

# LAMINITIS

## Grayson-Jockey Club Research Archives

A disease where the tissues that attach the hoof to the underlying coffin bone become damaged and inflamed. It not only leads to loss of performance but is second only to colic as the biggest cause of premature death in horses. There are three "types" of laminitis:

**Endocrine** - generally occurs secondary to equine metabolic syndrome and pituitary pars intermedia dysfunction (PPID, equine Cushing's disease).

**Sepsis** - develops following a systemic illness such as colitis, metritis, pneumonia, grain overload, etc.

**Supporting-limb** - develops after a musculoskeletal injury in the opposite limb, as the horse bears excessive weight on the supporting limb.



Grayson is proud to have funded the following projects in finding answers to Laminitis.

### [Adiponectin as a Clinical Biomarker For Laminitis Risk](#)

Queensland University of Technology, Principal Investigator: Melody A de Laat  
Co-PIs: Martin N Sillence, James M McGree, Matthew Phillips, Danielle Fitzgerald

The aim of this project is to improve early detection of the painful foot disease laminitis, this project will evaluate the value of a promising biomarker for the condition called adiponectin, more efficacious hyperimmune plasma products.

Years: 2024-2025 TOTAL- \$111,574

### [Sirolimus For The Control Of Insulin Dysregulation](#)

University of Pennsylvania, Principal Investigator: Andrew Van Eps

CO-PIs: Darko Stefanovski, Mary Robinson Jeaneen, Amanda Adams (University of Kentucky), Maggie Grieter (University of Kentucky), Rachel Stocker-Parks Seth Hatfield (University of Kentucky), Francois Bertin (University of Queensland), KulpDemia de Tonnere (University of Queensland)

This study will evaluate the drug sirolimus (a potent suppressor of insulin production) for the treatment of insulin dysregulation (the most important cause of laminitis) in horses.

YEARS: 2022-2023 TOTAL- \$ 216,569

### [Understanding And Preventing Supporting Limb Laminitis](#)

University of Pennsylvania, Principal Investigator: Andrew Van Eps

CO-PIs: H. Galantino-Homer, Julie Engles, Darko Stefanovski, Matthew Ford, Jennifer Macklin, Lynne Cassimeris- Lehigh University, Teresa Burns - The Ohio State University, Mauria Watts- The Ohio State University

We aim to make supporting limb laminitis preventable through analysis of archived model tissues, a multi-center limb motion study of horses at risk, and development of a prototype therapeutic device.

Years: 2021-2022 TOTAL - \$ 148,181

### **AMPK Agonist Combination Therapy and ID in Horses**

The Ohio State University, *Principal Investigator: Teresa Burns*

*Co-PI: Laura K. Dunbar*

By completing this work, this study was designed to characterize a combination therapy to improve equine insulin resistance that is administered orally and well tolerated.

Years: 2020-2021 TOTAL - 151,121

### **Endocrinopathic Laminitis: Pathophysiology and Treatment**

The Ohio State University, *Principal Investigator: James Belknap*

*Co-PIs: Teresa Burns, (Heds Lab); Mauria R. Watts; Andrew van Eps (UN of Queensland)*

The purpose of this study was to determine if continuous digital hypothermia is effective and therefore indicated in the management of endocrinopathic laminitis, the most common form of the disease.

Years: 2017-2018 TOTAL - \$116,148

### **Prevention of Supporting Limb Laminitis**

University of Queensland, *Principal Investigator: Andrew Van Eps*

*Co-PIs: Dean Richardson (Cornell), James Belknap & Mauria Watts (Ohio State)*

This study was set up to show the potential efficacy of a novel pneumatic boot to prevent lamellar changes leading to supporting limb laminitis and may provide an effective clinical preventive.

Years: 2015-2016 TOTAL - \$188,169

### **Events Affecting Laminar Adhesion in Equine Sepsis**

The Ohio State University, *Principal Investigator: James Belknap*

*Co-PI: Mauria Watts, Andrew Van Eps (UN of Queensland), Scott Napper (UN of Saskatchewan)*

This project looked into providing targets for pharmaceutical therapies to either replace or augment continuous digital hypothermia.

Years: 2014-2015 TOTAL - \$165,391

### **Weight Bearing; Perfusion and Bioenergetics in Laminitis**

University of Queensland, *Principal Investigator: Andrew Van Eps*

*Co-PIs: Dean Richardson (Cornell), James Belknap & Mauria Watts (Ohio State)*

This research was designed to confirm the cause of supporting limb laminitis and to test potential therapeutic interventions.

Years: 2014-2015 TOTAL - \$82,125

### **Laminar Signaling in Supporting Limb Laminitis**

The Ohio State University, *Principal Investigator: James Belknap*

*Co-PI: Samuel Black (UN of MA)*

Years: 2012-2013 TOTAL - \$131,740

### **Targeting 5-HT in Equine Laminitis**

University of Georgia, *Principal Investigator: Thomas Robertson*

*Co-PIs: Benjamin Brainard; James Moore; Robert Arnold; John Peroni*

Years: 2012-2013 TOTAL - \$50,292

### **Digital Hypothermia in Laminitis: Timing & Signaling**

The Ohio State University, *Principal Investigator: James Belknap*

*Co-PIs: Andrew van Eps; Mauria Watts*

Years: 2011-2012 TOTAL - \$88,522

### **Lamellar Energy Failure in Supporting Limb Laminitis**

The University of Queensland, *Principal Investigator: Andrew van Eps*

*Co-PIs: Simon Collins; Christopher Pollitt; Dean Richardson (UN of PA)*

Years: 2011-2012 TOTAL - \$81,060

### **In Vivo Gene Transfer for Laminitis**

University of Pennsylvania, *Principal Investigator: Dean Richardson*

*Co-PIs: Jeffrey Mason; Andrea Phillips; James Wilson*

Years: 2010-2011 TOTAL - \$70,865

### **Endotoxemia as Predisposing Factor for Laminitis**

University of Tennessee, *Principal Investigator: Nicholas Frank*

Year: 2010 TOTAL - \$41,490

### **Effect of Digital Hypothermia on Inflammatory Injury in Laminitis**

The Ohio State University, *Principal Investigator: James Belknap*

*Co-PI: Mauria Watts*

Years: 2008-2009 TOTAL – \$82,109

### **Transcriptomics and Proteomics of Equine Laminitis**

University of Pennsylvania, *Principal Investigator: Hannah Galantino-Homer*

*Co-PIs: Neal Rubinstein; James Orsini; Chris Politt (UN of Queensland Australia)*

Years: 2008-2009 TOTAL - \$137,269

### **Efficacy of Lidocaine in the Treatment of Equine Laminitis**

The Ohio State University, *Principal Investigator: James Belknap*

*Co-PI: Samuel J. Black*

Years: 2007-2008 TOTAL - \$80,747

### **Levothyroxine as a Treatment for Insulin Resistance**

University of Tennessee, *Principal Investigator: Nicholas Frank*

Years: 2007-2008 TOTAL - \$56,876

### **Leukocyte & Vascular Function in Endotoxemia & Laminitis**

University of Georgia, *Principal Investigator: Thomas Robertson*

*Co-PIs: David Hurley; John Peroni; Thomas Krunkosky*

Year: 2007 TOTAL - \$29,852

### **Use of Microarrays to Characterize Endotoxemia in Vivo**

University of Georgia

*Principal Investigator: Michel L. Vandenplas*

*Co-PIs: J. Moore; M. Cordonnier-Pratt; L Pratt*

Year: 2005 TOTAL - \$22,745

### **Efficacy of Recombinant Equine Gonadotropins**

University of California - Davis

*Principal Investigator: Janet Roser*

*Co-PI: Irving Boime*

Year: 2004 TOTAL - \$51,258

### **Ischemia-Reperfusion Injury in Equine Lamellar Arteries**

University of Georgia

*Principal Investigator: Stephen Lewis*

*Co-PIs: John Peroni; Jon Graves; Tom Robertson*

Years: 2003-2004 TOTAL - \$56,000

### **Role of Endothelin-1 in the Pathophysiology of Equine Laminitis**

Louisiana State University, *Principal Investigator: Rustin Moore*

*Co-PI: S. C. Eades*

Year: 2003 TOTAL - \$53,430

### **Functional Analyses of Equine Lamellar Arteries**

University of Georgia

*Principal Investigator: John Peroni*

*Co-PIs: Stephen Lewis; Jon Graves*

Years: 2002-2003 TOTAL - \$44,089

### **Role of Endothelin and Nitric Oxide in Equine Laminitis**

Louisiana State University, *Principal Investigator: Rustin Moore*

*Co-PIs: Susan Eades; Ashley Holm; C.S. Venugopal; Julian Oliver*

Years: 1999-2000 TOTAL - \$89,892