WEST AUSTRALIAN SLEEP DISORDERS RESEARCH INSTITUTE (INC.)

Research Program

The strength of the research program continued to increase through 2000 – 2001 with work in three main areas:

Diaphragm function/control of breathing
Upper airway dimensions/respiratory muscles
Airway pathology/respiratory epidemiology

Researchers have been active in expanding collaborations, obtaining ongoing research funding, pursuing and completing current programs of research, presenting data at national and international scientific meetings and achieving a total of 21 publications in peer-reviewed top quality journals in 2000 and 2001. These achievements are itemised below.

WASDRI has developed links with UWA and ICHR and is a centre for the national multicentre AVCAL trial. Members of WASDRI hold positions on Hospital, State and National Research Committees (including NHMRC) and 4 members (David Hillman, Alan James, Neil Carroll, Peter Eastwood) have been invited to take part in symposia at this year’s ATS annual scientific meeting in Atlanta, Georgia.

Drs Bhajan Singh and Bill Finucane – Diaphragm/Control of breathing

Fields of Work

1. Neuro-mechanical efficiency of the diaphragm;
2. Respiratory failure and the chemical control of breathing in chronic obstructive lung disease.

Grants 2000 - 2001

<table>
<thead>
<tr>
<th>Year</th>
<th>Name(s)</th>
<th>Grant Details</th>
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Research Personnel

J Panizza, principle research officer/assistant
Techniques

Ultrasound, radiology, physiological measures of diaphragm displacement. Planimetry of chest X-rays.

Presentations – National


Publications


Patent


Drs David Hillman and Peter Eastwood- Upper airway, respiratory muscles

Fields of Work

1. Assessment of upper airway dimensions using optical interferometry;
2. Effect of lung volume on upper airway collapsibility;
3. Respiratory muscle training in patients with chronic lung disease;
4. Aerophagia in non-invasive positive pressure ventilation.
Grants 2000-2001

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<td>M Phillips</td>
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Research Staff

L Coffey, Research Assistant, RESMED;
M Connard, Research Assistant, RESMED;
C Jensen, Research Assistant, AVCAL trial;
S Katagiri, Visiting Research Fellow, Tokyo, Japan;
K Shepherd, Research Assistant;
G Sturdy, Masters student;
I Szollosi, Research Assistant

Collaborations

Nola Cecins, Department of Physiotherapy, SCGH;
Professor S Jenkins, Department of Physiotherapy, SCGH; Lecturer Physiotherapy, Murdoch University;
Dr M Phillips, Department of Respiratory Medicine, SCGH;
Dr P Platt, Department of Anaesthetics, SCGH;
Professor DD, Sampson, Department of Electronic and Electrical Engineering, UWA.

Techniques

Anaesthetics, needle and surface electrode EMG, oesophageal monitoring, administration of non-invasive ventilation.
Presentations and Invited Lectures - Local


Presentations and Invited Lectures - National


Presentations – International


**Publications**


**DRS ALAN JAMES AND NEIL CARROLL – AIRWAY REMODELING AND INFLAMMATION**

**Fields of Work**

1. Mechanisms of persistent airway inflammation;
2. Airway remodeling and airway mechanics;
3. Airway immunology and lymphoid aggregates;
4. Epidemiology of respiratory disease;
5. Assessment of airway inflammation;
6. Genetic influences on airway disease and allergy.
## Grants 2000 - 2001

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### Research Staff

M Carroll, Research Assistant;
K Down, Research Assistant;
J Elliot, Research Officer;
J Dromey, Research Assistant;
P Maxwell, Research Officer, Secretary;
S Mutavdzic, Research Assistant.

### Collaborations – Local

Prof N de Klerk, Institute for Child Health Research;
Dr K (Bill) Finucane, Department of Pulmonary Physiology, Sir Charles Gairdner Hospital;
Dr D Hillman, Department of Pulmonary Physiology, Sir Charles Gairdner Hospital;
Professor P Holt, Institute for Child Health Research;
Dr J Hansen, Institute for Child Health Research;
Dr D Knight, Department of Medicine, University of Western Australia;
A/Professor H Mitchell, Department of Physiology, University of Western Australia;
Clinical Professor AW (Bill) Musk, Department of Respiratory Medicine, Sir Charles Gairdner Hospital;
Professor P Sly, Institute for Child Health Research;
Professor P Thompson, Department of Medicine, University of Western Australia.
Collaborations – National

A/Prof M Abramson, Department of Epidemiology and Preventive Medicine, Monash Medical School, Alfred Hospital;
A/Professor P Robinson, Department of Thoracic Medicine, Royal Children’s Hospital;
Professor H Walters, Department of Epidemiology and Preventive Medicine, Monash Medical School, Alfred Hospital;
A/Professor J Wilson, Department of Respiratory Medicine, Alfred Hospital.

Collaborations – International

Professor W (Bill) Cookson, Henry Wellcome Building for Human Genetics, Oxford University, Oxford, England;
Dr Francis Green, Faculty of Medicine, University of Calgary, Canada;
Professor J Hogg, Macdonald Research Laboratory, St Paul’s Hospital, Vancouver, Canada;
Professor P Jefferey, Royal Brompton National Heart and Lung Institute, London, England;
Dr D Kaminsky, University of Vermont, USA;
Dr L Palmer, Channing Laboratory, Harvard Medical School, Boston, Massachusetts, USA;
Professor P Pare, Macdonald Research Laboratory, St Paul’s Hospital, Vancouver, Canada;
Professor E Spindel, Oregon Regional Primate Research Centre, Oregon, USA;
Professor M Vignola, Institutio di Fisopatologia, Palermo, Italy.

Techniques

Morphometry, immunohistochemistry, airway responsiveness, lung function, atopy testing, induced sputum.

Presentations - Local


**Presentations - International**


8. Carroll N, Mutavzdic S, James A. Mast cell degranulation is related to asthma severity and varies in different airway wall compartments in asthma. *Am J Respir Crit Care Med* 2001; 163:A872.


**Publications**


3. **James AL**, Carroll NG. Airway smooth muscle in health and disease; Methods of measurement and


