

# CASE STUDY

Nº 3

**Name:** Carolyn Johnson  
**Age:** 33  
**Occupation:** Horse Trainer, specialising in quarter horses for Western Performance Class  
**Location:** Greendale, NSW, Australia.

## Symptoms

Carolyn has experienced severe pain and spasm of the neck muscles, often accompanied by a burning sensation and 'grinding pain' in the neck region. These symptoms are worse when sitting at her computer.

Carolyn has suffered a compression fracture of C6. This damage is a cumulative result of riding, training, showing and managing horses. Horses may weigh as much as 600 'unwilling' kilograms (1500 lbs.). Other work carried out by Carolyn involves the handling of fodder weighing up to 40 kilograms (100 lbs.).

Carolyn has been working with horses for the past 18 years. Now an independent professional horse trainer (five years) she also has a burden of office work, producing her accounts records by herself sitting at computer for up to five hours at the end of a work day. Carolyn's horse-training enterprise sees her at work at 6.00 am, and she may not finish till 8.00 pm.

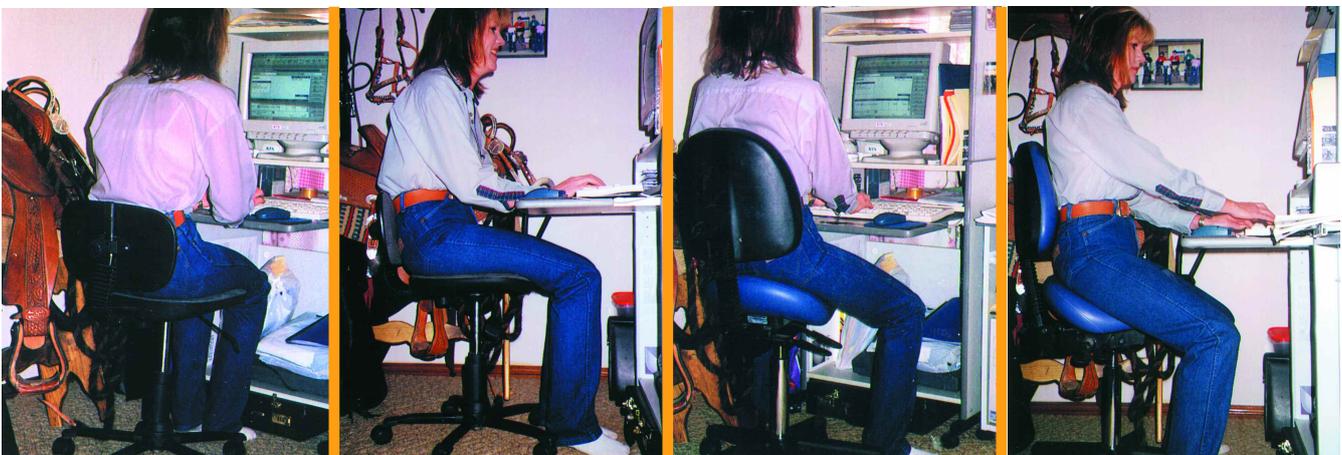
Her constant pain causes depression and

adds stress to all aspects of Carolyn's life. Chiropractic treatment brought great relief of symptoms and allowed Carolyn to continue to work as a horse trainer. However, she has continued to suffer pain and muscle spasm of the neck and shoulders when working at her computer on her conventional, office-style seat.

## Introduction to the Bambach Saddle Seat

Carolyn was introduced to the Bambach Saddle Seat by the seat's designer (also a horsewoman); she was 'willing to try anything to get relief from the constant pain'.

Carolyn was instructed on how the Saddle Seat changes one's seated position from one that produces postural stress to one that allows natural spinal alignment. She was shown how to adjust the seat for pelvic tilt and seat height. This involves assessing the height of the work surface, the angle and position of the keyboard and the monitor to determine the ideal height of the seat for best posture.



*Above and right:* Carolyn sitting on a flat, conventional office seat. Note her head, neck and shoulder are in a position of stress. Her pelvis is rotated back, putting her whole spine into a position of postural stress as well as the muscles and ligaments. Her feet and knees are in front, necessitating her to bend at her waist across her thighs.

*Above and right:* Carolyn in the Bambach Saddle Seat. Postural stress is relieved. Her pelvis is now stable in a neutral position, her shoulder girdle relaxed. Her head and neck are in a neutral position, her thighs each side of the trunk taking some weight. She has an easy view of the screen.

*Continued from overleaf*

## Result

Carolyn reports that, when sitting on the Bambach Saddle Seat, her neck muscles do not go into spasm.

*This allows my neck vertebrae to stay in place, allows me to sit properly at the computer when I have to work for hours,*

*without my neck muscles going into spasm and with no burning feeling or pain. The Bambach Saddle Seat allows me to sit properly at the computer when I have to work at my computer for hours, after riding all day.* ♪



Mary Gale

## The Award-winning Bambach Saddle Seat

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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