

ETH zürich

Muscle
MUSCLE BIOLOGY IN FOCUS

Advancing Health and Nutrition through science

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EXERCISE IS HEALTHY

● Mental health

● Cardiovascular health

● Metabolic health

● Healthy aging



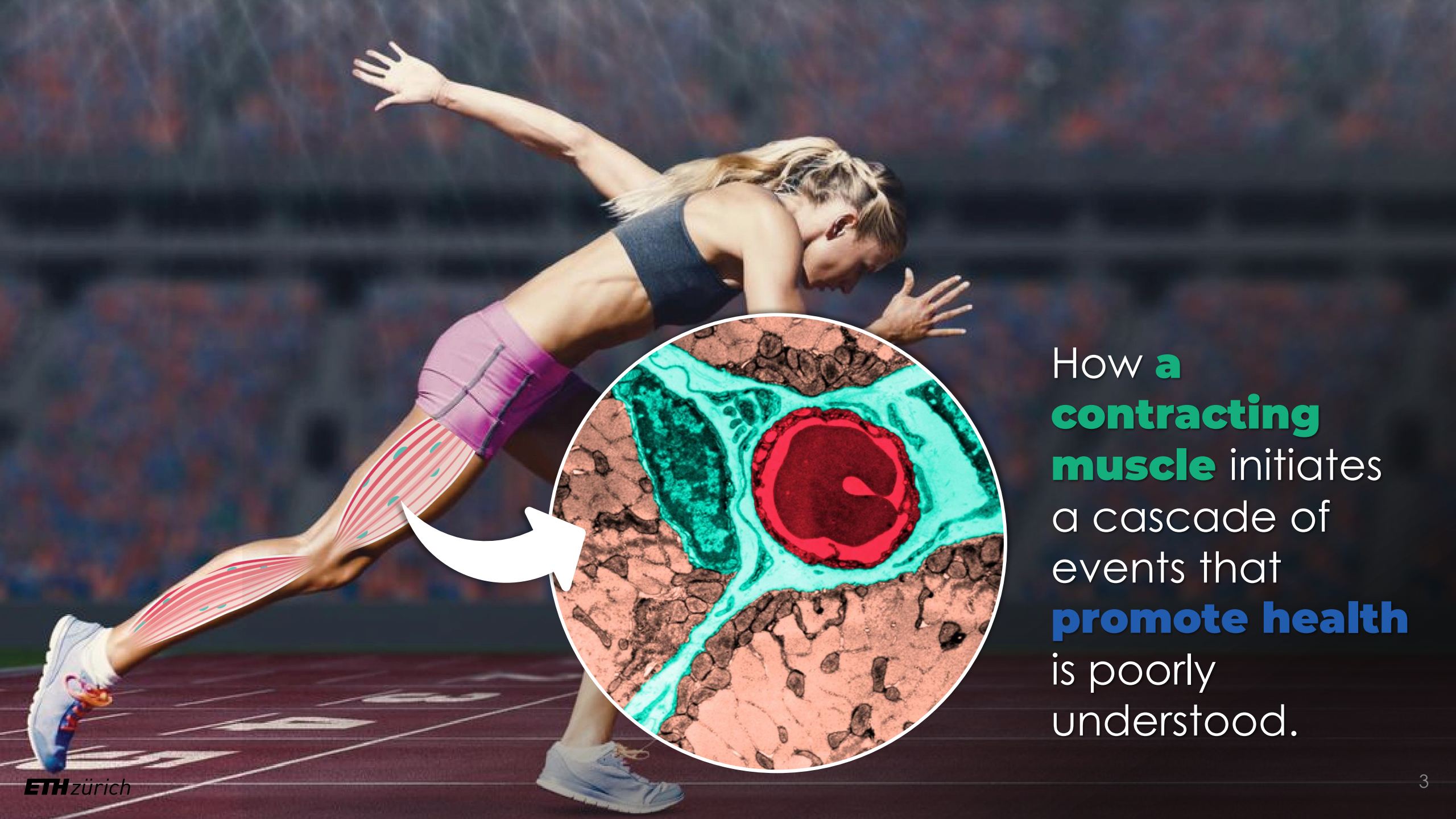
Trends in Endocrinology & Metabolism

CellPress

Review

Contributions of **physical inactivity** and sedentary behavior to metabolic and endocrine diseases

Nathan R. Kerr¹ and Frank W. Booth^{1,2,3,4,*}



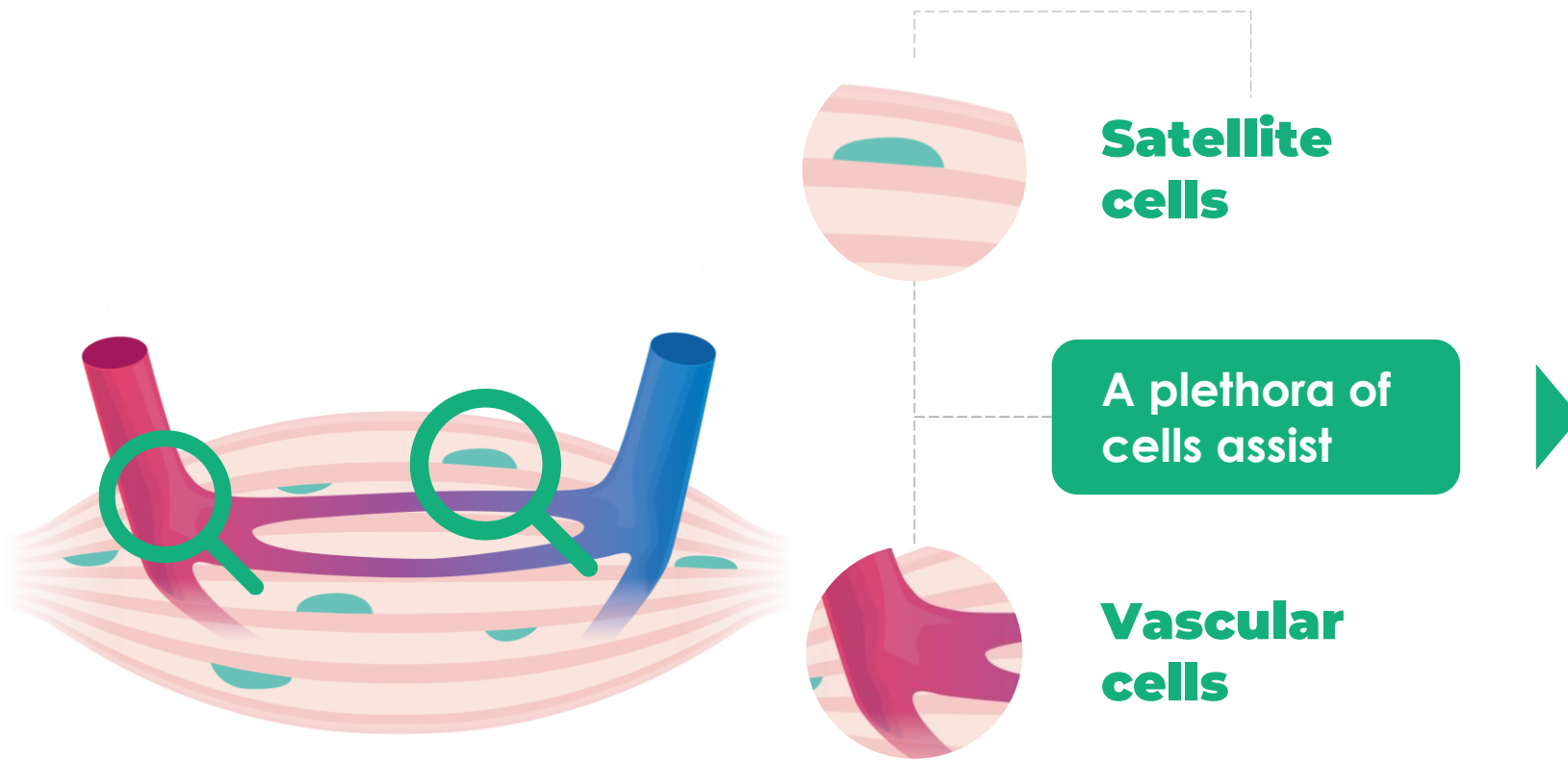
How **a contracting muscle** initiates a cascade of events that **promote health** is poorly understood.

WHAT CAN WE LEARN from **STUDYING HEALTH?**



**IDENTIFY
MECHANISMS OF
HEALTH** TO
PROMOTE THE
**DISCOVERY OF
THERAPIES**

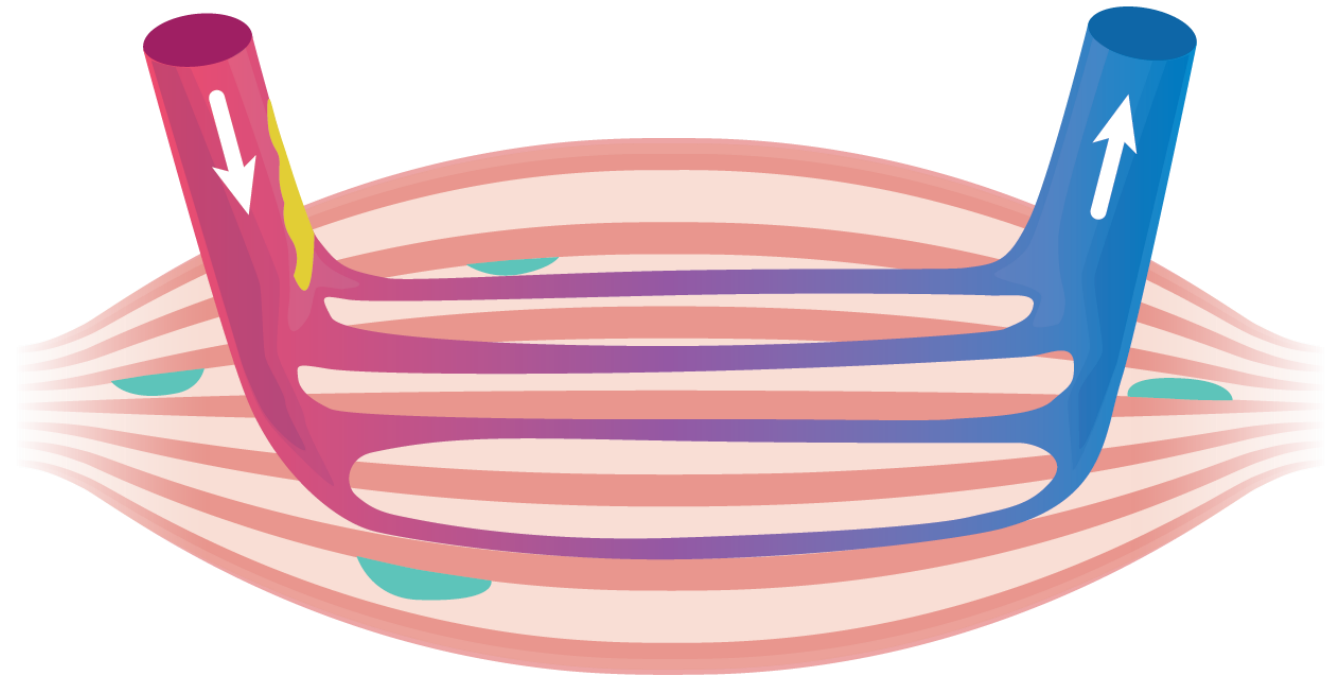
OUR RESEARCH GOAL IS HOW **MUSCLE ADAPTS TO TRAINING** AND HOW **MUSCLE REPAIRS FROM INJURY**



HEALTH IMPLICATIONS:

DEVELOPING STRATEGIES TO COUNTERACT DISEASE.

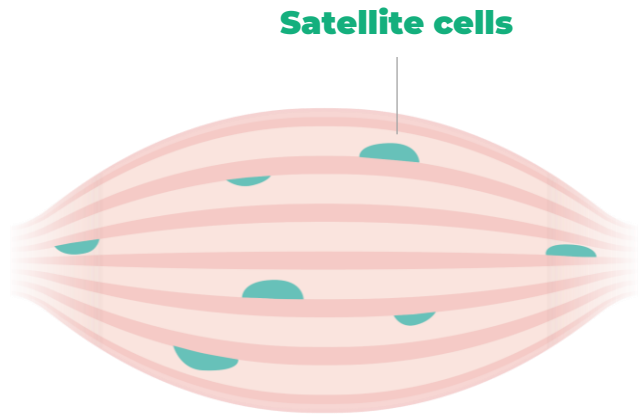
For instance PERIPHERAL ARTERY DISEASE



Lack of blood flow in muscles leads to
Peripheral Artery Diseases

EXERCISE- NUTRITION:

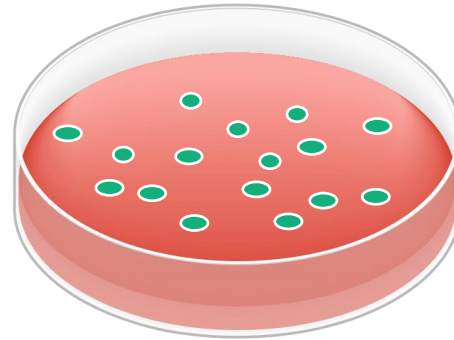
USING OUR EXPERTISE TO **GROW MUSCLE IN A DISH**



Satellite cells



Isolate and culture **satellite cells**



Expand the **cells** in a dish



Make beef in a culture incubator

HEALTH IMPLICATIONS: DEVELOPING STRATEGIES TO **PROMOTE MUSCLE GROWTH**

Atrophy



Hypertrophy



PROJECT IN FOCUS

AlpineWell

AlpineWell

Nutritional Profile

2. AI-based **Food Tracker**

3. Mass-Customized **Supplements**

Nutritional Profile

Nutritional Profile

PART OF OUR
TEAM
IS PRESENT HERE:



RABAN ITEN

AI RESEARCH

ML for Science, PhD
ETH



GOMMAAR D'HULST

HEALTH RESEARCH

Exercise & Health, PhD
ETH & KU Leuven



JOTAM BERGFREUND

PROCESS DEVELOPMENT

Food Processing
Engineer, PhD
ETH & Wageningen UR



ROBERT SCHREIBER

BUSINESS

Management &
Neuroscience, PhD
HSG & ETH

