drunk Driving for the state of Alabama and was cofounder of Mothers Against Drunk Driving in Alabama, serving as president of that organization in Jefferson County from 1984 to 1986.

He is the author or coauthor of more than 100 contributions to scientific literature and numerous funded and peer-reviewed scientific research grants that have brought more than $40 million to UAB since 1975. In 1993, the story of his personal relationship with a despondent quadriplegic contemplating suicide was the subject of The Switch, a widely acclaimed made-for-television movie that was broadcast nationwide on CBS.

“To see such enormous productivity, despite the ICRC’s modest resources, attests to the center’s hard work and desire to serve the people of Alabama and the nation. I am especially gratified by the exciting developments in the area of biomechanics at the ICRC. The innovation and research of the center have earned UAB much respect in this area.”

THE HONORABLE RICHARD SHELBY
U.S. SENATOR

—29—
Because the UAB ICRC is a comprehensive center, its faculty are involved in prevention, acute care, rehabilitation, and injury biomechanics-oriented research, training, and service initiatives. Although refinements in the organizational structure are planned for the next grant funding cycle (2004-2009), injury control at UAB has historically been organized into cores, within which individual research projects have been conducted. Core directors have provided leadership within each core area. Complementing and supporting that effort, Dr. Fine and the Executive Subcommittee have worked closely with the core directors to help maintain the overall direction and scientific integrity of each core’s research.

Jay Goldman, D.Sc., M.S.

Acting ICRC Assistant Director and Prevention/Biomechanics Core Director
Dean Emeritus, School of Engineering

Dr. Goldman is a graduate of Duke University, Michigan State University, and Washington University in St. Louis. He is dean emeritus of the UAB School of Engineering, where he has been a professor since 1984. Prior to affiliating with UAB, Dr. Goldman was a professor and chairman of the Department of Industrial Engineering at the University of Missouri at Columbia in addition to being a professor of bioengineering. His research and teaching interests over the years have focused on administrative organization and system design for productivity and quality enhancement in the manufacturing and service industries, the design of man-machine work systems, measuring human performance, and exploring human factors in engineering.

Dr. Goldman currently serves as an ICRC assistant director and the director of the Prevention/Biomechanics Core. He has authored or coauthored 75 technical publications, presented some 100 technical presentations, and contributed to numerous textbooks during his career. Due to his comprehensive knowledge of the field of engineering and biomechanics, he has been a consultant to 35 local and national organizations as well as to the United States government. Dr. Goldman is a member of the American Society for Engineering Education and a life member of the Institute of Industrial Engineers, the National Society of Professional Engineers, and several other organizations. He has held membership on 36 federal, state, and university national advisory panels and study sections.

Kurt Denninghoff, M.D.

ICRC Assistant Director and Acute Care Core Director
Associate Professor of Emergency Medicine

Dr. Denninghoff graduated magna cum laude with a double major in biomedical and electrical engineering from Vanderbilt University, where he also completed his medical training. He joined the UAB School of Medicine faculty in 1993, and in 2000 he earned the rank of associate professor of emergency medicine. Dr. Denninghoff is the research director for the Department of Emergency Medicine, a position he has held since 1995. He is a diplomate of the American Board of Emergency Medicine, a founding member of the American Academy of Emergency Medicine, a member of the Society for Academic Emergency Medicine, and a member of the American College of Emergency Physicians. He has twice served as an overall center reviewer for the Centers for Disease Control and Prevention’s NIOSH Farm Centers.

Dr. Denninghoff is chairman of the Department of Emergency Medicine’s Research Advisory Committee and the founder and first faculty advisor for the UAB School of Medicine’s Emergency Medicine Society. In addition, Dr. Denninghoff is the principal investigator for the UAB eye oximeter program, a secondary project in the ICRC’s Acute Care Core.

His previously completed funded research studies examined aspects of retinal venous oxygen saturation, changes during blood loss, and hypoxia. Dr. Denninghoff has renewed this multiyear research project through grant awards from the Office of Naval Research. The initiative allows him to study additional aspects of the eye oximeter for noninvasive monitoring. This effort is developing significant instrument improvements, such as an infrared retinal viewing system, and a next-generation device will be constructed and tested.
CMC Members

The Center Management Committee (CMC) is a small group of high-level policy and decision makers from within UAB whose mission is to support the UAB ICRC director, core directors, and staff. The CMC meets regularly to make important decisions pertaining to the center’s activities and to give its recommendations to the director. The CMC members’ varied areas of expertise—from health care policy to engineering to neurotrauma and injury epidemiology—make it an accurate representation of the multidisciplinary nature of the ICRC.

“Through involvement in center leadership, I continue to be gratified by how well the research initiatives of the ICRC’s rehabilitation core complement work done elsewhere in the Division of Clinical Immunology and Rheumatology.”

DR. ROBERT P. KIMBERLY
HOWARD L. HOLLEY PROFESSOR AND DIRECTOR
UAB DIVISION OF CLINICAL IMMUNOLOGY AND RHEUMATOLOGY

ICRC on the Web

The UAB Injury Control Research Center has a new Web site with a cutting-edge look and feel. Visit WWW.UAB.EDU/ICRC for the latest news around the UAB ICRC, including:

- the most recent edition of the center newsletter, The Informer,
- listings of new center-supported and -related publications and presentations,
- descriptions of projects within the Southern Consortium for Injury Biomechanics at the UAB ICRC,
- a comprehensive center profile,
- overviews of faculty and staff; and
- helpful injury control and prevention links.

Bookmark the page and visit often to check out updates on UAB ICRC activities.
The External Advisory Committee (EAC), organized of 15 leaders from Alabama and elsewhere, serves as an extramural adviso-
ry group to the UAB ICRC. Made up of leaders in fields ranging from business and education to government and health care, the EAC represents a large and varied
group of constituents. This entity acts as a forum to provide input into operations and express new ideas on injury control.

One highly recognized effort of this association has resulted in fewer fire-relat-
ed injuries and deaths in Alabama through its initiative to promote smoke alarms
statewide. Members include the following:

Mr. Schuler Brown
B.U.R.N.S.

Ms. Augusta Cash
State Head Injury Coordinator, Alabama Department of Rehabilitation Services

Dr. Leon Frazier
Vice President for Administrative Services, Alabama State University

Dr. Melissa Galvin
Interim Associate Dean, UAB School of Public Health

Ms. Linda Goodson
Director, Center for Community Health Resource Development, UAB

Dr. Jack Hataway
Medical Director, Chronic Disease Prevention, Alabama Department of Public Health

Mr. Leland Holman
Executive Director, American College of Emergency Physicians

Mr. Steve Shivers
Commissioner, Alabama Department of Rehabilitation Services

Dr. Donald Marion
Center for Injury Research and Control, University of Pittsburgh

Dr. Warren McCord
Alabama Cooperative Extension System, Auburn University

Ms. Carol Mysinger
Alabama Department of Public Health

Dr. Steve Nagy
Health Education Department, University of Alabama

Dr. J. Scott Richards
Director of Research, UAB Physical Medicine and Rehabilitation

Mr. John Robison
Fire Marshal, State of Alabama

Mr. John Ward
President/Executive Director, National Safety Council, Alabama Chapter

UAB ICRC HEADQUARTERS STAFF

Russ Fine, Ph.D., M.S.P.H.
ICRC Director, Principal Investigator, and Acting Rehabilitation Core Director
Professor of Medicine and Professor of Health Care Organization and Policy

Jay Goldman, D.Sc., M.S.
Acting Assistant Director, Prevention/Biomechanics Core Director
Distinguished Service Professor and Dean Emeritus, School of Engineering

Kurt Denninghoff, M.D.
ICRC Assistant Director, Acute Care Core Director, and Medical Director
Associate Professor of Emergency Medicine

Gail Hardin
ICRC Executive Assistant

Al Bartolucci, Ph.D.
ICRC Senior Scientist
Professor of Biostatistics

John Bolland, Ph.D.
ICRC Senior Scientist
Senior Research Social Scientist, The University of Alabama

Kathy Bolland, Ph.D.
ICRC Senior Scientist
Bachelors of Social Work Program Chair, The University of Alabama

Michael DeVivo, Ph.D.
ICRC Senior Scientist
Professor of Physical Medicine and Rehabilitation

Steven LoBello, Ph.D., M.S.P.H.
ICRC Senior Scientist
Professor of Psychology, Auburn University at Montgomery

Debra McCallum, Ph.D.
ICRC Senior Scientist
Director of the Institute for Social Science Research and the Capstone Poll, The University of Alabama

Vee Stalker, M.P.A.
ICRC Assistant Director for Public Affairs

Katherine Terry, M.P.H.
ICRC Program Administrator

Andrea Underhill, M.S., M.P.H.
ICRC Project Administrator

ASSOCIATES, AFFILIATES, AND PARTNERS OF THE UAB ICRC

UAB Department of Public Health
Injury Prevention Division

Alabama Department of Rehabilitation Services

Alabama Head Injury Foundation

Alabama SAFE KIDS
American College of Emergency Physicians, Alabama Chapter

Auburn University

Birmingham Fire and Rescue Service

Bruno's Memorial Classic

Colorado State University Injury Control Research Center

Duke University

Emory University

Georgia Institute of Technology

Jaycor Inc.

Jefferson County, Alabama, Coroner/Medical Examiner's Office

The Johns Hopkins University

National Highway Traffic Safety Administration

National Association of Injury Control Research Centers

Rice University

Southeast Child Safety Institute

Southeastern Regional Injury Control Network

Southwest Research Institute

State and Territorial Injury Prevention Directors Association

State of Alabama Fire Marshal's Office

Tuskegee University

University of Alabama School of Medicine

Arthritis and Musculoskeletal Disease Center

Department of Medicine

Department of Physical Medicine and Rehabilitation

Division of Clinical Immunology and Rheumatology

Medical Rehabilitation Research and Training Center in Spinal Cord Dysfunction

Model Regional Spinal Cord Injury System

National Comprehensive Head Injury Center

UAB Center for Emergency Medicine

Disaster Preparedness

UAB National Spinal Cord Injury Data Center

UAB School of Engineering

UAB School of Health Related Professions

UAB School of Public Health

Center for Health Promotion

Department of Biostatistics

Department of Epidemiology

Department of Health Care Organization and Policy

Lister Hill Center for Health Policy

UAB School of Social and Behavioral Sciences

Department of Psychology

Department of Sociology

United States Eye Injury Registry

University of Alabama

Department of Computer Science

Institute for Social Science Research

University of Alabama in Huntsville

Department of Physics

University of North Carolina, Chapel Hill

Center for Developmental Science

Injury Prevention Research Center

University of Pennsylvania

University of Pittsburgh Center for Injury Research and Control

University of South Alabama

University of Texas at Austin

University of Virginia

U.S. Army Aeromedical Research Laboratory

Virginia Polytechnic Institute and State University

Wayne State University

West Virginia University

UAB ICRC EXTRAMURAL REVIEW

The leadership of the UAB ICRC continues to be committed to periodically conducting rigor-
ous external reviews of its activities and pro-
grams. Acting on the recommendation of Dr. Fine, the center once again invited a team of
outside experts from other universities, rehabil-
itiation hospitals, and government agencies to
conduct an extramural review that took place
in February 2002.

The review, done by nationally recognized
individuals with special expertise in their indi-
vidual content areas and no ties to the center
or its governance, provides an impartial quality
assessment of the ICRC and its operations.
In an effort to continually improve the quality
of work performed by the center, Dr. Fine, along
with the ICRC's executive leadership and core
directors, seriously considers changes and pro-
vides improvements recommended by the
extramural review members.

PROJECTS IN PROGRESS AND COMPLETED BY THE UAB INJURY CONTROL RESEARCH CENTER SINCE 1989

Effects of Impact Loading on Articular Cartilage*

Kerry Ananthasou

Biomechanics of Intra-Articular Fractures of the Acetabulum

Development of a Finite Element Model as a Predictor of Pelvic Fractures

A Critical Evaluation of Currently Available Fracture Immobilization Devices

Martha Bidez

Worksite Education and Exercise for Back Injury Prevention and Rehabilitation

Kathleen Brown

A Longitudinal Study of the Role of Sociodemographic Factors and Childhood Aggression in Adolescent Injury and "Close Calls"


Robert Cairns

Evolutionary Design of Finite Element Meshes for Injury Biomechanics Research*

Brian Carnahan

Realistic Education on Alcohol and Drugs for Youth: Project READY

Eye Oxiometry for Trauma Care

Head Injury and Endotracheal Intubation Outcomes

Kurt Denninghoff

The Effects of Orbital Muscles on Eye Injury Biomechanics*

Stefan Duma

Development of a Numerical Model for Investigators of Injury Predictors*

Evangelos Eleftheriou

Violence and Competence in Minority Youth: Prediction and Prevention

Thomas Farmer

Skin Substitute for Treatment of Burns and Pressure Sores

Improving Rehabilitation Outcomes for Burn Patients and Spinal Cord Injury Patients with Pressure Sores

Design of a Biodegradable Fracture Fixation
WHAT IS THE UAB INJURY CONTROL RESEARCH CENTER (ICRC)?
The UAB ICRC—one of 11 nationally recognized centers which receive funding from the Centers for Disease Control and Prevention's National Center for Injury Prevention and Control—is a broad, scientifically based unit located in the University of Alabama School of Medicine. UAB ICRC faculty conduct interdisciplinary research, training, and public service projects addressing injury control through prevention, acute care, rehabilitation, and biomechanics.

WHAT IS THE CENTER’S PRIMARY FOCUS AND WHAT ARE THE CENTER’S TARGET POPULATIONS?
Center leadership has adopted a contemporary public health model applied in a community setting, focusing on injury prevention in vulnerable populations. The center’s historic focus on rehabilitation has been retained as an important research priority, with a principal emphasis on long-term rehabilitation outcomes. Target populations include children, women, the elderly, motor vehicle operators and passengers, residents of rural communities, and African-Americans, especially inner-city youths.

WHAT IS THE DEFINITION OF AN INJURY?
An injury is damage to the body that results from acute or chronic exposure to thermal, mechanical, electrical, or chemical energy; exposure to radiation; or the absence of essentials such as heat or oxygen. This damage can result from events that are either unintentional or intentional, including motor vehicle crashes, falls, poisoning, drowning, suffocation, burns, domestic violence, homicide, or suicide.

AREN’T MOST INJURIES SIMPLY THE RESULT OF “ACCIDENTS”?
Although injuries have traditionally been regarded as accidents, injuries, like diseases, do not occur at random. The majority of injury-related events are predictable and preventable. Thus the term ‘accident’ is really a misnomer.

JUST HOW BIG IS THE INJURY PROBLEM?
It’s difficult to overstate the significance of the injury problem, as the statistics indicate below:
- Injuries are the leading cause of death for people under 44 years of age.
- Each year in the U.S., an estimated 150,000 people die as a result of injuries. In Alabama alone, injuries kill more than 3,000 people a year, the equivalent of one death every three hours.
- Approximately 130 million people require medical care for injuries each year.
- Although the greatest cost of injury is in human suffering, the financial cost of unintentional injuries in 2003 is estimated to be nearly $122 billion. Furthermore, injuries cost about five million years of perfect life lost each year, exceeding years lost to cancer or heart disease.

WHY HAS THE RATE OF INJURY NOT BEEN SUBSTANTIALLY REDUCED IN THE PAST?
Research on injury prevention and control receives less than two cents out of every federal dollar spent on health-related research. Another reason, one the UAB ICRC is working to change, is that trained manpower in injury prevention has been inadequate in communities conducting primary prevention programs.

WHAT IS THE UAB INJURY CONTROL SERVE ME AND MY COMMUNITY?
UAB ICRC faculty and staff provide technical assistance to communities conducting primary prevention programs, disseminate information in support of a wide variety of injury control initiatives, and promote specific injury control interventions targeting high-risk populations. Thus the UAB ICRC can be viewed as a community resource for obtaining injury-related information and providing community-based interventions.

IN WHAT WAYS CAN THE UAB ICRC SERVE ME AND MY COMMUNITY?
- System to Reduce Complications in the Elderly
- Home Health Delivered: A Mobile Solution in Your Wound Healing Response to a Modified Candidate-Driven Framework
- Data Federation
- A Study of Hazards Associated with the Generation, Transmission, and Distribution of Electrical Power in a Medium-Voltage Southeastern State
- Analysis of Injury Data from the Housing Authority of the Birmingham Division (HABD)
- Analysis of Occupational Injuries Experienced at the Birmingham Race Course
- The Southern Consortium for Injury Biomechanics at the UAB Injury Control Research Center
- The Ongoing Longitudinal Study of Rehabilitation Outcomes
- Are Newsletters a Valuable Source for Intentional Injury Surveillance Data?
- steep flux
- The Identification of Ecologically Relevant Classroom Indicators of Risk Behavior for Adolescent Suicide
- Nevita Goldman
- Factors Influencing Failure to Return to Work Following a Traumatic Brain Injury
- Arlene Greenspan
- Fatal Incidents Involving Pickup Trucks in Alabama
- Brent Hamor
- Epidemiology of Athletic Injuries Among Interscholastic Athletes in Birmingham Schools
- James Hylarides
- Evaluation of Domestic Violence Programs in the Outpatient Setting
- Ashley Hodges-Segars
- Determination of Cervical Spine Substructure Mechanical Properties
- Marcus Hudson
- Incidence of Respiratory Complications Following Spinal Cord Injury
- Anna Jackson
- Evaluation of the Hospital Pediatric Care Practices of EMS Personnel
- William King
- Development of an Occlusal Trauma Score (OTS)
- Fernie Kuhn
- Brain Cell and Tissue Injury Tolerance to Traumatic Loading
- Michelle LaPio
- Declining Use of Firearm in Alabama Suicide in the 1980s
- Analysis of Data on Homicide in Alabama: Implications for Prevention Strategies
- Thipsi Lui
- Increasing the Use of the Glasgow Coma Score in Hospital Emergency Departments: Determinants of Self-Efficacy Among Persons With Spinal Cord Injuries
- David Marcotte
- Incidence, Type, Severity, and Potential Risk Factors of Agricultural Injuries in Alabama
- Michael Mann
- Health Status (SF-36) Barriers to Return to Work for Persons with Musculoskeletal Disability
- Increased Enrollment of Persons Unemployed Due to Musculoskeletal Disability in Vocational Rehabilitation Services Barriers to Participation in State-Federal Vocational Rehabilitation Services for Persons with Work-Related Musculoskeletal Disability
- Richard Marziale
- Biomechanical Response of the Pelvis to Automotive Seat Impact
- Kenneth Mann
- Numerical/Performance Evaluation of SIMon
- David Money
- Legal Alcohol Limits for Motorcycle Operation
- The Influence of Alcohol Consumption on Motorcycle Operation
- Richard Meyer
- Modeling of Off-Highway Accidents Injuries: A Research Applicable Model
- Prospective Study on the Use of Inhaled Intratracheal Bacillus for Spastic Hypertonia Due to Acquired Brain Injury
- Jay Meythaler
- Bear Bites: Workers’ Compensation, and Industrial Injury
- Michael Morrissey
- Pediatric Head and Neck Injury: Computed Tomography and Analysis of Neck Injuries in Vehicular Collisions
- Barry Myers
- Sequential Performance on the California Verbal Learning Test Following Traumatic Brain Injury
- Outcomes Measurements Following Traumatic Brain Injury
- Thomas Novack
- The Influence of Intentionality on Rehabilitation Outcomes in New Orleans
- J. Scott Richards
- Injuries Among Southern African-American Farm Workers
- Jeffrey Roseman
- Cerebral Perfusion Pressure Management Protocol and Clinical Results
- The Role of Tension (THAM) Therapy in Intracranial Pressure in Severe Brain Injury
- Michael Rosner
- Pedestrian Pedestrian Safety Research
- David Schwebel
- Outcome of Upper Extremity Constraint-Induced Therapy after TBI
- Sharon Shaw

Problem Solving Interventions with Video Teleconferencing Technology for Caregivers of Persons with SCI
- Richard Shewchuk
- Prevention of Motor Vehicle Crashes Among Teens by Reduction of Alcohol and Drug Use
- Pamela Valtman
- The Association between the Rehabilitation Process and Increased Life Satisfaction in Spinal Cord-Injured and Traumatic Brain-Injured Individuals
- Carolle Webb
- Comprehensive Youth Violence Center
- Michael Windle
- Awareness of Vocational Rehabilitation Services (VRS) Following Traumatic Brain Injury and Other Potentially Disabling Injuries
- Explaining Quality of Life for Persons With Traumatic Brain Injury Two Years After Referral to Rehabilitation One Year Post-Injury: A Comparative Analysis
- The Relationship Between Money Spent for Acute Care and Rehabilitation and Long-Term Outcome Following Serious Injury
- The Relationship Between Post-Rehabilitation Employment Outcomes and Outcomes
- Michael Winick
- Prevalence, Type, and Associated Injury Factors Among Alabama Farm Operators in 1990
- Agricultural Injuries Among a Population-Based Sample of Farm Operators in Alabama
- Chun Zhou

*projects supported by or associated with the Southern Consortium for Injury Biomechanics at the UAB ICRC
To learn more about the activities of UAB’s Injury Control Research Center, check out the informative, user-friendly Web site at http://www.uab.edu/icrc/. Every effort is made to ensure that the information on the site is kept current.

The ICRC also contributes center-specific information to the Web site of the National Association of Injury Control Research Centers at http://www.naicrc.org, which is maintained by the Center for Injury Control Research at the University of Pittsburgh, and to the VINCENT Web site (Violence and Injury Control through Education, Networking, and Training on the Internet) maintained by the Injury Prevention Research Center of The University of North Carolina at Chapel Hill: http://www.ibiblio.org/vincentweb.