# Fact Sheet

BIOTRONIK
excellence for life

Date: September 2017



BIOTRONIK, Inc.
6024 Jean Road
Lake Oswego, OR 97035-5571 USA
Tel +1 (800) 547-0394 (24-hour)
Fax +1 (503) 635-9936
www.biotronik.com

## Zero-Gravity Radiation Protection System

The Zero-Gravity™ Radiation Protection System is designed to increase the level of radiation protection and simultaneously eliminate the weight burden for the operator. It consists of a body and head shield suspended from a balancer that moves along a ceiling rail or a movable base.

**Radiation hazards for physicians in the workplace**
Many physicians worldwide work with radiation every day. In recent years, the frequency and duration of interventional radiology and cardiology examinations and procedures have markedly increased.[1] Health care workers are exposed to higher radiation doses and orthopedic strain from wearing heavy protective apparel.

**How does Zero-Gravity work?**
Zero-Gravity acts as a continuous lead barrier with a clear, acrylic head shield, and a calf-length body shield. The shield material has a significantly higher lead equivalency than traditional radiation protection apparel.[2] This allows Zero-Gravity to provide an 87-100 percent reduction in radiation exposure compared to conventional lead aprons used with table shields and movable shields.[3] The Zero-Gravity shield connects magnetically with a lightweight vest. This way, the physician can move in the room freely and unencumbered, even during difficult interventions or diagnostic procedures.

A standard lead apron weighs up to 22 pounds and may be worn for more than six hours a day in some cases. Resulting orthopedic strain can limit physicians' careers or cut them short.[3] Interventional cardiologists wear lead aprons four times longer and report more neck and back pain than orthopedists or rheumatologists.[4] This can also lead to missed days of work, increasing costs hospitals and healthcare systems.[5]

**References:**

[1] Mettler FA Jr et al. *Radiology*. 2009, 253.

[2] A measurement of the reduction of intensity (attenuation) of X-rays by an absorbent material. The attenuating effect is comparable to that of a pure lead layer of corresponding thickness. The Zero-Gravity body shield has a lead equivalency of up to 1 mm, and the head shield of 0.5 mm.

[3] Savage C et al. *OJ Rad*. 2013, 3.

[4] Ross A et al. *Am J Cardiol.* 1997, 79.

[5] Tomassoni G. *J Afib*. 2013, 5(7).