Fishy tales
The power of the zebrafish in osteoarthritis research; fish oil shown to help slow down disease progression
Welcome

A very warm welcome to the autumn edition of Arthritis Today both to our long-established readership and to those of you who might be reading it for the first time.

We like to regularly update the design of the magazine to keep it fresh and contemporary-looking, so I hope you like the new-look edition. We’ve kept all the features that our readers tell us they like such as the Hints Box and the Q&A, and we’ve kept the mix of stories about our research, and also how our work is being translated into helping patients.

Basic laboratory science can be a hard read for people unfamiliar with scientific language and jargon, but on page 5, our research manager Dr Lisa Croucher has done a great job in explaining our research into osteoarthritis into understandable English.

Chronic pain affects so many people with different types of arthritis and musculoskeletal conditions and I’m sure that our story on page 11 about one woman’s ‘real-life’ pain journey will strike a real chord.

On page 8 you can read about an exciting initiative we’re really proud of, the launch of our national new tissue engineering centre on four sites in the UK, which aims to convert basic science into better, less invasive treatments for people with osteoarthritis within five years.

On page 14 we’ve got news of two offbeat research stories involving fish in Bristol. Researchers believe that the humble zebrafish could hold the key to tracking down the genes that cause osteoarthritis. Meanwhile we’ve found for the first time that fish oil can actually slow down disease progression in a guinea pig model of osteoarthritis: an exciting development.

Just to reassure readers that our research is not entirely osteoarthritis-related, on page 20 you can find out about the progress made by our team at the University of Birmingham, where the emphasis is all about catching rheumatoid arthritis early and hitting it hard.

Enjoy your read.

Jane Tadman
Editor, Arthritis Today

Feature highlights

Time for a breakthrough?
Our osteoarthritis research explained

A new era?
The new tissue engineering centre

An all too common story of chronic pain
A patient’s journey

Fishy tales
Zebrafish and fish oil latest

Catching it early, hitting it hard
Rheumatoid arthritis research in Birmingham

The legacy of a lifetime?
The importance of legacies to our charity

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Contents

Our news and chief executive’s column

2

Our osteoarthritis research explained

5

The new national tissue engineering centre

8

Chronic pain

11

Zebrafish in research: fish oil good for the joints

14

Centre spread: The Big Give fundraising supplement

Questions & Answers

18

Focus on Birmingham

20

New research awarded

26

The Hints Box

27

Meet the experts

28

Fundraising

31

Legacies

32

Arthritis Research UK is a medical research charity entirely supported by voluntary contributions and legacies. For further information about the charity and its work contact us at: Arthritis Research UK Copeman House, St Mary’s Court, St Mary’s Gate Chesterfield, Derbyshire S41 7TD Tel 0300 790 0400, Fax 0300 790 0401 enquiries@arthritisresearchuk.org www.arthritisresearchuk.org

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Front cover: Zebrafish, being used in basic science in osteoarthritis research at Bristol University

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Arthritis Today 1
People with arthritis to have a say in health spend

Arthritis Research UK is asking patients for their views on a new approach to the way that their treatment is funded by the NHS.

A ‘personal health budget’ is an amount of money that is allocated to patients to spend on meeting their health care and wellbeing needs. This would not include treatments provided directly by a doctor, such as medication or surgery. The government is piloting this approach for people with a long term illness or disability in almost half of the primary care trusts (PCTs) in England.

Supporters of personal health budgets see them as allowing patients to take control over their own treatment. For example, someone with osteoarthritis might choose to spend their money on hydrotherapy or homeopathy, rather than receiving traditional NHS physiotherapy. Some people, however, may choose not to have such a choice, preferring to leave decisions about their treatment and care to health care professionals.

Whatever your views on personal health budgets are, Arthritis Research UK wants to hear them. We have designed a survey for you to tell us your thoughts and you can access it at www.arthritisresearchuk.org/personalbudgets. We will then use this information to inform the Department of Health of your needs, to complement the findings of the national pilot.

If you have any queries about personal health budgets, please call the Department of Health on 0207 210 4850 or go to www.dh.gov.uk/personalhealthbudgets. We always like hearing from you; if you have any general enquiries please contact us on 0300 790 4004 or at enquiries@arthritisresearchuk.org.

Launch of new £3m national centre for sports injuries

Arthritis Research UK is to establish a pioneering national research centre to investigate the development of arthritis from sports and exercise injuries, as the countdown to the London Olympic Games begins.

Almost 3,000 members of the public have visited the ‘Taking the pain out of sport’ website to share their concerns about pain or injury connected to sport or exercise activity, and 40 per cent were worried about limited mobility and joint problems in future.

Professor Alan Silman, Arthritis Research UK medical director, said: “There’s a growing body of evidence to suggest that sports injuries can have long term implications, causing conditions such as osteoarthritis, with little knowledge about how to prevent and manage this future risk. The health benefits of being active cannot be underestimated, but as we work hard to encourage people to adopt a more active lifestyle, we need to ensure they’re doing everything they can to prevent future problems.

“The new centre will, for the first time, co-ordinate the work of leading experts to undertake and share research into the risks associated with specific sports and specific body types, and how best to reduce these risks and to participate in sport healthily.”

The National Centre for Arthritis from Sports and Exercise will also look at how best to manage injuries when they do occur, reviewing recovery techniques and surgical and pharmacological interventions. Arthritis Research UK will make available £3m for supporting the centre over the next five years, and is looking to collaborate with various partners while universities and clinical centres will be invited to tender.

The experts involved in the centre will be gathered from a number of related disciplines, drawing on the expertise of sports and exercise medicine specialists, physiotherapists, rheumatologists, the research community and the NHS.

Minister for sport and the Olympics, Hugh Robertson said: “We want to use the 2012 London Olympics to get more people to play sport. Both for elite athletes and community participants, it is vital to understand the cause and treatment of sports injuries so this work could not be more important.”

The initiative has also won the backing of the London 2012 Olympic Organising Committee.

New man at the top in health professional education

Arthritis Research UK has appointed a new part-time associate medical director for education to lead on the way we educate medics, nurses, and other health professionals about arthritis.

Dr Inam Haq outlines his plans for the future.

“We also need to be able to use modern technologies effectively to ensure that appropriate and high-quality education and information gets to those who need it when they need it.

“I think Arthritis Research UK is well placed to meet these challenges. With education, it is a model for how patients, carers and health professionals can work together to achieve what we all want—improved care for people with musculoskeletal problems.

“So if you have a good idea about how to support and develop educational initiatives at Arthritis Research UK I would be delighted to hear from you!”

Dr Inam Haq is a rheumatologist, director of undergraduate studies and a senior lecturer in rheumatology and medical education at Brighton and Sussex Medical School.

Arthritis Research UK links with Gransnet

Arthritis Research UK is making waves in the online world by linking with new social networking site Gransnet, which has just been launched by the team behind Mumsnet and is aimed at the UK’s 14 million grandparents.

The first initiative will be a web-chat to promote World Arthritis Day with Professor Alan Silman, medical director for Arthritis Research UK, where visitors to the Gransnet site will be able to pose their questions live to Professor Silman.

Gransnet will follow the Mumsnet format, giving the original baby boomers a space to get together to discuss everything from relationships to hobbies, news to culture, product reviews – and not least grand-parenting.

Justine Roberts, co-founder and CEO of Mumsnet commented: “Mumsnet has proved to be a godsend to parents by allowing them to pool advice and information to make their lives easier. The Mumsnet community has a powerful collective voice whether holding politicians to account or letting companies know what parents want. We’d like to do the same for older people, who are active and often unheard and in need of a place for support, advice, and recommendations.”

Gransnet can be found at www.gransnet.com.

News

Policy & communications update

People with arthritis to have a say in health spend

Dr Inam Haq outlines his plans for the future.
Win a Willowbrook Recliner

Rise to your feet effortlessly in this elegant and stylish custom-built piece of furniture. Combined with the optional built-in, 5-point massage system, this luxury recliner really should be experienced by people who suffer from a lack of mobility and require a luxury solution to lifting and reclining. But don’t just take our word for it; experience a Willowbrook riser recliner for yourself.

And you could win one or be a lucky qualifying customer, by simply calling 0800 854 330 today or returning the freepost coupon. So why not enter now?

Draw date 2nd November 2011.

Promoter: Willowbrook, Mercury House, Kingswood Road, Hampton Lovett, Droitwich Spa, Worcestershire, WR9 0BR. All entries will be retained and entered into one of our monthly draws. The winner will be notified by phone and a list of winners will be published in our national press and displayed at www.willowbrook.co.uk/winners.php. Please tick box in coupon if you DO NOT wish to receive product/service information from the Willowbrook Group.

5. All entries received after 7pm on the 1st November 2011 will not be considered and entries will not be returned. Only one entry permitted per household. Entries made in bulk or by third parties are prohibited. Entries are not intended for sale.

6. All entries will be entered into our monthly prize draws. ‘Plus 100 lucky qualifier prizes’ are now transforming the lives of millions of people with arthritis. But are we on the right road to developing effective drugs that can improve the lives of those with osteoarthritis? And how much do we know about how and why so many people develop osteoarthritis, but they have also suffered some discouraging setbacks in their early attempts to develop new drugs.

Arthritis Research UK is determined to improve the lives of those with osteoarthritis by supporting research that aims not just to understand how osteoarthritis starts and develops, but that also reveals new opportunities for the development of more effective drugs. The scientific “starting point” for this rejuvenated research activity is the one feature that truly defines the disease – destruction of the cartilage. Cartilage is a complex material. It owes its shape, strength and unique shock-absorbing abilities to a tough, three-dimensional meshwork of large protein molecules – the cartilage matrix. In osteoarthritis, the protective structural matrix is gradually broken down, leaving other important cartilage molecules exposed and vulnerable to damage. Despite attempts at self-repair, the cartilage eventually becomes thinner and weaker, unable to withstand the day-to-day traumas of normal use. Scientists reason that if damage to key cartilage molecules can somehow be prevented early on in the disease process, the cartilage can be saved from its almost inevitable track towards destruction and loss.

Understanding enzyme activity in osteoarthritis is key to the development of new drugs.

The molecules that are pivotal to this approach are enzymes – “biological scissors” – that speed up the breakdown of protein molecules. Scientists believe that enzymes are key to the process of cartilage breakdown and that researchers need to understand enzyme activity in osteoarthritis in order to develop new drugs that target enzyme activity. By understanding the starting point for this process, science has the potential to clarify the role of enzymes in osteoarthritis and to show which enzymes should be targeted in the search for new drugs.

As of 2010, only about £200 million has been spent on research into osteoarthritis, despite the condition affecting 1 in 4 people. New research collaborations are beginning to provide a clearer understanding of the many different factors that play a part in the disease process, from physical factors to environmental factors, in order to find the right place to intervene in the disease process. Scientists now have research underway to consider a number of different factors that could contribute to increased cartilage breakdown and are using these factors to develop new drugs that could prevent or delay osteoarthritis.

Why hasn’t osteoarthritis enjoyed an “anti-TNF revolution” of the kind we have seen for inflammatory arthritis? It could be said that osteoarthritis has suffered an image problem, too easily dismissed as just another consequence of ageing. This mind-set has delayed research that may well have produced drugs of the kind that are now transforming the lives of millions with inflammatory arthritis.

“Catch-up” research in the last few decades has told us that osteoarthritis is every bit as complex as rheumatoid arthritis, but is a very different disease with its own unique set of biological and environmental factors. Scientists and doctors have gained important basic knowledge about how and why so many people develop osteoarthritis, but they have also suffered some discouraging setbacks in their early attempts to develop new drugs.

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Evo 1 comes from BHM, experts at putting hearing aids onto glasses. Now they can fit a digital hearing aid onto your glasses! And their hearing aids are nearly invisible because they are hidden in the arm of your spectacles.

Their precise technology is tried and trusted because they are hidden in the arm of your spectacles.

And their hearing aids are nearly invisible to the few who will guess that they contain a digital hearing aid! People suffering from a mild to severe conductive hearing loss.

The glasses are attractively styled and few will guess that they contain a high quality digital hearing aid.

And there's nothing in the ear to irritate you or be seen.

So if you feel you are missing out when you are watching TV or going to the theatre, cinema, meetings or out shopping then take a look at the Evo 1, it could bring the joy of living.

This incredible hearing aid is suitable for people suffering from a mild to severe conductive hearing loss.

The glasses are attractively styled and few will guess that they contain a high quality digital hearing aid.

And there's nothing in the ear to irritate you or be seen.

So if you feel you are missing out when you are watching TV or going to the theatre, cinema, meetings or out shopping then take a look at the Evo 1, it could bring the joy of living.

Large protein molecules can be converted to small pieces. Low-level enzyme activity is important for normal tissue maintenance, but in osteoarthritis, some enzymes are over-produced or are over-active, tipping the balance from healthy cartilage turnover to irreversible destruction.

Developing new, more effective approaches to treating osteoarthritis depends on a thorough understanding of the many environmental and biological factors that interact to cause joint destruction. Knowledge about cartilage destruction in osteoarthritis is progressing fast, and the detailed research carried out by some of Arthritis Research UK’s laboratory scientists is taking us closer towards the development of new drugs that aim to slow down or even stop the progression of this devastating disease.

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Arthritis Research UK launches its fourth national centre of excellence this month. The team behind the new tissue engineering centre predict that within five years, using keyhole surgery they will be able to treat people with osteoarthritis with adult stem cells to regenerate damaged joints, delaying the need for joint replacement. And that’s just for starters. Arthritis Today reports on an exciting new initiative.

**NEW CENTRE:**

**A NEW ERA FOR OSTEOARTHRITIS TREATMENT?**

Arthritis Research UK is launching a major experimental tissue engineering initiative which seeks to regenerate bone and cartilage by transplanting stem cells into the damaged joint.

The exploratory research has the potential to revolutionise the treatment of osteoarthritis, which causes pain and disability to 10 million people in the UK. Patients currently undergo joint replacement surgery but only when the disease has deteriorated to severe end stage. Treatment options for early osteoarthritis are usually limited to non-surgical options such as painkillers and physiotherapy.

The £6million Arthritis Research UK Tissue Engineering Centre is led by Newcastle University and is based at four sites across the UK: Newcastle University, the University of Aberdeen, Keele University and the Robert Jones and Agnes Hunt Orthopaedic Hospital NHS Foundation Trust/Keele University and the University of York.

Within five years, researchers at the centre aim to treat osteoarthritis by introducing stem cells into damaged joints via keyhole surgery.

They hope that in future years they may be able to perform this as a ‘one-stop’ day case arthroscopic procedure, delaying or reducing the need for joint replacement surgery. Other long-term aims include finding a way to ‘switch-on’ stem cells already present in patients’ joints which might involve creating new biomaterials.

Researchers also hope to develop injectable preparations and an ‘off the peg’ bank of universal donor cells for use in any patient, making treatment cheaper and more widely available.

Professor Alan Silman, medical director of Arthritis Research UK, said: “This early experimental work is the first step on a journey that could one day end the need for joint replacement operations.

“It’s hugely exciting. At the moment joint replacement surgery is the most effective treatment we have but we have to allow people with osteoarthritis to deteriorate until they reach a suitable point for surgery. This means patients are living for years with increasing pain and disability which impacts their quality of life.”

Professor Andrew McCaskie, centre director and professor of orthopaedic surgery at Newcastle University’s Institute of Cellular Medicine, said: “Every patient has their own ‘repair kit’; whereas joint replacement surgery replaces the damaged tissue with engineered metal and plastic, we’re trying to assist the human body to repair itself.

“Keyhole and minimally invasive operations for early arthritis have been in development for some years and we propose to improve upon these techniques and work towards more widely available treatments. This requires research at all levels of the process, from laboratory to bedside. We’re confident that elements of this approach will reach the patient in the operating theatre within the first five years.”

Professor Silman continued: “Osteoarthritis of the hip and knee will be an increasing problem in our society as people age and want to remain active. Although joint replacement can be spectacularly successful, finding an injectable cell-based answer that could be used earlier would be a major breakthrough, reducing pain and disability and minimising health service costs. We believe our new centre will lead the way in this exciting field of research.”

The Arthritis Research UK Tissue Engineering Centre is funded by a core grant of £2.5 million over five years from Arthritis Research UK with a further £3.4 million pledged by the four participating universities. The centre will bring together leading clinicians, engineers and biologists from research and clinical groups.

**What each centre will do?**

**Principal investigators in Aberdeen, Professors Cosimo De Bari, Richard Aspden, James Hutchison and David Reid will focus on:**

- Developing and validating tests or assays, which will identify markers in patients’ stem cells before transplantation surgery, allowing doctors to predict and measure the potency of the cells being used. It is hoped that this will enable doctors to predict in advance of surgery which patients will do well, and which stem cells are the most effective. This work will be done in conjunction with Keele/Oxseywest.
- The stem cells that are naturally present in the joints, called endogenous stem cells. This will help to devise novel ways in which to intervene in the process of osteoarthritis by manipulating and influencing the behaviour of these stem cells. They plan to do this by administering drugs that target the endogenous stem cells in the joints or by introducing a special 3D matrix to the area of damaged cartilage, loaded with a growth factor or chemical that could attract the endogenous cells, to regenerate and even prevent the breakdown of cartilage and other tissues in osteoarthritis.

**The York team, led by Dr Paul Genever, a senior lecturer in the department of biology, will focus on:**

- The basic biology behind stem cells and how they function. The team will work with stem cells from the bone marrow of patients from local hospitals who have undergone hip replacement surgery.
- The specialist environment in which the stem cells live in the bone marrow, called the niche: a 3D structure of different cell types and components of a special matrix. The team will attempt to recreate the niche in the laboratory by combining stem cells with different cell types and matrix components. It is hoped that if the matrix is transplanted into damaged cartilage loaded with special chemicals or growth factors, it will regenerate cartilage and other tissues.

**In Newcastle, Professors Andrew McCaskie, Kenny Dalgarno, Anne Dickinson and Dr Mark Birch will focus on:**

- Assessment of the immunogeneity of the stem cells from the same and a different donor and their interaction with new biomaterials for regenerative use.
- Enable the technologies to be translational to the clinic by the use of Good Manufacturing Practices (GMP) in their dedicated facilities.
- Investigating the manufacture of 3D matrices to support bone and cartilage regeneration, using special biomaterials which will slowly dissolve in the body as the natural tissue grows. The team will engineer new scaffold materials that fulfil the mechanical demands of tissue replacement surgery and also devise approaches to deliver chemical or growth factor cues that can control the rebuilding of bone and cartilage.
- Working towards clinical translation and surgical therapies.

**The Keele University and Robert Jones and Agnes Hunt Orthopaedic Hospital NHS Foundation Trust led by Professors Sally Roberts, James Richardson and Alicia El Haj will focus on:**

- Introducing modified process of cell therapy to the orthopaedic clinic. Professor of orthopaedic surgery, James Richardson, established special facilities for culture-expansion of autologous chondrocytes and marrow-derived mesenchymal stem cells for cartilage and bone repair over a decade ago. With Professor Sally Roberts, director of spinal research, they have been instrumental in monitoring progress in the clinic, developing outcome measures for objective assessment of the procedures used and studying the biology of repair. Professor Alicia El Haj examines ways of controlling, scaling-up production and targeting of cells for tissue-engineered cell therapy.
- With existing Arthritis Research UK funding, the team is about to trial the use of stem cells from bone marrow versus cartilage cells to treat osteoarthritis of the knee in a small clinical trial of approximately 100 people. (This trial, reported widely in the national media and in issue 149 of Arthritis Today, has been delayed, because of changes in the regulations governing the use of stem cells in trials. It is expected to start shortly).
- They will try and identify ‘risk factors’ or biomarkers to predict the small proportion of patients who do not respond so well to cell therapy.
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When pain began, Pat was hopeful that her GP would be able to get rid of it or would make a quick referral to a more specialist service. Her friends told her their stories of similar problems and how they were sorted out relatively quickly. The health care professionals that saw Pat spoke confidently of people they had treated who had had a similar problem to her and who by following one particular treatment or another had achieved great results. Pat found that different health care professionals gave her different diagnoses, explanations and advice, which was confusing. She was aware that, like her, many people’s tests come back as relatively normal or don’t explain the amount of pain the person is in. Pat saw one clinician who she felt said, or implied, that the pain was imaginary or psychological or “all in her head”. This was very distressing and Pat felt angry about this for a long time afterwards. She had read on a website forum how people suffering with pain often experience many years where they feel they have not been heard, believed or taken seriously.

The pain didn’t lessen.

As well as conventional treatments, Pat borrowed or bought a variety of heating, vibrating and massaging gadgets and gizmos. She also tried different aids, appliances and adaptations (e.g. a walking stick) in an effort to try and reduce the pain. Occasionally they seemed to make things easier in the short term but she found she was more irritable and short-tempered and that they were less able to do things together. Pat worried that if she did certain activities and her pain reduced that this meant she was causing herself harm or damage. Not surprisingly, she tried to avoid doing these activities. She found that if she did less, sometimes her pain reduced for a short while – but this meant that she was doing less of the things that she enjoyed or that were important to her.

Being in pain started to affect Pat’s relationship.

The combination of doing less but still being in pain started to affect Pat’s relationship with her husband, and she found she was more irritable and short-tempered and that they were less able to do things together. Pat felt guilty when her husband or others did the tasks that she had previously managed. She didn’t want to lose her independence, and found on a good day that she would try and make the most of it, only to pay for it in terms of increased pain later. She felt they had achieved great results.

www.arthritisresearchuk.org

An all too common story of CHRONIC PAIN

People with chronic musculoskeletal pain have different experiences but they often also have some experiences in common. The following is a made-up story by physiotherapist Gail Sowden based on the real-life struggles of many patients.
Pat found that friends didn’t invite her out as much as before and she tended to say “no” to invitations, as she didn’t know how she was going to be one minute to the next. She didn’t want to let people down and worried if she said yes and went out that she would be holding the others back or would overdo it. She felt increasingly isolated and started to wonder if she might be getting depressed.

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Arthritis Today

Gail Sowden is a consultant physiotherapist with the Interdisciplinary Musculoskeletal Pain Assessment and Community Treatment (IMPACT) Service in Staffordshire and the Arthritis Research UK Primary Care Centre at Keele University. Arthritis Research UK is producing an authoritative report on living with chronic pain, aimed at people like Pat. It will be available in 2012. See the next edition of Arthritis Today for further details.

Not all patients with pain are suitable for pain rehabilitation programmes or would benefit from one and some patients do better having received one then others, but overall the results are good. Not all areas have access to a pain rehabilitation programme but your GP should know where your nearest one is located.

The above story is based, with the authors’ permission, on one written by Dr Kevin Vowles and Dr Miles Thompson in a book chapter in 2011 (Acceptance and Commitment Therapy for chronic pain. In L. M. McCracken (Ed.) Mindfulness and Acceptance in Behavioral Medicine: Current Theory and Practice (pp. 31–60). Oakland: New Harbinger Press).

For further details.

Arthritis Today

www.arthritisresearchuk.org
**Fishy tales**

Zebrafish could hold the key to unlocking the genetic basis of osteoarthritis, while omega-3 fish oil has been shown to reduce the symptoms of osteoarthritis. Jane Tadman reports.

**Zebrafish – a new approach to osteoarthritis research?**

The humble zebrafish could hold the key to helping scientists track down the genes that cause osteoarthritis. By identifying the genetic mutations that cause skeletal problems in zebrafish, Dr Chrissy Hammond from the Bristol University is hoping to understand the changes that underlie the progression of osteoarthritis in human cartilage and bone.

Zebrafish have been widely used in laboratory investigations to understand human disease since the 1970s. Like humans, the zebrafish has a backbone, and the genes that control the development of its skeleton are very similar to those in humans. These features make the zebrafish a very useful model for studying human diseases of the bones and joints, including osteoarthritis.

Dr Hammond has now been awarded a career development fellowship from Arthritis Research UK of almost £400,000 over five years to pursue this unusual line of work.

**“Genetic mapping”**

Based at the university department of biochemistry, physiology and pharmacology, she is carrying out a large-scale screening of thousands of zebrafish in a process called “genetic mapping”, looking for genes that may be linked to osteoarthritis. Working with zebrafish will give Dr Hammond a unique opportunity to understand how genetic mutations can cause defects during the development of the bones and joints in “real time” in a living organism – important clues to help us to understand how osteoarthritis develops.

The next step is to look at ways to reverse the defects caused by the genetic mutations by administering a number of experimental drug compounds to the zebrafish. As most of these drugs dissolve in water, a huge number of possible drugs can be screened in this way, quickly and at low cost.

This is the early, first stage of investigation, and any genetic mutations that look promising will be tested in animals that are more closely related to humans, such as rodents. “We’re trying to target research that gives better guidance on possible candidate genes, and what may work and what is not likely to work,” adds Dr Hammond, who did her PhD investigating the way that zebrafish’ muscles develop.

**Zebrafish are see-through**

“Not only are zebrafish easy to grow and maintain, they are an ideal system for studying bone development and disease as they are see-through; you can see what’s going on in their skeleton as the cartilage and bone develops. I can actually watch what the cells are doing in the living fish.”

**Omega-3 fish oil – new research shows it can prevent or slow progression of osteoarthritis**

New research has shown for the first time that omega-3 in fish oil could “substantially and significantly” reduce the signs and symptoms of osteoarthritis.

**“This current research... is exciting.”**

The charity’s medical research director Professor Alan Silman said: “The only way of being certain that the effects of omega-3 are as positive contribute to a range of other health problems such as heart disease and colitis.”

Further studies were needed to determine the influence of omega-3 fatty acids on established disease in guinea pigs, and to confirm the effects in human osteoarthritis, said Dr Tarlton.

Editor’s note: The total intake of omega-3 recommended by the government is 2g a day. Most of this amount is found in an individual’s normal diet. Someone with a good diet, for example, might need to take extra supplements as the actual amount of supplementation depends on the quality of their diet. Normal supplementation capsules are either 450mg or 1,000mg of fish oil.
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EASY TO FASTEN FRONT HOOKS
This is very interesting. I can add some more observations to yours. When damage to bones is assessed in rheumatoid arthritis less damage occurs in fingers wearing gold rings. Is this an effect of the metal or its effect on the tissues they serve. These sorts of observations provide the stimulus to further research in this area.

My mother, her sister and her father have (had) in later life, hands and finger joints seriously affected by arthritis. However, about 15 years ago my mother broke a finger before the onset of arthritis. It was pinned with a metal rod in a hospital in the northern side. In fact, any sort of nerve damage can damage the joints from arthritis. I shall add some more observations to yours. When damage to bones is assessed in rheumatoid arthritis less damage occurs in fingers wearing gold rings. Is this an effect of the metal or its effect on the tissues they serve. These sorts of observations provide the stimulus to further research in this area.

My husband (aged 76) has just been told that he can have a replacement hip in two months’ time. Have you any hints on how I can help him prepare for the op and to aid his rehabilitation afterwards? Exercises, aids, rest, nutrition? His life has changed drastically during the last year and so we look forward to him having his mobility back. Thanks for any tips!

Esme Sutton, Stafford, Staffordshire.

It is not uncommon for some hospitals to arrange pre-op physiotherapy for people undergoing joint replacement. This is to strengthen the muscles around the joint, making the recovery process much easier. These exercises are quite simple and easy to do.

(See http://www.aliina.com/ac/patient/rip/hp_exercises) Also worth reading is hip patient Jean Ward’s experience on the Arthritis Research UK website at http://www.arthritisresearchuk.org/arthrits_information/arthrits_today_magazine/autumn_2006/hip_tips.aspx and its hip replacement surgery booklet http://www.arthritisresearchuk.org/Files/2018-Hip-replacement_pdf.pdf, which contains post-op exercises. Failing this contact your local physiotherapy department as they may have a leaflet or be able to offer you an appointment before the operation.

My friend eats tinned mackerel every day and suffers from arthritis which is worsening. I understand there is a high content of mercury in oily fish and know that for this reason it is only recommended in very small quantities. In fact, any sort of nerve damage can damage the joints from arthritis. I shall add some more observations to yours. When damage to bones is assessed in rheumatoid arthritis less damage occurs in fingers wearing gold rings. Is this an effect of the metal or its effect on the tissues they serve. These sorts of observations provide the stimulus to further research in this area.

My question is hip op patient Jean Ward’s experience on the Arthritis Research UK website at http://www.arthritisresearchuk.org/arthrits_information/arthrits_today_magazine/autumn_2006/hip_tips.aspx and its hip replacement surgery booklet http://www.arthritisresearchuk.org/Files/2018-Hip-replacement_pdf.pdf, which contains post-op exercises. Failing this contact your local physiotherapy department as they may have a leaflet or be able to offer you an appointment before the operation.

Q

A

Mark Holland, Dorking, Surrey

The advice given out is quite clear. Both men and women who take methotrexate are advised against trying for a family unless they have discontinued the drug for at least three months. The evidence in humans may not be strong but there is animal evidence and the manufacturers and most rheumatology departments recommend discontinuation. In your case your wife is already pregnant. You should consult the Obstetrician who is caring for you to discuss this. Both men and women who take methotrexate are more likely to cause damage to skin, nerves, lungs and kidneys, not arthritis. High quantities of vitamin A can have the growing fortuitous, hence the strictures on oily fish intake.

I have taken methotrexate and adalimumab for three years. My wife and I are now expecting a child. This should be a happy occasion but we are concerned because the medical advice is against having a family whilst taking methotrexate. Information on the internet states that the risks to the mother and child if the man is taking low dose of methotrexate is confused. Most of the research seems to be based on the woman taking methotrexate and points to the risk of severe deformity. What is the effect of taking methotrexate on the unborn child if it is the man taking the drug? What are the risks and what tests are available at which stages of the pregnancy?

Marc Holland, Dorking, Surrey

The advice given out is quite clear. Both men and women who take methotrexate are advised against trying for a family unless they have discontinued the drug for at least three months. The evidence in humans may not be strong but there is animal evidence and the manufacturers and most rheumatology departments recommend discontinuation. In your case your wife is already pregnant. You should consult the Obstetrician who is caring for you to discuss this. Both men and women who take methotrexate are more likely to cause damage to skin, nerves, lungs and kidneys, not arthritis. High quantities of vitamin A can have the growing fortuitous, hence the strictures on oily fish intake.

Q

A

Selina Brookes, Hyde, Cheshire

The advice given out is quite clear. Both men and women who take methotrexate are advised against trying for a family unless they have discontinued the drug for at least three months. The evidence in humans may not be strong but there is animal evidence and the manufacturers and most rheumatology departments recommend discontinuation. In your case your wife is already pregnant. You should consult the Obstetrician who is caring for you to discuss this. Both men and women who take methotrexate are more likely to cause damage to skin, nerves, lungs and kidneys, not arthritis. High quantities of vitamin A can have the growing fortuitous, hence the strictures on oily fish intake.

Q

A

People who have a stroke prior to the onset of their arthritis find that the arthritis is mild on the stroke side. In fact, any sort of nerve damage can protect the joints from arthritis. Why does this occur? It is not entirely clear. Perhaps nerves exert some sort of controlling influence on the tissues they serve. These sorts of observations provide the stimulus to further research in this area.” – Dr Philip Helliwell

Q&A Questions and Answers with Dr Philip Helliwell

Today

Arthritis Research UK, St Mary’s Gate, Chesterfield, Derbyshire, S51 7TD or email enquiries@arthritisresearchuk.org

The Q&A with Dr Helliwell will also appear on our website at www.arthritisresearchuk.org
RHEUMATOID ARTHRITIS:
catching it early, hitting it hard

Our researchers in the Rheumatology Research Group in Birmingham are leading the way in the fight against early rheumatoid arthritis by catching and treating it quickly. Jane Tadman reports on their progress.

Catching rheumatoid arthritis early and treating it aggressively to reduce preventable joint damage is the mantra of most researchers and clinicians working in rheumatology.

However, reality has a nasty habit of getting in the way of such worthy aspirations. For one thing, many people with suspected rheumatoid arthritis don’t seek medical help quickly enough to take advantage of the three month ‘window of opportunity’ that is now generally accepted to be the best time to start effective medication. Nor are they always referred on quickly enough from their GP to the rheumatologist.

It is not yet possible to reliably predict which people with early signs of inflammatory arthritis will go on to develop rheumatoid arthritis, as, for some, their early symptoms resolve without the need for treatment. This remains a key challenge for researchers in the field.

Researchers at the University of Birmingham have been considering these thorny issues for several years now, from both the basic science and clinical research perspective.

In particular, Arthritis Research UK professor of rheumatology Chris Buckley and his team have been edging ever-closer to understanding more about the processes that go wrong in early disease. They’re doing this by using cutting-edge techniques such as high resolution ultrasound and analysing blood, urine and tissue samples taken from patient...
“We’re testing to see if the differences we see in fibroblasts can predict the type of arthritis developed by patients. Using fibroblasts to predict diagnosis and outcome has radically changed cancer medicine, and we’re not that far behind. We aim to establish reliable and sensitive fibroblast markers which can enable doctors to predict the diagnosis for new patients at a very early stage – so enabling treatment to be correctly targeted in each case.”

Dr Andrew Filer
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Around 10 per cent of rheumatoid patients are thought to suffer from moderate to severe periodontal gum disease. Clinical lecturer Dr Paola de Pablo and Dr Dagmar Scheel-Toellner are working with colleagues in the School of Dentistry in Birmingham to explore how bad gums might lead to worse arthritis and whether better dental hygiene will improve the symptoms of patients with rheumatoid arthritis.

Working alongside Professor Buckley is Professor Caroline Gordon, respectfully known in rheumatology circles as the “Queen of Lupus”. As well as her clinical work – she is an acknowledged expert in the field of pregnancy and inflammatory autoimmune conditions – Professor Gordon runs a number of commercial trials testing new drugs that target lupus, and until recently was the lupus lead on the Arthritis Research UK autoimmune clinical studies group. She is also involved in research, also charity funded, that is looking to develop a quality of life tool to be used in people with lupus that captures their worries and concerns as their disease progresses; an instrument that demonstrates patients’ quality of life as well as for measuring disease activity.

In their work on novel predictive approaches and therapeutic strategies, Dr Raza and Dr Filer are working closely with colleagues, endocrinologist Dr Mark Cooper and immunologist Dr David Sansom. Both men are Arthritis Research UK-funded; Dr Cooper to investigate alternatives to steroids, and Dr Sansom in looking at the anti-inflammatory properties of vitamin D in rheumatoid arthritis.

Just over the way in the brand new Queen Elizabeth Hospital is the Centre for Translational Inflammation Research and Centre for Healthy Ageing Research, Professor Janet Lord is heading research that looks into what keeps our immune systems healthy in old age. Another academic with a good line in sound bites, says: “We don’t have an institute of rheumatology. We collaborate with academics, with medical and dental science, and social scientists and allied health professionals, with the aim of improving clinical outcomes for those with, and at risk of developing, rheumatoid arthritis.”

Birmingham is a major centre of Arthritis Research UK-funded work, currently in receipt of £1.5 million. The Rheumatology Research Group is based in the school of immunity and infection in the College of Medical and Dental Science, and researchers are also active in the MRC Centre for immune Regulation. Team members also now work in the new Centre for Translational Inflammation Research in the brand new Queen Elizabeth Hospital, and run clinics throughout Birmingham. Chris Buckley, Arthritis Research UK Professor since 2002, who has a good line in sound bites, says: “We don’t have an institute of rheumatology. We collaborate with academics, with medical and dental science, and social scientists and allied health professionals, with the aim of improving clinical outcomes for those with, and at risk of developing, rheumatoid arthritis.”
In the past, I have had a variety of arthritis treatments. I was pleased to read your article on hand osteoarthritis. I had it treated with a small screwdriver and several pairs of pliers to tackle formidable tasks incrementally. It was a small investment, but it was money well spent. I would recommend them to anyone who needs to hold small objects.
Dr Jonathan Hill and Professor Jacqui Oldham explain their work in an on-going series of questions and answers with Arthritis Research UK-funded researchers.

Professor Jacqui Oldham
Professor Jacqui Oldham is director of the Centre for Rehabilitation Science at the University of Manchester.

What does your work involve?
I am director of the Centre for Rehabilitation Science at the University of Manchester and also director of Manchester Integrating Medicine and Innovative Technology (MIMIT). Rehabilitation science is all about evaluating current treatment and developing new approaches to optimise function and independence, particularly in relation to physiotherapy intervention. We also look at ways to measure strength, endurance and function so we can see if intervention is working or not. MIMIT is more focussed towards developing new devices and technologies to address unmet healthcare needs.

How long has Arthritis Research UK been funding you?
I have received a number of grants from Arthritis Research UK over the 25 years I have been working in this field. Current funding supports a team of researchers led by Professor David Felson - the ROAM group (Research into Arthritis Manchester) to look at treatment, mechanisms and outcome for knee osteoarthritis. Part of our interest include steroid injections, knee braces and shoe insoles.

What’s the most important thing you have found out in the past 12 months?
There are many projects I am really proud of, mainly because of the hard work and determination of the ROAM group and my wider team of PhD students and post docs. The main one that comes to mind is our research on laser therapy that has shown it can have a profound effect on reducing pain associated with rotator cuff tendinosis and a tunnel syndrome. We are now working with the manufacturers of these machines to make recommendations about their wider use in these conditions.

What do you hope or expect to achieve as a result of your Arthritis Research UK funding?
In terms of our current funding I’m hoping the ROAM group can optimise conservative treatment for knee osteoarthritis so we can reduce pain, increase mobility and prevent or slow the long-term damage.

What do you do in a typical day?
My days are really mixed as I tend to travel a lot to London or the States for work. When I’m in Manchester I spend half my time on rehabilitation science research and activity and half on MIMIT. Today started in the MIMIT office at 8am with a team meeting to discuss which projects we might support and how we will take them forward. Follow-on meetings and dealing with urgent emails took me until lunch time. I then walked to my rehabilitation science office – it’s about 10 minutes in glorious sunshine! Once there I joined the ROAM group for a journal club when we review, over a sandwich, recent research that has been published. This was followed by a two-hour ROAM project meeting to discuss progress, talk about results and new funding opportunities and plan for the next phase of development. I then met with one of my PhD students to give feedback on his draft thesis. The early evening gave me time for a chat with colleagues and share some ideas over dinner, before a 30-minute walk home.

What is your greatest research achievement?
All achievements are a major effort and I’m particularly proud of working with the ROAM group and of the 15 students that I have supervised through their PhD. All the students have been funded through their PhD projects. A key part of my role is to structure the research and give feedback. I have been working for years on ways to restore muscle function by electrotherapy. I have now teamed up with a company called Femeda who have been working with a technology in their pipelines associated with urine leakage. It is really rewarding when you develop something for one application and it proves to have a dramatic effect on another. This initiative won an award for the Health and Welfare Healthcare Project of the Year.

Why did you choose to do this work?
I’ve always been interested in how the body works but we have a familial history of rheumatoid arthritis and from young age I knew this was the field I wanted to work in.

Do you ever think about how your work can help people with arthritis?
All the time – you never stop thinking about ways to improve quality of life. It just becomes part of your life and it’s sometimes during the unexpected thoughts or conversations when a new idea comes to you.

What would you do if you weren’t a scientist?
It would absolutely have to be something that involved organisng people’s houses. I love turning chaos and clutter into order.

About Jacqui
I love to get into the countryside and spend time walking with my partner Alec, our two Daschund dogs and spending time with our close friends. I also love travelling and if it was not organising houses it would have to be travel writing!

Dr Jonathan Hill
Dr Jonathan Hill is an academic physiotherapist and a lecturer in musculoskeletal physiotherapy at the Arthritis Research UK Primary Care Centre at Keele University.

What does your work involve?
I am fortunate enough to have a fantastic job doing something I really enjoy, seeking to improve the treatments for people with arthritis conditions such as back pain. I work within a great team of colleagues at the Arthritis Research UK Primary Care Centre within Keele University in Staffordshire, but I am also lucky enough to get alongside and treat people as a clinical physiotherapist at a local hospital. My particular focus is to create new clinical ‘tools’ that help doctors and physiotherapists choose which treatments to offer in the initial stages of a musculoskeletal problem.

What does your greatest research achievement have been?
My greatest research achievement has been to have the STarT Back tool accepted for publication within The Lancet. This has given the study a very high profile and many health services are now starting to implement the study’s findings, both in the UK and abroad.

Why did you choose to do this work?
The issue that we wanted to address was the inconsistent and inefficient manner in which back problems are currently managed in the early stages. Most back problems initially have a ‘non-specific’ diagnosis. With the exact cause unknown, to decide on the right treatment doctors and physical therapists need to assess a broad range of influences on prognosis including the spread of pain, functional difficulties, fears about the pain, and motivation and mood levels. But until recently we had no technology to help Professor Kryssia Dziedzic conduct a clinical trial investigating treatments for neck pain. Arthritis Research UK then went on to fund my PhD in 2003 to develop and validate a primary care screening tool for people with back problems. Following this in 2007, I was awarded an Arthritis Research UK five-year post-doctoral allied health professional lecturership, to conduct a large clinical trial to investigate whether using our screening tool helps provide better outcomes for patients (The STarT Back Trial).

What’s the most important thing you have found out in the past 12 months?
In the last 12 months, I’ve learnt that often what seems to be preventing greater effectiveness is the constraints of the systems in which people work. Our research has taught us that it is possible to improve existing health care systems in ways that help clinicians put their skills to better use and result in much better treatments for musculoskeletal patients.

What is your greatest research achievement?
My greatest research achievement has been to have the STarT Back tool accepted for publication within The Lancet. This has given the study a very high profile and many health services are now starting to implement the study’s findings, both in the UK and abroad.

Why did you choose to do this work?

About Jonathan
My own research is incredibly busy and full-on, as I’m the father of four young, energetic children aged from three to 10 years old. Family life is very happy and enjoyable, and it is an incredible challenge to balance being an incredible husband and father with a demanding job doing something I really enjoy.

I love to get into the countryside and spend time walking with my partner Alec, our two Daschund dogs and spending time with our close friends. I also love travelling and if it was not organising houses it would have to be travel writing!

“...” – Professor Jacqui Oldham

“...” – Dr Jonathan Hill
"Arthritis put paid to all the things I used to love"

Richard was a fit and healthy man, regularly taking part in sports and playing with his two daughters. All changed when he was diagnosed with ankylosing spondylitis, an inflammatory form of arthritis.

It all started with pains in his back. "At first my doctor told me not to worry, the things I used to love" Richard says. "and the effects were dramatic. Research UK. Richard took part in the trial anti-TNF therapy, developed by Arthritis Research UK. His local hospital became involved in a clinical trial of a new treatment called his anti-TNF therapy. Richard was getting his life back.

Here at Research UK we are determined to give people like Richard their lives back. Developments like anti-TNF therapy are totally dependent on painstaking work in the laboratory, by world-leading research scientists funded by Arthritis Research UK. And we can only afford to fund them with your help by donating today, you will make it possible for us to continue the research into taking the pain away for all those suffering with arthritis.

Please use the form below or call 0300 790 0444 to give whatever you can. Thank you.

"At first my doctor told me not to worry, the things I used to love" Richard says. "and the effects were dramatic. Research UK. Richard took part in the trial anti-TNF therapy, developed by Arthritis Research UK. His local hospital became involved in a clinical trial of a new treatment called his anti-TNF therapy. Richard was getting his life back.

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Please use the form below or call 0300 790 0444 to give whatever you can. Thank you.

Arthritis Research UK to launch new national events series in the New Year

What are you doing next summer? Did you miss out on Olympic tickets? Don’t worry, we have something for you…

Next year Arthritis Research UK will be launching our brand new national event series, so keep an eye on the website in the New Year and in forthcoming editions of Arthritis Today for all the details of how you can join in.

We’re working hard on confirming all the details of the events and looking forward to unveiling them in the New Year. We can promise that this will be an exciting new fundraising event, where participants of all ages and mobility levels can take part in unique and inspiring locations, to raise vital funds for Arthritis Research UK.

In 2012 we will be hosting the event in three locations across the UK, and we hope to come to a town near you in future years.

The events will not only be a great opportunity to have a fun-filled, active day out with family and friends, but also an opportunity to get active, and an important way to keep your joints moving, both now and in the future. On the day there will be entertainment, local food and activities for all the family, as well as the chance to find out more about the work the charity is doing in your local area.

There are lots of ways you will be able to support Arthritis Research UK at the event; take part in a fundraising challenge, sponsor someone you know, or help to make the event happen by volunteering.

However you choose to get involved with the event, you can be sure that the funds you and your friends and family raise will be spent in the fight against arthritis.

Make sure you put a note in your diary now to visit www.arthritisresearchuk.org in the New Year. We guarantee it will be worth it!
Gifts in wills play an enormously important part in ensuring that Arthritis Research UK can continue to carry out work that will make a difference to people’s lives in the future. Legacy advisor Jas Chahal explains.

**The legacy of a lifetime?**

The power of a gift in a will

For Josie Dykes rheumatoid arthritis hit her “out of the blue like an express train” five years ago. Within a month of the onset of symptoms she was crippled by pain, barely able to move with all her joints.

“The pain was unbearable,” says Josie, aged 66, from Liverpool. “It had already got osteoarthritis but this was completely different. It was in my hands, feet, head and neck and shoulders – there wasn’t a place on my body that I could point to where there wasn’t pain. I couldn’t hardly move. I couldn’t lift my grandchildren. At one point the only thing I could move was my eyes. The whole area was beckoning.” However, once she was diagnosed doctors moved swiftly to get her condition under control and within months Josie was on anti-TNF therapy.

Within two months the symptoms were starting to subside and within three months she was almost back to normal. “They expected the drug to take about six months to take hold, but it didn’t take that long,” says grandmother Josie. “It was absolutely fantastic.”

“I’m still on anti-TNF therapy and it’s still able to do that,” she says. “I’m working again, and looking after my four-year-old grand-daughter Hannah two days a week. Anti-TNF has given me my independence back and that couldn’t have happened without the generosity of people including gifts in their wills.”

I’ve left Arthritis Research UK a gift in my will and did so in the hope that their wonderful support to medical research will one day achieve success with a cure.”

Arthritis Research UK are included in my will in the hope that research will free people of the pain of arthritis in future.”

Arthritis Research Today Winter 2010/2011

**Why do people leave gifts in their wills?**

Making a will doesn’t have to be a difficult or expensive process, but we recommend consulting a qualified will-writing professional to do so. If you draw up your own will there’s no guarantee it will be legally valid and you may not be able to provide for your loved ones in the way you wish. Equally, if you die without making a will your estate will be divided up under fixed legal rules and may not go to your loved ones as you might wish.

There are a few things you can do to prepare for seeing a will-writing professional:

- List all your assets - includes your home, life policies, savings, car and other effects. Also list all your liabilities, mortgages, overdrafts and other debts. Together these form the approximate value of your estate.
- Think about who you would like as your executor – someone you trust to carry out your wishes.

For more information please request a copy of Arthritis Research UK’s free will-making guide on the attached form. If you’d like to speak to our legacy advisor Jas Chahal, please call 0330 790 9444.

The impact of a gift in your will is priceless.

That’s why we’ll arrange your will for free.

If you, or your loved ones, know first-hand the pain that arthritis causes, you may have considered including a gift to Arthritis Research UK in your will. So now, you can make or amend your will for free.

Half of all the research we do is only possible thanks to the kind gifts that people include in their wills. This support is so vital that we want to make the experience of writing a will as easy as possible, which is why we’re offering the services of a solicitor – absolutely free of charge. The service covers simple or minor wills and there are only a limited number available. To find out more about our free will-writing service, simply complete the form below IN BLOCKS and CAPS and return to us. Thank you.

*Please send me details of your free will-writing service.*

Name

Address

Telephone

Email

Postcode

With a cure comes hope and better mobility.”

**The legacy of a lifetime?**

Gifts in wills are extremely valuable to medical research charities as they have the power to make life-saving differences to future generations. And Arthritis Research UK has always been extraordinarily fortunate in that more than 80 per cent of our voluntary income comes from legacies. In 2009 that translated into £19m.

Research is necessarily a long process, with few overnight triumphs or Eureka moments, and it needs continued significant investment over a long period of time in order to produce results that help patients. For example, anti-TNF therapy, one of our greatest achievements which has transformed the lives of millions of people with inflammatory arthritis worldwide, took almost 20 years to get from bench to bedside – from the lab to the patient in other words.

Professor Alan Silman, Arthritis Research UK medical director, explains further: “Research is a painstaking and long-term process, and to undertake research that will be effective often involves laying foundations, perhaps by undertaking basic research on which can be built the treatments of five or 10 years ahead.

Additionally, modern research is much more expensive than it was a generation ago - the average cost of a research project is probably three times the level of 10 years ago. However, today’s research is able to deliver so much more – for example, to sequence a gene ten years ago would take two or three months per person. We now have the equipment to allow one person to do it in a few days. The challenge now is that with millions of genes we need to be able to undertake this task a hundred thousand fold which becomes incredibly expensive. Gifts in wills are essential in helping to provide long-term funding for this expensive but invaluable work. Although we receive tens of millions of pounds from gifts in wills each year, this isn’t simply from wealthy people. All kinds of supporters contribute through the gift in will, with gifts ranging from £100 to £1 million and everything in between. And every gift, whatever size, can make a difference.

Larger gifts have the potential to fund entire projects but smaller gifts play a critical role too - they help fund smaller components of projects. Gifts can often be the crucial difference between success and failure in the project.

Our researchers are acutely aware of the importance of this long-term investment in their work. Dr Ulrich Hansen, senior lecturer in orthopaedic biomechanics at Imperial College says: “People with arthritis are what drive our work and sometimes it can seem like a long journey for the individual researcher and patient. Ten years is a long time for the individual but research needs to be viewed over longer periods – for example, who would want to be operated on using only techniques available 100 years ago? That’s why research needs continued long-term investment to help allow the progress of research to take place.”

Dr Kian Notsal, a former Arthritis Research UK clinical research fellow adds: “One of the first things that I learnt when I started in the laboratory was how long things take in science. I still find this frustrating, and I’m sure many patients do too - but when I see how good new treatments can be, like anti-TNF drugs, I know it is worth the wait. That’s why it’s crucial to ensure we have long-term funding in place, such as from gifts in wills, to help ensure the long-term projects can continue and be successful.”
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