The Next Generation: A Research on Tap Celebrating Postdoctoral Research at BU

September 18, 2017
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Clinical Epidemiology Research & Training Unit
MED
Lifestyle Factors for the Prevention of Knee Osteoarthritis

**Knee osteoarthritis (OA)**
- Most common joint disorder
- A leading cause of disability
- Shares similar metabolic risk factors as cardio-metabolic diseases

**Sleep quality and OA**
- Chronic pain and sleep deprivation are common in OA
- Sleep quality → ? Knee pain
- Chronic widespread pain moderated this relationship

**Dietary fiber and OA**
- Fiber and health risks
- Plausible mechanisms
- Findings in two cohort studies
- Featured in NY Times, Reuters, etc.

**Future studies**
- Intervention studies to identify mediating biomarkers in observed associations in knee OA
Imane El Meouche

Postdoctoral Associate
Biomedical Engineering
ENG
Noise in gene expression

Diversifying phenotypes and survival

Boston University Office of the Vice President and Associate Provost for Research
Dries Sels

Postdoctoral Fellow
Physics
CAS
Can we exploit quantum phenomena to build better computers, sensors, … ?

A: Static
B: Moving
C: Counter diabatic

Accelerating Quantum Computing

Classical Mechanics ↔ Quantum Mechanics

Macro world

Statistical physics

Micro world

Theory

Machine Learning
Todd Sponholtz

Postdoctoral Fellow
Preventive Medicine & Epidemiology
MED
Physical and social environments and cardiovascular disease risk

- Physical Environment
- Individual Characteristics
- Social Environment
- Diet
- Physical Activity
- Smoking
- Sleep
- Stress
- Obesity
- Hypertension
- Dyslipidemia
- Diabetes
- CVD
- Stroke
Vural Kara

Postdoctoral Associate
Mechanical Engineering
ENG
A Microfluidic Device for Rapid Antibiotic Susceptibility Testing

**Technology**

- Bacteria are captured in microfluidic channel with either pressure or electric field.
- Voltage fluctuations and mean resistance are measured under a constant ionic current in urine.

1. Apply pressure or voltage to force bacteria into the capture zone.
2. Measure voltage.

**Results**

- **E. coli in urine**

  - Pre-Abx
  - ~2 hrs later
  - Susceptible
  - Resistant

  - Bacterial nanomechanical movements modulate voltage, and this reflects bacterial viability.

- **Non-motile S. epidermidis**

  - Changes in mean electrical resistance reflect the growth of bacterial population.

- **Changes in mean electrical resistance reflect the growth of bacterial population.**

- V. Kara and K.L. Ekinci founded "Fluctuate Diagnostics Corp."
Abigail Noyce

Postdoctoral Fellow
Psychological & Brain Sciences
CAS
Spatial memory recruits vision areas

Visual

Auditory

- \log p

Michalka et al. 2015  Tobyne et al. 2017
Sarah Hokanson

Director

Professional Development & Postdoctoral Affairs
Things we are working on:

**Professional Development**
- AGEP grant focused on inclusive mentoring
- IUSE grant focused on enhancing postdoc teaching skills
- Bring a buddy – raffle prize system for events
- Individual development plans

**Community**
- Onboarding resources
- Postdoc association events
- Recipe book / wellness opportunities

**Benefits**
- Non-employee postdoc healthcare & MBTA