R82 x:panda
Adaptable dynamic seating
What is x:panda?

x:panda is a highly adaptable modular seating system that can be configured to meet a range of postural requirements and to accommodate growth.

It is available in 4 sizes and is best suited for babies from 5 months old through to young adults with CP at GMFCS level 3 - 5, who present with strong extensor spasticity, asymmetry or developmental delays. It can help children who might typically have pelvic asymmetry, hip migration or tight hamstrings.

All sizes are available with individual growth in width, depth and back height. This extends the life of the seat and accommodates the greatest range of sizes in comparison to other chairs on the market.

Pelvic Stability

The pelvis is the foundation for a stable seating posture. A poorly controlled pelvis can lead to instability, asymmetry and impaired function.

Contoured Seating

Correctly prescribed seat wedges are used in the x:panda seat to create a contoured seating surface. Without support the pelvis will naturally rock backwards as the child seeks stability. The most effective way to achieve optimal functional use of the arms and hands is with the pelvis supported as near to midline as possible and secured with the spine in neutral alignment.

Watch our video to find out how the wedges help to achieve this.

Patented articulation of the back rest

X:panda was developed with particular attention to the articulation of the backrest relative to the seat. The goal being to create a seating system that moves in harmony with the body. When the back rest pivots correctly in alignment with the hip, the user will experience zero shear in the back rest.

Abducted Seating

The x:panda is designed with individually adjustable leg channels that enable the seat to be triangulated and offer an improved base of support. The inner and outer knee guides provide additional support for maintaining the required degree of abduction/adduction.

Breathing and Upright Posture

Mary Massery used a soda-pop can model of postural support to explain the interactions between posture, postural control and breathing and the importance of this when designing wheelchairs and seating systems.
Understanding Dynamic Seating
Clinical Support for Dynamic Back v Rigid Back System

What is a “dynamic” back and why is it so important?
A back support typically provides stability. A dynamic back allows movement by absorbing the force and flex of the user (D D Freney & K Swartz). It can address issues related to abnormal movement patterns. Benefits include: reduction in the intensity of non voluntary movement, improved tolerance to seating, pain reduction and reduction in potential skin breakdown. Overall it enables optimum positioning within the seat, enhances stability, symmetry and function. (Dr Tim Adlam)

Why the x:panda dynamic back?
The dynamic back of the x:panda absorbs the energy driven by the child’s extensor pattern of movement. It returns them back to their original upright posture without compromising the pelvis and whilst maintaining a midline symmetrical position.

A study by Seong-Wook Hong et al provided invaluable information for the design of dynamic seats for people with high extensor thrust. A method for identifying human generated forces during an extensor thrust, Seong-Wook Hong et al

Extensor Thrust
Children experiencing involuntary extensor thrust are able to exert very large forces on the seatback, headrest and footrest that can lead to significant skin breakdown even if the seat is well padded.
During these involuntary movements, children have difficulty in postural maintenance mainly due to destabilisation of the hip joint and most have the same difficulty in replacing the pelvis to its original position. A dynamic seat was suggested as a potential solution to provide greater freedom and safety.

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Pressure and Shear
The articulation point for the x:panda is very close to the child’s hip pivot point. This will ensure the head support and side supports remain in the correct position when the child gets a spasm and pushes the dynamic back backwards, preventing shear.

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Dynamic v Rigid back system
Research by Fumagalli compared a dynamic with a rigid seat system in dystonic patients with Cerebral Palsy using quantitative analysis of movement (3D kinetics and pressure distribution). It found that adding dynamic components addressed some of the issues related to abnormal movement patterns.

Case Study
Taylor Miller, has Cerebral Palsy and Chronic Lung Disease. His muscle tone fluctuates and he has no independent sitting balance. His OT recommended a bespoke R82 x:panda to achieve a correctly aligned seating position.

The lateral and head supports stay in exactly the same position without any shear effect.

The dynamic seat was able to reduce the forces experienced by the users on the seatback and increased the range of motion in the anterior-posterior direction, enabling the upper body to rotate back and then go backward to the starting position and limiting the rolling down of the trunk.

Dynamic vs Rigid Seat System in Cerebral Palsy: Quantitative Comparison. Fumagalli

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Following regular use of his x:panda, Taylor has shown increased core stability and control, improved breathing and has been discharged from his chest consultant.

Read the full case study

Gail Russell, (OT) MSc, BSc explaining the dynamic back.

See the dynamic back in action

Junior | Seating
Recycle, Reissue
Save up to 70%

Get maximum value from R82 products through reuse.

Recycle and reissue is a challenge for all of us, complicated by the complexity and modularity of current models. R82’s Reissue scheme improves access to equipment while keeping standards of safety and appearance high with a restricted budget.

The scheme involves returning clean/used stock from stores to our warehouse and using them as part of a build for a new order. Old stock is stripped, serviced and rebuilt with parts replaced according to a fixed schedule and is returned to its new user set up to the measurements supplied.

Key to the success of this scheme is inventory work being carried out before the assessment. The opportunity to recycle and reissue equipment is picked up very early, minimising delays and reducing the time therapists spend in stores.

The R82 Reissue scheme recognises and protects the specialisms of each team member involved in equipment provision.

Maintaining Pelvic Position during Transfer

Managing Extension during transfer

When hoisting, our Molift 4-point spreader bars are used with Molift RgoSlingS. They have unique sliding loops in the shoulder straps balancing weight at every stage of the lift so no external angle adjustment is necessary. These sliding loops also allow a child to extend and then return to their original position. The clever design of the leg parts distributes weight and pressure evenly for increased comfort.

The 4-point spreader bar opens out the sling for increased comfort making it easier to lift from the floor or a lying position and vice versa. The 4-point spreader bar is positioned well away from the child’s head to ensure there is no risk of injury during involuntary movements.

See the 4-point spreader bar and sliding loops in action.

Contact us to find out more: 0121 561 2222 or uk.enquiries@R82.com

Have a look at our how to videos!

Assemble x:panda

Mount a table

Multiple adjustment for growth

Seat and back adjustment

www.R82.co.uk

See Warwick being transferred from his Stingray buggy to his x:panda using the Molift Smart hoist.

See Warwick being transferred from his Stingray buggy to his x:panda using the Molift Smart hoist.

Before

After

Head, Shoulders, Knees and Toes....

A range of accessories are available to ensure the child achieves the best sitting position

Head Support

Head supports maintain optimum head position and provide support in resting or active positions. Dynamic headrests absorb energy from extension. Alternatives from other manufacturers can be used with x:panda.

Neoprene Harness

Our neoprene harness ensures a comfortable, safe and correct sitting position. The flexibility of this light grade neoprene, used with a tray allows rotation and re-rotation of the shoulders to allow hands to come to mid-line for improved function.

Thoracic Support

A range of fixed or swing-away side supports to suit the size and postural needs of the child. Additional padding is available in most sizes. All supports are compatible with R82 vests & harnesses.

Foot Supports

As well as a single foot plate, individual foot plates can be used to accommodate differing leg lengths or manage foot position when the child is sitting in abduction. They are angle and height adjustable.
Getting the most from your assessments

For the physical assessment, the following needs to be undertaken:

**Assessment in current seating**
- symmetry, loading, function, movement and comfort
- is the current seating driving asymmetry?

**Assessment in supine**
- flexibility of pelvis/trunk, ROM, symmetry, loading
- consider habitual lying posture (body shape distortion)

**Assessment in sitting on box/plinth**
- what needs correcting/accommodating?
- amount of external support
- will the proposed seating complement other interventions?

**Main seating measurements to consider**
- Range of hip flexion
- Range of knee extension with hip flexed
- Ab/adduction with hips flexed at 90 degrees
- Spinal profile - kyphotic, scoliotic etc

Gail Russell, (OT) MSc, BSc