

The NCPO wishes you a Merry Christmas & a Happy New Year!

## Head of NCPO visits Japanese P&O Colleges

Head of the NCPO, Mr. Rod Cooper, was invited to Japan in November to visit five Japanese P&O Colleges. At each college, Mr. Cooper gave lectures to Japanese P&O students and staff about the NCPO, the Australian allied health system and orthotic theory.

Although each college Mr. Cooper visited had different curriculum, the facilities, staff and students were remarkably similar to those at the NCPO.

As part of this visit, discussions were held regarding provision of accreditation of the Japanese P&O training towards the NCPO degree. A program is being developed whereby Japanese students can attend the NCPO for an additional year of study after completion of a Japanese qualification, and undertake a combination of subjects from various disciplines and year levels to complete the NCPO requirements for a P&O degree.

A high level of interest in the program was shown by most of the college directors and their students. The first two students to enroll in this program are expected at the NCPO in 2004, after completing additional English Language studies during 2003. It is anticipated that an annual enrollment of five to ten

students may be achieved in the following years. International student enrollments provide some income to the department, as well as giving Australian students the opportunity to interact with students from international colleges. The program should provide Australian and Japanese students and staff with a more global perspective of the prosthetic and orthotic profession.

### Thank you to all Volunteer Patients for 2002

This year has seen a particularly high demand placed on volunteer patients of the National Centre for Prosthetics and Orthotics due to the changes in course structure. A number of volunteers attended in both first and second semesters. We wish to say a very sincere thanks to all volunteer patients who so generously donate their time to assist our students receive the best possible learning experience. It is through the dedication and commitment of these volunteers that our students are able to receive a high level of clinical 'hands on' experience throughout the course. This feature of our program is noted as one of the strengths by many overseas visitors. **Once again, we say thank you.**

## 2002 Graduation



The majority of this year's prosthetics and orthotics students graduated at a ceremony held on the 30<sup>th</sup> of September. The degree of Bachelor of Prosthetics and Orthotics (B.P&O) was awarded to fourteen graduates who completed their studies in June. Two conversion students also received their testamurs, and five additional people received the B.P&O in absentia.

*Most of the P&O class of 2002 at the graduation ceremony.*

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## Curriculum Corner

Detail about the P&O curriculum can be found in the 'Course outline and subject descriptions' section on the NCPO homepage:  
<http://www.latrobe.edu.au/ncpo/>

Commencing with our 2003 student enrollment, the NCPO will be reforming its clinical subject course structure.

First year of the course will now cover upper limb prosthetics, upper limb orthotics and spinal orthotics. Second year will include below knee topics: transtibial prosthetics and foot and ankle orthotics. Third year will cover above knee subjects: transfemoral prosthetics and hip, knee and whole lower limb orthotics.

These alterations eliminate the delivery of some subjects (upper limb prosthetics and orthotics and spinal orthotics) every two years to large student groups, and allow greater theoretical and practical applications to these important subject areas. Other subjects, such as Orthotic Fracture Management and Patient Evaluation, will receive a larger allocation of time in response to the growing clinical emphasis on these areas.

The NCPO aims to increase its role in providing ongoing education for practicing clinicians and will begin a series of courses in 2003 to fulfill this need.

The NCPO always welcomes feedback regarding our course content. To provide this, or for further information regarding NCPO course changes, please contact Mr. Rod Cooper, Head of the NCPO on phone: (03) 9479 5862 or email: <Rod.Cooper@latrobe.edu.au>.

## NCPO seeks Associate Lecturer/Lecturer

The NCPO will be advertising a position for an Associate Lecturer or Lecturer in Prosthetics and Orthotics in early January 2003. The position will involve coordination and delivery of practical and theoretical P&O subjects, supervision of student research and involvement in the NCPO's clinical services. Applicants will be required to have a degree in Prosthetics and Orthotics and be eligible for AOPA membership.

Full details of the position will be available from 11<sup>th</sup> January on the La Trobe University web site: <<http://www.latrobe.edu.au/personnel/jobs.html>>. Please contact Rod Cooper on phone: (03) 9479 5862 or email: <Rod.Cooper@latrobe.edu.au> for further information prior to that date.

## NCPO Staff Research

NCPO research is published at conferences and in journals. An overview of a current staff research project is provided here.

### Evaluation of rocker sole shapes for rigid ankle foot orthoses

Rocker soles (RS) are frequently used to improve the biomechanical function of walking when the ankle has been immobilised. The aim of a RS is to allow smooth progression of the leg in the absence of the normal rocker action of the ankle (Perry, 1992). Various RS designs are available commercially and clinicians may fabricate their own when required. Theoretical models have been developed in an attempt to optimize designs for individuals. Research in this area is limited. A recent investigation by NCPO honours student, Nadia Sirotic, evaluated the effectiveness of various RS designs.

RS designs were fabricated using a theoretical model proposed by Gard and Childress (2001) that defines a radius of curvature proportional to the individual's leg length. This design was compared to RS with greater and lesser curvatures, a prefabricated RS (Donjoy Nextep Contour Walker™) and a no orthosis condition. Variables selected for comparison of function were smoothness of progression, knee stability and trunk work. It was hypothesised that the RS using the theoretical model would provide optimal biomechanical function.

Five asymptomatic subjects were recruited. Subjects were tested in a biomechanics lab using the Donjoy Nextep Contour Walker™ with various RS. The RS apex was positioned at the proximal third of the sole of the 'walker' used for the experimental sessions.

The results suggested that the prefabricated RS significantly decreased trunk work and improved smoothness of progression compared to the RS shapes based on the theoretical model. When comparing the experimental and sound sides, significant differences were found in peak knee flexor moments and centre of mass vertical displacement. It was concluded that the prefabricated rocker sole provided the best biomechanical function of the RS shapes tested.

### Project support

This project was completed as part of an ongoing collaboration between the Prosthetics and Orthotics department of Princes Alexandra Hospital in Brisbane and the NCPO, La Trobe University. Supervision for the project was provided jointly by Dr. Tim Bach and Mr. Tim Jarrott from La Trobe University, Mr. Shaun McKay from the Princess Alexandra and Dr. Laurent Frossard and Prof. John Evans from Queensland University of Technology.

### References

- Perry, J. (1992). Gait Analysis: normal and pathological function. U.S.A.: Slack Inc.
- Gard, S.A. & Childress, D.S. (2001) P & O Int., 13(3): 64-67.



## P&O Clinical Education

During November and December, thirty-two 2<sup>nd</sup> year students completed a three week placement. Nearly all of the available facilities were utilised, with students travelling throughout Australia. This placement now allows students to observe and practise both orthotic and prosthetic processes, because transtibial prosthetics is included in the 2<sup>nd</sup> year curriculum, as well as below knee orthotics.

The updated 2003 Clinical Education Guidelines are now available via the NCPO web page: <<http://www.latrobe.edu.au/ncpo/>>. If you require a hard copy, please contact Michelle Doney in Human Biosciences Reception on phone: (03) 9479 5754.

Fourth year clinical placements will not commence until late February 2003, with all students (including honours) now completing placements of eight weeks length. Changes to the 4<sup>th</sup> year assessment for Clinical Education have been made for 2003. An NCPO working party that included representatives of AOPA and the profession decided on a new clinical exam format, which includes one exam with both a prosthetic and an orthotic component. A copy of the 2003 exam format is included in the 2003 Clinical Education Guidelines, available on the NCPO web page.

Minutes from the October Clinical Supervisor's meeting have been distributed. If you did not receive a copy please contact Danielle Bonett.

Further information about P&O Clinical Education can be obtained from the Coordinator, Danielle Bonett, phone: (03) 9479 5864. Enquiries after the 14<sup>th</sup> of February 2003 should be directed to Kaisha Gurry, who will be returning from maternity leave on this date, via the same telephone number.

## NCPO at ABC4: Australasian Biomechanics Conference

The fourth biennial meeting of the Australian and New Zealand Society of Biomechanics was held at La Trobe University from November 28-30. The meeting was attended by 120 delegates mainly from Australia and New Zealand. Highlights of the conference included symposia on Balance and Falls in the Elderly, Clinical Gait Analysis and Muscle and Movement Efficiency.

"In some respects, the meeting was a rehearsal for ISPO 2003, the ISPO Australia Annual Scientific Meeting which will be held at La Trobe next November" said meeting convenor, Dr Tim Bach. "We had a chance to run a trade exhibit, test the audio-visual services, try out parallel scientific sessions and poster exhibits, trial the on-campus accommodation and check out the University catering service. We're confident that we can run a first-class meeting for a larger audience at our ASM next November."

## 2002 Student Research Symposium

Once again, the Student Research Symposium held on October 28 was excellent. In the symposium, honours students and third year students present the results of their honours research and Independent Study Projects. As in recent years, the symposium continues to rival the quality of presentations and the level of P&O science at many national and international meetings.

A large number of prosthetists and orthotists from Melbourne and interstate facilities attended at least part of the Symposium. We appreciate the contribution these professionals made to the discussion during question time and during breaks in proceedings. We also appreciate the support of P&O facilities in making time available for their staff to attend the Symposium.

Lunch and a closing reception at the conclusion of the Symposium were sponsored by Reis Orthopaedic and Surgical Services. We gratefully acknowledge Helmuth and Sue Reis for their support of the social aspect of our Symposium over the past three years.

A list of the topics, investigators and supervisors is available on the NCPO web page <[www.latrobe.edu.au/ncpo/](http://www.latrobe.edu.au/ncpo/)>. Anyone who is interested in additional information about any of the topics should contact the NCPO.

The Symposium has established itself as a day of excellent P&O research. The next Student Research Symposium will be held on October 27, 2003. Prosthetists, orthotists and professionals in related areas are welcome to attend. Mark your diaries now and contact the NCPO closer to the event if you wish to have more detailed information.

## NCPO students win awards

A number of prizes were available to presenters. The prize for the best student poster was won by Ben Kettle, currently completing his honours thesis, for a poster co-authored by Margaret Hodge and Rod Cooper on orthotic management of pressure in Rheumatoid Arthritis. Katrina McGrath, another honours student, and co-authors Les Barnes and Tim Bach, won a high commendation for their poster on foot roll-over shapes in transtibial amputees. Former honours student, Anna Murphy, won best student podium presentation award for a paper based on her PhD research about the biomechanics of partial foot amputation. The student prizes include a registration at the World Congress of the International Society of Biomechanics to be held in Dunedin, NZ, in June 2003.

**The NCPO needs more Transfemoral Amputee Volunteer Patients for 2003.**

Please draw the *Volunteer Patient brochure*, circulated last issue, to the attention of appropriate amputees. Thank you.



## Technical Note: Poor Person's Powder Coating

*Tips from Stephen Hockey, NCPO technical officer.*

Often some sort of painted finish is required on the metal parts of prosthetic and orthotic components. This usually means sending the parts out to professionally powder coated, or investing in costly equipment to do it yourself. However, a reasonably good-looking finish that will wear well is possible with ordinary enamel paint; the trick is to bake it in your oven!

Firstly, as with any paint job, thorough preparation is essential. With some fine wet and dry sandpaper, sand the entire surface of the object to be painted. See Fig. 1.

Then make sure you clean the object well with acetone or a similar solvent. Try to avoid touching the object to prevent grease spots from stopping the paint from adhering.

Spraying is a good method of achieving a perfect finish; here, I used a 'budget' can of spray enamel. See Fig. 2. You can use a primer for a better finish (it tends to fill in slight holes and surface texture), but this technique works with no primer at all. Of course, two or more coats with a light sand between also helps to improve the finish.

The next step is to transfer the parts to the oven, warmed



*Figure 1: Good preparation is essential to achieving a good finish*



*Figure 2: Spraying painting with an aerosol can*



*Figure 3: The freshly painted parts are put into the oven*

to a temperature between 90 and 120 degrees Celsius. Some lighter or pure colours take on a brownish tint when baked, so you may have to experiment with lower temperatures for these. With black, you can safely use higher temperatures. See Fig 3.

After baking for about 2 hours, it is best to let your objects cool down slowly before you move them. You will find that the finish is very tough and durable when cooled, much more so than with ordinary painting. See Fig 4.



*Figure 4: Although not as good as professional finishes, this technique results in an inexpensive and extremely tough finish*

## NCPO Continuing Education AOPA Ground Reaction AFO Course

In late October the NCPO hosted the Victorian Section AOPA workshop on the articulating laminated GRAFO. This workshop was well attended, with 20 participants from mainly Victoria and South Australia. The Victorian AOPA members were subsidized by the AOPA Vic. Section and there was generous sponsorship from OPC and Advanced Composites Pty Ltd. The course material was prepared and delivered by the St. Vincent's Hospital, Melbourne Prosthetic and Orthotic Department.

The course combined both theory and practice and proved to be an enjoyable educational experience for participants. Being the first of such courses planned for the future, it was a good learning experience for all involved in the preparation and delivery of the course. Course review material collected and collated from participants has given us valuable feedback and ideas to ensure a high standard of future course delivery.

In the coming years the NCPO intends to increase its commitment to continuing education for practicing clinicians. In 2003, we intend to hold a number of these courses along with industry partners. If you or your facility would like to become involved in delivering a course, or if you have ideas for course topics we would welcome your input.

Course topics currently being considered include

- Advanced fracture management techniques
- Spinal orthotic management
- Grant application, ethics and research publication procedures
- Stance phase control knee units

Please contact Mr. Michael Gurry, NCPO Clinical Services and Continuing Education Coordinator on phone; (03) 9479 5037 or email: M.Gurry@latrobe.edu.au.

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