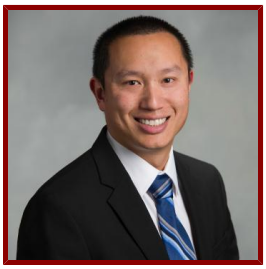
Stanford



Calvin Hwang

Clinical Associate Professor, Orthopaedic Surgery

CLINICAL OFFICE (PRIMARY)

- **Arrillaga Sports Medicine Center**

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  Stanford, CA 94305

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ACADEMIC CONTACT INFORMATION

- **Alternate Contact**

  Elizabeth Medina - Administrative Associate

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  Tel 650-721-1446

Bio

CLINICAL FOCUS

- Orthopaedic Sports Medicine

PATIENT CARE

Dr. Hwang specializes in Non-Operative Sports Medicine. He is Board Certified in Emergency Medicine, with a subspecialty certificate in Sports Medicine, and is a member of the American College of Emergency Physicians (ACEP), American Academy of Emergency Medicine (AAEM) and the American Medical Society for Sports Medicine (AMSSM). Dr. Hwang received his undergraduate degree from Stanford University and his Doctor of Medicine from Case Western Reserve University. He completed his residency in Emergency Medicine at the Stanford/Kaiser Emergency Medicine Residency and went on to a Fellowship in Primary Care/Non-Operative Sports Medicine at Stanford University. He serves as assistant Fellowship Director for the Stanford Non-operative Sports Medicine Fellowship as well as team physician for Stanford athletics, working with Stanford football, women's soccer, men's/women's water polo, among others. He is also a team physician for the Golden State Warriors.

ACADEMIC APPOINTMENTS

- Clinical Associate Professor, Orthopaedic Surgery
- Member, Wu Tsai Human Performance Alliance

ADMINISTRATIVE APPOINTMENTS

- Assistant Fellowship Director, Primary Care Sports Medicine Fellowship, (2016- present)
- Team Physician, Stanford Athletics, (2016- present)
- Chief Medical Officer, San Jose Earthquakes, (2022-2023)
- Team Physician, Golden State Warriors, (2016-2019)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Secretary, American College of Emergency Physicians, Sports Medicine Section (2022 - 2024)
- Fellowship Committee, American Medical Society for Sports Medicine (2020 - present)

- Councilor, American College of Emergency Physicians, Sports Medicine Section (2020 - 2022)
- Alternate Councilor, American College of Emergency Physicians, Sports Medicine Section (2018 - 2020)
- Fellow, American College of Emergency Physicians (2017 - present)
- Member, American Medical Society for Sports Medicine (2016 - present)
- Fellow, American Academy of Emergency Medicine (2014 - 2023)
- Member, American College of Emergency Physicians (2011 - present)
- Member, American Academy of Emergency Medicine (2011 - 2023)

PROFESSIONAL EDUCATION

- Board Certification: Sports Medicine, American Board of Emergency Medicine (2015)
- Residency: Stanford University Emergency Medicine Residency (2014) CA
- Board Certification: Emergency Medicine, American Board of Emergency Medicine (2015)
- Fellowship: Stanford Hospital and Clinics - Dept of Orthopaedics (2015) CA
- MD, Case Western Reserve University School of Medicine (2011)
- BS, Stanford University , Biological Sciences with Honors (2007)

Teaching

COURSES

2023-24

- Sport, Exercise, and Health: Exploring Sports Medicine: ORTHO 97Q (Win, Spr)

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Sports Medicine (Fellowship Program)

Publications

PUBLICATIONS

- **Pregame and Halftime Intravenous Hyperhydration Practices in National Collegiate Athletic Association Football Bowl Subdivision Teams.** *Clinical journal of sport medicine : official journal of the Canadian Academy of Sport Medicine*
  Schultz, E. A., Song, L., Hwang, C. E.
  2026
- **Defining baseline high-sensitivity cardiac troponin levels in healthy collegiate athletes.** *American journal of clinical pathology*
  Jamal, Y. A., Montiel, A., Jones, S., Nair, P., Parikh, V., Haddad, F., Wheeler, M. T., Hwang, C., Tso, J. V., Bowen, R. A.
  2026; 165 (5)
- **Validity of the King Devick Test for Acute Diagnosis of Concussion in NCAA Division I Athletes.** *Sports health*
  Harmon, K. G., Whelan, B. M., Aukerman, D. F., Poddar, S. K., DeLeo, A., Elkington, H. A., Garruppo, G., Holliday, M., Hwang, C. E.
  2025: 19417381251350685
- **Increased Prevalence of Concussion in Collegiate Water Polo Goalkeepers.** *Clinical journal of sport medicine : official journal of the Canadian Academy of Sport Medicine*
  Lee, M. C., Pham, N. S., Song, L., Hwang, C. E.
  2025
- **Video Analysis of Acute Lower Extremity Injury Mechanisms in Soccer Demonstrates Most Anterior Cruciate Ligament, Achilles, and Muscle Injuries Occur Without Direct Contact: A Systematic Review and Meta-Analysis.** *Arthroscopy : the journal of arthroscopic & related surgery : official publication of the Arthroscopy Association of North America and the International Arthroscopy Association*
  Xiao, M., Lee, J. J., Boissiere, J. C., Sherman, S. L., Safran, M. R., Abrams, G. D., Hwang, C. E.

2025

- **Liver Function Test Results Correlate With Spleen Size in Patients With Infectious Mononucleosis.** *Cureus*
  Durtschi, M. S., Pham, N. S., Hwang, C. E.
  2024; 16 (9): e70041
- **Classification of Premature Ventricular Contractions in Athletes During Routine Preparticipation Exams.** *Circulation. Arrhythmia and electrophysiology*
  Gomez, S. E., Perez, M. V., Wheeler, M. T., Hadley, D., Hwang, C. E., Kussman, A., Kim, D. S., Froelicher, V.
  2024: e012835
- **Diagnosis of Sports-Related Concussion Using Symptom Report or Standardized Assessment of Concussion.** *JAMA network open*
  Harmon, K. G., Whelan, B. M., Aukerman, D. F., Hwang, C. E., Poddar, S. K., DeLeo, A., Elkington, H. A., Garruppo, G., Holliday, M., Bruce, J. M.
  2024; 7 (6): e2416223
- **Training Background and Demographic Characteristics of Primary Care Team Physicians in Professional Sports.** *Orthopaedic journal of sports medicine*
  Schultz, E. A., Durtschi, M. S., Oakes, K. G., Kussman, A., Hwang, C. E.
  2024; 12 (4): 23259671241242412
- **Emergency Facial Injuries in Athletics.** *Clinics in sports medicine*
  Tsao, J., Hwang, C. E.
  2023; 42 (3): 463-471
- **American Medical Society of Sports Medicine Position Statement: Mononucleosis and Athletic Participation.** *Clinical journal of sport medicine : official journal of the Canadian Academy of Sport Medicine*
  Putukian, M., McGrew, C. A., Benjamin, H. J., Hammell, M. K., Hwang, C. E., Ray, J. W., Statuta, S. M., Sylvester, J., Wilson, K.
  2023
- **Premature ventricular contractions (PVCs) in young athletes.** *Progress in cardiovascular diseases*
  Gomez, S. E., Hwang, C. E., Kim, D. S., Froelicher, V. F., Wheeler, M. T., Perez, M. V.
  2022
- **Prevalence of Positive Rapid Antigen Tests After 7-Day Isolation Following SARS-CoV-2 Infection in College Athletes During Omicron Variant Predominance.** *JAMA network open*
  Tsao, J., Kussman, A., Segovia, N. A., Abrams, G. D., Boehm, A. B., Hwang, C. E.
  2022; 5 (10): e2237149
- **Use of Monospot Testing in the Diagnosis of Infectious Mononucleosis in the Collegiate Student-Athlete Population.** *Clinical journal of sport medicine : official journal of the Canadian Academy of Sport Medicine*
  Wang, E. X., Kussman, A., Hwang, C. E.
  2022; 32 (5): 467-470
- **Increased Risk of ACL Injury for Female but Not Male Soccer Players on Artificial Turf Versus Natural Grass: A Systematic Review and Meta-Analysis.** *Orthopaedic journal of sports medicine*
  Xiao, M., Lemos, J. L., Hwang, C. E., Sherman, S. L., Safran, M. R., Abrams, G. D.
  2022; 10 (8): 23259671221114353
- **Wastewater-Based Detection of Two Influenza Outbreaks** *ENVIRONMENTAL SCIENCE & TECHNOLOGY LETTERS*
  Wolfe, M. K., Duong, D., Bakker, K. M., Ammerman, M., Mortenson, L., Hughes, B., Arts, P., Lauring, A. S., Fitzsimmons, W. J., Bendall, E., Hwang, C. E., Martin, E. T., White, et al
  2022
- **Accuracy of Rapid Antigen vs Reverse Transcriptase-Polymerase Chain Reaction Testing for SARS-CoV-2 Infection in College Athletes During Prevalence of the Omicron Variant.** *JAMA network open*
  Tsao, J., Kussman, A. L., Costales, C., Pinsky, B. A., Abrams, G. D., Hwang, C. E.
  2022; 5 (6): e2217234
- **Comparison of SARS-CoV-2 Test Positivity in NCAA Division I Student Athletes vs Nonathletes at 12 Institutions.** *JAMA network open*
  Schultz, E. A., Kussman, A., Jerome, A., Abrams, G. D., Hwang, C. E.
  2022; 5 (2): e2147805

- **Patients Who Return to Sport After Primary Anterior Cruciate Ligament Reconstruction Have Significantly Higher Psychological Readiness: A Systematic Review and Meta-analysis of 3744 Patients** *Am J Sports Med*
  Xiao, M., van Niekerk, M., Trivedi, N., Hwang, C., Sherman, S., Safran, M., Abrams, G.
  2022
- **Factors Associated With a Prolonged Time to Return to Play After a Concussion.** *The American journal of sports medicine*
  Wang, E. X., Hwang, C. E., Nguyen, J. N., Segovia, N. A., Abrams, G. D., Kussman, A.
  2022: 3635465221083646
- **Use of Platelet-Poor Plasma in Acute Quadriceps Muscle Strain in a Division I Football Placekicker: A Case Report.** *Current sports medicine reports*
  Kasitinon, D., Dragoo, J. L., Hwang, C. E.
  2021; 20 (11): 572-574
- **Splenomegaly from Recurrent Infectious Mononucleosis in an NCAA Division I Athlete.** *Current sports medicine reports*
  Bakal, D. R., Kasitinon, D., Kussman, A. L., Hwang, C. E.
  2021; 20 (10): 511-513
- **Splenomegaly from Recurrent Infectious Mononucleosis in an NCAA Division I Athlete** *CURRENT SPORTS MEDICINE REPORTS*
  Bakal, D. R., Kasitinon, D., Kussman, A. L., Hwang, C. E.
  2021; 20 (10): 511-513
- **Findings From Cardiovascular Evaluation of National Collegiate Athletic Association Division I Collegiate Student-Athletes After Asymptomatic or Mildly Symptomatic SARS-CoV-2 Infection.** *Clinical journal of sport medicine : official journal of the Canadian Academy of Sport Medicine*
  Hwang, C. E., Kussman, A., Christle, J. W., Froelicher, V., Wheeler, M. T., Moneghetti, K. J.
  2021
- **High Specialization among Female Youth Soccer Players Is Associated with an Increased Likelihood of Serious Injury.** *Medicine and science in sports and exercise*
  Xiao, M., Lemos, J. L., Hwang, C. E., Sherman, S. L., Safran, M. R., Abrams, G. D.
  2021
- **Adenovirus Infection and Rhabdomyolysis as a Cause of Acute Liver Failure in a Healthy Collegiate Football Athlete: A Case Report and Proposed Return to Play Protocol for Rhabdomyolysis** *CUREUS*
  Hwang, C. E., Matheson, G., Baine, J.
  2021; 13 (4)
- **Adenovirus Infection and Rhabdomyolysis as a Cause of Acute Liver Failure in a Healthy Collegiate Football Athlete: A Case Report and Proposed Return to Play Protocol for Rhabdomyolysis.** *Cureus*
  Hwang, C. E., Matheson, G., Baine, J.
  2021; 13 (4): e14510
- **Recommended Musculoskeletal and Sports Medicine Model Curriculum for Emergency Medicine Residency Training.** *Current sports medicine reports*
  Chow, Y. C., Waterbrook, A. L., Suffoletto, H. N., Dolbec, K. n., Myers, R. A., Denq, W. n., Hwang, C. E., Kiel, J. M., Monseau, A. J., Balcik, B. J., Santelli, J. A., Oshlag, B. L., Hudson, et al
  2021; 20 (1): 31–46
- **Increased Lower Extremity Injury Risk Associated With Player Load and Distance in Collegiate Women's Soccer.** *Orthopaedic journal of sports medicine*
  Xiao, M., Nguyen, J. N., Hwang, C. E., Abrams, G. D.
  2021; 9 (10): 23259671211048248
- **Calculated decisions: Ottawa ankle rule.** *Emergency medicine practice*
  Hwang, C.
  2020; 22 (Suppl 8): CD9–CD10
- **Calculated decisions: Ottawa Knee Rule.** *Emergency medicine practice*
  Hwang, C.
  2020; 22 (Suppl 8): CD11–CD12

- **Comparison of Cardiovascular Screening in College Athletes by History and Physical Examination with and without an Electrocardiogram: Efficacy and Cost.** *Heart rhythm*
  Harmon, K. G., Suchsland, M. Z., Prutkin, J. M., Owens, D. S., Aukerman, D. F., Hwang, C. E., Lancaster, S. C., Petron, D. J., Poddar, S. K., Porter, D. E., Petek, B. J., Malik, A. n., Drezner, et al
  2020
- **Calculated Decisions: Kocher criteria for septic arthritis** *Pediatric emergency medicine practice*
  Hwang, C.
  2019; 16 (12): CD1–CD2
- **Calculated Decisions: HAS-BLED Score for Major Bleeding Risk** *Emergency medicine practice*
  Hwang, C.
  2019; 21 (8): CD3–CD4
- **Calculated Decisions: Ottawa Knee Rule** *Pediatric emergency medicine practice*
  Hwang, C.
  2018; 14 (Suppl 9): 3–5
- **Calculated Decisions: Ottawa Ankle Rule** *Pediatric emergency medicine practice*
  Hwang, C.
  2018; 14 (Suppl 9): 1–3
- **Current Concepts in Concussion: A Review.** *Journal of the California Dental Association*
  Ray, J. W., Hwang, C., Baine, J., Fredericson, M., Keane, G. P.
  2017; 45 (6): 285-89
- **Calculated decisions: LRINEC Score for necrotizing soft-tissue infection** *Emergency medicine practice*
  Hwang, C. n.
  2017: 5–6
- **Improved insulin sensitivity after exercise training is linked to reduced plasma C14:0 ceramide in obesity and type 2 diabetes** *OBESITY*
  Kasumov, T., Solomon, T. P., Hwang, C., Huang, H., Haus, J. M., Zhang, R., Kirwan, J. P.
  2015; 23 (7): 1414-1421
- **Effect of an emergency department fast track on press-ganey patient satisfaction scores.** *The western journal of emergency medicine*
  Hwang, C. E., Lipman, G. S., Kane, M.
  2015; 16 (1): 34-38
- **ECG diagnosis: ST-elevation myocardial infarction.** *The Permanente journal*
  Hwang, C., Levis, J. T.
  2014; 18 (2)
- **Hippocampal-dependent learning requires a functional circadian system** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Ruby, N. F., Hwang, C. E., Wessells, C., Fernandez, F., Zhang, P., Sapolsky, R., Heller, H. C.
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- **blue cheese mutations define a novel, conserved gene involved in progressive neural degeneration** *JOURNAL OF NEUROSCIENCE*
  Finley, K. D., Edeen, P. T., Cumming, R. C., Mardahl-Dumesnil, M. D., Taylor, B. J., RODRIGUEZ, M. H., Hwang, C. E., Benedetti, M., McKeown, M.
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