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Institute of Musculoskeletal Health and Arthritis

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IMHA ON THE MOVE!

...Advancing the Science of Arthritis, Rehabilitation, Bone, Muscle, Skin and Oral Health

Greetings from the Scientific Director – building a communication bridge

Dr. Cyril Frank
Scientific Director

Welcome to the inaugural issue of "IMHA On The Move" – the official newsletter of the Institute of Musculoskeletal Health and Arthritis (IMHA).

From the beginning, IMHA recognized the importance of establishing two-way communication with its stakeholders. And so, last year, we participated in a variety of workshops and conferences to build communications with you, towards developing a Strategic Plan that we believe is fully in step with these exciting times.

We also launched our database (www.cihr-irsc. gc.ca/institutes/imha/index_e.shtml) as a means of helping us build that all important communication bridge. Today, with the launch of IMHA On The Move, we have taken another important step towards solidifying that bridge.

In this issue, you will find stories on the Bone and Joint Decade, Osteoarthritis and IMHA's researcher award winners – among others – stories that will give you a basic snapshot of where this Institute has been and where it's going. We hope you will read with interest and enthusiasm and that you will look forward to its quarterly publication. ■

The Disease of the Decade

Ottawa recognizes the importance of bone and joint health

It's somewhat like arguing over whether the new millennium started in the year 2000 or 2001. The World Health Organization (WHO) may have declared the first ten years of the 21st Century to be the "Bone and Joint Decade," but for all intents and purposes the Decade really didn't get started in North America until *Time* magazine declared the dawning of "The Age of Arthritis" in a lengthy feature article in its December 2002 issue. In Canada, we jumped the gun, officially endorsing the international Bone and Joint Decade last August – one of 45 nations from around the world to do so.

True, there's more to bone and joint health than arthritis. In some countries, traffic-accident trauma or childhood disease are more pressing concerns. But in North America, arthritis is the musculoskeletal (MSK) disorder whose time has more or less come, propelled by a post-war "baby boom" (1947-67) that's turning into an extended "maturity boom." The *Time* article was prompted by an October report from the Atlanta-based Centers for Disease Control and Prevention, which concluded that fully one-third of US adults already suffer from some type of joint condition. In Canada, experts project a million new cases of arthritis (mostly osteoarthritis) by 2010. If the disease-of-the-week media-spotlight is currently directed at arthritis, it's all to the good as far as Dr. James Waddell is concerned, because he knows a thing or two about laboring in obscurity.

In North America, arthritis is the musculoskeletal (MSK) disorder whose time has more or less come, propelled by a post-war "baby boom" (1947-67) that's turning into an extended "maturity boom."

As the president of the Canadian Orthopaedic Association, Waddell was the only Canadian to attend the Bone and Joint Decade's (BJD) inaugural meeting in Sweden in 1998. And so, by default, he became the spearhead for the Bone and Joint Decade in Canada. Heading up this important initiative, however, was something that the distinguished orthopaedic surgeon would have never considered had he not been thoroughly convinced of its necessity and value.

Charged with enthusiasm for the undertaking, Waddell believed that other organizations engaged in MSK patient advocacy and treatment would rally around his banner.

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The Disease of the Decade continued

Unfortunately, not everybody thought he was "the answer to a maiden's prayer." Still, through diplomacy, determination and patience he ultimately succeeded in convincing 19 national professional associations and non-profit health organizations to form a national action network. Everybody was pumped!

On October 23, 2002, with the endorsement of the Government of Canada, the undertaking received another significant vote of confidence. In their official announcement, the Honourable Anne McLellan, Minister of Health, noted that, "The impact of musculoskeletal diseases among Canadians in terms of pain, suffering, disability and economic cost is significant. Action and collaboration at all levels of government and non-governmental organizations are needed if Canada is to address this increasing problem."

Waddell readily acknowledges the contribution people like Dr. Cy Frank, scientific director of the Institute of Musculoskeletal Health and Arthritis (IMHA), have made to strategically position the BJD with leading decision-makers. "He's been very influential in getting us to meet other people in the MSK community, as well as talking to people in government." From Frank's perspective, even though IMHA has a much broader mandate, the BJD is "a huge piece of IMHA, and we are a key partner. I've offered Jim our expertise and 'horsepower' to help create a research agenda for the Bone and Joint Decade and to help rally stakeholders around it." This support may extend to seed-funding to start a Canadian BJD secretariat with a full-time staff-person and dedicated phone, fax and e-mail address.

"Our role is just being defined," says Waddell, "in part by the constituent members of the national action network, but also in part by what the federal government wants from us, which appears to be some sort of coordinating effort so that they're not bombarded with requests."

Once operational, Waddell hopes the BJD will evolve into a public forum on bone and joint health, where the best minds on a given issue can come together to hammer out a consensus, after which a coordinated action plan can be ferried through government channels by BJD representatives.

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WANTED:

a few good over-achievers

There's no life like it. Dr. Ron wants *you* – if you have the right stuff.

Okay, okay, you get the point. Opportunity knocks. So look smart. Here's the drill:

Dr. Zernicke addresses participants attending the BJH Program's regular seminar series.

IMHA and the Universities of Alberta and Calgary have joined forces to offer a six-year training program in bone and joint health, part of a much larger CIHR plan to launch around 50 strategically focused training programs throughout all the Institutes. The goal is to create the next generation of clinician-scientists, since the current one is edging toward retirement, and the demand for such multi-talented individuals is increasing exponentially. The name of the game these days is cross-disciplinary and translational research.

"We're combining the strength of the two universities and the respective health regions in both cities, so that 40 different faculties can pull as a team," says Dr. Ronald Zernicke, dean of the Faculty of Kinesiology at the University of Calgary and director of the Alberta Provincial CIHR Training Program in Bone and Joint Health (or BJH Program for short). "The program is looking for health professionals – not just MDs but also dentists, nurses, physios, OTs, orthotists, chiropractors – anyone, really, pursuing a doctorate who wants enrichment in musculoskeletal health....osteoarthritis, joint injuries and back disorders, to be more precise."

Why these two universities? The combined excellence in bone and joint health, says Zernicke, "is, quite frankly, one of the best concentrations in the world." And the universities already have a successful cooperative model to build upon with their combined biomedical-engineering MA and PhD programs. Indeed, if one were looking for a narrow definition to serve as an archetype of "clinician-scientist," it might be the MD with a PhD in bioengineering, specializing in biomechanics. Aside from changing the courses of mighty rivers, our hero has hands-on clinical experience and the research "super powers" to transform new knowledge into something of biomedical value – say, an anatomically perfected, artificial joint that can be implanted using minimally invasive surgery. Says Zernicke, "It's a tremendous experience for basic scientists, engineers and others to work with a clinician-scientist, because he/she really can relate to both worlds. I just have tremendous respect for these people, the ones who can seemingly do it all."

Under such a scenario, the BJH Program would add to the formal bioengineering PhD one trans-disciplinary course, a seminar series and the opportunity to do study rotations under different mentors in one or more research settings. Now, dear reader, just widen the definition of clinician-scientist to include all the aforementioned 40 faculties and health professions, and chances are pretty good that the recruitment criteria would include your particular skill set. "We're looking for those individuals who have the capacity to work directly with patients, and through that experience and our training formulate the right questions for research and the right experiment to find the answer," says Zernicke. "What we're pushing for is to develop the première graduate program in research for bone-and-joint clinical-scientists." The competition is national, so out-of-province doctoral students can also apply.

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No Small Achievement

top researchers scale peer-review process with flying colors

It can only be a matter of time before the producers of so-called "reality TV" discover scientific peer-review. To date, those hearty contestants who don't get kicked off the island, or who survive walking a tightrope over a bear pit, or who can be covered head-to-toe with hairy spiders without screaming, are blissfully ignorant of the rigors of submitting your RFA for review by a jury of your peers.

In the arena of intellectual blood sports, peer-review ranks right up there with being cross-examined in open court by a skeptical crown attorney with a reputation to make. In peer-review, there's no place to hide. Your best ideas are subjected to microscopic scrutiny, probed for weaknesses in reasoning and methodology, and assessed on a five-point scale that leaves little room for nuance or mitigating circumstances. Let's just say that anything below four doesn't rank as a screaming endorsement.

So to be judged first in your particular field of endeavour by CIHR's notoriously tough peer-review panels is no small achievement. In fact, it's a great, big, fat WIN against the odds! Professional modesty precludes personal promotion, so we take it upon ourselves to celebrate IMHA's seven "best of the best," – those individuals who were among CIHR's highest-ranked awardees in the 2002 peer-reviewed competition.

Special kudos should also be sent to oral-health scientist Dr. Christopher Overall, who was 2002's top-ranked CIHR investigator.

Here's a brief synopsis of what they're up to:

Dr. Gordon Asmundson
"Maintenance of chronic pain: Cognitive and physiological mechanisms"

Pain has been called the "fifth vital sign," on a par with temperature, respiration, pulse and blood pressure. And like the other four, pain is influenced by thoughts and beliefs, attitudes and behaviours. The difficulty is, while conventional vital signs can be quantified fairly easily, measuring pain, changes in its intensity, and pain's global physiological effects presents a considerable challenge.

Fittingly enough, one way of quantifying pain is to measure its impact on the four vital signs, which is what Dr. Gordon Asmundson and his associate Dr. Heather Hadjistavropoulos are attempting to do at the Regina General Hospital. Their research efforts will seek to compare a healthy cohort of clinical-trial volunteers with a cohort of people who are in chronic pain to establish base-line parameters. From there, they will all be knowingly exposed to a painful stimulus. Ultimately, the ability to accurately measure pain would make efficacy trials for analgaesics and cognitive-behavioural interventions much less difficult and ultimately lead to improved management strategies.

Dr. Robert Faulkner
"Relationship of growth and lifestyle to peak bone mass"

Dr. Robert Faulkner and his colleagues at the University of Saskatchewan have seized a unique opportunity to track a group of young adults for the next three years to accurately identify their age of peak bone mass and to analyze the effects of environment and growth and maturation on bone mass.

Growing evidence suggests that physical activity, quality of nutrition and physical maturation rate affect bone mineral accrual in the developing skeleton, but there is little data on the impact of these factors on the adult skeleton. The only way to gather this

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OA Consensus Conference Update

$5.5 million investment in osteoarthritis research

Scientific conferences – we've all been there – two days of Power Point presentations, line-ups at the microphone to ask hard-nosed questions, facilitators coming alive during the break-out sessions, earnest discussions in front of poster presentations, and so on. So what is it about a conference that would make one veteran pharmaceutical executive say he'll never think of drug-development in quite the same way again; or several international scientific leaders claiming it to be the best conference they'd ever attended; or a group of young research trainees believing they had found an exciting new career path to follow?

As far as last April's Osteoarthritis Consensus Conference, it was the meticulous planning, common goals and clear vision, that led to the rave reviews. Conference participants knew that the conference was focused towards creating concrete action and a commitment to sustained funding for osteoarthritis research. But the real deciding factor was inclusivity. There was enough room under the "big tent" for a wide diversity of perspective and opinion.

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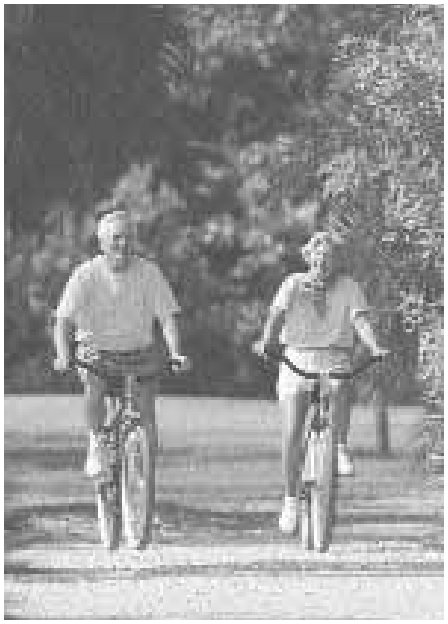
WANTED: continued

In addition to Zernicke and the BJH Program's highly regarded co-director, Dr. Michele Battié, a professor in the physical therapy department of the faculty of rehabiliation medicine at the University of Alberta, and a Tier 1 Canada Research Chair in common spinal disorders, there is a truly awe-inspiring list of 38 other mentors on the program web-site (**www.boneandjoint-training.ca**). As Zernicke says, "the words 'unique opportunity' come to mind."

Although there is assured funding for six years, it's assumed that program participants will "aggressively go after other funds" in their first year to free up BJH Program funds to train more people. It's the same situation for the program, and Zernicke is already contemplating strategies for approaching other sources of funds to keep the program going. "There is pent-up demand for these research skills, especially among health professionals other than MDs. Even by word-of-mouth, people are hearing about what we're doing. We have 14 people already, I think, and our target is 25, so we're expecting a swift increase in application pressure in 2003." ■

Move It Or Lose It

exploring the impact of physical activity on musculoskeletal health



"Move it, or lose it," is a basic tenet for staying in shape and maintaining musculoskeletal health. We intuitively understand that exercise or physical activity is good for our health, but many of us remain sedentary for a variety of reasons. Early last December, IMHA met with Health Canada and Sports Canada to discuss holding a consensus conference the following spring.

Potential discussion areas include identifying the sociological, psychological and physical barriers that prevent people from taking up physical activities or sport; examining the interplay of genetics, nutrition, mental attitude and training that optimizes performance in elite athletes and gifted children; assessing risk factors that contribute to sports injuries and best practices that accelerate recovery; as well as describing and quantifying how sports or physical activity prevent disease and enhance quality of life. "It'll be a slightly scaled-down version of the OA Consensus Conference," says IMHA Director Cy Frank. "But we plan to come out of there having identified major research directions, which IMHA and our partners will fund, since it is critical to bones, joints, muscles and rehabilitation, in the years ahead. Physical activity, mobility and health has emerged as one of our top research themes." ■

Extra Extra Read All About It!

free literature searches for new IMHA investigators

The Canadian based Cochrane Musculoskeletal Group (CMSG), the Cochrane Back Group of the international Cochrane Collaboration and the Institute of Musculoskeletal Health and Arthritis (IMHA) have joined forces to launch a pilot project that will provide free literature searches for new investigators who are applying for their first independent CIHR grant.

Why provide this service? According to Cy Frank, IMHA's scientific director, "We want to give investigators, who don't have any individual CIHR funding, the best possible chance of being successful by providing them with up-to-date literature in a timely fashion. By providing the best clinical literature available, we hope to give new researchers a leg up in applying for funding." As an added bonus, this service will also provide current literature that may not be available to researchers conducting their own reviews.

This free value-added service truly comes with no down side or obligations! All you have to do is make sure that your request is relevant to IMHA areas of research – arthritis, rehabilitation, bone, muscle, skin and oral health – and addresses one of the Institute's following strategic priorities:

- Physical activity, Mobility and Health
- Tissue Injury, Repair and Replacement
- Pain, Disability and Chronic diseases

As a pilot project, IMHA will consider the first 10 – 15 requests for this service. To determine whether the services should be extended, however, IMHA will monitor all applications. Requests must be submitted

to IMHA prior to the March 2003 competition. *Please Note:* CMSG and the Cochrane Back Group require up to four weeks to conduct the literature search that will form part of your grant application.

For further information please contact Sophia Tsouros at:

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Or visit http://www.cihr-irsc.gc.ca/institutes/imha/news/literature_search_e.shtml

No Small Achievement continued

kind of information is to systematically follow the same subjects from childhood through adolescence and into their adult years. Dr. Faulkner's investigative team collected longitudinal data on a large group of youngsters beginning in 1991 until 1997.

These subjects are now in their early twenties – that metabolic milestone when theoretically the skeleton stops "saving" minerals and starts "spending" them. The newly funded study will result in a precise determination of when peak bone mass is attained.

Armed with this valuable population data, researchers can accurately gauge in vivo how skeletons manage their mineral resources in response to different everyday conditions during the growing years and how these factors impact on maximizing adult bone mass. With this new knowledge in hand, researchers can begin to develop prevention guidelines for diseases like osteoporosis.

Dr. Marvin Fritzler "New targets of autoimmune diseases"

The novel protein "GW182" gets its name from a unique structural motif of two adjacent amino acids – glycene (G) and tryptophan (W) – that in various combinations are repeated up to 60 times. The protein was discovered by the University of Calgary's Dr. Marvin Fritzler, who used a human antibody as a "fish hook" to snag the protein's gene from a genetic library.

The original patient with GW182 antibodies had neurological disease and died of cardiac failure. So what pray tell is the significance of this particular protein? In other words, why should we care? Well, for starters, people who have antibodies to GW182 tend to fall into two general categories: About half have mixed motor and sensory neuropathic disease, and the others have rheumatic diseases such as Sjögren's syndrome and systemic lupus erythematosus. What Dr. Fritzler, in collaboration with investigators in the US, hopes to do is determine the functional role of the protein and the effect of the antibody on human organs and tissues.

This will extend towards the creation of a reliable diagnostic marker for these diseases and possibly a therapeutic target.

Dr. Kenneth Hastings "Gene expression in specialized muscle cells"

In some respects, gene expression is akin to a cathedral pipe-organ, with its multitude of pedals, keys, stops and different combinations capable of creating the contrapuntal splendours of a Bach fugue. Deciphering the specific genetic "score" that results in muscle-cell gene expression is the goal of Dr. Kenneth Hastings at the Montreal Neurological Institute, McGill University. This score is written in the DNA of muscle genes but in a notation we don't yet fully understand. In his research, Hastings experimentally modifies muscle genes by changing their DNA structure in various ways. He then inserts the genes into mouse muscles to see what effect the experimental modifications have on the gene's behavior i.e., its expression pattern. It's a bit as if he were deliberately closing a stop, avoiding a note in a chord, or changing foot-pedal patterns trying to find out what parts of the score are the most important in generating particular aspects of the fugue.

Dr. Hastings is also seeking to trace signaling pathways inside the cell that contribute to muscle-gene expression. Once these regulatory mechanisms are understood, they will help us better understand what happens when muscles are diseased or damaged or disused and may also provide specific cellular targets for therapeutic intervention.

Dr. Christopher Overall "Molecular determinants of human MMP-2 substrate specificity"

The human body is constantly adjusting to external and internal events to meet the endless demands of the moment. Tissues are worn out, recruited to play a new role or simply destroyed after injury. It all adds up to a lot of biological housekeeping and, in the grand scheme of things, there are few enzymes that can rival matrix metalloproteinases (MMPs) as mop-up experts.

MMPs' particular talent is dissolving extracellular matrix (ECM), which provides form and "protective padding" to the cells that comprise a particular tissue. Under normal conditions, MMPs are an essential service, but sometimes their skills are subverted for pathological purposes, such as the chronic inflammation of periodontal disease or rheumatoid arthritis or, worse, metastasis, wherein primary malignant cells spread to distant tissues.

The University of British Columbia's Prof. Christopher Overall is studying how one of the most important of the metalloproteinases, MMP-2, interacts with ECM. First he will identify patches on the enzyme surface, called exosites, that act like helping hands. By sticking to ECM, exosites help

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The Disease of the Decade continued

And there's lots of room at the table for everybody. "We want people to participate fully in this, and we're trying to do it in as non-threatening and inclusive a way as possible. In effect, we become a clearing-house for ideas, a facilitator of strategic planning and coordination, and a spokesperson for the community. One brand-name as opposed to hundreds so that we'll have better visibility and easier access to health ministries," says Waddel – in short, a catalyst for further integration of the MSK community.

"The impact of musculoskeletal diseases among Canadians in terms of pain, suffering, disability and economic cost is significant. Action and collaboration at all levels of government and non-governmental organizations are needed if Canada is to address this increasing problem."

And lest anybody were to think that the Bone and Joint Decade is about self-promotion or impractical high-concept solutions, consider this fact – there will never be enough specialists in Canada to handle the exponentially expanding caseload of arthritis, osteoporosis and other MSK conditions projected for the next 30 years. The only practical solution is to have primary-care health-professionals (family physicians, nurse-practitioners, physical and occupational therapists) provide the bulk of ongoing care to people with arthritis.

The trouble is, says Waddell, FPs and GPs "are by and large uncomfortable with providing comprehensive care to these patients." The BJD national action network thinks that the doctors' discomfort reflects a lack of educational opportunity, either in medical school or residency in family practice. "So we're attempting to improve the medical-school curriculum in all medical schools across Canada, " says Waddell. "Also, we're trying to get all the family-practice residencies to include a formal amount of teaching related to MSK health."

Okay, training is great, but it doesn't stop there. The Canadian Rheumatology Association under the aegis of the Bone and Joint Decade has recently suggested various new models of arthritis-care delivery. Although there are lots to choose from, the one model that seems to make the most practical sense (and fits in with the Romanow Commission's emphasis on primary care), says Waddell, "uses a lot of non-physician care-providers." In a clinical out-patient setting, for example, nurse-practitioners and therapists would provide the on-going primary care. A patient who is experiencing difficulties or new symptoms might be seen by a resident primary-care physician who has special training in arthritis. And finally, a rheumatologist would see every new patient and look after certain patients. An orthopaedic surgeon would be on hand to look after the surgical aspects of arthritis care. "It's an attractive proposition for health ministries."

Another lasting achievement that Waddell hopes will have a direct impact on arthritis-care delivery, is the national registry for joint-replacement surgery, which started in Ontario and is now operating across the country "with varying degrees of success." By maintaining a data base on those Canadians who have undergone surgery, as well as those who are waiting for joint replacement, the registry could ultimately act as an electronic matchmaker, pairing patients with nearby surgeons whose schedules are less crowded thereby cutting down on waiting times. "We are very much a supporter of a national registry. By the end of the Decade, it should have all the kinks ironed out of it."

Integrated research, integrated care-delivery, prioritization through consensus, a single strategic vision, these are important indicators that a given community is indeed mobilizing in a way that government can work with. The Bone and Joint Decade National Action Network is a prime example of how government-relations productivity is being improved through collaboration. "The integrated model is something we can offer globally. A lot of countries that endorsed the Decade are looking to North America to see exactly how we approach these issues," says Waddell. "First, we have the two very different health-care provider systems, and then they're also very interested in seeing how we integrate all our various stakeholder organizations as we try to move toward a common goal, to make something good happen." ■

OA Consensus Conference continued

Inclusivity had already served the Canadian Arthritis Network (CAN) well in its pursuit of a much broader research agenda for commercialization of new arthritis-related technologies. Dr. Robin Poole, CAN's scientific director, recalls that Network members had identified osteoarthritis (OA) as a major problem, for which there was no coordinated or sustained research effort. "We viewed OA as an area that needed to build a critical mass of knowledge and expertise to get things done."

After some discussion with IMHA and The Arthritis Society, the three organizations agreed to become equal funding partners to cover the start-up costs of the conference. IMHA established a secretariat under the able leadership of Elizabeth Robson, CAN went searching for industrial sponsors to cover the hefty travel costs, and the Society looked after meeting facilities and inviting clinicians and people with arthritis. And Robin Poole became the chair of an organizing committee that met monthly for eight months prior to the event, interspersed with numerous teleconferences and an unending stream of e-mail. As might be expected, the committee consisted of members from the three organizations, but allied health professionals, trainees and people with arthritis were also represented.

Right away, says Poole, "we felt it was extremely important to involve people from many different activities – not just scientists and clinicians, but also therapists, GPs, government, industry, prospective trainees." Also on the invited list were experts from other countries and researchers working in adjacent fields to arthritis (bone and muscle, for example) who might have ideas to contribute and be inclined toward more direct collaborations. "And, of course, people with arthritis. They were our conscience."

A number of years ago, Denis Morrice, president of The Arthritis Society, made the executive decision that, whenever possible, he would have someone with arthritis accompany him to meetings with government officials. That led to the formation of the Canadian Arthritis Patient Alliance (CAPA), a national network of people with arthritis who want

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IAB Members

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James Lund
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(NIH – USA)

Robert McMurtry
(Ontario)

Henri A. Menard
(Quebec)

Morris Milner
(Ontario)

Denis Morrice
(Ontario)

A. Robin Poole
(Quebec)

Ilona Skerjanc
(Ontario)

No Small Achievement continued

feed proteins to the active centre of the MMP where they are cut. By understanding how the exosite hands hold proteins, he can understand why this enzyme is so efficient and then design new drugs that block the hands – like putting a thick glove on so the enzyme can no longer hold proteins or stick to ECM. Then using similar molecular-engineering techniques, he will explore the active centre of the enzyme where a zinc atom in the molecular "motor" is found. In this way he will be able to understand how the zinc fuels the motor.

If Overall can find a means of blocking the zinc motor, he just might be able to swing open the door to a wide rage of new therapies for inflammatory disease and cancer.

Dr. Wendy Rodgers
"Health effects of lifestyle versus rigorous physical activity"

Okay, so we all know that physical activity is good for you. But what does that really mean? Do you really have to adhere to some prescribed fitness regimen to be deemed "physically fit"? Basically, that's what University of Alberta's Dr. Wendy Rodgers is trying to find out. In her study, she'll be collecting comparative data on fitness, overall health, psychological outcomes and compliance, as well as examining the determining factors that made participants select one set of guidelines over another.

In so doing, her research will look at walking – plain and simple. "To do the 'science', you have to restrict the activity to something reasonably assessable," says Rodgers. "It's a comparison of the lifestyle or 10,000 steps prescription, to other kinds of fitness prescriptions, to determine what produces the best health and fitness under free living conditions."

For example, even though the traditional "three times per week workout" might produce the best outcomes, under optimal conditions, it won't matter if people's adherence to the program is considerably less than the 10,000 prescribed step approach. "You'd be further ahead, in day to day living, to rely on the 10,000 step approach," says Rodgers.

Through Rodger's research, we can hopefully take some important "steps" towards finding out what motivational buttons to push to transform couch potatoes into actively fit children or adults, and make some huge strides towards improving the health of Canadians.

Dr. Victor Tron
"How does the protein Gadd45 protect our skin from the sun?"

Since 1999, Dr. Victor Tron and colleagues in his laboratory at the University of Alberta have studied p53, a "foreman" gene that authorizes repair of DNA damage resulting from sun exposure. As it turns out, this gene is often missing in skin cancer. The question is why not. Recent work has demonstrated that the genes under p53's control are the "technicians" that execute the orders and that one of them, Gadd45, has crucial responsibilities in DNA repair. The long-term goal is to learn as much as possible about Gadd45, since it could then eventually lead to strategies for protecting our skin from the sun and therapeutic agents for skin cancer. ■

OA Consensus Conference continued

to be actively involved in government advocacy. There were only a handful at first, but more and more people joined with each passing year, especially as e-mail became more common. CAPA members now sit on a variety of peer-review panels and advisory councils at CAN and The Arthritis Society. They also help represent the MSK community for such federal initiatives as developing consumer-friendly drug monographs and participating in drug-review reform, both of which fall under the responsibility of the Therapeutics Products Directorate (TDP).

"At the OA conference, the presence of CAPA members made everything less rigid and competitive." recalls Denis. "Everyone realized, 'Oh right, that's why I'm doing this research.' Everyone started to think on a higher plane than at the usual research meetings."

In January 2003, IMHA and CAN joined forces to contribute $5.5 million toward OA research.

Evidence of the latter was the "consumers" day for people with arthritis, held on the Friday before the weekend conference and sponsored by the Frosst Health Care Foundation. Designed as an informal, introductory seminar on the state-of-play of Canadian MSK research, participants listened to presentations from, and asked questions of, a number of experts including Dr. Cy Frank, Denis Morrice and Chris Nelson, CAN's CEO, as well as Drs. Carole Richards, Jane Aubin, and Jolande Cibere.

Day One of the conference covered the gamut of topics from the complexities of studying a multi-genetic, multi-factorial disease that typically occurs over several decades; to the epidemiology of OA and its impact on society; developing biomarker assays and the molecular basis of pain. Day Two consisted mainly of facilitated discussion groups that captured and prioritized a flurry of emerging issues, such as characterizing the natural history of OA, and listening to patients in order to better define early disease.

At the end of the day, six major themes came out of the Conference, which will help IMHA form the basis of several volleys of requests for applications (RFAs):

- What are the risk factors/causes of OA, and how effective are OA treatments?
- What are the best models, markers, tools for evaluation of OA, and what are the most effective models of OA care?
- What are the causes and treatments of pain and fatigue in OA, and what are their relationship to outcomes of OA treatment?
- What are the best prevention strategies for OA?
- What are the new targets for treatment of OA?
- What are the best methods of knowledge transfer, and how are effective are they?

At the end of November 2002, the three conference organizers met once again to carry on their work towards the development of a more comprehensive plan for arthritis research. CAPA members were invited to prioritize the osteoarthritis RFAs according to their perspective. "They pushed us to focus on pain and fatigue as the number-one priority, bumping it up from a number-three slot in the original list," says Frank. "As a result of their input, IMHA is going to make pain and fatigue its top priority in OA."

And so, in January 2003, IMHA and CAN joined forces to contribute $5.5 million toward OA research. At first, IMHA will fund two or three RFAs in the areas of pain and fatigue and hopefully, over time, all six themes will be funded. "We're going to be launching what we call new emerging team grants, (NET) which by definition are teams of three to six investigators who have never before worked together," says Frank, who sees this as a means to foster cross-pillar research "from basic biomedical all the way through to population health." Once established and operating, the idea is to "glue them together," creating a national network of OA centres that Frank is certain will eventually "spawn a lot of investigator-initiated research in new directions that would never have been seeded before."

Meanwhile, says Poole, CAN has established a special OA initiative to further integrate its research and development so that "basic scientists can start working with statisticians, with patients, with clinicians on clinical trials, and so on. All of that is moving ahead." And depending on what IMHA and CAN are investing in, The Arthritis Society will fund research that complements, rather than duplicates, the collective agenda.

While the Consensus conference was a significant event in it's own right, it was also effective in creating a valuable template for the future. In essence, the conference was "a model of how we like to do business in the Institute," says Frank, "bringing together all the stakeholders from all the different sectors of society to discuss the direction of research and then prioritize the top research questions. It's a model we plan to use for our other foci areas – rehabilitation, bone, muscle skin and oral health." (see "MSK & Physical Activity")

And the ripples from the OA conference are continuing to spread. As IMHA builds it research infrastructure and recruits and trains investigators, the Institute is gradually transforming itself into a giant "job creation program," says Frank, "because health research is a critical part of the health sector. Clinicians and scientists have tremendous value in many different aspects of the health industry – research, obviously, but also the insurance and pharmaceutical industries, assistive device development, policy analysts and much more." Thus, Frank is positioning the Institute so that its members can also benefit from support from Industry Canada and its national innovation agenda as knowledge is translated into technologies. That way there are plenty of options for investigators to continue their work beyond existing IMHA programs.

And given the success of the OA Consensus template, the three organizations are already envisaging an RA inflammation consensus conference in the not-too-distant future. So, stay tuned. ■

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