



## HISTORY OF THE ERGOVATION™ CONCEPT DESIGN

The revolutionary design of the Ergovation™ was developed with the insight of a Doctor of a Physical Therapy, a Professional Arborist, and a leading Manufacturer of arborist saddles and fall protection equipment.

In the summer of 2007 Ed Carpenter spoke with his sister Dr. Amanda Carpenter, a Doctor of Physical Therapy about delivering a talk with him at the upcoming Tree Care Industry Expo to be held in Hartford, Connecticut.

As Physical Therapist, Certified Professional Trainer, and a Certified Ergonomic Assessment Specialist, Amanda has more than 10 years of experience rehabilitating athletes, and industrial athletes alike. Amanda has dedicated her career to educating her patients to manage their current symptoms and empowering them to take control of their own health and wellness in order to prevent future injuries. As a production arborist, Ed has suffered from the aches and pains associated with the physically demanding tasks of tree work. Ed, like many arborists has developed makeshift ways to deal with these pains. The coping methods are often band-aid fixes to a much larger problem. These temporary fixes eventually will lead to more severe injury, as well as increased lost time, both on and off the job. In order to prolong the careers of today's industrial athletes, the biomechanical faults need to be addressed early on.

In preparation for their talk, Amanda and Ed discussed ways to present the topic of Ergonomics, as it pertains to arborists. During this time, they reviewed the typical duties performed and the tools utilized by production arborists. During a review of ascent techniques used by arborists to access their work, Amanda commented to Ed on the obvious lack of low back support in his climbing saddle. After some simple observations, she herself put on a saddle and quickly realized just how bad the problem was! Not only was there no back support, but the work-positioning D-rings compressed her hips causing extreme pain! Additionally, she experienced a sharp pinch in the groin while hanging in suspension causing her to question, "How could anybody stand to wear these saddles!" Amanda and Ed knew there was a solution to this problem. It was this point that the idea for the Ergovation™ was born.

Following their talk at TCI Amanda and Ed performed a review of current arborist saddles and how they provided, or more often did not provide support to a climber while ascending, or positioning for work in a tree. They looked at many different saddles on the market and available in December of 2007. What they found were deficiencies in these saddles and their development methodologies.

As a production arborist, trainer, and tree-climbing competitor, Ed has been climbing in Buckingham saddles for most of his career. He has been very pleased with the durability, comfort, and quality that Buckingham's arborist saddles provide to him while climbing for work, competition, or recreation. Established in 1896 Buckingham has had an impeccable reputation for constructing, durable, quality, fall protection equipment for individuals working in the vertical realm.

Ed and many of his colleagues have been climbing in Buckingham saddles, for years and can personally validate how their arborist saddles withstand the test of time. Buckingham's willingness to strive for improvement, and their drive to stay current with times made them an obvious choice, in pursuing this joint venture of developing the first truly Ergonomic arborist saddle / sit harness.

With their review completed Ed and Amanda presented their findings to Buckingham, and proposed the needed changes, that would have drastic effects in the support and comfort provided by arborist saddles.

Amanda's background in human anatomy and biomechanics gave her a clear understanding of what was needed to provide the ideal support and comfort in a saddle. When combined with Ed's experience and progressiveness in the arborist industry they set out to design a true ergonomic climbing saddle, that would not only be comfortable, but also versatile, durable, and customizable.

In developing the Ergovation™, all the deficiencies previously identified were addressed. The following is a list of how the deficiencies were addressed to support and stabilize the human body, while maintaining comfort and adjustability.

- \* At the core of the Ergovation™ is a back-pad that provides optimal support and stability to the lumbar region, while allowing mobility through the hips.
- \* A removable lumbar support was added to the back pad, which is something Amanda recommends to her patients daily to maintain proper posture and decrease low back strain.
- \* Additional padding in the lateral hip region was added to decrease pressure on the soft tissues where the work-positioning D-rings sit.
- \* To prevent excessive pressure in the groin, a larger leg pad and a buckle that can be adjusted away from the groin were utilized to decrease pressure and pinching on the femoral nerve and blood vessels.
- \* In addition, adjustable work positioning D Rings allow for customizable positioning; preventing excessive pressure on the pelvis, and allowing for ideal upper extremity reach.

Dr. Amanda Carpenter's recommendations to support the human body, Ed Carpenter's suggestions for the ideal components in a climbing saddle, and Buckingham Manufacturing Company's input on the components needed to build a durable saddle were combined to come up with the revolutionary design of the Ergovatio™. The true meaning of Ergonomics is about customizing the tool to fit the person, and we feel that we captured this in the design of the Ergovation™. The Ergovation's™ customization and versatility make it unparalleled in a saddle / sit harness fall protection system.