| 1.   | Cyclist Health and Injury Survey |
| 2.   | Urogenital Disease               |
|      |   ▪ Pudendal Neuropathy         |
|      |   ▪ Erectile Dysfunction        |
|      |   ▪ Infertility                 |
| 3.   | Ulnar Neuropathy                |
| 4.   | Median Neuropathy               |
| 5.   | Joint Disease                   |
| 6.   | Osteoporosis                    |
| 7.   | External Iliac Endofibrosis     |
| 8.   | Exercise Induced Asthma         |
| 9.   | Exercise induced Anaphylaxis    |
WHAT ARE WE TALKING ABOUT?
Background: There is a paucity of data on the health risks and benefits of recreational cycling.

Research question: Describe the injury patterns, health risks and benefits recreational cycling.

Type of study: Internet based retrospective self reported data.

Methods: Web based study of cyclist behaviours, injuries and medical conditions.

Subjects- Study open to subjects over 18 years of age, who cycled at least 2 times a week with internet access

Experimental procedure- Conducted using DatStat® software.

Main Outcome Measurements- Self reported injuries and health conditions.

Results: 4792 were > 18 and met our definition of a cyclist. The majority of injuries were taken care of by the cyclist with no effect on ability on job or activities of daily living. 7.0% reported the use of performance enhancing drugs. There were reductions in obesity (76.2%), cholesterol (66.1%), hypertension (50%) and asthma (58.7%) after cycling. There were increases in musculoskeletal complaints. Hand pain and numbness, increased 420%. Urologic complaints increased by 310%. There were decreased reports of all mental health diseases reported. Abrasions were the most common injury (53%). The most injured were the pelvis/hip (15.5%), knee (14.8%), and shoulder (13.6%). The least injured were the abdomen (0.4%), foot (0.5%) and upper arm (0.7%).

Conclusions: There is encouraging data that cycling resulted in reductions in obesity, high cholesterol, diabetes, asthma and hypertension. The greater health risks of cycling appear related to compressive forces on the perineum and the hand/wrist. Injuries are common to cycling. The majority of injuries are minor.
CYCLING IS A GOOD THING....
ACUTE INJURY LOCATION

Back/Neck 6%
- Neck 1.9%
- Upper Back 1.1%
- Lower Back 3.0%

Cranio-facial 5.7%
- Head 1.9%
- Face 3.8%

Torso 5.6%
- Chest 5.2%
- Abdomen 0.4%

Lower Extremity 42.8%
- Pelvis/Hip 15.5%
- Thigh 7.9%
- Knee 14.8%
- Lower Leg 2.4%
- Ankle 1.7%
- Foot 0.5%

Upper Extremity 31.6%
- Shoulder 13.6%
- Upper Arm 0.7%
- Elbow 6.3%
- Forearm 3.5%
- Hand/Wrist 7.5%
CHRONIC MUSCULO-SKELETAL

*60rev/min x 60 min/hr x 9.2hr/wk x 52 w/yr x 19 yr = 32 Million revolutions
CONTACT POINTS
Pudendal Neuropathy

- Symptoms
- Vascular or Neuro?

Tissue Changes

- Testicular US
- Subjects over 5000km/yr
- 80/85 MTB Abnl
- 24/50 Road Abnl

Do Mountain Bikers have a Higher Risk of Scrotal Disorders than On-Road Cyclists?

Michael Mitterberger, MD.* Gernot M. Pinggera, MD.* Hannes Neuwirt, MD.* Daniela Colleselli, MD.* Alexandre Pelzer, MD.* Georg Bartsch, MD.* Hannes Strasser, MD.* Johann Gradl, MD.† Leo Pailwein, MD.† and Ferdinand Frauscher, MD†
ERECTILE DYSFUNCTION

- Dr. Goldstein reported 100,000 cases of ED to Bicycling Mag 1997
- Internet Survey Disagrees
- Goldstein Publishes...again...and again
- Culprits- Vascular, Neuropathic and tissue
- Temporary vs Permanent
- Warning Signs
INFERTILITY
ULNAR NEUROPATHY

- Ulnar Neuropathy (aka Cyclist Palsy)
- First reported in 1896*
- Guyon Canal
- Paresthesias and intrinsic muscle weakness in small and ring finger.

MEDIAN NEUROPATHY

- Not as frequently described in cyclist
- AKA Carpel Tunnel Syndrome
- EMG studies
  - 28 hands post 420 mi tour
  - 3/28 MN, 1/28 CT

The Effect of Long-Distance Bicycling on Ulnar and Median Nerves
An Electrophysiologic Evaluation of Cyclist Palsy
Venu Akuthota, MD, Christopher Plastaras, MD, Kirstin Lindberg MD, et al.
Thoracic Outlet*- Conclusion: A statistically significant greater number of the upper limbs of cyclists with clinical diagnosis of ulnar nerve neuropathy presented with proximal dysfunctions suggestive of double crush syndrome.

Triathletes-Conclusions: The findings support the hypothesis of an ulnar compression neuropathy at the elbow occurring at high rates in aerobar using Ironman triathletes.

*The Double Crush Syndrome: A Common Occurrence in Cyclists With Ulnar Nerve Neuropathy—A Case-Control Study Tanya M. Smith, ScD, PT, Steven F. Sawyer, PhD, PT, Phillip S. Sizer, PhD, et. al.

**Evaluation for Ulnar Neuropathy at the Elbow in Ironman Triathletes: Physical Examination and Electrodiagnostic Evidence James Bales, MD, Karrn Bales, DO, Laura Baugh, MD
OSTEOPOROSIS

- Wolfe’s Law: states that bone, in a healthy subject, will respond over time to the stress it is placed under.
- Sprinters vs. XC runners
- Cyclists
- Solution: Integrate resistance training.

Bone Health in Endurance Athletes Runners, Cyclists, and Swimmers
Kirk L. Scofield, MD and Suzanne Hecht, MD, Current Sports Medicine Reports
Dec 2012
*60rev/min x 60 min/hr x 9.2hr/wk x 52 w/yr x 19 yr = 32 Million revolutions

- Degenerative Joint Disease
- Knee
  - Patello-Femoral Syndrome
- Elbow
  - Epiconditilis
- Hip
  - AVN
- Foot
  - Cleat Position, Orthotics

**Figure 5**
Normal (A) and abnormal (B) patellofemoral alignment.
Recreational vs. Avid

Our study showed decrease of back pain by 25%

Major complaint after recreation tour

Fit

*Core Stability

Leg Length Discrepency


*Core Stability and Bicycling*. Chad Asplund and Michael Ross
The Ohio State University, Columbus, OH
EXTERNAL ILIAC ENDOFIBROSIS

- EIE
- unilateral leg pain, loss of power and numbness brought on by maximal effort, classically in sprinting
- Vascular disease and vasospasm.
- arterial brachial index
- MRI
- Angiogram
- Stent, Endovasc or nothing
EXERCISE INDUCED BRONCHOSPASM

- An increase in airway osmolarity secondary to hyperventilation
  - Cold air exposure. 37.4% XC skiers -20% FEV1
  - Allergy Symptoms- seasonal allergies
  - Poor Perceivers
- Testing
- Treatment
- WADA Limit Albuterol
# Exercise Induced Anaphylaxis (EIA) and Food Dependant Exercise Induced Anaphylaxis (FDEIA)

- Common triggers: Wheat, NSAIDS, Shellfish
- 5% to 15% of all anaphylactic cases
- Treatment