National University of Ireland, Galway
Ollscoil na hÉireann, Gaillimh

Research Matters

Cúrsaí Taighde in Ollscoil na hÉireann, Gaillimh

NUI Galway Scientists to Combat the Scourge of Chronic Pain

Chronic, persistent pain affects millions of people worldwide, significantly impairing health and well-being, and is the most common symptom for which patients seek medical help. In Ireland, over half a million people suffer from chronic pain on a daily basis.
A world-class pain research group is to be established in NUI Galway, under the direction of Dr David Finn, Department of Physiology, who has recently been awarded a President of Ireland Young Researcher Award (PIYRA), worth in excess of €900,000. This is Science Foundation Ireland's most prestigious award which attracts world-class researchers.

The overall objective of Dr Finn's research is to advance understanding of the neurobiological mechanisms by which stress impacts on pain, inflammation, mood disorders and cognition.
Suffering due to persistent pain has significant, far-reaching socio-economic consequences. In the working population, lower back pain is responsible for more disability than cancer, heart disease, stroke and AIDS combined.

One in six people in Ireland suffering from pain has lost a job because of their condition and pain costs the Irish economy over €1.2 million per week in disability benefit payments alone (Pain in Europe Study, 2003). According to Dr Finn, "Pain is likely to become an even greater medical and socioeconomic problem in countries like Ireland, which have an increasingly ageing population."

The proposed research at NUI Galway will make a significant contribution to international

neuroscience in three different research fields; pain, aversion (i.e. stress and anxiety) and cannabinoids, and will be unique in bringing together these three fields. Cannabinoids are the biologically active constituents of the cannabis plant or their biologically active synthetic analogues.

"We now know that humans possess a so-called endogenous cannabinoid system which mediates the effects not only of cannabis itself but of synthetic cannabis-like drugs and chemicals called 'cannabinoids'", explains Dr Finn. "Moreover, humans and other animals possess cannabis-like substances in the brain called endocannabinoids which form part of the endogenous cannabinoid system."

Increased knowledge of how this endogenous cannabinoid system (which is somewhat akin to the endogenous opioid system) works, is leading to the identification of new therapeutic targets for the treatment of painful disorders such as neuropathic pain and multiple sclerosis and has the potential to yield new therapies for the treatment of anxiety disorders.

The research at NUI Galway has the potential to re-shape our understanding of the fundamental physiology of the analgesic and aversive systems. "The novel behavioural, neurochemical and molecular data generated should be of interest and use to researchers in both academia and industry worldwide, and new mechanisms and potential therapeutic targets may emerge," says Dr Finn. With the PIYRA award, Dr Finn will be supervising a group of post-doctoral researchers and PhD students. "The research group will be an authoritative source of expertise on pain and anxiety and will generate a wealth of new knowledge which will contribute significantly to the development of new drugs, supporting ongoing research by the pharmaceutical industry in this area," he says.

An additional objective of the research project is to train PhD students and post-doctoral researchers, equipping them with the integrative behavioural, neurochemical and molecular biology skills necessary for the future advancement of knowledge and growth within academia and the biotechnology/pharmaceutical industry, thus supporting Ireland's advance towards a knowledge-based economy. The research will be carried out in collaboration with the Department of Pharmacology and the National Centre for Biomedical Engineering Science at NUI Galway.

Photo: Dr David Finn

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IN THIS ISSUE

Message from the Vice President for Research

Welcome to this edition of Research Matters. My first strategic initiative as Vice-President for Research has been to commence widespread discussions throughout the University with a view to giving every individual member of staff the opportunity to express an interest in engaging with collaborative research. Discussion has been conducted through the Deans and Vice-Deans of Research in each Faculty and the directors of the major research Centres and Institutes that have been funded under successive PRTLI and Science Foundation Ireland programmes. New members of staff and contract researchers, who will not have had a previous opportunity to involve themselves with institutional bids for funding, have been the focus of these discussions.

The major funding opportunity expected in the coming months is the Programme for Research in Third Level Institutions Cycle 4. The Research Office will promote a discussion on the formulation of an institutional bid for funding once the details of the programme are announced. Many funding instruments and opportunities will become available through the 7th Framework Programme of the European Union, which, for the first time, will have a substantial budget allocation for the Humanities and Social Sciences. Three seminars on 'Getting Ready for Framework 7' will be held in the coming weeks, the first being scheduled in November, for managers and directors of Centres and Institutes. A second will take place in early December (once academic teaching has concluded) for researchers in Science, Engineering and Medicine and a third, for researchers in the Humanities and Social Sciences, will be held after a general information session on this topic has taken place in Brussels on the 12-13th December.
The Research Office will continue to keep staff members informed of smaller scale funding opportunities such as those being provided through the IRCHSS and IRCSET.

Pictured, Professor Nicholas Canny, Vice-President for Research

Assessing parental attitudes as MMR uptake falls short of targets

A study by Dr Jane Walsh and Ms Sandra Hoare at the Department of Psychology on factors influencing the uptake of the MMR (Measles, Mumps and Rubella) vaccine has shown that despite a high number of parents indicating they would have their child vaccinated with the MMR injection, the number doing so is significantly lower than the 95% needed to provide so-called 'herd immunity'.

Funded by the Health Services Executive, the study questioned over 2,000 consecutive cases of parents due to bring their child for MMR vaccination in the Western region. A questionnaire assessing attitude, emotional factors, risk assessment and intention was sent to parents and the response rate was 57%.

The results showed that over 94% of parents reported that they were 'very' or 'extremely' likely to bring their child for the MMR. Despite this, only 70% of parents had brought their child for the MMR within 3 months of receiving the letter of invitation (average delay 33 days). According to Dr Walsh, "Demographic factors were not related to attendance. Parents who saw the diseases as more severe and who anticipated regret over not attending were the most likely to bring their child for the MMR."

The study also tested two interventions to increase MMR uptake. The first of these involved asking parents to form an 'action plan', i.e. to plan their appointment to bring their child for vaccination. The second study looked at sending half the parents a booklet called *"Measles, Mumps and Rubella (MMR): your questions answered"* HSE (2002). Neither intervention resulted in increased attendance rates, although providing the booklet resulted in shorter delays (11 versus 21 days) between invitation and attendance than those in the control group.

The results of the study suggest that providing additional written information or asking parents to plan their appointments do not result in increased rates of attendance for the MMR. The favourable attitudes toward the MMR are promising, but translating these into action remains a challenge for the HSE. General Practitioners may hold the key to promoting the uptake of MMR.

Research holds potential for spinal cord injuries

Scientists at the Regenerative Medical Institute (REMEDI) have a strong interest in spinal cord repair and are pursuing an ambitious programme in this area. Traumatic spinal cord injury (SCI) is one of the most disabling conditions to affect humans. In Ireland the estimates are that one individual per week has SCI as a result of a traumatic accident. About 75% of SCI victims in Ireland never return to work, according to Spinal Injuries Ireland, a national support agency that provides a resource facility for people who have sustained spinal cord injuries and for their families.

The recent appointments of Dr Cathal Moran and Prof Anthony Windebank to the Institute provide a critical mass of expertise in this area. The researchers are working on a programme to develop treatments for spinal cord injury and are investigating the use of stem cell and gene therapy products with biomaterial scaffolds. This new research programme will become a significant element of REMEDI's research activity, which may provide new treatment options for patients.
Professor Windebank, from the Mayo Clinic, Rochester, Minnesota, comes to REMEDI on a Science Foundation Ireland E.T.S Walton Fellowship. As Professor of Neurology at the Mayo Clinic College of Medicine, his research interests focus on repair and regeneration of tissue after spinal cord injury. Dr Moran, a NUI Galway medical graduate, joins REMEDI from the Mater Hospital where he was Orthopaedic Registrar. Dr Moran travelled to the US to train in this area and spent time working with Prof. Windebank at the Mayo Clinic as well as receiving training at the Reeve-Irvine Spinal Cord Research Institute, at UC Irvine, California.

Research Matters is published by the Press & Information Office, in association with the Office of the Vice President for Research. Items for publication, views, comments, and suggestions are all welcome.
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Focus on

Irish Centre for

Social Gerontology

A new €5m Irish Centre for Social Gerontology based at NUI Galway is to develop and promote research on social ageing in Ireland with a view to promoting a holistic and positive view of ageing that emphasises participation and empowerment for older people at all levels of society.

The first of its kind in Ireland, the Centre will offer research expertise and practical support to public, private and voluntary agencies involved in the formulation and implementation of public policy for older people at international, national, regional and local levels.

Professor Eamon O'Shea of the Department of Economics has been appointed Director of the Centre for a five year term. His role will see him lead, co-ordinate and integrate multi-disciplinary research activity within the Centre. Prof. O'Shea, who has an outstanding record of achievement in the field of ageing in Ireland and internationally, has advised the Department of Health and Children and various international agencies on policies for older people.

The growing interest in understanding the process of ageing has given rise to the multi-disciplinary field of gerontology, which includes the study of biological, psychological, social and economic aspects of ageing. Social gerontology is concerned with the impact of social, socio-economic and socio-cultural conditions on the process of ageing and with the broad social consequences of this process. Social gerontologists examine how the older population and the range of ageing experiences both affect and are affected by the economic and social structure within a society.

The need for the development of social gerontology in Ireland is particularly important given the changes that are expected in ageing populations over the coming decades. The number of older people in the population aged 65 years is expected to double by 2036. There will be a significant increase in the very old population (i.e. those aged 80 years and over) from 98,000 in 2001 to a projected 323,000 in 2036. Social gerontology can make a significant contribution by examining the likely impact of these and other socio-economic changes at micro and macro levels in society.

THE CENTRE HAS FOUR OBJECTIVES:

- To celebrate ageing and be a resource for individuals, agencies and organisations concerned with ageing in Ireland
- To conduct, report and disseminate research and information on social gerontology of national and international importance
- To facilitate linkages and disseminate ideas among policymakers, researchers, practitioners and older people in the age sector in Ireland
- To provide timely advice, information, training and policy-research support to community-based groups, NGOs and voluntary agencies involved in age-related activities.

The Centre has secured significant funding from Atlantic Philanthropies which will allow for a considerable enhancement of existing multi-disciplinary research on ageing in the University and throughout Ireland. The networks and relationships necessary to carry out such research already exist within NUI Galway and the new Centre will provide the focus for greater multi-disciplinary output on ageing within the University.

The new Centre will provide evaluative and analytical policy support to people working in the field of ageing in Ireland. There is currently no such service available to older people or their representatives. It will also offer the expertise to evaluate ageing projects and programmes across the country as well as information on projects and programmes that have resulted in enhanced well-being and quality of life for older people.

INTENDED OUTCOMES FOR THE PROJECT:

- Short-term outcomes include the establishment of the Centre, the provision of the first Masters programme in social gerontology in Ireland and the supply of reliable, accurate and timely information on the ageing sector for voluntary and community groups and other organisations representing older people.
- Medium-term outcomes involve the Centre becoming the coordinator and focal point for research in ageing and social gerontology in Ireland and it being regarded as a model for the development and promotion of a holistic and positive approach to ageing in society.
- Long-term outcomes of the Centre envisage the enhancement of public policy for older people through the work of the Centre as well as it emerging as a centre of expertise that will be recognised nationally and internationally as a leader in social gerontology research.

The establishment of the Irish Centre for Social Gerontology at the University provides a timely opportunity to develop and nurture research on social gerontology in Ireland. This integrated unit, with its interdisciplinary research teams, will enhance the potential and scope of ageing research in the country, thereby making an important contribution to the formulation, implementation and evaluation of public policy for older people. The Centre will make a significant contribution to ageing research in Ireland and provide important support for the development of better information on ageing issues leading to more informed policy-making for older people in the country.

Pictured: Professor Eamon O'Shea

Researchers estimate economic cost of suicide

Researchers in the Department of Economics have estimated that the economic cost of suicide in Ireland could be as high as €900 million a year. Brendan Kennelly, Jane Ennis and Professor Eamon O'Shea prepared the estimates as part of the recently published National Strategy for Action on Suicide Prevention. Their figures show that investment in suicide prevention and mental health promotion could yield significant economic returns in addition to bringing obvious benefits in the form of lives saved and emotional trauma avoided.

According to Brendan Kennelly, who is Head of the Department, there are three kinds of potential economic costs associated with suicide: direct, indirect and human.
"Direct costs are explicit monetary outlays associated with suicide and its aftermath," he explains.
"The most important costs are the indirect and human costs. Indirect costs refer to the value of lost output or production arising from suicide and incorporate the value of both paid and unpaid productive work that can no longer be performed because of premature mortality. These were estimated to be more than €250 million in 2001. Human costs, which refer to the value that individuals place on their lives beyond their capacity to work, were estimated to be over €650 million in 2001."

Brendan Kennelly said it was important to understand that the research did not imply that the main problem with suicide was its economic cost to society. "It is impossible to measure the emotional trauma caused by suicide. The main objective of the research was to show that interventions to reduce suicide which cost money could make sense from an economic point of view as well as being worthwhile from a non-economic perspective."

He added that the National Strategy for Action on Suicide Prevention was an important development for Ireland and he hoped that all of its recommendations would be implemented without delay.

Improving manual handling at Dublin Airport

Research by the Department of Industrial Engineering formed the basis of a report recently launched by the Health and Safety Authority (HSA) and Dublin Airport Authority (DAA) on manual handling practices at Dublin Airport. The report was the culmination of three years research conducted by senior lecturer Enda Fallon and research ergonomist Caroline Duignan, at the Centre for Occupational Safety Engineering and Ergonomics (COSEE) based at the department.
A number of research assistants and graduate students from the M.Sc Occupational Health & Safety and Ergonomics course also contributed to the work.

The project involved significant international collaboration with a range of ground-handling companies; Birmingham, Dusseldorf and Frankfurt International Airports; and Telair International in Sweden. The report made a series of evidence-based recommendations for the airport operator, ground-handling companies, airlines, and ground service equipment manufacturers with respect to manual handling of baggage. Significant emphasis was also placed on the handling of Passengers with Reduced Mobility (PRM) and the provision of advice to passengers with regard to the health effects of heavy baggage.

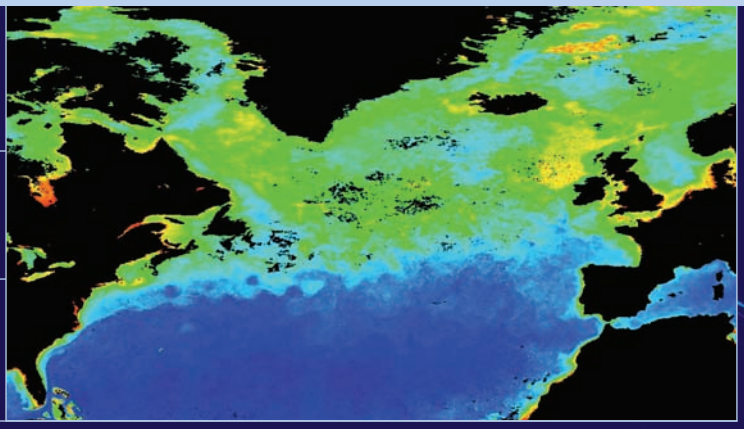
The recommendations included:

- Implementation of prevention programmes for all staff covering ergonomics, health education and exercise advice as well as three-yearly medical check-ups for baggage handlers.
- Provision of self-service check-in systems for all airlines.
- Better use of mechanical aids and assisting devices for staff handling baggage and people with reduced mobility.
- Total review of all aspects of the use of airports and airlines for people with reduced mobility to ensure their increased comfort and reduce the possible manual handling injuries associated with the support staff provided for these people.
- Public awareness campaign on the health effects of heavy baggage.
- Ensure that airlines strictly enforce baggage weight limits.

It is envisaged that the report will form part of the basis for the ergonomic and health & safety input, and the design of jobs for any future infrastructural developments at Dublin Airport.

Pictured from left are: Mr Bob Hilliard, Director Dublin Airport (DAA), Mr Enda Fallon, Department of Industrial Engineering, NUI Galway, Ms Caroline Duignan, Research Ergonomist, and Mr Tom Beegan, Chief Executive, Health and Safety Authority

€2.6m study into marine aerosol effect on climate



Researchers at the Department of Physics and the Environmental Change Institute have won a major EU contract to study marine aerosol production and its impact on climate.

The €2.6 million contract over three years was awarded to Dr Colin O'Dowd who leads a consortium of 16 EU partners who will combine leading research facilities to address their objectives.

Marine aerosol contributes significantly to the global radiative budget and consequently, changes in marine aerosol abundance and/or chemical composition will impact on climate change. Various bio-climate feedback mechanisms have been proposed involving the sulphur, sea-salt, iodine and organic sea-spray cycles. However, all cycles and their impacts on aerosol haze and cloud layers remain poorly quantified.

The Marine Aerosol Project (MAP) will consolidate the current research in the field of aerosol formation research to quantify the key processes associated with primary and secondary marine aerosol production from natural sources.

MAP will focus on the newly identified aerosol formation mechanisms involving iodine oxides for secondary aerosol production and the primary production of marine organic matter aerosols produced by plankton and transferred to the atmosphere via the bubble bursting process at the ocean surface.

Key processes will be identified, parameterised and implemented in a global/regional-scale chemical transport model and in a regional climate model. Combining the knowledge gathered on key processes with satellite-derived information into the large-scale models, contribute to the GMES/GEOSS (Global Monitoring for Environment and Security/Global Earth Observing System of Systems) programmes.

Graphic: Satellite image of Chlorphyll-a at the North East Atlantic ocean surface. Chlorophyll-a is a proxy for organic matter concentration at the ocean surface resulting from plankton activity. This organic matter is transferred to atmospheric aerosols through wave-breaking and bubble-bursting processes.

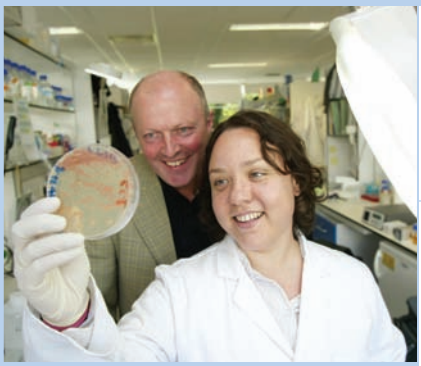
Enabling technology for next generation of computer processors

A project to develop high current, high frequency inductors for use in the power supplies of telecommunications and computer equipment has been awarded €161,150 from Enterprise Ireland's Industry Led Research Programme in Power Electronics. Directed by Dr Maeve Duffy, Department of Electronic Engineering, the three-year project aims to solve technical challenges faced by the Power Electronics industry in Ireland.

The focus of the project is the reduced inductor size that will be achieved through operation of equipment at high frequency. Since the largest part of a computer is its magnetic components (inductors and transformers), a reduction in the size of these translates directly to a reduction in power supply size. The inductor also limits the rate at which computers can change between different operating modes and programmes. For example, when a computer is in use, it reverts to the sleep mode if left for long periods of time without user input. Dr Duffy's project is seeking to reduce the size of the inductors which would enable the computer to operate at higher speeds and therefore make it more efficient. This new technology, which is being developed along with researchers at the Tyndall Institute and University College Cork, will result in quicker reactions from the sleep mode and provide enabling technology for the next generation of computer processor chips. It will also allow processors to work faster and have greater functionality.

With expected improvements in semiconductor switches, the most significant barrier to high frequency operation is the lack of suitable magnetic materials. Moreover, there is also a lack of design knowledge concerning how to make the best use of emerging new materials. This project will address these deficits through development of new magnetic materials, material characterisation techniques and design procedures for high frequency, high current inductors required in high performance computing and telecommunications equipment.

The project is one of seven to be funded nationally through the Enterprise Ireland Industry Led Research Programme which is the first of its kind in Ireland.



EMBO funded work contributes to advances in cancer treatment

Dr Sonia Jimeno is the only post-doctoral fellow in an Irish university funded by the European Molecular Biology Organisation (EMBO). From the University of Seville, she joins NUI Galway's Genome Stability Cluster where her research into cell damage could have important implications for the treatment of cancer.

Dr Jimeno received the prestigious two-year fellowship, worth in the region of €70,000, to continue her research into how cells respond to DNA damage. A proper response to DNA damage is important to prevent the occurrence of mutations. In cancer, a cell gradually acquires all the mutations in 'cancer' genes to drive the process of tumor formation. Recent work has indicated that the DNA damage response pathways are vitally important for preventing the occurrence of cancer, that is, they are tumor suppressive.

Noel Lowndes, Professor of Biochemistry and research leader of the University's Genome Stability Cluster at the National Centre for Biomedical Engineering Sciences (NCBES) said the research was important in the overall treatment of cancer. "Our view is that such knowledge will be important to complete our understanding of the cancerous process and may result in new ways to think about prognostic, diagnostic or even therapeutic interventions for cancer patients at some point in the future," he said. Professor Lowndes is one of only four Irish-based scientists elected to EMBO which includes 38 Nobel Prize laureates among its members.

Meanwhile, the cancer research programme at the NCBES has received significant additional funding with the recent announcement of three Cancer Research Ireland Awards. The grants were awarded to Dr Howard Fearnhead, a member of the Apoptosis Research Cluster at the NCBES, Dr Afshin Samali, leader of the Apoptosis Cluster, and Prof. Lowndes.

Dr Fearnhead moved from the US National Cancer Institute to join the Apoptosis Cluster at the NCBES in December 2004, and brings expertise in oncogene-dependent caspase activation. The grant from Cancer Research Ireland, the research division of the Irish Cancer Society, will fund research into identifying a specific protease activated during apoptosis, which has applications in cancer treatment.

Dr Samali's research project is in collaboration with Dr Maccon Keane, Clinical Oncologist at UCHG, as well as Eva Szegezdi and Ralf Zwacka, members of the Apoptosis research cluster. The research into colorectal cancer is investigating a molecule, TRAIL, which has no known effect on normal cells but kills tumour cells very efficiently.

Muriel Grenon, a senior researcher based in the Genome Stability Cluster, was awarded €35,000 to study very early steps in the response to DNA damage. Her work will examine how chemical 'marks' to the genetic material are used to identify regions of the genome that have been damaged. The inability to correctly respond to DNA damage is linked to the very earliest stages in the development of cancer and it is hoped that by understanding these very early events in the cancerous process, new ways of treating or preventing cancer can be developed.

Pictured: Professor Noel Lownes and Dr Sonia Jimeno

NUI awards recognise outstanding research

NUI Galway graduate Dr Christopher Maginn was awarded this year's NUI Irish Historical Research Prize, while Dr Nollaig O'Muraíle of Scoil na Gaeilge received a special commendation.

Dr Maginn, who is Assistant Professor of History at Fordham University, New York, was awarded the €3,000 prize for his work: *'Civilizing' Gaelic Leinster: The Extension of Tudor Rule in the O'Byrne and O'Toole Lordships*, published by Four Courts Press in 2004.

The honour is awarded for the best work of original scholarship by an NUI graduate or student published in the past three years. The last winner of the Irish Historical Research Prize was the current Vice-President for Research, Nicholas P. Canny for his work: *Making Ireland British 1580-1650,* published in 2001 by Oxford University Press.

Recommending Dr Maginn for the award, the judging panel stated: 'Christopher Maginn's *'Civilizing' Gaelic Leinster: The Extension of Tudor Rule in the O'Byrne and O'Toole Lordships* deals with a development of great significance at a critical time in early modern Ireland, and in a crucial geographical area: the extension of Tudor rule into the independent O'Byrne and O'Toole lordships adjacent to the Pale. The book throws new light on such well-known events and developments as the Kildare (Silken Thomas) rebellion, the 'surrender and regrant' initiative and the Baltinglass rebellion. The book is a major contribution to the historiography of early modern Ireland.'

The judges also commended Dr O'Muraíle's mammoth five volume edition of *Leabhar Mór na nGenealach: The Great Book of Irish Genealogies compiled (1645-66) by Dubhaltach Mac Fhirbhisigh*, published by Eamonn de Búrca/Edmund Burke in 2004, as "an enormous contribution to the study of Irish genealogy".

NUI Galway students and researchers also feature strongly with awards and commendations in medicine, engineering, science, archaeology and languages.

Developing a splint wearing time monitor

A researcher at the Department of Occupational Therapy has teamed up with researchers at the Department of Electronic Engineering to develop a novel device that will measure the time splints are worn by patients by electronically tracking splint movement which will indicate splint use.

Manigandan Chockalingam, a lecturer in the Department of Occupational Therapy, is working with Dr Martin Galvin, lecturer in the Electronic Engineering department, on the project which has been awarded €4,000 from the Millennium Research Fund.

Patients often experience motor deficits after various hand disorders that interrupt normal upper extremity function. Positioning in the form of external splinting is a common component of rehabilitation programmes for addressing such deficits. Though splinting practice can be traced back many years, there has always been a problem of compliance with this technique. As patients often remove the splint for periods of time to relieve discomfort, it is difficult for medical practitioners to gauge the actual time the splint is worn by the patient. The time monitor would solve this problem. Compliance to splint usage or 'splint wearing time' is an important factor in both the treatment and research of various hand disorders using splints. Therefore, an objective measure of compliance is fundamental to any treatment not only for evaluating its efficacy but also for developing an effective yet feasible treatment protocol. In addition an objective and reliable measure of compliance increases the internal validity of any study. The need for objective evaluation of 'splint wearing time' is now widely appreciated and has been evaluated using larger splints such a spinal orthoses. However, the concept has not been successfully translated to hand splints owing to the difficulty in embedding a relatively large electronic gadget on a small hand splint. Hence data on splint compliance and splint wearing time relies currently on subjective measures such as diaries and logs. A reliable and objective method for measuring splint wearing time in hand splints is currently not available.

The development of the device is likely to be a turning point in the development of effective yet feasible splinting protocols for a number of hand disorders in the future.

Pictured from left are, Manigandan Chockalingam, Department of Occupational Therapy; Lorcan Browne, fourth-year Electronic Engineering student; and Dr Martin Glavin, Department of Electronic Engineering.

Discovering novel targets in inflammation-associated Cancer

Around the world, tens of thousands of people are dying of cancers that arise in chronically inflamed tissues. In the department of Pharmacology and Therapeutics, a research team led by Professor Larry Egan is launching a major effort to discover the molecular mechanisms that link inflammation to cancer. If the molecules discovered, new treatments that target those molecules offer the prospect of preventing or treating cancer. Prof. Egan has secured €1 million in funding from Science Foundation Ireland for his project, 'Intestinal epithelial injury, repair and carcinogenesis'.

Epithelial cells, which are the type of cells that line hollow tubes in the body, are particularly susceptible to cancerous transformation when they are exposed to an environment of chronic inflammation. In this manner, chronic hepatitis predisposes to liver cancer, chronic colitis predisposes to colon cancer, chronic oesophagitis predisposes oesophageal cancer, chronic gastritis predisposes to stomach cancer and so on. However, the mechanisms by which inflammation leads to

cancer development have not been well understood, but now important clues are beginning to emerge. In prior research at the Mayo Clinic and the University of California San Diego, Prof. Egan and his co-workers characterised a central role for a transcription factor, nuclear factor-kB, in the pathogenesis of colitis-associated colon cancers. They discovered that experimentally blocking the activity of nuclear factor-kB leads to a substantial reduction in the rates of colon cancer in a model of chronic colitis. The future work of the research group will aim to understand how nuclear factor-kB is itself regulated by chronic inflammation, and how this factor promotes the development of cancer. The overall goal of this research is to develop new approaches to mitigate the cancer-promoting effects of nuclear factor-kB.

At NUI Galway, the Intestinal Injury, Repair and Carcinogenesis group led by Prof. Egan is located in the Clinical Science Institute, and collaborates actively with researchers in REMEDI and the Genome Stability Cluster. The research team includes Prof. Egan along with Ms Coralie Mureau, Ms Amy Colleran and Ms Angela O'Gorman. In the coming year, the team will be expanded with the recruitment of two to three post-doctoral researchers.

Cancer Research Ireland is also funding the research and active collaborations are in place with investigators at the Mayo Clinic in Minnesota, University of California San Diego, and with pharmaceutical partners.

Pictured: Coralie Mureau with Professor Larry Egan

Encouraging research students to battle infectious diseases

A recent 10-week training programme at the Department of Microbiology, NUI Galway brought together students from Ireland, the UK, Europe and the US to encourage outstanding undergraduate students to choose research as a future career.

The students undertook their research at the Infectious Disease UREKA site at the University which forms part of a Science Foundation Ireland funded initiative to encourage and highlight research as a career.

The participating students studied the processes that infectious bacteria use to produce disease and the molecular strategies used by these microbes to counteract elimination from our bodies. Topics included antibiotic resistance, stress survival mechanisms, bacterial polysaccharide production and bacterial adaptive mechanisms.

A research symposium was held at the end of the programme where students competed for awards for their research presentations.

Pictured from left to right: Izabela Klaska, University of Lodz, Poland, Award Winner; Dr Aoife Boyd, programme coordinator; Professor Anthony Moran, symposium chairperson; and Nora McFadden, University of Warwick, UK, Award Winner.

European Citizenship grants fund education projects

The European Year of Citizenship Education programme has awarded grants to two education projects at NUI Galway.

The Community Knowledge Initiative (CKI) based at the Centre for Excellence in Learning and Teaching (CELT) at the University and the UNESCO centre at the University of Ulster received a €5,000 grant to ascertain understandings of civic engagement activities undertaken by post primary and third level institutions.

The funding will allow both organisations to collaboratively explore understandings of citizenship education held by a variety of key organisations both in Northern Ireland and the Republic of Ireland.

CELT's Academic Staff Developer, Lorraine McIlrath and Dr Ulrike Niens, a research fellow at the University of Ulster, are collaborating on the project.

The EU programme, which is co-ordinated by the Curriculum Development Unit (CDVEC), has also awarded €4,000 to Dr Eilis Ward at the Department of Sociology and Politics to examine a proposal for a Leaving Certificate curriculum in social and political education.

The need for a Leaving Certificate curriculum in the area of sociology and politics has been identified and is being considered as part of the ongoing review of the Irish education system.

Dr Ward will carry out a series of consultations with relevant individuals in the Irish third level sector on the proposal, using a curricular framework she developed for a subject called 'Citizenship Studies' in association with the Curriculum Development Unit (CDVEC, Dublin) in 2002.

Advice for Research Accounting matters

A new set of Fellowship forms must be completed for all new, renewed or amended (e.g. increase awarded) fellowships. The Fellowship Award/Renewal forms and the Scholarship Exemption form have been updated from last year and can be found on the Research Accounting website under 'Forms' at:
www.nuigalway.ie/research_accounting/forms.html

The Revenue Commissioners will no longer accept forms that are incorrect or incomplete. An example of a completed Scholarship Form is available on the website and is a very useful aid. Any forms that are not completed in line with the example provided will have to be returned to the student and may therefore delay the start of their fellowship.

The Revenue Commissioners require that the individual student completes the Scholarship Exemption form. The amount of fees applicable to each course can be checked on the Fees website at: www.nuigalway.ie/fees_grants/fees/.

Heretofore supervisors were contacted on an annual basis to check that the student should be renewed for another year of fellowship payments, in cases where the initial award was for a period in excess of one year. However, this practise was discontinued as of October 1st, 2005. Therefore the Research Accounting office must now be advised if a student is no longer pursuing their course of study.

Please contact Úna O'Rourke at una.orourke@nuigalway.ie or on Extension 5262 for further information relating to Fellowship matters.