

# CASE STUDY

N° 18

**Name:** Kerryyn Abraham  
**Age:** 14  
**Occupation:** Student  
**Location:** Cairns, Queensland, Australia.

## Symptoms

Kerryyn has mild cerebral palsy resulting in low tone in most muscles. She was recently diagnosed with a scoliosis after a history of increasing pain and weakness in her legs, which finally made it very difficult for her to walk. She finds most tasks more difficult to accomplish than other students do, but she approaches her school and other activities with a positive, constructive attitude. Because of her low muscle tone, Kerryyn's posture is significantly affected by her seating. The school seating provided results in Kerryyn sitting asymmetrically; this is allowing her spine to form a scoliosis, which is now causing her pain and weakness; it is also becoming an intractable condition.

## Introduction to the Saddle Seat

The occupational therapist and the school adviser for children with special needs at Kerryyn's school recommended the Bambach Saddle Seat to Kerryyn's parents as a seat that could correct her posture and help her to maintain a correct position

while seated to work. Kerryyn uses a standard seat with a backrest but a cut-down model may be tried. A foot ring is needed to accommodate Kerryyn's feet while she is working at high benches in the art room.

## Result

Kerryyn was very doubtful about the seat but said that, once she tried it, she liked it and prefers it to her school seat. She said she feels comfortable on the saddle seat:

*I don't have to lean over as far to reach my work and my hand does not get as tired when I am writing.*

The foot ring works well when Kerryyn has to work at a high bench. The occupational therapist said that her lumbar spine is in a much better position on the Bambach Saddle Seat and the scoliosis is not as obvious. Her body is symmetrical on the saddle seat with her feet on the floor in plantar contact taking some weight when she leans forward. Her feet and legs are being used in this position which helps to



Kerryyn in classroom chair sits with rounded upper and lower spinal curves, her head protruding, shoulders slumped. There is risk of worsening her scoliosis. Poor postural stability and postural stress causes Kerryyn to slump, making it difficult to concentrate on her work and to perform fine motor skills. She tires easily.

Kerryyn on a Bambach Saddle Seat, her spinal curves maintained in correct position. She does not 'slump' over her work due to fatigue, and with her improved head and shoulder position her handwriting has improved as has her concentration; her level of fatigue is lower. Kerryyn is able to achieve and maintain symmetry, so the risk of worsening her scoliosis is diminished.

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strengthen them as well as giving her mobility.

Functional tasks, such as writing, drawing and reading, are now easier and less fatiguing. The therapist feels the Bambach Saddle Seat will improve Kerryn's lung function as well as

encouraging her back and abdominal muscles to strengthen.

Kerryn asked to borrow the trial seat for her end-of-year exams, as she found that her concentration for study was better using the Bambach Saddle Seat and that she worked more efficiently. 🐾

## The Award-winning Bambach Saddle Seat



Mary Gale

The idea for the Bambach Saddle Seat came to occupational therapist and horsewoman Mary Gale in treating patients who could not sit unsupported on an ordinary seat or wheelchair. Mary found that the same patients could balance quite independently on horseback and assume a symmetrical posture.

It occurred to Mary that if she could replicate the 'saddle position', where the spine is able to assume its natural curves, she would create an ideal seat for therapy as well as for task seating.

A review of literature showed work of Dr A.C. Mandel, who noted that the ideal sitting posture for the human spine is achieved on horseback. Other researchers also concluded that ordinary furniture removes the natural curves from the spine and places great stress on the spinal discs. Anecdotal reports from horse riders who suffered severe back pain on the ground, yet who gained marked relief when mounted in the saddle, were also noted.

Several years of experimentation resulted in the Bambach Saddle Seat, deceptively simple in design but incorporating refinements and features that permit sitting for extended periods without loss of a healthy spinal curve. The proof is that the Bambach Saddle Seat is enabling many people who suffer disabling back pain to return to work. The seat also offers the opportunity for normal adults and children to sit to work independently in correct posture and maintaining mobility, but it is especially valuable for many who are physically impaired.



**NeoCon Silver Award**  
Design Excellence for  
Desk/Workstation Task Chairs



**Winner ADEX Award**  
for Ergonomic Task Seating

### Published papers on the Bambach Saddle Seat

T. Verkindere, C. Lacombe, and J. P. Lodter, 'Electromyographic study of the dynamic sitting position suitable for dentists', *L'information Dentaire*, Vol. 80 No. 12 (March 1998)

M. Gale, S. Feather, S. Jensen, G. Coster., 'A Multi Disciplinary Approach to the Design of a Work Seat to Preserve Lumbar Lordosis'. *Australian Occupational Therapy Journal*, Vol. 36 No. 2 (June 1989)

### Publication

Mary Gale, *The Seated Spine & The Bambach Saddle Seat*, Brookvale, NSW, 1997.

### Research papers on the Bambach Saddle Seat have been presented at:

International Conference on Ergonomics Occupational Safety & Health & the Environment, Beijing, October 1988.

Third International Physiotherapy Congress, Hong Kong June, 1990.

The National Safety Council of Australia's Congress, 'Futuresafe', Adelaide, South Australia, May 1992.

'Tadsem', Cumberland College of Health Sciences, University of Sydney Campus, Australia, October 1992.

World Federation of Occupational Therapists Conference – The Scientific Programme Technology Seating Sessions, Imperial College, London, April 1994.

### Research on the Bambach Saddle Seat has been exhibited via poster presentation at:

The World Federation of Occupational Therapists, Melbourne, Victoria, Australia, April 1990.

World Physiotherapy Congress, London, UK, September, 1990.

### Unpublished papers on the Bambach Saddle Seat

A. Nicholls, Doctor of Chiropractic: 'Report; Physiological Evaluation of the Intact Column-Pelvis-Meningeal System Radiographic Outcome Findings'.

Prof. G. Schumpe, Graduate Physicist/Medical Practitioner: 'Biomechanical Study of Sitting on the 'Saddle Seat'.

M. Gale, S. Aldrich, S. Jensen, W. Gale, 'Comparison Study of a Saddle Seat with Conventional Office Work Seat'.



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