Lorena Martin, Ph.D.

Director, USC Trojans Sports Research Lab
Assistant Professor of Clinical Data Sciences & Operations, USC Marshall School of Business

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PROFESSIONAL SUMMARY

Globally recognized expert in **sports performance analytics**, **biomechanics**, and **AI-driven athlete evaluation**, with 15+ years of experience in elite professional sports, academia, and applied human performance. Former **Director of High Performance for the Seattle Mariners** and **Director of Sports Performance Analytics with the Los Angeles Lakers**, and currently an **Official NBA Consultant** for player health, load monitoring, and injury-risk analytics. A published author of foundational texts in sports analytics and performance measurement, and the creator/director of a major university sports research lab powering 50+ multidisciplinary projects.

PROFESSIONAL EXPERIENCE

University of Southern California — Los Angeles, CA

Assistant Professor of Clinical Data Sciences & Operations (2020–Present)
Director, USC Trojans Sports Research Lab (TSRL) (2025–Present)

- Direct a **225+-member applied research lab** operating across biomechanics, wearable technology, AI/video analysis, sports medicine, and athlete monitoring.
- Lead 50+ active projects across collegiate/professional sports, including football, baseball, basketball, soccer, tennis, and emerging sports technologies.
- Develop and teach graduate/undergraduate courses in **Sports Performance Analytics**, **R/Python/ML-based statistical computing**, and **business analytics**.
- Secure external partnerships with professional teams and technology companies (e.g., force-plate platforms, GPS systems, infrared thermography, motion capture).

Seattle Mariners — Seattle, WA Director of High Performance (2017–2018)

- Led all High Performance, medical, strength, rehab, mental skills, and analytics departments across MLB & MiLB.
- Achieved a **50% reduction** in MLB player days on the Disabled List by the All-Star Break and **22% reduction vs. 5-year average**.
- Implemented the organization's first **Athlete Management System**
- Created evidence-based protocols for recovery, fatigue management, travel load, emergency procedures, injury return-to-play, and rehab.
- Integrated biomechanics, force-plate analysis, and wearable tech into daily decision-making.

Los Angeles Lakers — Los Angeles, CA Director of Sports Performance Analytics (2016–2017)

- Pioneered integrated analytics pipelines combining biomechanics, SportsVU/Second Spectrum, strength, nutrition, psychological indicators, and recovery data.
- Designed athlete-load dashboards and contributed to return-to-play decisions based on biomechanical assessments.
- Developed predictive statistical models for **talent identification**, player market value, and long-term performance forecasting.
- Collaborated closely with coaching staff, training staff, and front office on communicating data-driven performance strategy.

Official NBA Consultant Sports Data Scientist & Sports Performance Analytics Consultant

- Advise the NBA on **health, injury trends, load monitoring, and biomechanics**, providing league-wide frameworks to support athlete care and technology adoption.
- Deliver custom analytics, predictive modeling, and applied sports-science insights for executive-level decision making.

EDUCATION

University of California, San Diego
Postdoctoral Fellowship, GIS Spatial Analysis (2016)
Postdoctoral Fellowship, Biostatistics (2015)
Postdoctoral Fellowship, Epidemiology (2014)

University of Miami
Ph.D., Exercise Physiology (Statistics Specialization), (2013)
B.A., Psychology (2005)

Nova Southeastern University
M.S., Mental Health Counseling (2009)

SELECTED PUBLICATIONS

- **Sports Injury Prevention and Rehabilitation** (McGraw-Hill, 2018).
- **Sports Performance Measurement and Analytics** (Pearson, 2016).
- *International Journal of Sports Physiology and Performance* (2022).
- *Nature Cell Biology* (2016).