



## Robert Downey Boutin

Clinical Professor, Radiology

### CLINICAL OFFICES

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### Bio

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### CLINICAL FOCUS

- Diagnostic Radiology

### ACADEMIC APPOINTMENTS

- Clinical Professor, Radiology

### HONORS AND AWARDS

- "Fast Musculoskeletal MRI: What the Radiologist Needs to Know", Radiological Society of North America (December 2019)
- "Value-Added 'Opportunistic' CT: State-of-the-Art Insights into Bone, Muscle, and Fat", Radiological Society of North America (December 2019)

### BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Chair, Musculoskeletal Radiology Scientific Program Committee (2020-2023), Radiological Society of North America (RSNA) (1992 - present)
- Chair, Committee on Grants (2019-2020); Chair, Audit Committee (2017-2018), International Skeletal Society (ISS) (2001 - present)
- Practice Parameters and Technical Standards Development (Quantitative CT Bone Densitometry; DXA), American College of Radiology (ACR) (2017 - present)
- Executive Committee, Member-at-Large (2017-2020), Society of Academic Bone Radiologists (SABR) (2013 - present)
- Musculoskeletal Radiology Scientific Program Committee (2011-present), American Roentgen Ray Society (ARRS) (1991 - 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 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
- **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.  
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): 1063–69
- **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
- **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): 1686–94
- **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
- **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
- **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): 307–22
- **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
- **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
- **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
- **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
- **MR Imaging of SLAP Lesions.** *The open orthopaedics journal*  
Boutin, R. D., Marder, R. A.  
2018; 12: 314–23
  - **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
  - **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)
  - **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): 1729–37
  - **Predictors of residual disease after unplanned excision of soft tissue sarcomas.** *The Journal of surgical research*  
Gingrich, A. A., Elias, A., Michael Lee, C. Y., Nakache, Y. N., Li, C. S., Shah, D. R., Boutin, R. D., Canter, R. J.  
2017; 208: 26–32
  - **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.  
2017; 32 (5): 1665–69
  - **"Knuckle Cracking": Can Blinded Observers Detect Changes with Physical Examination and Sonography?** *Clinical orthopaedics and related research*  
Boutin, R. D., Netto, A. P., Nakamura, D., Bateni, C., Szabo, R. M., Cronan, M., Foster, B., Barfield, W. R., Seibert, J. A., Chaudhari, A. J.  
2017; 475 (4): 1265–71
  - **Muscle Imaging: Beyond the Basics.** *Seminars in musculoskeletal radiology*  
Boutin, R. D., Fritz, R. C.  
2017; 21 (4): 357–58
  - **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): 359–75
  - **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): 376–91
  - **Conservative management of desmoid tumors is safe and effective.** *journal of surgical research*  
Park, J. S., Nakache, Y., Katz, J., Boutin, R. D., Steffner, R. J., Monjazebe, A. M., Canter, R. J.  
2016; 205 (1): 115-120
  - **Influence of IV Contrast Administration on CT Measures of Muscle and Bone Attenuation: Implications for Sarcopenia and Osteoporosis Evaluation.** *AJR. American journal of roentgenology*  
Boutin, R. D., Kaptuch, J. M., Bateni, C. P., Chalfant, J. S., Yao, L.  
2016; 207 (5): 1046–54
  - **MRI findings of serous atrophy of bone marrow and associated complications** *EUROPEAN RADIOLOGY*  
Boutin, R. D., White, L. M., Laor, T., Spitz, D. J., Lopez-Ben, R. R., Stevens, K. J., Bredella, M. A.  
2015; 25 (9): 2771-2778
  - **The Notch of Harty (Pseudodefekt of the Tibial Plafond): Frequency and Characteristic Findings at MRI of the Ankle.** *AJR. American journal of roentgenology*

- Boutin, R. D., Chang, J., Bateni, C., Giza, E., Wisner, E. R., Yao, L.  
2015; 205 (2): 358–63
- **Sarcopenia: Current Concepts and Imaging Implications.** *AJR. American journal of roentgenology*  
Boutin, R. D., Yao, L., Canter, R. J., Lenchik, L.  
2015; 205 (3): W255–66
  - **Magnetic resonance imaging of the postoperative meniscus: resection, repair, and replacement.** *Magnetic resonance imaging clinics of North America*  
Boutin, R. D., Fritz, R. C., Marder, R. A.  
2014; 22 (4): 517–55
  - **Erdheim-Chester disease: an unusual presentation of an uncommon disease.** *Skeletal radiology*  
Bindra, J., Lam, A., Lamba, R., VanNess, M., Boutin, R. D.  
2014; 43 (6): 835–40
  - **Phase I trial of neoadjuvant conformal radiotherapy plus sorafenib for patients with locally advanced soft tissue sarcoma of the extremity.** *Annals of surgical oncology*  
Canter, R. J., Borys, D., Olusanya, A., Li, C. S., Lee, L. Y., Boutin, R. D., Christensen, S. D., Tamurian, R. M., Monjazeb, A. M.  
2014; 21 (5): 1616–23
  - **Axial scan orientation and the tibial tubercle-trochlear groove distance: error analysis and correction.** *AJR. American journal of roentgenology*  
Yao, L., Gai, N., Boutin, R. D.  
2014; 202 (6): 1291–96
  - **Real-time magnetic resonance imaging (MRI) during active wrist motion--initial observations.** *PLoS one*  
Boutin, R. D., Buonocore, M. H., Immerman, I., Ashwell, Z., Sonico, G. J., Szabo, R. M., Chaudhari, A. J.  
2013; 8 (12): e84004
  - **MRI of snow skiing and snowboarding injuries.** *Seminars in musculoskeletal radiology*  
Boutin, R. D., Fritz, R. C.  
2005; 9 (4): 360–78
  - **Presumptive subarticular stress reactions of the knee: MRI detection and association with meniscal tear patterns.** *Skeletal radiology*  
Yao, L., Stanczak, J., Boutin, R. D.  
2004; 33 (5): 260–64
  - **MR imaging of sports-related hip disorders.** *Magnetic resonance imaging clinics of North America*  
Boutin, R. D., Newman, J. S.  
2003; 11 (2): 255–81
  - **MR imaging features of osteochondritis dissecans of the femoral sulcus.** *AJR. American journal of roentgenology*  
Boutin, R. D., Januario, J. A., Newberg, A. H., Gundry, C. R., Newman, J. S.  
2003; 180 (3): 641–45
  - **Spinous process fractures associated with Baastrup disease.** *Clinical imaging*  
Pinto, P. S., Boutin, R. D., Resnick, D.  
2002; 28 (3): 219–22
  - **Imaging of sports-related muscle injuries.** *Radiologic clinics of North America*  
Boutin, R. D., Fritz, R. C., Steinbach, L. S.  
2002; 40 (2): 333–62, vii
  - **Postoperative magnetic resonance imaging of articular cartilage repair.** *Seminars in musculoskeletal radiology*  
Alparslan, L., Winalski, C. S., Boutin, R. D., Minas, T.  
2001; 5 (4): 345–63
  - **Polydioxanone biodegradable pins in the knee: MR imaging.** *AJR. American journal of roentgenology*  
Sirlin, C. B., Boutin, R. D., Brossmann, J., Pathria, M. N., Convery, F. R., Bugbee, W., Resnick, D.  
2001; 176 (1): 83–90

- **Protocol issues for delayed Gd(DTPA)(2-)-enhanced MRI (dGEMRIC) for clinical evaluation of articular cartilage.** *Magnetic resonance in medicine*  
Burstein, D., Velyvis, J., Scott, K. T., Stock, K. W., Kim, Y. J., Jaramillo, D., Boutin, R. D., Gray, M. L.  
2001; 45 (1): 36-41
- **Shell osteochondral allografts of the knee: comparison of mr imaging findings and immunologic responses.** *Radiology*  
Sirlin, C. B., Brossmann, J., Boutin, R. D., Pathria, M. N., Convery, F. R., Bugbee, W., Deutsch, R., Lebeck, L. K., Resnick, D.  
2001; 219 (1): 35-43
- **Magnetic resonance imaging of the peripheral nervous system.** *Physical medicine and rehabilitation clinics of North America*  
Fritz, R. C., Boutin, R. D.  
2001; 12 (2): 399-432
- **Pulley system in the fingers: normal anatomy and simulated lesions in cadavers at MR imaging, CT, and US with and without contrast material distention of the tendon sheath.** *Radiology*  
Hauger, O., Chung, C. B., Lektrakul, N., Botte, M. J., Trudell, D., Boutin, R. D., Resnick, D.  
2000; 217 (1): 201-12
- **Calcium pyrophosphate dihydrate crystal deposition in and around the atlantoaxial joint: association with type 2 odontoid fractures in nine patients.** *Radiology*  
Kakitsubata, Y., Boutin, R. D., Theodorou, D. J., Kerr, R. M., Steinbach, L. S., Chan, K. K., Pathria, M. N., Haghighi, P., Resnick, D.  
2000; 216 (1): 213-19
- **MR imaging of degenerative diseases in the cervical spine.** *Magnetic resonance imaging clinics of North America*  
Boutin, R. D., Steinbach, L. S., Finnesey, K.  
2000; 8 (3): 471-90
- **Characterization of the "red zone" of knee meniscus: MR imaging and histologic correlation.** *Radiology*  
Hauger, O., Frank, L. R., Boutin, R. D., Lektrakul, N., Chung, C. B., Haghighi, P., Resnick, D.  
2000; 217 (1): 193-200
- **Evaluation of the postoperative meniscus of the knee: a study comparing conventional arthrography, conventional MR imaging, MR arthrography with iodinated contrast material, and MR arthrography with gadolinium-based contrast material** *SKELETAL RADIOLOGY*  
Sciulli, R. L., Boutin, R. D., Brown, R. R., Nguyen, K. D., Muhle, C., Lektrakul, N., Pathria, M. N., Pedowitz, R., Resnick, D.  
1999; 28 (9): 508-514
- **Iliotibial band friction syndrome: MR imaging findings in 16 patients and MR arthrographic study of six cadaveric knees** *RADIOLOGY*  
Muhle, C., Ahn, J. M., Yeh, L. R., Bergman, G. A., Boutin, R. D., Schweitzer, M., Jacobson, J. A., Haghighi, P., Trudell, D. J., Resnick, D.  
1999; 212 (1): 103-110
- **Stress fractures of the lateral metatarsal bones in metatarsus adductus foot deformity: a previously unrecognized association.** *Skeletal radiology*  
Theodorou, D. J., Theodorou, S. J., Boutin, R. D., Chung, C., Fliszar, E., Kakitsubata, Y., Resnick, D.  
1999; 28 (12): 679-84
- **Tophaceous pseudogout of the sternoclavicular joint.** *AJR. American journal of roentgenology*  
Richman, K. M., Boutin, R. D., Vaughan, L. M., Haghighi, P., Resnick, D.  
1999; 172 (6): 1587-89
- **Post-traumatic and stress-induced osteolysis of the distal clavicle: MR imaging findings in 17 patients.** *Skeletal radiology*  
de la Puente, R., Boutin, R. D., Theodorou, D. J., Hooper, A., Schweitzer, M., Resnick, D.  
1999; 28 (4): 202-8
- **Bicipitoradial bursitis: MR imaging findings in eight patients and anatomic data from contrast material opacification of bursae followed by routine radiography and MR imaging in cadavers.** *Radiology*  
Skaf, A. Y., Boutin, R. D., Dantas, R. W., Hooper, A. W., Muhle, C., Chou, D. S., Lektrakul, N., Trudell, D. J., Haghighi, P., Resnick, D. L.  
1999; 212 (1): 111-16
- **Magnetic resonance imaging of knee cartilage repair.** *Topics in magnetic resonance imaging*  
Gold, G. E., Bergman, A. G., Pauly, J. M., Lang, P., Butts, R. K., Beaulieu, C. F., Hargreaves, B., Frank, L., Boutin, R. D., Macovski, A., Resnick, D.  
1998; 9 (6): 377-392

- **Normal Anatomy of the Elbow on Conventional MR Imaging and MR Arthrography.** *Seminars in musculoskeletal radiology*  
Cotten, A., Boutin, R. D., Resnick, D.  
1998; 2 (2): 133–40
- **Update on imaging of orthopedic infections.** *The Orthopedic clinics of North America*  
Boutin, R. D., Brossmann, J., Sartoris, D. J., Reilly, D., Resnick, D.  
1998; 29 (1): 41–66
- **The SAPHO syndrome: an evolving concept for unifying several idiopathic disorders of bone and skin.** *AJR. American journal of roentgenology*  
Boutin, R. D., Resnick, D.  
1998; 170 (3): 585–91
- **Disorders in the stumps of amputee patients: MR imaging.** *AJR. American journal of roentgenology*  
Boutin, R. D., Pathria, M. N., Resnick, D.  
1998; 171 (2): 497–501
- **Complications in Paget disease at MR imaging.** *Radiology*  
Boutin, R. D., Spitz, D. J., Newman, J. S., Lenchik, L., Steinbach, L. S.  
1998; 209 (3): 641–51
- **Short echo time projection reconstruction MR imaging of cartilage: Comparison with fat-suppressed spoiled GRASS and magnetization transfer contrast MR imaging** *RADIOLOGY*  
Brossmann, J., Frank, L. R., Pauly, J. M., Boutin, R. D., Pedowitz, R. A., Haghighi, P., Resnick, D.  
1997; 203 (2): 501–507
- **Glycosaminoglycan in articular cartilage: in vivo assessment with delayed Gd(DTPA)(2-)-enhanced MR imaging.** *Radiology*  
Bashir, A., Gray, M. L., Boutin, R. D., Burstein, D.  
1997; 205 (2): 551–58
- **MR imaging of arthritides affecting the shoulder.** *Magnetic resonance imaging clinics of North America*  
Boutin, R. D., Weissman, B. N.  
1997; 5 (4): 861–79
- **Intraosseous venous drainage anomaly in patients with pretibial varices: imaging findings.** *Radiology*  
Boutin, R. D., Sartoris, D. J., Rose, S. C., Plecha, E. J., Bundens, W. P., Haghighi, P., Harter, L. P., Resnick, D.  
1997; 202 (3): 751–57
- **Epithelioid hemangioendothelioma of bone.** *Skeletal radiology*  
Boutin, R. D., Spaeth, H. J., Mangalik, A., Sell, J. J.  
1996; 25 (4): 391–95
- **MR arthrography detects subtle joint pathology.** *Diagnostic imaging*  
Boutin, R. D., Resnick, D.  
1996; 18 (3): 42–44, 47–49
- **Metallic foreign bodies in the orbits of patients undergoing MR imaging: prevalence and value of radiography and CT before MR.** *AJR. American journal of roentgenology*  
Williamson, M. R., Espinosa, M. C., Boutin, R. D., Orrison, W. W., Hart, B. L., Kelsey, C. A.  
1994; 162 (4): 981–83
- **Spiral computed tomography.** *The Western journal of medicine*  
Boutin, R. D., Ketai, L. H., Sell, J. J.  
1994; 160 (5): 454–55
- **Injuries associated with MR imaging: survey of safety records and methods used to screen patients for metallic foreign bodies before imaging.** *AJR. American journal of roentgenology*  
Boutin, R. D., Briggs, J. E., Williamson, M. R.  
1994; 162 (1): 189–94
- **Magnetic resonance imaging of musculoskeletal tumors.** *The Western journal of medicine*

Boutin, R. D., Williamson, M. R.  
1992; 156 (3): 295

## **PRESENTATIONS**

- MRI of the Pelvis and Groin - IDKD Davos (3/21/2021 - 3/25/2021)
- 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)
- RSNA Image Interpretation Session - Radiological Society of North America (December 1, 2019)
- 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)