



## Robert Downey Boutin

Clinical Professor, Radiology

### CLINICAL OFFICES

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### Bio

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#### BIO

Dr. Boutin works clinically as a musculoskeletal radiologist interpreting a broad array of diagnostic imaging examinations, most frequently MRI, CT, sonography, and radiography.

The clinical focus for Dr. Boutin is MRI of joints, bones, and muscles, as well as adding value to routine radiology exams by translating advancements from fields of artificial intelligence and imaging informatics.

These advancements include enhancing routine imaging exams to help promote physical function, quality of life, and health span in our patients. Because the worldwide population of people > 60 years of age is projected to double by 2050, there is a crucial need for improvements in the accurate and efficient management of derangements associated with biological aging, including osteoporosis, sarcopenia, and visceral adiposity.

Dr. Boutin is a leader in the field of musculoskeletal imaging. He has served as Chair of the Musculoskeletal Imaging Program Committee for the largest medical meeting in the world (RSNA) and is President-elect of the Society of Academic Bone Radiologists. Core professional values include an emphasis on outstanding quality, compassion, safety, and integrity.

Dr. Boutin was introduced to Orthopaedics at an early age by his father and older brother -- both orthopaedists. After earning undergraduate and graduate degrees at Stanford University, Dr. Boutin completed advanced fellowship training in Musculoskeletal Imaging at the University of California, San Diego, and worked on the faculty at Harvard Medical School.

Dr. Boutin is dedicated to excellence in musculoskeletal imaging. Dr. Boutin has written over 100 peer-reviewed articles and textbook chapters. He has also served as Guest Editor for 2 volumes of the 'Orthopaedic Clinics of North America', and volumes of 'Seminars in Musculoskeletal Radiology'. Dr. Boutin also has served for many years as a Peer Reviewer for premier radiology journals.

Dr. Boutin is a popular invited lecturer for Continuing Medical Education Courses, such as those at the annual meetings of the 'Radiological Society of North America', the 'International Skeletal Society', the 'Arthroscopy Association of North America', the 'American Academy of Orthopaedic Surgeons', and the 'International Society for Magnetic Resonance in Medicine'. He is also a repeat lecturer at the prestigious Orthopaedic Imaging course in Davos, Switzerland.

## **CLINICAL FOCUS**

- Diagnostic Radiology

## **ACADEMIC APPOINTMENTS**

- Clinical Professor, Radiology

## **ADMINISTRATIVE APPOINTMENTS**

- Chair, Appointments & Promotions Committee, Stanford University School of Medicine, (2023-2025)
- Affiliated Faculty, Integrative Biomedical Imaging Informatics at Stanford (IBIIS), (2022- present)
- Director, Musculoskeletal Imaging Fellowship, Department of Radiology, (2021- present)

## **HONORS AND AWARDS**

- Soft Tissue Tumors, RSNA - Cum Laude Award (2022)
- CMS and Calculators: Hospital Price Transparency Requirements and Imaging Cost Variability, American Roentgen Ray Society (ARRS) (2022)
- Liposclerosing Myxofibrous Tumor (LSMFT), Society of Skeletal Radiology (AIRP Award) (2022)
- Meniscus Roots, Ramps, Repairs, and Repercussions, RSNA - Magna Cum Laude Award (2021)
- The Sternum and Sternoclavicular Joints, RSNA - Magna Cum Laude Award (2021)
- Altered Biomechanics and Patterns of Injury in the Presence of Rotator Cuff Insufficiency, Radiological Society of North America (2020)
- Fast Musculoskeletal MRI: What the Radiologist Needs to Know, Radiological Society of North America (2019)
- Value-Added 'Opportunistic' CT: State-of-the-Art Insights into Bone, Muscle, and Fat, Radiological Society of North America (2019)

## **BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS**

- Chair, RSNA Msk Meeting Program Committee (2021-22); RadioGraphics Subspecialty Panel (2021-24), Radiological Society of North America (RSNA) (1992 - present)
- ISS Scientific Session Cmte (2021-23); Chair, Grants Cmte (2019-20); Chair, Audit Cmte (2017-18), International Skeletal Society (ISS) (2001 - present)
- SABR President-elect (2022 - 2024), Society of Academic Bone Radiologists (SABR) (2013 - present)
- ARRS Musculoskeletal Radiology Scientific Program Committee (2011 - Present), American Roentgen Ray Society (ARRS) (1991 - present)
- ACR Practice Parameters and Technical Standards Development (Quantitative CT Bone Densitometry; DXA), American College of Radiology (ACR) (2022 - present)
- QIBA Musculoskeletal Biomarkers Committee (Articular Cartilage MRI), Quantitative Imaging Biomarkers Alliance (QIBA) (2019 - present)

## PROFESSIONAL EDUCATION

- Fellowship: UCSD Musculoskeletal Radiology Fellowship (1996) CA
- Board Certification: Diagnostic Radiology, American Board of Radiology (1995)
- Residency: University of New Mexico Office of GME (1995) NM
- Medical Education: UC Davis School of Medicine (1991) CA

## Publications

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### PUBLICATIONS

- **Opportunistic assessment of ischemic heart disease risk using abdominopelvic computed tomography and medical record data: a multimodal explainable artificial intelligence approach.** *Scientific reports*  
Zambrano Chaves, J. M., Wentland, A. L., Desai, A. D., Banerjee, I., Kaur, G., Correa, R., Boutin, R. D., Maron, D. J., Rodriguez, F., Sandhu, A. T., Rubin, D., Chaudhari, A. S., Patel, et al  
2023; 13 (1): 21034
- **Skeletal Muscle Area on CT: Determination of an Optimal Height Scaling Power and Testing for Mortality Risk Prediction.** *AJR. American journal of roentgenology*  
Blankemeier, L., Yao, L., Long, J., Reis, E. P., Lenchik, L., Chaudhari, A. S., Boutin, R. D.  
2023
- **Real-Time MRI of the moving wrist at 0.55 tesla.** *The British journal of radiology*  
Chaudhari, A. J., Lim, Y., Cui, S. X., Bayne, C. O., Szabo, R. M., Boutin, R. D., Nayak, K. S.  
2023: 20230298
- **MRI of patellar stabilizers: Anatomic visibility, inter-reader reliability, and intra-reader reproducibility of primary and secondary ligament anatomy.** *Skeletal radiology*  
Zandee van Rilland, E. D., Payne, S. R., Gorbachova, T., Shea, K. G., Sherman, S. L., Boutin, R. D.  
2023
- **Clinical, functional, and opportunistic CT metrics of sarcopenia at the point of imaging care: analysis of all-cause mortality.** *Skeletal radiology*  
Yao, L., Petrosyan, A., Chaudhari, A. J., Lenchik, L., Boutin, R. D.  
2023
- **Muscle Steatosis and Fibrosis in Older Adults, From the AJR Special Series on Imaging of Fibrosis.** *AJR. American journal of roentgenology*  
Lenchik, L., Mazzoli, V., Cawthon, P. M., Hepple, R. T., Boutin, R. D.  
2023
- **Association of CT-Derived Skeletal Muscle and Adipose Tissue Metrics with Frailty in Older Adults.** *Academic radiology*  
Bunch, P. M., Rigdon, J., Niazi, M. K., Barnard, R. T., Boutin, R. D., Houston, D. K., Lenchik, L.  
2023
- **Noise2Recon: Enabling SNR-robust MRI reconstruction with semi-supervised and self-supervised learning.** *Magnetic resonance in medicine*  
Desai, A. D., Ozturkler, B. M., Sandino, C. M., Boutin, R., Willis, M., Vasanawala, S., Hargreaves, B. A., Re, C., Pauly, J. M., Chaudhari, A. S.  
2023
- **Knee MRI: Meniscus Roots, Ramps, Repairs, and Repercussions.** *Radiographics : a review publication of the Radiological Society of North America, Inc*  
Tomsan, H., Gorbachova, T., Fritz, R. C., Abrams, G. D., Sherman, S. L., Shea, K. G., Boutin, R. D.  
2023; 43 (7): e220208
- **Fast volumetric ultrasound facilitates high-resolution 3D mapping of tissue compartments.** *Science advances*  
Park, E. Y., Cai, X., Foiret, J., Bendjador, H., Hyun, D., Fite, B. Z., Wodnicki, R., Dahl, J. J., Boutin, R. D., Ferrara, K. W.  
2023; 9 (22): eadg8176
- **Patellar Tracking: An Old Problem with New Insights.** *Radiographics : a review publication of the Radiological Society of North America, Inc*  
Watts, R. E., Gorbachova, T., Fritz, R. C., Saad, S. S., Lutz, A. M., Kim, J., Chaudhari, A. S., Shea, K. G., Sherman, S. L., Boutin, R. D.  
2023; 43 (6): e220177

- **Interdisciplinary consensus statements on imaging of DRUJ instability and TFCC injuries.** *European radiology*  
Cerezal, L., Del Piñal, F., Atzei, A., Schmitt, R., Becce, F., Klich, M., Bie#, M., de Jonge, M. C., Teh, J., Boutin, R. D., Toms, A. P., Omoumi, P., Fritz, et al  
2023
- **Advanced Arthritis of the Carpus: Preoperative Planning Practices of 337 Hand Surgeons** *JOURNAL OF WRIST SURGERY*  
Bayne, C. O., Moontasri, N. J., Boutin, R. D., Szabo, R. M.  
2023
- **The GIANT trial (ECOG-ACRIN EA2186) methods paper: A randomized phase II study of gemcitabine and nab-paclitaxel compared with 5-fluorouracil, leucovorin, and liposomal irinotecan in older patients with treatment-naïve metastatic pancreatic cancer - defining a new treatment option for older vulnerable patients.** *Journal of geriatric oncology*  
Dotan, E., Catalano, P., Lenchik, L., Boutin, R., Yao, X., Marques, H. S., Ioffe, D., Zhen, D. B., Li, D., Wagner, L. I., Simon, M. A., Wong, T. Z., O'Dwyer, et al  
2023; 14 (3): 101474
- **Editorial Comment: Death and Taxes...and Artificial Intelligence.** *AJR. American journal of roentgenology*  
Boutin, R. D.  
2023
- **Improving Data-Efficiency and Robustness of Medical Imaging Segmentation Using inpainting-Based Self-Supervised Learning.** *Bioengineering (Basel, Switzerland)*  
Dominic, J., Bhaskhar, N., Desai, A. D., Schmidt, A., Rubin, E., Gunel, B., Gold, G. E., Hargreaves, B. A., Lenchik, L., Boutin, R., Chaudhari, A. S.  
2023; 10 (2)
- **Ageism in Society and Its Health Impact.** *AJR. American journal of roentgenology*  
Lenchik, L., Steinbach, L., Boutin, R. D.  
2023
- **Pre-operative imaging for surgical decision-making and the frequency of wrist arthrodesis and carpectomy procedures: a scoping review.** *Skeletal radiology*  
Baylous, B. L., McQuiston, A. S., Bayne, C. O., Szabo, R. M., Boutin, R. D.  
2022
- **Generalizability of Deep Learning Segmentation Algorithms for Automated Assessment of Cartilage Morphology and MRI Relaxometry.** *Journal of magnetic resonance imaging : JMRI*  
Schmidt, A. M., Desai, A. D., Watkins, L. E., Crowder, H. A., Black, M. S., Mazzoli, V., Rubin, E. B., Lu, Q., MacKay, J. W., Boutin, R. D., Kogan, F., Gold, G. E., Hargreaves, et al  
2022
- **Artificial Intelligence System for Automatic Quantitative Analysis and Radiology Reporting of Leg Length Radiographs.** *Journal of digital imaging*  
Larson, N., Nguyen, C., Do, B., Kaul, A., Larson, A., Wang, S., Wang, E., Bultman, E., Stevens, K., Pai, J., Ha, A., Boutin, R., Fredericson, et al  
2022
- **Imaging of Sarcopenia.** *Radiologic clinics of North America*  
Boutin, R. D., Houston, D. K., Chaudhari, A. S., Willis, M. H., Fausett, C. L., Lenchik, L.  
2022; 60 (4): 575-582
- **A randomized phase II study of gemcitabine and nab-paclitaxel compared with 5-fluorouracil, leucovorin, and liposomal irinotecan in older patients with treatment-naïve metastatic pancreatic cancer (GIANT): ECOG-ACRIN EA2186-Trials in progress**  
Dotan, E., Catalano, P. J., Lenchik, L., Boutin, R., Yao, X., Beg, S., Vijayvergia, N., Gatsonis, C., Zhen, D., Li, D., Wagner, L. I., Simon, M. A., Wong, et al  
LIPPINCOTT WILLIAMS & WILKINS.2022
- **Ultrasound Identifies First Rib Stress Fractures: A Case Series in Division I Athletes.** *Journal of athletic training*  
Sheng, D. L., Burnham, K., Boutin, R. D., Ray, J. W.  
2022
- **MR Imaging of Benign Soft Tissue Tumors: Highlights for the Practicing Radiologist.** *Radiologic clinics of North America*  
Riley, G. M., Kwong, S., Steffner, R., Boutin, R. D.  
2022; 60 (2): 263-281
- **The Global Reading Room: Knee MRI Protocols.** *American Journal of Roentgenology (AJR).*  
Boutin, R. D., Eshed, I., Kassarian, A., Vemuri, N. V.

2022

- **Opportunistic Incidence Prediction of Multiple Chronic Diseases from Abdominal CT Imaging Using Multi-task Learning**  
Blankemeier, L., Gallegos, I., Chaves, J., Maron, D., Sandhu, A., Rodriguez, F., Rubin, D., Patel, B., Willis, M., Boutin, R., Chaudhari, A. S., Wang, L., Dou, et al  
SPRINGER INTERNATIONAL PUBLISHING AG.2022: 309-318
- **Sarcopenia in Rheumatic Disorders: What the Radiologist and Rheumatologist Should Know** *Skeletal Radiology*.  
Manzano, W., Lenchik, L., Chaudhari, A. S., Yao, L., Gupta, S., Boutin, R. D.  
2022
- **Charges for Shoppable Musculoskeletal Imaging Examinations: CMS Transparency Compliance and Variability Among 250 U.S. Hospitals.** *American Journal of Roentgenology (AJR)*.  
Petterson, M. B., Willis, M. H., Rosenberg, J. K., Boutin, R. D.  
2022
- **Feasibility of dual-phase 99mTc-MDP SPECT/CT imaging in rheumatoid arthritis evaluation.** *Quantitative imaging in medicine and surgery*  
Abdelhafez, Y. G., Godinez, F., Sood, K., Hagge, R. J., Boutin, R. D., Raychaudhuri, S. P., Badawi, R. D., Chaudhari, A. J.  
2021; 11 (6): 2333-2343
- **Rapidly progressive idiopathic arthritis of the hip: incidence and risk factors in a controlled cohort study of 1471 patients after intra-articular corticosteroid injection** *SKELETAL RADIOLOGY*  
Boutin, R. D., Pai, J., Meehan, J. P., Newman, J. S., Yao, L.  
2021
- **Body composition measurements and overall survival in patients with resectable pancreatic adenocarcinoma receiving neoadjuvant chemotherapy: Analysis from SWOG S1505.**  
Sohal, D., Duong, M. T., Boutin, R., Lenchik, L., Kim, J., Gandhi, N., Beg, M., Wang-Gillam, A., Wade, J., Guthrie, K. A., Chiorean, E., Ahmad, S. A., Lowy, et al  
LIPPINCOTT WILLIAMS & WILKINS.2021
- **Assessment of Myofascial Trigger Points via Imaging: A Systematic Review.** *American journal of physical medicine & rehabilitation*  
Mazza, D. F., Boutin, R. D., Chaudhari, A. J.  
2021
- **Displaced Flap Tears of the Triangular Fibrocartilage Complex: Frequency, Flap Location, and the "Comma" Sign on Wrist MRI.** *AJR. American journal of roentgenology*  
Boutin, R. D., Fritz, R. C.  
2021
- **Reply to "Sarcopenia and Osteoporosis: A Practical Approach to Obtaining Valuable Information With CT".** *AJR. American journal of roentgenology*  
Boutin, R. D., Lenchik, L. n.  
2021: W1
- **Interdisciplinary consensus statements on imaging of scapholunate joint instability.** *European radiology*  
Dietrich, T. J., Toms, A. P., Cerezal, L., Omoumi, P., Boutin, R. D., Fritz, J., Schmitt, R., Shahabpour, M., Becce, F., Cotten, A., Blum, A., Zanetti, M., Llopis, et al  
2021
- **Genetic Algorithm based L4 Identification and Psoas Segmentation**  
Benjamin, N., Boutin, R. D., Chaudhari, A. J., Ma, K., Douplik, A., Fred, A., Gamboa, H.  
SCITEPRESS.2021: 120-127
- **Pelvis and Groin: Practical Anatomy, Injury Patterns, and Imaging Findings** *Musculoskeletal Diseases 2021-2024: Diagnostic Imaging*  
Boutin, R. D., Robinson, P.  
Springer.2021
- **Diagnosing sarcopenia at the point of imaging care: analysis of clinical, functional, and opportunistic CT metrics.** *Skeletal radiology*  
Yao, L., Petrosyan, A., Fuangfa, P., Lenchik, L., Boutin, R. D.  
2020
- **Computed Tomography (CT) Measurements of Sarcopenia Predict Length of Stay in Older Burn Patients.** *Journal of burn care & research : official publication of the American Burn Association*  
Romanowski, K. S., Fuanga, P., Siddiqui, S., Lenchik, L., Palmieri, T. L., Boutin, R. D.

2020

- **Soft tissue pathology for the radiologist: a tumor board primer with 2020 WHO classification update.** *Skeletal radiology*  
Kuhn, K. J., Cloutier, J. M., Boutin, R. D., Steffner, R., Riley, G.  
2020
- **Association of adipose tissue and skeletal muscle metrics with overall survival and postoperative complications in soft tissue sarcoma patients: an opportunistic study using computed tomography.** *Quantitative imaging in medicine and surgery*  
Boutin, R. D., Katz, J. R., Chaudhari, A. J., Yabes, J. G., Hirschbein, J. S., Nakache, Y. P., Seibert, J. A., Lamba, R., Fananapazir, G., Canter, R. J., Lenchik, L.  
2020; 10 (8): 1580-1589
- **Value-Added Opportunistic CT: Insights Into Osteoporosis and Sarcopenia.** *AJR. American journal of roentgenology*  
Boutin, R. D., Lenchik, L.  
2020: 1–13
- **Marrow uptake on FDG PET/CT is associated with progression from smoldering to symptomatic multiple myeloma.** *Skeletal radiology*  
Amini, B., Nakache, Y. N., Nardo, L., Manasanch, E. E., Sun, J., Lenchik, L., Boutin, R. D.  
2020
- **Opportunistic muscle measurements on staging chest CT for extremity and truncal soft tissue sarcoma are associated with survival.** *Journal of surgical oncology*  
Phan, E. N., Thorpe, S. W., Wong, F. S., Saiz, A. M., Taylor, S. L., Canter, R. J., Lenchik, L., Randall, R. L., Boutin, R. D.  
2020
- **Capsular thinning on magnetic resonance arthrography is associated with intra-operative hip joint laxity in women.** *Journal of hip preservation surgery*  
Packer, J. D., Foster, M. J., Riley, G. M., Stewart, R., Shibata, K. R., Richardson, M. L., Boutin, R. D., Safran, M. R.  
2020; 7 (2): 298–304
- **Accurate prediction of lumbar microdecompression level with an automated MRI grading system.** *Skeletal radiology*  
Roller, B. L., Boutin, R. D., O'Gara, T. J., Knio, Z. O., Jamaludin, A., Tan, J., Lenchik, L.  
2020
- **Automated Muscle Measurement on Chest Computed Tomography (CT) Predicts All-cause Mortality in Older Adults from the National Lung Screening Trial.** *The journals of gerontology. Series A, Biological sciences and medical sciences*  
Lenchik, L., Barnard, R., Boutin, R. D., Kritchevsky, S. B., Chen, H., Tan, J., Cawthon, P. M., Weaver, A. A., Hsu, F.  
2020
- **Preoperative MRI of Articular Cartilage in the Knee: A Practical Approach.** *The journal of knee surgery*  
Fritz, R. C., Chaudhari, A. S., Boutin, R. D.  
2020; 33 (11): 1088–99
- **CT Phantom Evaluation of 67,392 ACR Accreditation Examinations: Implications for Opportunistic Screening of Osteoporosis Using CT.** *AJR. American journal of roentgenology*  
Boutin, R. D., Hernandez, A. M., Lenchik, L. n., Seibert, J. A., Gress, D. A., Boone, J. M.  
2020
- **Top 3 Differentials in Musculoskeletal Imaging: A Case Review.**  
Bindra, J., Boutin, R. D.  
Thieme.2020
- **Opportunistic body composition evaluation in patients with esophageal adenocarcinoma: association of survival with 18F-FDG PET/CT muscle metrics.** *Annals of nuclear medicine*  
Zhou, C., Foster, B., Hagge, R., Foster, C., Lenchik, L., Chaudhari, A. J., Boutin, R. D.  
2019
- **Automated Segmentation of Tissues Using CT and MRI: A Systematic Review.** *Academic radiology*  
Lenchik, L., Heacock, L., Weaver, A. A., Boutin, R. D., Cook, T. S., Itri, J., Filippi, C. G., Gullapalli, R. P., Lee, J., Zagurovskaya, M., Retson, T., Godwin, K., Nicholson, et al  
2019; 26 (12): 1695-1706
- **Machine Learning for Automatic Paraspinal Muscle Area and Attenuation Measures on Low-Dose Chest CT Scans.** *Academic radiology*

- Barnard, R., Tan, J., Roller, B., Chiles, C., Weaver, A. A., Boutin, R. D., Kritchevsky, S. B., Lenchik, L.  
2019; 26 (12): 1686-1694
- **The medial epicondyle of the distal femur is the optimal location for MRI measurement of semitendinosus and gracilis tendon cross-sectional area.** *Knee surgery, sports traumatology, arthroscopy : official journal of the ESSKA*  
Hodges, C. T., Shelton, T. J., Bateni, C. P., Henrichon, S. S., Skaggs, A. W., Boutin, R. D., Lee, C. A., Haus, B. M., Marder, R. A.  
2019; 27 (11): 3498-3504
  - **Real-time three-dimensional MRI for the assessment of dynamic carpal instability.** *PloS one*  
Shaw, C. B., Foster, B. H., Borgese, M., Boutin, R. D., Bateni, C., Boonsri, P., Bayne, C. O., Szabo, R. M., Nayak, K. S., Chaudhari, A. J.  
2019; 14 (9): e0222704
  - **Subchondroplasty of the Ankle and Hindfoot for Treatment of Osteochondral Lesions and Stress Fractures: Initial Imaging Experience.** *Foot & ankle specialist*  
McWilliams, G. D., Yao, L., Simonet, L. B., Haysbert, C. W., Giza, E., Kreulen, C. D., Boutin, R. D.  
2019: 1938640019863252
  - **Dynamic MRI of the wrist in less than 20 seconds: normal midcarpal motion and reader reliability.** *Skeletal radiology*  
Henrichon, S. S., Foster, B. H., Shaw, C., Bayne, C. O., Szabo, R. M., Chaudhari, A. J., Boutin, R. D.  
2019
  - **Opportunistic Measurement of Skeletal Muscle Size and Muscle Attenuation on Computed Tomography Predicts 1-Year Mortality in Medicare Patients.** *The journals of gerontology. Series A, Biological sciences and medical sciences*  
Lenchik, L., Lenoir, K. M., Tan, J., Boutin, R. D., Callahan, K. E., Kritchevsky, S. B., Wells, B. J.  
2019; 74 (7): 1063-1069
  - **Approaches to Assessment of Muscle Mass and Myosteatosis on Computed Tomography (CT): A Systematic Review.** *The journals of gerontology. Series A, Biological sciences and medical sciences*  
Amini, B., Boyle, S. P., Boutin, R. D., Lenchik, L.  
2019
  - **Tears in the distal superficial medial collateral ligament: the wave sign and other associated MRI findings.** *Skeletal radiology*  
Boutin, R. D., Fritz, R. C., Walker, R. E., Pathria, M. N., Marder, R. A., Yao, L. n.  
2019
  - **Imaging of the Musculoskeletal System** *Chapman's Comprehensive Orthopaedic Surgery*  
Kim, W. D., Bindra, J., Boutin, R. D.  
2019; 4th
  - **Imaging of Bone Tumors** *Chapman's Comprehensive Orthopaedic Surgery*  
Boutin, R. D., Bindra, J.  
2019
  - **Imaging of Soft-tissue Tumors** *Chapman's Comprehensive Orthopaedic Surgery*  
Boutin, R. D., Bindra, J., Canter, R.  
2019
  - **Opportunistic Screening for Osteoporosis Using Computed Tomography: State of the Art and Argument for Paradigm Shift.** *Current rheumatology reports*  
Lenchik, L., Weaver, A. A., Ward, R. J., Boone, J. M., Boutin, R. D.  
2018; 20 (12): 74
  - **MR Imaging of SLAP Lesions.** *The open orthopaedics journal*  
Boutin, R. D., Marder, R. A.  
2018; 12: 314-323
  - **Sarcopenia: Beyond Muscle Atrophy and into the New Frontiers of Opportunistic Imaging, Precision Medicine, and Machine Learning.** *Seminars in musculoskeletal radiology*  
Lenchik, L., Boutin, R. D.  
2018; 22 (3): 307-322
  - **Skeletal Muscle Metrics on Clinical 18F-FDG PET/CT Predict Health Outcomes in Patients with Sarcoma.** *Journal of nature and science*

- Foster, B., Boutin, R. D., Lenchik, L., Gedeon, D., Liu, Y., Nittur, V., Badawi, R. D., Li, C. S., Canter, R. J., Chaudhari, A. J.  
2018; 4 (5)
- **WRIST: A WRist Image Segmentation Toolkit for carpal bone delineation from MRI.** *Computerized medical imaging and graphics : the official journal of the Computerized Medical Imaging Society*  
Foster, B., Joshi, A. A., Borgese, M., Abdelhafez, Y., Boutin, R. D., Chaudhari, A. J.  
2018; 63: 31-40
  - **Association of lunate morphology, sex, and lunotriquetral interosseous ligament injury with radiologic measurement of the capitate-triquetrum joint.** *Skeletal radiology*  
Borgese, M., Boutin, R. D., Bayne, C. O., Szabo, R. M., Chaudhari, A. J.  
2017; 46 (12): 1729-1737
  - **Musculotendinous Disorders in the Upper Extremity: Part 2. MRI of the Elbow, Forearm, Wrist, and Hand.** *Seminars in musculoskeletal radiology*  
Fritz, R. C., Boutin, R. D.  
2017; 21 (4): 376-391
  - **Muscle Imaging: Beyond the Basics.** *Seminars in musculoskeletal radiology*  
Boutin, R. D., Fritz, R. C.  
2017; 21 (4): 357-358
  - **Musculotendinous Disorders in the Upper Extremity: Part 1. MRI of the Shoulder and Upper Arm.** *Seminars in musculoskeletal radiology*  
Fritz, R. C., Boutin, R. D.  
2017; 21 (4): 359-375
  - **CT of Patients With Hip Fracture: Muscle Size and Attenuation Help Predict Mortality.** *AJR. American journal of roentgenology*  
Boutin, R. D., Bamrunghart, S., Bateni, C. P., Beavers, D. P., Beavers, K. M., Meehan, J. P., Lenchik, L.  
2017; 208 (6): W208-W215
  - **Pelvic Tilt Evaluation From Frontal Radiographs: The Validity, Interobserver Reliability and Intraobserver Reproducibility of the Sacro-Femoral-Pubic Parameter.** *The Journal of arthroplasty*  
Ragsdale, M. I., Wong, F. S., Boutin, R. D., Meehan, J. P.  
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## PRESENTATIONS

- Knee MRI: Misses that Matter - National Diagnostic Imaging Symposium (12/5/2021 - 12/5/2021)
- Opportunistic Assessment of Biological Aging: Comparing 2D vs. 3D Metrics for Muscle and Adipose Tissue - RSNA 2021
- Elbow MRI: Pearls and Pitfalls - RSNA 2021 (12/2/2021 - 12/2/2021)
- RSNA Image Interpretation Session - Arie Crown Theater - Radiological Society of North America (December 1, 2019)
- Linscheid-Dobyns Excellence in Wrist Instructional Course: Advanced Imaging Role in Decision Making - American Society for Surgery of the Hand (9/30/2021)
- Displaced Flap Tears of the TFCC Diagnosed by Prospective Study of 3,411 Wrist MRI Exams: Prevalence, Flap Location, and the “Comma Sign” - Society of Skeletal Radiology (3/13/2021 - 3/17/2021)
- ACR Accreditation Results Using CT Phantoms: Implications for Opportunistic CT Screening of Sarcopenia, Adiposity, and Emphysema - American Roentgen Ray Society (ARRS) (4/18/2021 - 4/22/2021)
- The ABCs of qCT: Transforming the Everyday Practice of Radiology - UCLA Department of Radiology Grand Rounds (May 14, 2020)
- Musculoskeletal MRI: Research and Clinical Applications - International Congress on Magnetic Resonance (March 27, 2020)
- Advanced Muscle Imaging: State of the Art - Radiological Society of North America (December 1, 2019)
- Role of Body Composition Imaging in Healthy Aging - Radiological Society of North America (12/6/2019)
- ACR Database Evaluation of 67,392 Accreditation Examinations: Implications for Opportunistic CT Diagnosis of Osteoporosis - Radiological Society of North America (December 2, 2019)
- MRI of the Wrist; MRI of the Elbow - IDKD South America (10/31/2019 - 11/3/2019)
- Soft-tissue Masses: Practical Pearls & Pitfalls - National Diagnostic Imaging Symposium (12/5/2021 - 12/5/2021)
- MRI of the Pelvis and Groin - IDKD Davos (3/27/2022 - 3/31/2022)