

Ride Designs®  
**JAVA® Cushion**



**University-level research indicates that the new Java Cushion is better than the competition by every measure:**

- Lower pressures
- Greater sitting stability
- Less deep tissue deformation
- Cooler and dryer

# JAVA<sup>®</sup>

## Better by every measure.

Ride Designs<sup>®</sup> and its in-house Aspen Seating Clinic have been successfully using their patented cushion design to help improve posture and skin health for wheelchair users for nearly two decades.

Read on to learn more about the unique and evidence based method of support Ride<sup>®</sup> employs in all of their seating systems.

Just like the Ride Custom Cushion, the Ride Java<sup>®</sup> Cushion works by redistributing the forces of pressure and shear away from high risk areas, while selectively applying the forces to areas more tolerant. The Java Cushion's design and cover materials help to maintain cool, dry skin.

The result is the potential for:

- Lower pressures and, thus, less deep tissue distortion to help decrease deep tissue injury and the potential for severe pressure sores (Stages III and IV)
- Decreased heat and moisture to aid in the prevention of superficial pressure sores (Stages I and II)
- Greater sitting stability for improved functional performance.

### Monitor the sitter's status, not the cushion

The Java Cushion offers enhanced sitting performance without the need for regular fit-essential maintenance — unlike the ongoing adjustments required to maintain fluid or air volumes in competitive cushion designs.

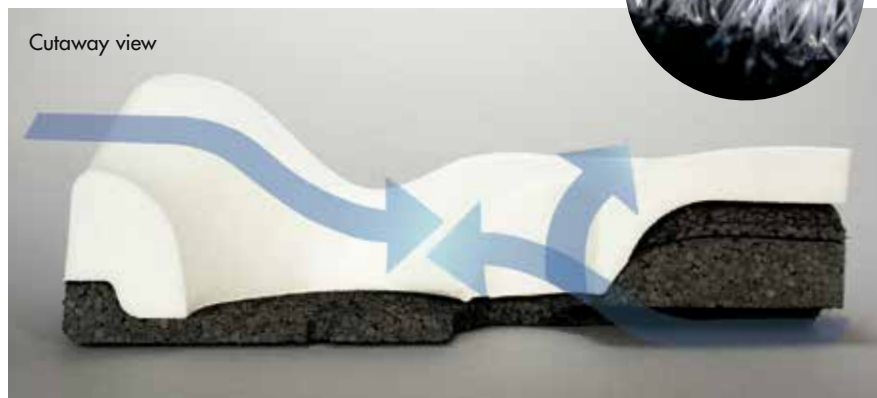
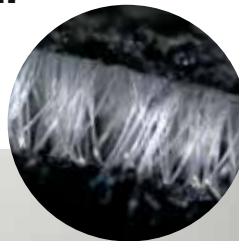
If users experience a change in their general condition, the Java Cushion can most often be adjusted, using Ride CAM<sup>®</sup> wedges, to restore its original effectiveness.

### Good question: Ride Java or Custom?

Both cushions employ the same method of support and are appropriate choices for all levels of skin risk. The Java Cushion, however, performs better for people who can sit in relatively good posture or who have mild postural challenges. Those people with more severe postural challenges and/or unique body shapes should consider the Ride Custom Cushion.

## Heat and moisture management

A vented base design, contoured top foam, and a breathable spacer mesh fabric cover (detail at right) work together to help keep skin cool and dry.



Cutaway view

## Really lightweight

30% lighter!\*

Performance need not be compromised to enjoy significantly lighter cushion weight and the possibility of enhanced mobility!

\*16 x 16" Java Cushion weighs 2.75 lbs, as compared to a 16 x 16" air cushion, weighing in at 3.9 lbs.

# 30%



## Adjustable and Adaptable

The skin protection qualities of the Java Cushion can be adjusted through the use of Ride CAM® wedges and well inserts.



Soft, breathable well inserts (optional) can be used to adjust the Java Cushion for ischial loading and improved comfort.

For the best possible pressure, heat, and moisture management, Ride Designs recommends use of the Java Cushion without well inserts.

## Lower Extremity Support



Optional medial (a) and lateral (b) thigh support accessories are interchangeable. Use between the legs to reinforce the medial thigh contour, or on the side of the legs to create a lateral thigh support. Simply configure the accessories to achieve the desired lower extremity alignment, then trim to fit.

Ride CAM wedges adjust the cushion for ischial clearance. Insert wedge(s) as needed, then trim them flush with cushion base.



No wedges.



One wedge on each side.



Two wedges each side.

The CAM wedges can also be used in asymmetry to help correct flexible and correctable pelvic obliquities. Insert wedge(s) as needed, then trim flush with cushion base.



No wedge on left, two on right.



One wedge on left, two on right.

## Research/Evidence



Chris Devlin-Young, Ride user and  
2015 X Games Mono Ski Gold Medalist.



Ride Designs' primary objective is to help people experience peak sitting performance and skin protection at a higher level than is possible with more traditional pressure distribution or immersion/envelopment style cushions.

It's working! Over 200 Paralympian athletes choose the Ride method of support, not only for their everyday wheelchair seating, but also for their more demanding competitive sitting interfaces.

## Re-think seating strategies

Wheelchair cushion design has historically focused on providing bony prominence immersion and envelopment—into materials such as air, fluid, gel, and specialized foam—to distribute the forces of support over as much contact area as possible. Recent research\* supports the importance of decreasing deep tissue distortion at high risk anatomic areas to help prevent deep tissue injury and subsequent pressure sores.

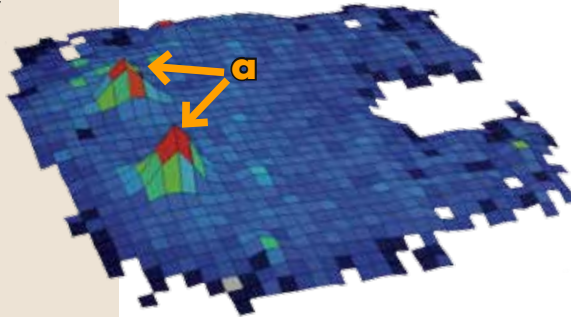
A viable alternative to the pressure distribution model is the use of orthotic and prosthetic principles in the design and construction of wheelchair cushions. Ride's approach is to redistribute the forces of pressure and shear from high risk anatomic areas while selectively applying the forces to areas more tolerant. Review the recent university-level studies\*\* on these next few pages and draw your own conclusions.

\*Study published in the Journal of Tissue Viability (2014; 23:13-23) by Tel Aviv University.

\*\*Ride Designs provided research materials for testing, subject reimbursement, and logistical support.

## Compare

Two recent university-level research studies provide compelling evidence in support of Ride Designs' off-loading philosophy.



### ◀ Properly-inflated air cushion

Problem: columns of air lack the stability needed for postural control, and peak pressures tend to be at the high risk bony prominences, especially the ischial tuberosities (a).



### ◀ Java Cushion

Solution: Safe and stable support of low risk areas and off-loading of high risk areas:

- a. Ischial Tuberosities (ITs)
- b. Greater Trochanters
- c. Coccyx/Sacrum
- d. Perineum(Groin)

# Interface Pressure Mapping

## Interface Pressure Characteristics of an Orthotic Off-Loading Cushion Design\*

Authors:

Barbara Crane, PhD, PT, ATP/SMS<sup>a</sup>

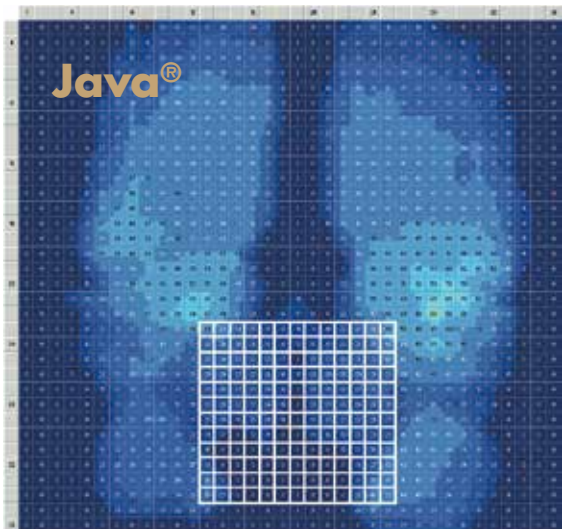
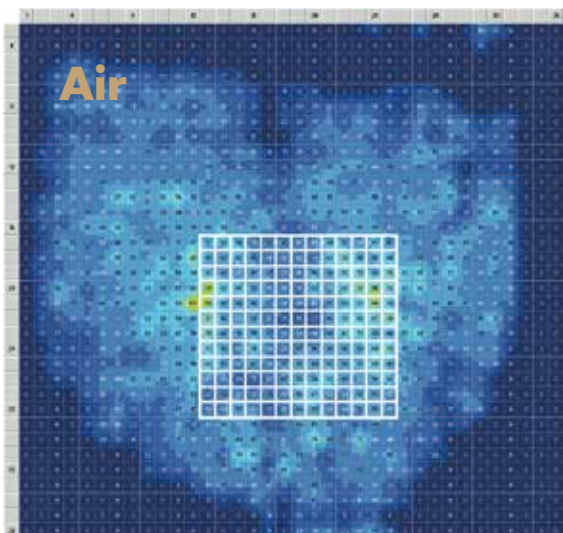
Evan Call, MS, CSM (NRM)<sup>c</sup>

Michael Winingar PhD<sup>a, b</sup>

**Methodology:** Ten subjects, all with SCI, Paraplegia. Nine males, one female, average age 45 years, average time since onset was 20 years. Interface pressure measurements were performed using the Xsensor pressure mapping system. Five 2-minute trials were completed with each cushion and cushions were completely unweighted between trials.

**Objective:** Compare interface pressure mapping (IPM) dispersion index between Java<sup>®</sup> Cushion (three different configurations) and a properly inflated air cushion. Dispersion index (DI) is the sum of pressure distributed over the IT and sacral regions divided by the sum of pressure readings over the entire interface pressure mat, expressed as a percentage.

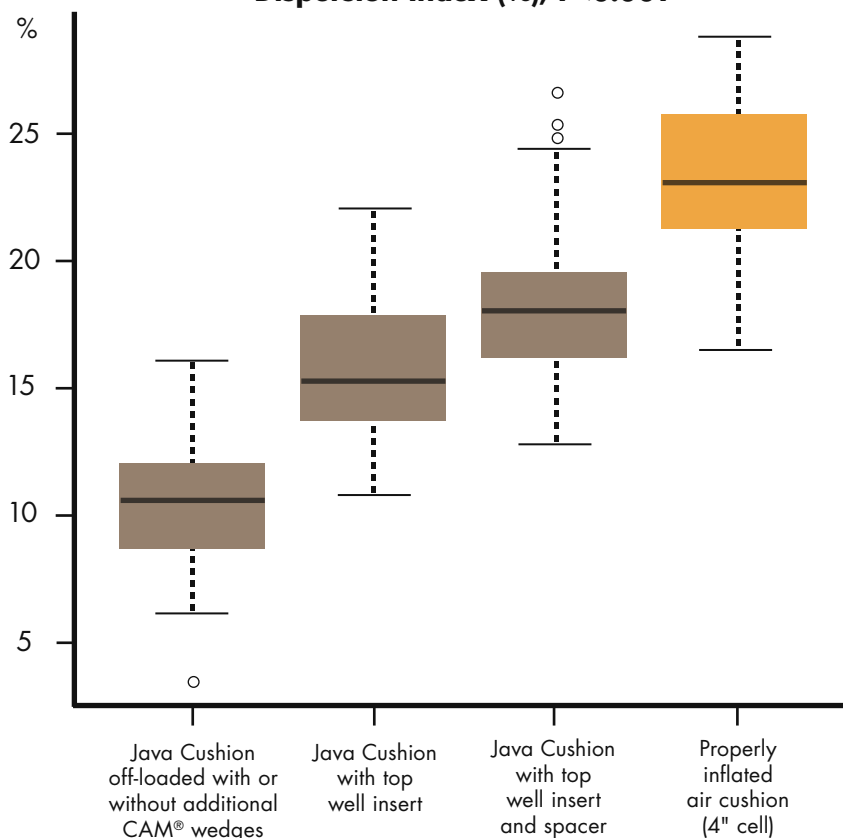
**Result:** Interface pressure mapping results indicate effective “off-loading” of Ride Java Cushion. The dispersion index is significantly lower on the Java Cushion compared to air cushion, particularly among chronic SCI subjects. This means that a significantly lesser amount of the total forces of support are being experienced at the ischial tuberosities and the coccyx sacral areas.



The lower the dispersion index, the lower the percentage of body weight being borne through the ITs, coccyx and sacrum.

\* The full study, published in the Archives of Physical Medicine and Rehabilitation (April 2016) is titled “Orthotic-style off-loading wheelchair seat cushion reduces interface pressure under ischial tuberosities and sacrococcygeal regions.”

Dispersion Index (%), P<0.001





# MRI Deep Tissue Deformation

Off Loading Wheelchair Cushion provides best case reduction in tissue deformation as indicated by MRI



Authors:  
Evan Call MS, CSM<sup>a</sup>  
Thomas Hetzel PT, ATP<sup>b</sup>,  
Chad Mclean<sup>a</sup>

**Methodology:** Ten subjects, all with SCI, Paraplegia. Average time since onset was 18.4 years, with most recent being three years, and longest being 30 years.

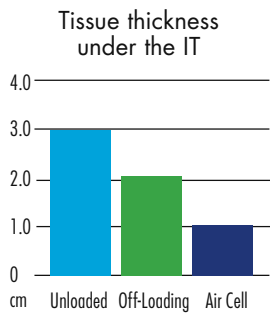
**Objective:** Compare deep tissue deformation below the ITs and surrounding the femoral head under three conditions: 1) fully suspended, 2) properly-inflated air cushion, 3) Java Cushion.

**Result:** Use of the Java Cushion results in nearly 50% less tissue compression at the ischial tuberosities than on a properly-inflated air cell cushion.

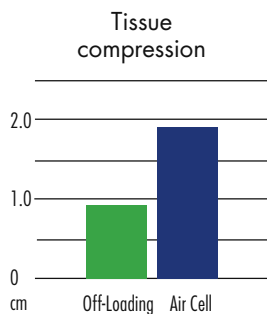


Above left: Subject in MRI.

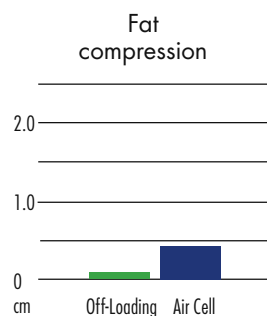
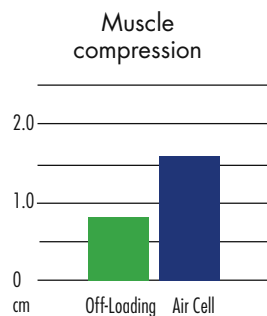
Above right:  
Mechanism for fully suspended studies.



Tissue thickness under the IT decreases when using the air cell cushion compared to the Java



Use of the Java Cushion results in 50% less compression than air cell cushion



# Java Cushion Research Overview



Ride Designs acknowledges and embraces the preliminary findings and suggestions of recent research regarding the impact of deep tissue distortion on sitting health.

We have sponsored an industry-first: two university-level, multiple subject studies that compare the Ride Designs off-loading approach to the proven industry leader in the pressure redistribution alternative. Each study included a different group of ten people with paraplegia, averaging nearly 20 years since onset of injury.

These studies, pending publication, are the first to incorporate the theoretical modeling and preliminary human subject work completed to date and to include actual human subject comparative studies on different sitting surfaces.

## Dramatic Results...

### Lower Pressures

Significantly lower pressures were noted in the region of the ischial tuberosities, coccyx and sacrum.

### Greater sitting stability and function

While conducting the pressure mapping study, Dr. Crane also measured sitting stability and discovered improved sitting stability on the Java Cushion as evidenced by significantly increased functional reach both to the left and right.

### Lower tissue distortion

Use of the Java Cushion resulted in nearly 50% less tissue compression at the ischial tuberosities than on an air cell cushion.

### Cooler and dryer

In a pilot study comparing the cooling abilities of the Java Cushion design to an air cell cushion, Evan Call of Weber State University documented Java Cushion's superiority in managing heat and moisture.



## Java Cushion Specifications

Cushion Size (width x depth)		Part Number	Fits Wheelchair Width	Fits Wheelchair Depth
14 x 14"	36 x 36cm	JC-1414	14" 36cm	13/14" 33/36cm
14 x 16"	36 x 41cm	JC-1416	14" 36cm	15/16" 38/41cm
15 x 15"	38 x 38cm	JC-1515	15" 38cm	14/15" 36/38cm
15 x 17"	38 x 43cm	JC-1517	15" 38cm	16/17" 41/43cm
16 x 16"	41 x 41cm	JC-1616	16" 41cm	15/16" 38/41cm
16 x 18"	41 x 46cm	JC-1618	16" 41cm	17/18" 43/46cm
16 x 20"	41 x 51cm	JC-1620	16" 41cm	19/20" 48/51cm
17 x 17"	43 x 43cm	JC-1717	17" 43cm	16/17" 41/43cm
18 x 16"	46 x 41cm	JC-1816	18" 46cm	15/16" 38/41cm
18 x 18"	46 x 46cm	JC-1818	18" 46cm	17/18" 43/46cm
18 x 20"	46 x 51cm	JC-1820	18" 46cm	19/20" 48/51cm
20 x 16"	51 x 41cm	JC-2016	20" 51cm	15/16" 38/41cm
20 x 18"	51 x 46cm	JC-2018	20" 51cm	17/18" 43/46cm
20 x 20"	51 x 51cm	JC-2020	20" 51cm	19/20" 48/51cm



### General Specifications

HCPC code: E2624  
 Weight capacity: 300 lbs.  
 Weight: 16 x 16," 2.75 lbs  
 Limited Warranty: Two Years  
 Base material: Polyethylene  
 Top foam: Polyurethane  
 Cover: Breathable spandex and spacer fabric. Polyester.

### Optional Accessories

Reticulated Foam Well Insert Kit  
 Ride CAM® Wedge Kit  
 1" Lateral Thigh Support Wedge (pair)  
 1" Medial Thigh Support Insert (pair)  
 1" Cushion Orientation Wedge  
 Extra Cushion Cover

### Don't see the size you need?

Modified sizes are now available at no additional charge. Call us for more information.



### Don't forget a back support!

The Java Cushion works best when paired with a Ride Java® Back. Other back supports are flat from top to bottom, making accurate fit virtually impossible. The Java Back's patented biomechanical design provides flexibility to accurately fit the trunk and pelvis for superior support, comfort, and mobility. Install and fit—in less time than it takes to drink your half-caff-double-tall-nonfat-extra-foamy latte! The Java Back's highly adjustable, quick release, dynamic hardware makes for a quick fit and ease of daily use. Three heights and two depths are available in each width.



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