

CASE STUDY

N° 19

Name: Luke Frew
Age: 14
Occupation: Student
Location: Cairns, Queensland, Australia

Symptoms

Cerebral palsy with some learning disability.

Luke sits sacrally, which rotates his pelvis backwards, producing a convex, or 'C-shaped', spine with the resulting bio-mechanical disadvantages. The centre of gravity moves backward, the lumbar spine is kyphosed, and the shoulder girdle compensates by rotating forward with the shoulder blades pronounced, the chin protruding and the cervical spine lordosed beyond the natural, normal curve. This position, which results when Luke sits in his wheelchair or a conventional seat, is likely to result in serious postural deformity as it is sustained for the entire time that Luke is not in bed. Luke also has tight adductors common to this condition.

Introduction to the Saddle Seat

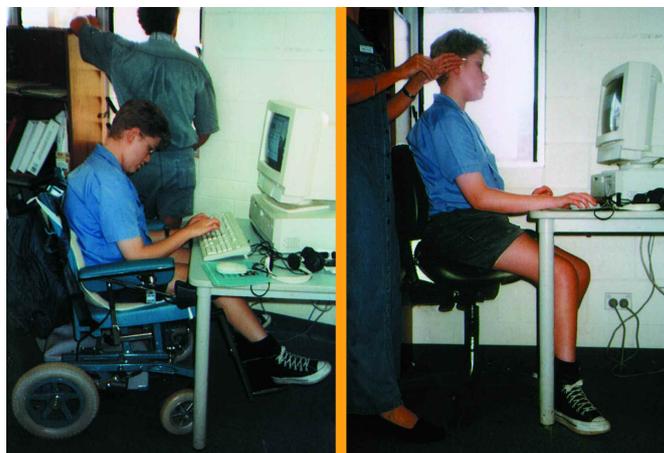
Luke was advised to try the Bambach Saddle Seat by his occupational therapist. He tried a standard seat with a backrest and locking castors. The student advisor

for children with special needs was in attendance and was insistent that Luke try out the Bambach Saddle Seat in the science lab.

Result

When on the Bambach Saddle Seat Luke is able to sit with his pelvis anchored in it's upright neutral position, which allows him to have his centre of gravity over his ischial tuberosities. This allows his spine to attain and maintain its natural curves with lumbar lordosis rather than kyphosis. The result is that the shoulder girdle, cervical spine and shoulder blades are also in their neutral, and most stable, position. This greatly enhances functional ability for tasks such as computing, writing, drawing and reading. The position of his head and neck is much better for looking at a monitor as well as for using the keyboard. Most importantly, it is preventing postural deformity in the future.

In the science lab the comparison of Luke's ability to function on the Bambach Saddle Seat, as opposed to the wheelchair, is dramatic. It was remarkable how he



Luke, in his wheelchair, with obvious difficulty operating his computer. His visibility of, and his access to, the equipment are very poor, as is his position, which is typically the inactivating position forced by wheelchairs.

Luke using the Bambach Saddle Seat at his computer. He is now in a fully active position with good posture, good functional ability to reach and manipulate the equipment. His thorax is open for improved lung function, and he has easy mobility using his feet on the floor (he doesn't need an electric motor).

Continued from overleaf

could function almost normally in the Lab on the Bambach Saddle Seat, now being able to reach the sinks and other equipment without help. The teacher advisor said that they had never seen Luke so independent. Luke is able to transfer to the Bambach Saddle Seat and back to his wheelchair with a minimum of help and, with time, he should attain independence in this regard.

As the Bambach Saddle Seat gradually helps the tight adductors to stretch, standing will become easier and more secure and he will be in a better starting position, with reduced tone, to make transferring easier. The teacher's aide present for the trial said that, in the four years that she had known Luke, she had never seen him so independent and confident and was amazed at the difference. ♪

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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