

# CURRICULUM VITAE

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## **POSTDOCTORAL FELLOWSHIP TRAINING:**

1982 to 1984      National Research Service Award, National Institutes of Health; National Heart, Lung, and Blood Institute; Division of Cardiology, Department of Medicine, Cedars-Sinai Medical Center, Los Angeles, California

## **POSITIONS:**

06/19 – Present      Director of MRI Safety  
USC Stevens Neuroimaging and Informatics Institute  
Keck School of Medicine of USC  
University of Southern California  
Los Angeles, California

02/19 – Present      Executive Committee, Center for Imaging Acquisition  
USC Stevens Neuroimaging and Informatics Institute  
Keck School of Medicine of USC  
University of Southern California  
Los Angeles, California

10/08 – Present      Adjunct Professor of Clinical Physical Therapy  
Division of Biokinesiology and Physical Therapy  
School of Dentistry University of Southern California  
Los Angeles, California

04/06 – 2017      Director of MRI Studies of Biomimetic MicroElectronic Systems (BMES) Implants, National Science Foundation, BMES Engineering Research Center  
University of Southern California  
Los Angeles, California

01/04 - Present      Adjunct Clinical Professor of Medicine  
Keck School of Medicine, University of Southern California  
Los Angeles, California

02/02 - Present      Founder  
Institute for Magnetic Resonance  
Safety, Education, and Research (IMRSER)  
Los Angeles, California

05/10 – 08/13      Special Employee, Cardiovascular Division  
Food and Drug Administration  
Rockville, Maryland

01/95 - Present      President and Chief Executive Officer  
Shellock R & D Services, Inc.  
Los Angeles, California

**POSITIONS:**

01/96 - 10/97	Director, Research and Development Radnet and Future Diagnostics, Inc. Los Angeles, California
11/95 - Present	Adjunct Clinical Professor of Radiology Department of Radiology, Keck School of Medicine University of Southern California Los Angeles, California
06/95 - Present	Special Employee, Radiological Devices Panel Center for Devices and Radiological Health Food and Drug Administration Rockville, Maryland
01/95 - 01/96	Director Research, Development, and Quality Assurance Future Diagnostics, Inc. Los Angeles, California
07/92 - 10/95	Associate Professor of Radiological Sciences University of California, Los Angeles School of Medicine Los Angeles, California
01/92 - 12/94	Director - Research, Development, and Advanced Applications Tower Imaging and St. Johns Hospital Los Angeles, California
07/89-01/92	Research Scientist, Physiologist Tower Musculoskeletal Imaging Center and Section of MRI, Department of Diagnostic Radiology Cedars-Sinai Medical Center Los Angeles, California
11/89-11/91	Faculty Member/Mentor School of Health and Human Services Columbia Pacific University San Rafael, California
04/89-06/92	Assistant Professor of Radiological Sciences University of California, Los Angeles School of Medicine Los Angeles, California

**POSITIONS:**

07/85-04/89	Research Scientist II Division of Cardiology, Department of Medicine and Section of MRI, Department of Diagnostic Radiology Cedars-Sinai Medical Center Los Angeles, California
07/83-07/85	Research Scientist I Division of Cardiology, Department of Medicine Cedars-Sinai Medical Center Los Angeles, California
05/82-07/83	Research Associate Division of Cardiology, Department of Medicine Cedars-Sinai Medical Center Los Angeles, California

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**PROFESSIONAL SOCIETIES:**

International Society for Magnetic Resonance in Medicine – Member and Fellow

American College of Cardiology - Member and Fellow

American College of Radiology – Member and Fellow

American College of Sports Medicine – Member and Fellow

Radiological Society of North America - Member

Hawaii Radiological Society - Member

American Society for Testing and Materials (ASTM) International – Committee Member

## **Frank G. Shellock, Ph.D.**

### **PUBLICATIONS: Articles**

1. Shellock FG, Shah PK, Berman DS, Rubin SA, Singh BN, Swan HJC. Sustained benefits of oral pentaerythritol tetranitrate on ventricular function in chronic congestive heart failure. *Clinical Pharmacology and Therapeutics*, 28:436-440, 1980.
2. Shah PK, Shellock FG, Berman DS, Rubin SA, Singh BN, Swan HJC. Sustained beneficial effects of oral pentaerythritol tetranitrate on ventricular function in chronic congestive heart failure. *Nouve Presse Medical*, 9 (34 Suppl): 2447-2450, 1980.
3. Riedinger MS, Shellock FG, Swan HJC. Reading pulmonary artery and pulmonary capillary wedge pressure waveforms with respiratory variations. *Heart and Lung*, 10: 675-678, 1981.
4. Shellock FG, Rubin SA. Simplified and highly accurate core temperature measurements. *Medical Progress Through Technology*, 8: 187-188, 1982.
5. Nemerovski M, Shah PK, Berman DS, Shellock F, Swan HJC. Radio-nuclide assessment of sequential changes in left and right ventricular function following first transmural myocardial infarction. *American Heart Journal*, 104: 709-718, 1982.
6. Shellock FG, Rubin SA, Ellrodt AG, Muchlinski A, Brown H, Swan HJC. Unusual core temperature decrease in exercising heart failure patients. *Journal of Applied Physiology*, 54: 544-550, 1983.
7. Shellock FG, Riedinger MS. Reproducibility and accuracy of using room vs ice temperature injectate for thermodilution cardiac output determination. *Heart and Lung*, 12: 175-176, 1983.
8. Shah PK, Abdulla A, Pichler M, Shellock F, Berman D, Singh BN, Swan HJC. Effects of nitroprusside-induced reduction of elevated preload and afterload on global and regional ventricular function in acute myocardial infarction. *American Heart Journal*, 105: 531-542, 1983.
9. Shellock FG, Riedinger MS, Bateman TM, Gray RJ. Thermodilution cardiac output determination in hypothermic post-cardiac surgery patients: room vs ice temperature injectate. *Critical Care Medicine*, 11: 1108-1110, 1983.
10. Pichler M, Shah PK, Peter T, Singh B, Berman D, Shellock F, Swan HJC. Wall motion abnormalities and electrocardiographic changes in acute transmural myocardial infarction: implications of reciprocal ST segment depression. *American Heart Journal*, 106: 1003-1009, 1983.
11. Shellock FG. Physiological benefits of warm-up. *Physician and Sports Medicine*, 11: 134-142, 1983. Excerpted in 1984 Year Book of Sports Medicine.

## **Frank G. Sherlock, Ph.D.**

### **PUBLICATIONS: Articles (continued)**

12. Riedinger MS, Shellock FG. Technical aspects of the thermodilution method for measuring cardiac output. *Heart and Lung*, 13: 215-221, 1984.
13. Shellock FG, Rubin SA, Everest CE. Surface temperature measurement by IR. *Medical Electronics*, 84: 81-83, 1984.
14. Amin DK, Shah PK, Hulse S, Shellock FG, Swan HJC. Myocardial metabolic and hemodynamic effects of intravenous MDL 17,043, a new cardiotonic drug, in patients with chronic severe heart failure. *American Heart Journal*, 108: 1285-1292, 1984.
15. Shellock FG, Rubin SA. Temperature regulation during treadmill exercise in the rat. *Journal of Applied Physiology*, 57: 1872-1877, 1984.
16. Riedinger MS, Shellock FG, Shah PK, Weisfield A, Ellrodt AG. Sterility of prefilled thermodilution cardiac output injectate syringes maintained at ice and room temperature. *Heart and Lung*, 14: 8-11, 1985.
17. Amin DK, Shah PK, Shellock FG, Hulse S, Brandon G, Spangenberg R, Swan HJC. Comparative hemodynamic effects of intravenous dobutamine and MDL 17,043, a new cardioactive drug in severe congestive heart failure. *American Heart Journal*, 109: 91-98, 1985.
18. Shah PK, Amin DK, Hulse S, Shellock FG, Swan HJC. Inotropic therapy of refractory heart failure with oral fenoximone (MDL 17,043): Poor long-term results despite hemodynamic and clinical improvement. *Circulation*, 71: 326-331, 1985.
19. Amin DK, Shah PK, Hulse S, Shellock FG. Comparative acute hemodynamic effects of intravenous sodium nitroprusside and MDL 17,043, a new inotropic drug with vasodilator effects, in refractory congestive heart failure. *American Heart Journal*, 109: 1006-1012, 1985.
20. Shellock FG, Rubin SA. Muscle and femoral vein temperatures during short-term maximal exercise in heart-failure. *Journal of Applied Physiology*, 58: 400-408, 1985. Excerpted in Year Book of Rehabilitation, 1986.
21. Shellock FG, Prentice WE. Warming-up and stretching for improvement of physical performance and prevention of sports-related injuries. *Sports Medicine*, 2: 267-278, 1985.
22. Shellock FG, Riedinger MS, Fishbein MC, Shah PK. Prevalence of brown adipose tissue in chronic congestive heart failure secondary to coronary artery disease. *American Journal of Cardiology*, 56: 197-198, 1985.
23. Shellock FG, Swan HJC, Rubin SA. Early central venous pressure changes in the rat during two different levels of head-down suspension. *Aviation Space and Environmental Medicine*, 56: 791-795, 1985.

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### **PUBLICATIONS: Articles (continued)**

24. Shellock FG, Rubin SA. Blood temperature response to exercise in heart-failure patients treated with short-term vasodilators. *Clinical Physiology*, 5:503-514, 1985.
25. Shellock FG. Muscoli caldi per vincere (Warming-up for competition) *Sport & Medicina*, (Italy) 3: 27-31, 1986.
26. Shellock FG, Riedinger MS, Fishbein MC. Brown adipose tissue in cancer-induced cachexia. *Journal of Cancer Research and Clinical Oncology*, 111: 82-85, 1986.
27. Shellock FG. Physiological, psychological, and injury prevention aspects of warm-up. *National Strength and Conditioning Association Journal*, 8: 24-27, 1986.
28. Shellock FG, Schaefer DJ, Gordon CJ. Effect of a 1.5 Tesla static magnetic field on body temperature of man. *Magnetic Resonance in Medicine*, 3: 644-647, 1986.
29. Shellock FG, Gordon CJ, Schaefer DJ. Thermoregulatory responses to clinical magnetic resonance imaging of the head at 1.5 Tesla: Lack of evidence for direct effects on the hypothalamus. *Acta Radiologica*, Suppl. 369: 512-513, 1986.
30. Shellock FG, Schaefer DJ, Grundfest W, Crues JV. Thermal effects of high-field (1.5 Tesla) magnetic resonance imaging of the spine: Clinical experience above a specific absorption rate of 0.4 W/kg. *Acta Radiologica*, Suppl. 369: 514-516, 1986.
31. Shellock FG. Seguiamo il destino dell'acido lattico (The post-exercise path of lactic acid). *Sport & Medicina* (Italy). 4: 27-30, 1987.
32. Shellock FG, Crues JV. Temperature, heart rate, and blood pressure changes associated with clinical magnetic resonance imaging at 1.5 T. *Radiology*, 163: 259-262, 1987.
33. Shellock FG, Crues JV. MRI: Potential adverse effects and safety considerations. *MRI Decisions*, 2:25-30, 1988.
34. Shellock FG, Crues JV. Temperature changes caused by clinical MR imaging of the brain at 1.5 Tesla using a head coil. *American Journal of Neuroradiology*, 9: 287-291, 1988.
35. Shellock FG, Crues JV. Corneal temperature changes associated with high-field MR imaging of the brain with a head coil. *Radiology*, 167: 809-811, 1988.
36. Shellock FG, Mink JH, Fox JM. Patellofemoral joint: Kinematic MR imaging to assess tracking abnormalities. *Radiology*, 168:551-553, 1988.
37. Shellock FG, Crues JV. High-field MR imaging of metallic biomedical implants: An ex vivo evaluation of deflection forces. *American Journal of Roentgenology*. 151: 389-392, 1988.

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### **PUBLICATIONS: Articles (continued)**

38. Shellock FG. MR imaging of metallic implants and materials: A compilation of the literature. American Journal of Roentgenology. 151: 811-814, 1988.
39. Pressman BD, Shellock FG. Static and kinematic magnetic resonance imaging of bilateral temporomandibular joints using dual surface coils. Journal of the California Dental Association. August, pp 32-36, 1988. Excerpted in Oral Health, August 1989, Canada.
40. Shellock FG, Schaefer DJ, Crues JV. Exposure to a 1.5 Tesla static magnetic field does not alter body and skin temperatures in man. Magnetic Resonance in Medicine, 11:371-375, 1989.
41. Shellock FG, Pressman BD. Dual-surface-coil MR imaging of bilateral temporomandibular joint: Improvements in the imaging protocol. American Journal of Neuroradiology, 10:595-598, 1989.
42. Shellock FG, Mink JH, Deutsch A, Fox JM. Kinematic magnetic resonance imaging for evaluation of patellar tracking: A case report. The Physician and Sports Medicine, 17:99-108, 1989.
43. Shellock FG, Mink JH, Deutsch A, Fox JM. Patellar tracking abnormalities: Clinical experience with kinematic MR imaging in 130 patients. Radiology, 172:799-804, 1989. Excerpted in Advances in Orthopedic Surgery, 1990.
44. Shellock FG. Biological effects and safety aspects of magnetic resonance imaging. Magnetic Resonance Quarterly 5:243-261, 1989.
45. Shellock FG, Schaefer DJ, Crues JV. Alterations in body and skin temperatures caused by MR imaging: Is the recommended exposure for radiofrequency radiation too conservative? British Journal of Radiology, 62:904-909, 1989.
46. Hong CZ, Shellock FG. Short-term exposure to a 1.5 Tesla static magnetic field does not effect somato-sensory evoked potentials in man. Magnetic Resonance Imaging. 8:65-69, 1990.
47. Shellock FG, Slimp G. Halo vest for cervical spine fixation during MR imaging. American Journal of Roentgenology, 154:631-632, 1990.
48. Deutsch AL, Mink JH, Shellock FG. Magnetic resonance imaging of injuries to bone and articular cartilage: Emphasis on radiographically occult abnormalities. Orthopedic Reviews, 19:66-75, 1990.
49. Shellock FG, Rothman B, Sarti D. Heating of the scrotum by high-field-strength MR imaging. American Journal of Roentgenology 154:1229-1232, 1990.

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50. Kanal E, Shellock FG, Talagala L. Safety considerations in MR imaging. *Radiology*, 176:593-606, 1990.
51. Shellock FG, Mink JH, Deutsch A, Fox JM, Ferkel RD. Evaluation of patients with persistent symptoms following lateral retinacular release by kinematic MRI of the patellofemoral joint. *Arthroscopy*, 6:226-234, 1990.
52. Shellock FG, Kanal E. Policies, guidelines, and recommendations for MR imaging safety and patient management. *Journal of Magnetic Resonance Imaging*, 1:97-101, 1991.
53. Shellock FG, Schatz CJ. High field strength MRI and otologic implants. *American Journal of Neuroradiology*, 12:279-281, 1991.
54. Shellock FG, Fukunaga T, Mink JH, Edgerton VR. Acute effects of exercise on MRI of skeletal muscle: Concentric vs. eccentric actions. *American Journal of Roentgenology*, 156:765-768, 1991.
55. Conway WF, Hayes CW, Loughran T, Totty WG, Griffeth LK, El-Khoury GY, Shellock FG. Cross-sectional imaging of the patellofemoral joint and surrounding structures. *RadioGraphics*, 11:195-211, 1991.
56. Shellock FG, Mink JH, Fox JM. Identification of medial subluxation of the patella in a dancer using kinematic MRI of the patellofemoral joint: a case report. *Kinesiology and Medicine for Dance* 13:1-9, 1991.
57. Shellock FG, Mink JH. Knees of trained long-distance runners: MR imaging before and after competition. *Radiology*, 179:635-637, 1991.
58. Shellock FG, Mink JH, Deutsch A, Pressman B. Kinematic MRI of the joints: techniques and clinical applications. *Magnetic Resonance Quarterly*, 7:104-135, 1991.
59. Shellock FG, Fukunaga T, Mink JH, Edgerton VR. Exertional muscle injury: Evaluation of concentric vs eccentric actions with serial MR imaging. *Radiology*, 179:659-664, 1991.
60. Hong CZ, Shellock FG. Effects of a topically applied counterirritant (Eucalyptamint) on cutaneous blood flow and on skin and muscle temperatures. *American Journal of Medicine and Rehabilitation*, 70:29-33, 1991.
61. Shellock FG. Patellofemoral joint abnormalities in athletes: Evaluation by kinematic MRI. *Topics in Magnetic Resonance Imaging*, 3:1-30, 1991.
62. Fleckenstein J, Shellock FG. Exertional muscle injury: MRI evaluation. *Topics in Magnetic Resonance Imaging*, 3:31-55, 1991

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### **PUBLICATIONS: Articles (continued)**

63. Shellock FG, Foo TKF, Deutsch A, Mink JH. Patellofemoral joint: Evaluation during active flexion with ultrafast spoiled GRASS MR imaging. *Radiology*, 180:581-585, 1991.
64. Shellock FG, Curtis JS. MR imaging and biomedical implants, materials, and devices: An updated review. *Radiology*, 180:541-550, 1991.
65. Yuh WTC, Hanigan MT, Nerad JA, Carter KD, Kardon RH, Ehrhardt JC, Shellock FG. Extrusion of a magnetic eye implant after MR examination: a potential hazard to the enucleated eye. *Journal of Magnetic Resonance Imaging*. 1:711-713, 1991.
66. Shellock FG, Deutsch A, Mink JH, Kerr R. Do asymptomatic marathon runners have an increased prevalence of meniscal abnormalities? An MR study of the knee in 23 volunteers. *American Journal of Roentgenology*, 157:1239-1241, 1991.
67. Shellock FG, Schatz CJ, Julien P, Steinberg F, Foo TKF, Hopp ML, Westbrook PR. Dynamic study of the upper airway using ultrafast spoiled GRASS MR imaging. *Journal of Magnetic Resonance Imaging*. 2:103-107, 1992.
68. Shellock FG, Morris E, Deutsch AL, Mink JH, Kerr R, Boden SD. Hematopoietic bone marrow hyperplasia: high prevalence on MR images of the knee in asymptomatic marathon runners. *American Journal of Roentgenology*, 158: 335-338, 1992.
69. Shellock FG, Myers SM, Kimble K. Monitoring heart rate and oxygen saturation during MRI with a fiber-optic pulse oximeter. *American Journal of Roentgenology*, 158: 663-664, 1992.
70. Yuh WTC, Ehrhardt JC, Fisher DJ, Shields RK, Shellock FG. Phantom limb pain induced in amputee by strong magnetic fields. *Journal of Magnetic Resonance Imaging*, 2: 221-223, 1992.
71. Shellock FG, Schatz CJ, Julien P, Silverman JM, Steinberg F, Foo TKF, Hopp ML, Westbrook PR. Occlusion and narrowing of the pharyngeal airway in obstructive sleep apnea: evaluation by ultrafast spoiled GRASS MR imaging. *American Journal of Roentgenology*, 158: 1019-1024, 1992.
72. Foo TF, Shellock FG, Hayes CE, Schenck JF, Slayman BE. High resolution MR imaging of the wrist and eye using short TE, short TR, and partial echo acquisition. *Radiology*, 183: 277-281, 1992.
73. Shellock FG, Mink JH, Curtin S, Friedman MJ. MRI and orthopedic implants used for anterior cruciate ligament reconstruction: Assessment of ferromagnetism and artifacts. *Journal of Magnetic Resonance Imaging*, 2: 225-228, 1992.

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### **PUBLICATIONS: Articles (continued)**

74. Kanal E, Shellock FG. Policies, guidelines, and recommendations for MR imaging safety and patient management. Patient monitoring during MR examinations. *Journal of Magnetic Resonance Imaging*, 2: 247-248, 1992.
75. Shellock FG, Litwer C, Kanal E. MRI bioeffects, safety, and patient management: a review. *Reviews in Magnetic Resonance Imaging*, 4:21-63, 1992.
76. Pressman BD, Shellock FG, Schames J, Schames M. MRI evaluation of TMJ abnormalities associated with cervical hyperextension/hyperflexion (whiplash) injuries. *Journal of Magnetic Resonance Imaging*, 2: 569-574, 1992.
77. Shellock FG, Mink JH, Deutsch AL, Foo TKF. Kinematic MR imaging of the patellofemoral joint: Comparison between passive positioning and active movement techniques. *Radiology*, 184:574-577, 1992.
78. McCully K, Shellock FG, Bank W, Posner J. The use of nuclear magnetic resonance to evaluate muscle injury. *Medicine and Science in Sports and Exercise*, 24:537-542, 1992.
79. Kanal E, Shellock FG. Patient monitoring during clinical MR imaging. *Radiology*, 185: 623-629, 1992.
80. Shellock FG, Schatz CJ. Increases in corneal temperature caused by MR imaging of the eye with a dedicated local coil. *Radiology*, 185: 697-699, 1992.
81. Fukunaga T, Roy RR, Shellock FG, Hodgson JA, Day MK, Lee PL, Kwong-Fu H, Edgerton VR. Physiological cross-sectional area of human leg muscles based on magnetic resonance imaging. *Journal of Orthopaedic Research*, 10: 926-934, 1992.
82. Sinha S, Gorczyca D, Debruhl ND, Shellock FG, Gausche V, Bassett LW. MR imaging of silicone breast implants: comparison of different coil arrays. *Radiology*, 187:284-286, 1993.
83. Kanal E, Gillen J, Evans JA, Savitz DA, Shellock FG. Survey of reproductive health among female MR operators. *Radiology* 187:395-399, 1993.
84. Kanal E, Shellock FG. MR imaging of patients with intracranial aneurysm clips. *Radiology*, 187: 612-614, 1993.
85. Holshouser B, Hinshaw DB, Shellock FG. Sedation, anesthesia, and physiologic monitoring during MRI. *Journal of Magnetic Resonance Imaging*, 3: 553-558, 1993.
86. Shellock FG, Mink JH, Deutsch AL, Foo TKF, Sullenberger P. Patellofemoral joint: identification of abnormalities using active movement, "unloaded" vs "loaded" kinematic MR imaging techniques. *Radiology*, 188:575-578, 1993.

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### **PUBLICATIONS: Articles (continued)**

87. Shellock FG, Hahn HP, Mink JH, Itskovich E. Adverse reaction to IV gadoteridol. Radiology, 189:151-152, 1993.
88. Shellock FG, Morisoli S, Kanal E. MR procedures and biomedical implants, materials, and devices: Update 1993. Radiology, 189:587-599, 1993.
89. Farahani K, Lufkin RB, Shellock FG, Hirshowitz S, Castro DJ, Lufkin RB. Chronic effects in temperature-controlled application of MRI-monitored interstitial laser therapy. SPIE 1882:195-101, 1993.
90. Kanal E, Shellock FG. The value of published data on MR compatibility of metallic implants. American Journal of Neuroradiology, 15:1394-1396, 1994.
91. Shellock FG, Kanal E. SMRI Report. Policies, guidelines and recommendations for MR imaging safety and patient management. Questionnaire for screening patients before MR procedures. Journal of Magnetic Resonance Imaging. 4:749-751, 1994.
92. Shellock FG, Morisoli SM. Ex vivo evaluation of ferromagnetism and artifacts for cardiac occluders exposed to a 1.5 Tesla MR system. Journal of Magnetic Resonance Imaging, 4:213-215, 1994.
93. Shellock FG, Mink JH, Deutsch AL, Fox J, Molnar T, Kvitne R. Effect of a patellar realignment brace on patellofemoral relationships: Evaluation using kinematic MR imaging. Journal of Magnetic Resonance Imaging, 4:590-594, 1994.
94. Shellock FG, Morisoli, M, Ziarati M. Measurement of acoustic noise during MR imaging: evaluation of six different "worse case" pulse sequences. Radiology, 191:91-93, 1994.
95. Shellock FG, Morisoli SM. Ex vivo evaluation of ferromagnetism, heating, and artifacts for heart valve prostheses exposed to a 1.5 Tesla MR system. Journal of Magnetic Resonance Imaging, 4:756-758, 1994.
96. Shellock FG, Kanal E. Re: Metallic foreign bodies in the orbits of patients undergoing MR imaging: prevalence and value of pre-MR radiography and CT. American Journal of Roentgenology, 162:985-986, 1994.
97. Shellock FG, Schaefer DJ, Kanal E. Physiologic responses to MR imaging performed at an SAR level of 6.0 W/kg. Radiology. 192:865-868, 1994.
98. Farahani K, Nalcioğlu O, Lufkin RB, Shellock FG, Castro DJ. An investigation of thermal and spatial dependence on signal intensity in MR imaging of interstitial laser application. Magnetic Resonance in Medicine. 1994.

## **Frank G. Shellock, Ph.D.**

### **PUBLICATIONS: Articles (continued)**

99. Nogueira M, Shellock FG. Otologic bioimplants: Ex vivo assessment of ferromagnetism and artifacts at 1.5 Tesla. *American Journal of Roentgenology*. 163: 1472-1473, 1995.
100. Moscatel M, Shellock FG, Morisoli S. Biopsy needles and devices: assessment of ferromagnetism and artifacts during exposure to a 1.5 Tesla MR system. *Journal of Magnetic Resonance Imaging*. 5:369-372, 1995.
101. Shellock FG, Mink JH, Deutsch DL, Molnar T. Effect of a newly-designed patellar realignment brace on patellofemoral relationships: a case report. *Medicine and Science in Sports and Exercise*. 27:469-472, 1995.
102. Shellock FG, Nogueira M, Morisoli M. MRI and vascular access ports: Ex vivo evaluation of ferromagnetism, heating, and artifacts at 1.5 T. *Journal of Magnetic Resonance Imaging*, 4:481-484, 1995.
103. Fagan LL, Shellock FG, Brenner RJ, Rothman B. Ex vivo evaluation of ferromagnetism, heating, and artifacts of breast tissue expanders exposed to a 1.5 T MR system. *Journal of Magnetic Resonance Imaging*, 5:614-616, 1995.
104. Brenner RJ, Shellock FG, Rothman B, Giuliano A. MR-imaging guided preoperative localization of a breast lesion using "free-hand" technique. *British Journal of Radiology*. 68:1095-1098, 1995.
105. Elmquist C, Shellock FG, Stoller D. Screening adolescents for metallic foreign bodies prior to MR procedures. *Journal of Magnetic Resonance Imaging*. 5:784-785, 1996.
106. Fukunaga T, Roy RA, Shellock FG, Hodgson JA, Edgerton VR. Specific tension of human plantarflexors and dorsiflexors. *Journal of Applied Physiology*. 80:158-165, 1996.
107. Kanal E, Shellock FG. MR imaging in the testing of 1,765 aneurysm clips for ferromagnetic property: clip variability issues. *Radiology*. 200: 576-578, 1996.
108. Shellock FG, Shellock VJ. Vascular access ports and catheters tested for ferromagnetism, heating, and artifacts associated with MR imaging. *Magnetic Resonance Imaging*. 14:443-447, 1996.
109. Shellock FG, Shellock VJ. Ceramic surgical instruments: Evaluation of MR-compatibility at 1.5 Tesla. *Journal of Magnetic Resonance Imaging*. 6:954-956, 1996.
110. Shellock FG. MR imaging and cervical fixation devices: Evaluation of ferromagnetism, heating, and artifacts at 1.5 Tesla. *Magnetic Resonance Imaging*. 14:1093-1098, 1996.
111. Shellock FG, Feske W, Frey C, Terk M. Peroneal tendons: Use of kinematic MR imaging of the ankle to assess subluxation. *Journal of Magnetic Resonance Imaging*. 7:451-454, 1997.

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### **PUBLICATIONS: Articles (continued)**

112. Shellock FG, Detrick MS, Brant-Zawadski M. MR-compatibility of Guglielmi detachable coils. Radiology. 203: 568-570, 1997.
113. Rubin DL, Falk KL, Sperling MJ, Ross M, Saini S, Rothman B, Shellock FG, Zerhouni E, Stark D, Outwater E, Schmiedl U, Kirby LC, Chezmar J, Coates T, Chang M, Silverman J, Rofsky N, Burnett K, Young SW. A multi-center clinical trial of Gadolite oral suspension as a contrast agent for MRI. Journal of Magnetic Resonance Imaging, 7:865-872, 1997.
114. Bendel L, Shellock FG, Steckel M. The effect of mechanical deformation on magnetic properties and MR imaging artifacts of type 304 and type 316 stainless steel. Journal of Magnetic Resonance Imaging. 7:1170-1173, 1997.
115. Shellock FG. Kinematic MRI of the Joints. Seminars in Musculoskeletal Radiology. 1:143-173, 1997.
116. Shellock FG, Shellock VJ. MR-compatibility evaluation of the Spetzler titanium aneurysm clip. Radiology. 206:838-841, 1998.
117. Shellock FG, Shellock VJ. Evaluation of cranial flap fixation clamps for compatibility with MR imaging. Radiology. 207:822-825, 1998.
118. Shellock FG, Kanal E. Yasargil aneurysm clips: Evaluation of interactions with a 1.5 Tesla MR system. Radiology. 207:587-591, 1998.
119. Shellock FG, Crues JV. Aneurysm clips: Assessment of magnetic field interaction associated with a 0.2-T extremity MR system. Radiology 208:407-409, 1998.
120. Shellock FG. MR-compatibility of an endoscope designed for use in interventional MRI procedures. American Journal of Roentgenology. 171:1297-1300, 1998.
121. Shellock FG, Ziarati M, Atkinson D, Chen DY. Determination of acoustic noise during MRI using echo planar and three dimensional fast spin echo imaging techniques. Journal of Magnetic Resonance Imaging. 8:1154-1157, 1998.
122. Powers CM, Pfaff M, Shellock FG. Active movement, loaded kinematic MRI of the patellofemoral joint: Reliability of quantitative measurements. Journal of Magnetic Resonance Imaging. 8:724-732, 1998.
123. Shellock FG, Kanal E. Aneurysm clips: Evaluation of MR imaging artifacts at 1.5 Tesla. Radiology. 209:563-566, 1998.

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**PUBLICATIONS: Articles (continued)**

124. Shellock FG, Shellock VJ. Cardiovascular catheters and accessories: Ex vivo testing of ferromagnetism, heating, and artifacts associated with MRI. *Journal of Magnetic Resonance Imaging*. 8:1338-1342, 1998.
125. Shellock FG, O'Neil M, Ivans V, Kelly D, O'Connor M, Toay L, Crues JV. Cardiac pacemakers and implantable cardiac defibrillators are unaffected by operation of an extremity MR system. *American Journal of Roentgenology*. 172:165-172, 1999.
126. Kanal E, Shellock FG. Aneurysm clips: Effects of long-term and multiple exposures to a 1.5 Tesla MR system. *Radiology*. 210:563-565, 1999.
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27. Shellock FG, Shields CL Jr., Radiofrequency energy-induced heating of bovine articular cartilage: Response to Letter to the Editor. *American Journal of Sports Medicine* 29:263-266, 2001.
28. Rezai AR, Finelli D, Ruggieri P, Tkach J, Nyenhuis JA, Shellock FG. Neurostimulators: Potential for excessive heating of deep brain stimulation electrodes during MR imaging. *Journal of Magnetic Resonance Imaging*, 14:488-489, 2001.
29. Rezai AR, Sharan AD, Nyenhuis J, Tkach J, Ruggieri P, Phillips M, Hrdlicka G, Stypulkowski P, Baker K, Shellock FG. The safety of neurostimulators and MRI. *Neurosurgery*, 2003.

**Frank G. Shellock, Ph.D.**

**PUBLICATIONS: Letters to the Editor**

30. Sharan AD, Rezai AR, Nyenhuis J, Tkach J, Ruggieri P, Hrdlicka G, Stypulkowski P, Finelli D, Baker K, Shellock FG. Comments on temperature measurement on neurological pulse generators during MR scans. Biomed Eng Online, January 21, 2003.
31. Shellock FG. Excessive temperature increases in pacemaker leads at 3-T MR imaging with a transmit-received head coil. Radiology 251:948-949, 2009.
32. Shinbane G, Colletti PM, Shellock FG. MR imaging in patients with pacemakers and other devices. Engineering the future. Journal of the American College of Cardiology (JACC): Cardiovascular Imaging 5:331-332, 2012.

**Frank G. Shellock, Ph.D.**

**PUBLICATIONS: Submitted**

1. Bayasgalan M, Shellock FG: Magnetic Eyelashes: Determination of magnetic field interactions, heating, and artifacts. AJR 20200

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

**1978**

Nursing Education Department  
Cedars-Sinai Medical Center  
Los Angeles, California

Topics: Hemodynamic Monitoring Instrumentation  
Cardiac Output Determination by Thermodilution  
Intra-Aortic Balloon Pump Counter-pulsation  
Hemodynamic Monitoring Derived Indices

**1979**

Daniel Freeman Hospital  
Los Angeles, California

Topic: Hemodynamic Monitoring

Nursing Education Department  
Cedars-Sinai Medical Center  
Los Angeles, California

Topics: Right Heart Catheterization with the Swan-Ganz Catheter  
Heart Pressure Monitoring in Critically Ill Patients

California State University  
Graduate Biology Department  
Los Angeles, California

Topics: The Function of the Human Testis  
Cardiovascular Adaptations to High Pressure  
Cardiovascular Adaptations to Low Pressure  
Recombinant DNA: Special Considerations

**1980**

California State University  
Nursing Department  
Los Angeles, California

Topics: The Swan-Ganz Catheter and its Clinical Uses  
Hemodynamic Calculations  
Reading Right Heart and Arterial Pressure Waveforms

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

Pulmonary Division Core Curriculum  
Cedars-Sinai Medical Center  
Los Angeles, California

Topic: Swan-Ganz Catheter: Practical Applications of  
Hemodynamic Monitoring Instrumentation

California State University  
Graduate Biology Department  
Los Angeles, California

Topics: Thermoregulation During Exercise  
Communication in Primates  
Hyperthermia and Fever

**1981**

Cardiology Fellowship Program  
Division of Cardiology  
Cedars-Sinai Medical Center  
Los Angeles, California

Topic: Accuracy of Thermodilution Cardiac Outputs

Pierce College  
Respiratory Therapy Department  
San Fernando Valley, California

Topic: Hemodynamic Monitoring in Patients with Pulmonary Disease

California State University  
Graduate Biology Department  
Los Angeles, California

Topic: The Relationship of Core Temperature to Fatigue in  
Exercising Heart Failure Patients

54th Annual Scientific Sessions of the American Heart Association  
Dallas, Texas

Topics: Reproducibility and Accuracy of Using Room Temperature vs Ice  
Temperature Injectate for Thermodilution Cardiac Output Determination  
Open Forum Symposium on Thermodilution Cardiac Output Determination

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

**1982**

California Society for Respiratory Therapy  
Los Angeles, California

Topic: Hemodynamic Monitoring in Pulmonary Patients

Columbia Pacific University  
Graduate Department  
San Rafael, California

Topic: Thermoregulation in Exercising Heart Failure Patients

American Physiological Society Meeting  
San Diego, California

Topic: Thermoregulatory Response to Maximal Exercise by  
Patients with Severe Heart Failure

55th Annual Scientific Sessions of the American Heart Association  
Dallas, Texas

Topic: Thermodilution Cardiac Output in Hypothermic Patients:  
Comparison of Ice vs Room Temperature Injectate

55th Annual Scientific Sessions of the American Heart Association  
Dallas, Texas

Topic: Thermoregulatory Response to Exercise During  
Vasodilator Treatment of Chronic Severe Heart Failure

**1983**

American Federation for Clinical Research, Western Regional Meetings, Neuroscience Section  
Carmel, California

Topic: Possible Hypothalamic Thermostat Increase Produced by a  
Calcium Blocker

67th Annual Meeting of the Federation of American Societies for Experimental Biology  
Chicago, Illinois

Topic: Core Temperature Decreases in Exercising Heart Failure  
Patients Despite a Normal Increase in Muscle Temperature

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

American Physiological Society Meeting  
Honolulu, Hawaii

Topic: Effect of Thermistor Position on the Measurement of  
Tail-Skin Temperature in Exercising Rats

**1984**

American Federation for Clinical Research  
Western Regional Meetings  
Health Care Research Section  
Carmel, California

Topic: Measurement of Corneal and Supra-Orbital Temperatures  
Using a Portable Infrared Thermometer: Possible  
Application as a Screening Device for Detecting  
Internal Carotid Artery Stenosis and Occlusion

68th Annual Meeting of the Federation of American Societies for Experimental Biology  
St. Louis, Missouri

Topic: Detecting Internal Carotid Artery Occlusive Disease  
Using a Portable Infrared Thermometer

American Physiological Society Meeting  
Lexington, Kentucky

Topic: Early Right Atrial Pressure Changes During Simulated  
Weightlessness in Rats

57th Annual Scientific Sessions of the American Heart Association  
Dallas, Texas

Topic: High Prevalence of Brown Adipose Tissue in Chronic  
Congestive Heart Failure Patients: Possible Role in  
Thermoregulation

Symposium on Heart Failure: Pathophysiology and Management  
Laxenburg, Vienna, Austria

Topic: Core Temperature Response to Exercise in Heart Failure  
Patients Treated with Short-Term Vasodilators

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

**1985**

Sports Medicine Symposium  
New York City, New York

Topic: Warm-up for Enhancement of Physical Performance and  
Prevention of Sports-Related Injuries

Symposium on Thermophysiological Aspects of Radiofrequency Heating in  
Nuclear Magnetic Resonance Imaging  
San Francisco, California

Topic: Thermoregulation in Patients with Cardiovascular Disease

General Electric Company  
Medical Systems Group  
Milwaukee, Wisconsin

Topic: Thermoregulation in Patients with Cardiovascular  
Disease: Implications for Magnetic Resonance Imaging

General Electric Company  
Corporate Research and Development Center  
Schenectady, New York

Topic: Thermophysiological Responses to Clinical Magnetic Resonance Imaging

**1986**

Pathology Grand Rounds  
Department of Pathology and Laboratory Medicine  
Cedars-Sinai Medical Center  
Los Angeles, California

Topic: Temperature Regulation During Rest and Exercise in Heart  
Failure Patients

Dietician Conference  
Department of Food and Nutrition  
Cedars-Sinai Medical Center  
Los Angeles, California

Topic: Body Composition Analysis by Impedance Plethysmography

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

Fourth Annual Meeting of the Society for Magnetic Resonance Imaging  
Philadelphia, Pennsylvania

Topic: Changes in Corneal Temperature Associated with  
High-Field (1.5 Tesla) Magnetic Resonance Imaging:  
Experience in 118 Patients

Fourth Annual Meeting of the Society for Magnetic Resonance Imaging  
Philadelphia, Pennsylvania

Topic: Thermal Responses to Different Levels of Radiofrequency  
Power Deposition During Clinical Magnetic Resonance  
Imaging at 1.5 Tesla

70th Annual Meeting of the Federation of American Societies for Experimental Biology  
St. Louis, Missouri

Topic: Temperature Changes Associated with Clinical Magnetic  
Resonance Imaging of the Head at 1.5 Tesla

Eighth Annual Meeting of the Bioelectromagnetic Society  
Madison, Wisconsin

Topic: Temperature Changes Produced by Clinical Magnetic  
Resonance Imaging of the Head at 1.5 Tesla

American Federation for Clinical Research National Meeting  
Washington, D.C.

Topic: Alterations in Cutaneous Blood Flow Related to Tissue  
Heating During High-Field Magnetic Resonance Imaging

Thirty-third Annual Meeting of the Society of Nuclear Medicine  
Washington, D.C.

Topic: Thermal Effects of High-Field (1.5 Tesla) Magnetic  
Resonance Imaging: Clinical Experience at a Specific  
Absorption Rate Below and Above 0.4 W/kg

XIII Symposium Neuroradiologicum  
Stockholm, Sweden

Topic: Thermal Effects of High-Field Magnetic Resonance  
Imaging of the Spine: Clinical Experience Below and  
Above a Specific Absorption Rate of 0.4 W/kg

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

XIII Symposium Neuroradiologicum  
Stockholm, Sweden

Topic: Thermoregulatory Responses to High-Field (1.5 Tesla)  
Magnetic Resonance Imaging of the Brain: Lack of  
Evidence for Direct Effects on the Hypothalamus

Fifth Annual Scientific Meeting of Society of Magnetic Resonance in Medicine  
Montreal, Canada

Topic: Thermophysiological Alterations Associated With  
Magnetic Resonance Imaging Above A Specific Absorption  
Rate of 0.4 W/kg

Fifth Annual Scientific Meeting of Society of Magnetic Resonance in Medicine  
Montreal, Canada

Topic: Monitoring Vital Signs in Conscious and Sedated Patients  
During Magnetic Resonance Imaging: Experience with  
Commercially Available Equipment

Fifth Annual Scientific Meeting of Society of Magnetic Resonance in Medicine  
Montreal, Canada

Topic: Round Table Discussion. RF Power Deposition During  
Magnetic Resonance Imaging

UCLA School of Medicine, Department of Radiology, Magnetic Resonance Training Program  
Los Angeles, California

Topic: Clinical Implications of RF Heating During High-Field  
Magnetic Resonance Imaging

72nd Scientific Assembly of the Radiological Society of North America  
Chicago, Illinois

Topic: Thermophysiologic and Hemodynamic Changes Associated  
With Clinical Magnetic Resonance Imaging at 1.5 Tesla

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

American Physiological Meeting  
New Orleans, Louisiana

Topic: Comparison of Corneal Temperature Changes Associated  
with High-Field Magnetic Resonance Imaging at Specific  
Absorption Rates Below and Above 0.4 W/kg

**1987**

Fourth Annual International Conference on Magnetic Resonance Imaging  
Los Angeles, California

Topic: Potential Risks of MRI

Fifth Annual Meeting of the Society for Magnetic Resonance Imaging  
San Antonio, Texas

Topic: Thermographic Evaluation of Surface Temperature  
Changes Associated with High-Field Magnetic Resonance Imaging: No  
Evidence of Thermal "Hot Spots"

VI European Congress of Radiology  
Lisbon, Portugal

Topic: Temperature Changes Produced by High-Field Magnetic  
Resonance Imaging

General Electric Company  
Medical Systems Group  
Milwaukee, Wisconsin

Topic: Biological Effects of MRI and Practical Aspects of  
Patient Management

Annual Meeting of the American College of Sports Medicine  
Las Vegas, Nevada

Topic: Effect of a Topically Applied Counterirritant/Analgesic  
on Skin Blood Flow

Association of Surgical Technologists of Southern California  
Los Angeles, California

Topic: Magnetic Resonance Imaging

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

First Annual Los Angeles/Southwest District General Electric Signa Users Group Meeting  
Los Angeles, California

Topics: MRI and Ferromagnetic Bioimplants  
Monitoring Patients During MRI  
Specific Absorption Rate and High-Field MRI

Body Composition Seminar and Performance Workshop  
Palm Springs, California

Topic: Current Research Issues in Body Composition

UCLA School of Medicine, Department of Radiology  
Los Angeles, California

Topic: Biological Effects of Magnetic Resonance Imaging

UCLA, Retirees Association  
Los Angeles, California

Topic: Exercising in the Golden Years

Sixth Annual Scientific Meeting of the Society of Magnetic Resonance in Medicine  
New York, New York

Topic High-Field Magnetic Resonance Imaging of Penile  
Prostheses: In Vitro Evaluation of Deflection Forces  
and Imaging Artifacts

American Physiological Society Meeting  
San Diego, California

Topic: Measurement of Cardiac Output in Critically Ill  
Patients by a New Noninvasive Bioimpedance System:  
Comparison With the Thermodilution Method

Nursing Research and Development  
Critical Care Program  
Cedars-Sinai Medical Center  
Los Angeles, California

Topic: Update in Magnetic Resonance Imaging

73rd Scientific Assembly of the Radiological Society of North America  
Chicago, Illinois

Topic: Corneal Temperature Changes Associated With  
High-Field MR Imaging of the Brain Using a Head Coil

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

73rd Scientific Assembly of the Radiological Society of North America  
Chicago, Illinois

Topic: High-field MR Imaging of Metallic Biomedical Implants:  
An In Vitro Evaluation of Deflection Forces and  
Temperature Changes Induced in Large Prostheses

**1988**

Sixth Annual Meeting of the Society for Magnetic Resonance Imaging  
Symposium on Image Quality, Sequence Optimization and MRI Hazards  
Boston, Massachusetts

Topic: Biological Effects of MRI and Practical Aspects of  
Patient Safety and Management

Sixth Annual Meeting of the Society for Magnetic Resonance Imaging  
Boston, Massachusetts

Topic: Magnetic Resonance Imaging of the Patellofemoral  
Joint During Extension and Incremental Flexion of the  
Knee: A Description of the Technique

Sixth Annual Meeting of the Society for Magnetic Resonance Imaging  
Boston, Massachusetts

Topic: Temperature Responses During Clinical MRI: Is the  
Recommended Exposure for Radiofrequency Radiation  
Too Conservative?

Second Annual Los Angeles/Southwest District Signa Users Group Meeting  
Newport Beach, California

Topics: Patient Screening Prior to MRI  
Kinematic MR Imaging of the Knee  
Kinematic MR Imaging of the TMJ Using Dual Surface Coils

Department of Dentistry, Cedars-Sinai Medical Center  
Los Angeles, California

Topic: Kinematic MR Imaging of Bilateral Temporomandibular  
Joints Using Dual Surface Coils

UCLA School of Medicine, Department of Radiology  
Los Angeles, California

Topic: Kinematic MR Imaging of the Patellofemoral Joint  
for Patellar Tracking Abnormalities

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

UCLA School of Medicine, Department of Radiology  
Los Angeles, California

Topic: Kinematic MR Imaging of Bilateral Temporomandibular  
Joints Using Dual Surface Coils

Annual Meeting of the American College of Sports Medicine  
Dallas, Texas

Topic: Dynamic MRI of the Patellofemoral Joint

Fifth Annual International Conference on Magnetic Resonance Imaging  
Los Angeles, California

Topic: Safety and Patient Management Considerations of MRI

MEDRAD Conference, Clinical Applications of MRI  
Scottsdale, Arizona

Topics: Kinematic MR Imaging of the Temporomandibular Joint:  
Identification of Motion-Related Abnormalities  
Assessment of Patellar Tracking Abnormalities by  
Kinematic MR Imaging of the Patellofemoral Joint

Western Orthopaedic Association  
Honolulu, Hawaii

Topic: Evaluation of Patellar Tracking Abnormalities by  
Kinematic Magnetic Resonance Imaging

Second European Congress of NMR in Medicine and Biology  
Berlin, Germany

Topic: Dual Surface Coil MRI of the Temporomandibular Joints:  
Static and "Motion" Imaging

GE Signa Users Group Meeting  
San Francisco, California

Topics: MRI Safety and Regulatory Affairs  
Screening Patients Prior to MRI  
Physiologic Support and Monitoring of Patients During MRI

Seventh Annual Scientific Meeting of Society of Magnetic Resonance in Medicine  
San Francisco, California

Topic: Effect of a 1.5 Tesla Static Magnetic Field on Body and  
Skin Temperatures of Man

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

13th Annual Meeting of the Diagnostic Imaging and Therapy Systems  
Division, National Electrical Manufacturers Association

Topic: "Motion" MR Imaging of the Musculoskeletal System

52nd Annual Meeting of the Western Orthopaedic Association  
Honolulu, Hawaii

Topic: Evaluation of Patellar Tracking Abnormalities by  
Kinematic MR Imaging

74th Scientific Assembly of the Radiological Society of North America  
Chicago, Illinois

Topic: Kinematic Magnetic Resonance Imaging to Evaluate  
Patellar Tracking: Clinical Experience In 130 Patients

74th Scientific Assembly of the Radiological Society of North America  
Chicago, Illinois

Topic: crotal Heating Produced by High-Field Strength MRI

UCLA School of Medicine, Department of Orthopedics, Grand Rounds  
Los Angeles, California

Topic: Kinematic MRI Imaging of the Patellofemoral Joint

**1989**

Seventh Annual Meeting of the Society for Magnetic Resonance Imaging  
Los Angeles, California

Topic: MR Imaging: Safety and Patient Management

Seventh Annual Meeting of the Society for Magnetic Resonance Imaging  
Los Angeles, California

Topic: Alterations in Body and Skin Temperatures Caused by MR  
Imaging: Is the Recommended Exposure for Radiofrequency  
Radiation Too Conservative?

Seventh Annual Meeting of the Society for Magnetic Resonance Imaging  
Los Angeles, California

Topic: Ex Vivo Assessment of Deflection Forces and Artifacts Associated  
With High-Field MRI of "Mini-Magnet" Dental Prostheses

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

Seventh Annual Meeting of the Society for Magnetic Resonance Imaging  
Los Angeles, California

Topic: Evaluation of an MRI-Compatible Halo Vest

UCLA School of Medicine, Department of Radiological Sciences, Visiting Fellowship Program  
Los Angeles, California

Topic: Using Kinematic MRI of the Patellofemoral Joint to Identify Patellar Tracking Abnormalities

Annual Meeting of the American College of Sports Medicine  
Baltimore, Maryland

Topic: High Incidence of Medial Subluxation of the Patella Identified by Kinematic MR Imaging

75th Scientific Assembly of the Radiological Society of North America,  
Educational Refresher Course, MRI of the Knee  
Chicago, Illinois

Topic: Kinematic MRI of the Patellofemoral Joint to Evaluate Patellar Tracking

Department of Radiological Sciences, UCLA School of Medicine,  
Visiting Fellowship Program  
Los Angeles, California

Topic: MR Safety and Patient Management

Department of Kinesiology, University of California, Los Angeles  
Los Angeles, California

Topic: Kinematic MRI of the Patellofemoral Joint

Second Annual Northwest District Signa Users Group Meeting  
Seattle, Washington

Topic: Kinematic MRI of the Joints

Division of Preventative Medicine, Department of Medicine  
Cedars-Sinai Medical Center  
Los Angeles, California

Topics: Aerobic, Strength and Flexibility Training  
Body Composition Analysis

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

General Electric Company, Medical Systems Group  
Milwaukee, Wisconsin

Topics: Kinematic MRI of Joints: Present and Future Perspectives  
MRI National Safety Survey

IV International Winter Special Olympics  
Reno, Nevada

Topics: Body Composition Analysis for Physical Activity  
Warming Up, Stretching, and Cooling Down for Special Athletes

MR and CT Imaging Associates, Grand Rounds  
San Juan, Puerto Rico

Topics: Kinematic MRI of the Temporomandibular Joint  
Kinematic MRI of the Patellofemoral Joint  
Safety and Patient Management Aspects of MRI  
Dual Surface Coil MRI Applications

International Dance and Exercise Association, Educational Symposium  
San Diego, California

Topic: Warm-Up and Cool-Down: Critical Times

Western Orthopedic Association  
Anaheim, California

Topic: Medial Subluxation of the Patella Associated with Lateral Retinacular Release: Identification by Kinematic MRI

Sports Medicine for Women Symposium, Southern California Orthopedic Institute  
Universal City, California

Topics: Body Composition Analysis: Present and Future Techniques  
Strength Training and Anabolic Steroid Use in Female Athletes

Cedars-Sinai Comprehensive Cancer Center  
Los Angeles, California

Topic: Fitness for Cancer Patients: Guidelines, Recommendations and Precautions

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

**1990**

General Electric Company, Medical Systems Group  
Milwaukee, Wisconsin

Topic: Magnetic Resonance Imaging: Biological Effects and Safety

Annual Scientific Meeting, American Academy of Orthopedic Surgeons  
New Orleans, Louisiana

Topic: Assessment of Patellar Alignment by Kinematic and  
"Stress View" MRI in Patients With Persistent Symptoms  
After Lateral Retinacular Release: High Incidence of Medial  
Subluxation of the Patella

Tenth Annual International Conference on Magnetic Resonance Imaging  
Los Angeles, California

Topics: Truly Basic MR Physics  
Kinematic MRI of the Joints

Eighth Annual Scientific Meeting of the Society of Magnetic Resonance in Medicine, MRI of the  
Musculoskeletal System Symposium

New York, New York

Topic: Kinematic MRI of the TMJ and Patellofemoral Joint

Eighth Annual Scientific Meeting of the Society of Magnetic Resonance in Medicine, Categorical  
Course

New York, New York

Topic: MRI of Critically-Ill and High-Risk Patients

Eighth Annual Meeting of the Society for Magnetic Resonance Imaging  
Washington, D.C

Topic: The Use of Stress MRI Views of the Patellofemoral Joint  
to Evaluate Patellar Alignment

Eighth Annual Meeting of the Society for Magnetic Resonance Imaging  
Washington, D.C

Topic: Evaluation of TMJ Trauma by MRI

Eighth Annual Meeting of the Society for Magnetic Resonance Imaging,  
Evening Tutorial,  
Washington, D.C

Topic: MRI of the Musculoskeletal System

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

Division of Preventative Medicine, Department of Medicine  
Cedars-Sinai Medical Center  
Los Angeles, California

Topic: The Basics of Exercise: Aerobic, Strength, and Flexibility Training

Center for Devices and Radiologic Health, United States Food and Drug Administration  
Twinbrook, Maryland

Topic: Current Status of MRI Bioeffects and Safety Issues

The Bioelectromagnetic Society, Symposium - Magnetic Resonance Imaging: Human Safety Considerations, the MRI Physical Environment and Safety Guidelines, and Biological Responses  
San Antonio, Texas

Topic: MRI-Compatible Monitoring Systems

3rd Annual Symposium, Nevada Society of Radiologic Technologists  
Las Vegas, Nevada

Topics: Biological and Safety Aspects of MRI  
Kinematic MRI of the Joints

Ninth Annual Scientific Meeting of Society of Magnetic Resonance in Medicine  
New York, New York

Topic: High-resolution Static and Kinematic MRI of the Ankle

Ninth Annual Scientific Meeting of Society of Magnetic Resonance in Medicine  
New York, New York

Topic: MRI of Muscle Injury: Eccentric vs Concentric Contractions

Ninth Annual Scientific Meeting of Society of Magnetic Resonance in Medicine, Categorical Course, Clinical Imaging - Present Status of Musculoskeletal Imaging  
New York, New York

Topic: Kinematic MRI of the Joints

Ninth Annual Scientific Meeting of Society of Magnetic Resonance in Medicine, Practical Magnetic Resonance Imaging for Technologists  
New York, New York

Topic: MRI of the Critically-Ill Patient

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

Temporomandibular Joint Clinic, White Memorial Otolaryngology Foundation, Inc.  
Los Angeles, California

Topic: Static, Kinematic and T2-Weighted Magnetic Resonance Imaging  
of the TMJ

American Physiological Society  
Orlando, Florida

Topic: Acute Effects of Resistance Exercise on MRI of Skeletal Muscle:  
Concentric vs Eccentric Contractions

76th Scientific Assembly of the Radiological Society of North America,  
Chicago, Illinois

Topic: Serial MRI of Muscle Injury Caused by Resistance Exercise:  
Eccentric vs Concentric Contractions

76th Scientific Assembly of the Radiological Society of North America,  
Chicago, Illinois

Topic: Effects of Long-Distance Running on MRI Assessment of the  
Knee: Pre and Post Race Evaluation of Trained Athletes.

76th Scientific Assembly of the Radiological Society of North America,  
Chicago, Illinois

Topic: Axial Loaded Stress Views and Kinematic MRI Evaluation of  
Patellar Alignment and Tracking: Results in 98 Patellofemoral Joints

76th Scientific Assembly of the Radiological Society of North America,  
Chicago, Illinois

Topic: Ex Vivo Evaluation of 9 Different Ocular and Middle-Ear  
Implants Exposed to a 1.5 Tesla MR Scanner

76th Scientific Assembly of the Radiological Society of North America,  
Chicago, Illinois

Topic: MRI Evaluation of the TMJ Following Cervical Extension-Flexion Injury  
(Whiplash)

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:  
(continued)**

**1991**

General Electric Company, Medical Systems Group  
Milwaukee, Wisconsin

Topic: Fast MRI Applications

Ninth Annual Meeting of the Society for Magnetic Resonance Imaging  
Chicago, Illinois

Topic: Kinematic MRI Evaluation of Patients with Persistent Symptoms  
After Two or More Patellar Realignment Surgeries

Ninth Annual Meeting of the Society for Magnetic Resonance Imaging  
Chicago, Illinois

Topic: Evaluation of Patellar Alignment and Tracking: Comparison  
Between Kinematic MRI and "True" Dynamic Imaging by  
Hyperscan MRI

Ninth Annual Meeting of the Society for Magnetic Resonance Imaging  
Chicago, Illinois

Topic: Ex Vivo Evaluation of Ferromagnetism and Artifacts for Implantable  
Vascular Access Ports Exposed to a 1.5 T MR Scanner

Ninth Annual Meeting of the Society for Magnetic Resonance Imaging , Evening Tutorial  
Chicago, Illinois

Topic: MRI of the Musculoskeletal System: Kinematic MRI

Ninth Annual Meeting of the Society for Magnetic Resonance Imaging, MRI Technologists  
Sessions

Chicago, Illinois

Topic: MRI of the Musculoskeletal System: Kinematic MRI

91st Annual Meeting of the American College of Radiology/American Roentgen Ray Society,  
Categorical Course on Spine and Body Magnetic Resonance Imaging.  
Boston, Massachusetts

Topic: Sedation, Anesthesia, and Physiological Monitoring During MRI

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

Thirty-Eighth Annual Meeting of the American College of Sports Medicine  
Orlando, Florida

Topic: MRI and Cybex Testing Evaluations of Exertional Muscle Injury:  
Concentric vs Eccentric Actions

Twenty-Ninth Annual Meeting of the American Society of Neuroradiology  
Washington, D.C.

Topic: Bioeffects and Safety Aspects of MRI

Twelfth Annual International Meeting, Magnetic Resonance Imaging.  
Santa Monica, California

Topics: MRI of the TMJ  
Kinematic MRI of the Joints  
Safety and Biological Effects of MRI

Tenth Annual Scientific Meeting of Society of Magnetic Resonance Imaging in Medicine,  
Categorical Course.  
San Francisco, California

Topic: Bioeffects and Safety Aspects of MRI

Tenth Annual Scientific Meeting of Society of Magnetic Resonance Imaging in Medicine.  
San Francisco, California

Topic: Monitoring Heart Rate and Oxygen Saturation During MRI With a  
Fiber-Optic Pulse Oximeter

Magnetic Resonance for the Technologist  
Santa Barbara, California

Topics: Kinematic MRI of the Joints  
Bioeffects of MRI

77th Scientific Assembly of the Radiological Society of North America, Educational Refresher  
Course  
Chicago, Illinois

Topic: Bioeffects of MRI and Low Frequency Electromagnetic Fields.

European Congress of Radiology  
Vienna, Austria

Topic: Dynamic Imaging of the Joints by Ultrafast MRI Techniques.

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

European Congress of Radiology

Vienna, Austria

Topic: MRI Evaluation of TMJ Abnormalities Related to Cervical Spine  
Extension-Flexion Injuries (Whiplash)

77th Scientific Assembly of the Radiological Society of North America, Educational Refresher  
Course.

Chicago, Illinois

Topic: High Incidence of Hematopoietic Hyperplasia on Knee MR  
Imaging Examinations of Asymptomatic Marathon Runners.

77th Scientific Assembly of the Radiological Society of North America, Educational Refresher  
Course.

Chicago, Illinois

Topic: Medial Subluxation of the Patella: Radiologic and Physical Findings

77th Scientific Assembly of the Radiological Society of North America, Educational Refresher  
Course.

Chicago, Illinois

Topic: MRI of the Patellofemoral Joint: Comparison Between Passive  
Positioning and Active Movement Imaging Techniques

77th Scientific Assembly of the Radiological Society of North America, Educational Refresher  
Course.

Chicago, Illinois

Topic: Corneal Temperature Increases Associated with MRI of the Eye  
Using a Special Ocular Coil

Visiting Professor, Department of Radiology, Loma Linda University

Loma Linda, California

Topics: MRI of Exertional Muscle Injury  
MRI of Marathon Runners' Knees

Department of Bioengineering, University of Southern California Medical Center

Los Angeles, California

Topic: Evaluation of Obstructive Sleep Apnea by Ultrafast MRI

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

Scientific Conference on the Application of Magnetic Resonance to the Cardiovascular System. American Heart Association and Society of Magnetic Resonance in Medicine Symposium.

Atlanta, GA

Topic: Safety Considerations of Cardiovascular Magnetic Resonance Studies

**1992**

Magnetic Resonance Imaging in the Desert, Department of Radiology, University of California School of Medicine, San Francisco

Ranch Mirage, CA

Topics: Absolute and Relative Contraindications for MRI:  
MRI Incompatible Devices  
Safety Considerations and Monitoring During MRI

Tenth Annual Meeting of the Society for Magnetic Resonance Imaging

New York, NY

Topic: Subjective Perceptions of Temperature and Comfort Associated With Clinical MRI

Tenth Annual Meeting of the Society for Magnetic Resonance Imaging

New York, NY

Topic: Ultrafast MRI of the Joints During Active Motion

Tenth Annual Meeting of the Society for Magnetic Resonance Imaging

New York, NY

Topic: Evaluation of Patients With Obstructive Sleep Apnea:  
Determination of Occlusion and Narrowing of the Pharyngeal Airway Using Ultrafast Spoiled GRASS MR Imaging.

Tenth Annual Meeting of the Society for Magnetic Resonance Imaging

New York, NY

Topic: "Functional" Patella Alta Determined by Axial Plane Imaging of the Patellofemoral Joint: Association With Abnormal Patellar Alignment and Tracking

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

Tenth Annual Meeting of the Society for Magnetic Resonance Imaging  
New York, NY

Topic: MR Imaging of the Eye Using a Special Ocular Local Coil and  
"Fast" Pulse Sequences

Thirty-Ninth Annual Meeting of the American College of Sports Medicine, Special Symposium,  
Sports Medicine Applications of Magnetic Resonance and Spectroscopy  
Dallas, TX

Topic: MR Imaging of Moving Joints

Thirty-Ninth Annual Meeting of the American College of Sports Medicine  
Dallas, TX

Topic: Ultrafast MR Imaging of the Joints

Regional Radiation Oncology Department, Kaiser Permanente Medical Group  
Los Angeles, CA

Topic: MR Bioeffects, Safety

Magnetic Resonance Imaging Update 1992. Current Clinical Practice and New Directions,  
Harvard School of Medicine  
Boston, MA

Topics: MRI of the TMJ  
Patellar Tracking and Other Kinematic MRI

GE Medical Systems, Signa Fast Imaging Seminar  
Los Angeles, CA

Topic: Fast SPGR Applications

Advanced Neuro MRI - Beyond Spin Echo and Musculoskeletal MRI  
Laguna, CA

Topics: MRI of the TMJ  
Ultrafast Kinematic MRI of the Joints

Magnetic Resonance Imaging: Musculoskeletal and Orthopedic Applications  
San Francisco, CA

Topics: MRI of Muscle Injuries  
Dynamic and Kinematic MRI of the Patellofemoral Joint  
Safety Aspects of MRI for the Athlete

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

SMRI/SMRM, Section for MR Technologists, Regional Educational SMRT Seminar  
Seattle, WA

Topics: Musculoskeletal Applications of "Fast" MRI  
New and Advanced MRI Applications

Third Annual Los Angeles Fall Musculoskeletal Magnetic Resonance Imaging Conference  
Los Angeles, CA

Topics: Safety Aspects of MR Imaging  
Kinematic MR Imaging of the Joints  
MRI of Articular Cartilage  
MRI of Muscle Injuries

78th Scientific Assembly of the Radiological Society of North America,  
Educational Refresher Course.

Chicago, IL

Topic: Bioeffects of MRI and Low Frequency Electromagnetic  
Fields

78th Scientific Assembly of the Radiological Society of North America

Chicago, IL

Topic: Ex Vivo Evaluation of Ferromagnetism Determined for  
Metallic Scleral "Buckles" Exposed to a 1.5 T MR Scanner

78th Scientific Assembly of the Radiological Society of North America

Chicago, IL

Topic: Clinical Applications of Using Wrap-Around, Flexible  
Local Coils for MR Imaging

**1993**

Bauerfeind USA, Inc., National Meeting at the AAOS

San Francisco, CA

Topic: Patellofemoral Joint Abnormalities: Treatment With a  
New Patellar Realignment Brace

MRI Update: Brain and Spine: Educational Symposium for MRI Technologists

St. Louis, MO; Phoenix, AZ; Los Angeles, CA; New York, NY

Topic: MRI Safety

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

Eleventh Annual Meeting of the Society for Magnetic Resonance Imaging  
San Francisco, CA

Topic: Treatment of Patellar Malalignment and Maltracking by Application of a  
Patellar Realignment Brace: Evaluation Using Kinematic MRI

Eleventh Annual Meeting of the Society for Magnetic Resonance Imaging  
San Francisco, CA

Topic: Clinical Applications of Using a Mini-flex, Wrap-around Local Coil for  
MR imaging.

Eleventh Annual Meeting of the Society for Magnetic Resonance Imaging  
San Francisco, CA

Topic: MR imaging of Silicone Breast Implants Using an Inversion  
Recovery- Fast Spin Echo Pulse Sequence.

Visiting Professor, University of Arizona Health Sciences Center, College of Medicine,  
Department of Radiology  
Tucson, Arizona

Topics: MR Safety Issues  
Kinematic and High Speed MR  
MRI of Muscle  
MRI of the Airway in Sleep Apnea

Radiofrequency Radiation Conference, Environmental Protection Agency  
Bethesda, Maryland

Topic: Human Thermal Responses to Radiofrequency Radiation

MRI Challenges for the 90's: The 1993 Experts Meeting  
Dallas, Texas

Topic: Update on MR Safety Issues

Glendale Memorial Hospital and Health Center, Continuing Education Conference  
Glendale, California

Topic: Kinematic MRI Studies of the Joints

Society of Magnetic Resonance in Medicine, Categorical Refresher Course  
New York, New York

Topic: Functional MR Imaging of the Joints

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

Second Annual Magnetic Resonance Imaging: Musculoskeletal and Orthopedic Applications  
San Francisco, California

Topics: MRI of Muscle Injuries  
Dynamic and Kinematic MRI of the Patellofemoral Joint  
MRI of Articular Cartilage: Advanced Techniques

79th Scientific Assembly of the Radiological Society of North America,  
Educational Refresher Course  
Chicago, IL

Topic: Bioeffects of MRI and Low Frequency Electromagnetic  
Fields

79th Scientific Assembly of the Radiological Society of North America,  
Categorical Course on Musculoskeletal Imaging  
Chicago, IL

Topic: Advanced Imaging of the Patellofemoral Joint

79th Scientific Assembly of the Radiological Society of North America, Scientific Sessions  
Chicago, IL

Topic: Physiologic Responses to MRI Performed at an SAR  
of 6.0 W/kg in Cool and Warm Environments

SMRI/SMRM, Section for MR Technologists, Regional Educational SMRT Seminar, University  
of California, Los Angeles  
Los Angeles, CA

Topics: MRI Bioeffects and Safety

Second Annual Scientific Conference on the Application of Magnetic Resonance to the  
Cardiovascular System. American Heart Association and Society of Magnetic Resonance in  
Medicine Symposium  
Atlanta, Georgia

Topic: New Insights Into MR Safety and Bioeffects

**1994**

MRI Update: Educational Symposium for MRI Technologists  
St. Louis, MO; Phoenix, AZ; Los Angeles, CA; New York, NY

Topic: MRI Safety and Bioeffects

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

First Meeting of the Society for Magnetic Resonance Imaging  
Dallas, Texas

Topic: MR Imaging of the Knee Using an MTC 3D GRASS Pulse Sequence:  
Comparison to an IR-FSE Pulse Sequence for Identification of  
Abnormalities

First Meeting of the Society for Magnetic Resonance Imaging  
Dallas, Texas

Topic: Measurement of Acoustic Noise During MR Imaging:  
Evaluation of Six Different "Worse Case" Pulse Sequences

First Meeting of the Society for Magnetic Resonance Imaging  
Dallas, Texas

Topic: Ex Vivo Evaluation of Ferromagnetism, Heating, and Artifacts for 13  
Different Heart Valve Prostheses Exposed to a 1.5 T MR System

First Meeting of the Society for Magnetic Resonance Imaging  
Dallas, Texas

Topic: MRI Evaluation of Traumatic TMJ Abnormalities:  
Comparison Between T2-Weighted and STIR Pulse Sequences

First Meeting of the Society for Magnetic Resonance Imaging  
Dallas, Texas

Topic: MRI of Muscle Recruitment Patterns Associated with Different Shoulder  
Exercises

First Meeting of the Society for Magnetic Resonance Imaging  
Dallas, Texas

Topic: MRI of the Cervical Spine During Flexion and Extension:  
Development and Implementation of a New Technique

American Society of Neuroimaging, Annual Meeting  
Beverly Hills, California

Topic: MRI of Skeletal Muscle: Normal and Pathophysiology

Visiting Faculty Program, Department of Radiology, Scripps Memorial Hospital  
San Diego, California

Topic: Future Trends and Issues in Magnetic Resonance Imaging

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

Rocky Mountain Imaging Society  
Denver, Colorado

Topic: Magnetic Resonance: Bioeffects, Safety, and Patient Management

Global Customer Seminar, General Electric Medical Systems  
Las Croabas, Puerto Rico

Topics: Musculoskeletal Imaging  
MR Safety Issues

Third Annual Current Issues of Magnetic Resonance Imaging in Orthopedics and Sports  
Medicine  
San Francisco, California

Topics: MR of Muscle Injuries  
Advanced Imaging Techniques of Articular Cartilage  
Kinematic and Dynamic MR of the Patellofemoral Joint

Interventional MRI Workshop, Society of Magnetic Resonance  
Boston, Massachusetts

Topic: System Integration and MR Compatibility  
MR Compatible Monitoring Systems

24th Annual Medical Imaging Conference, Madigan Army Medical Center  
Tacoma, Washington

Topics: Dynamic MRI of the Upper Airway  
MRI of TMJ

Department of Radiology, University of Utah Medical Center  
Salt Lake City, Utah

Topics: MR Safety and Patient Management  
Musculoskeletal MRI

Nevada Radiological Society  
Las Vegas, Nevada

Topic: MR Imaging of Muscle Injuries

80th Scientific Assembly of the Radiological Society of North America, Scientific Sessions  
Chicago, IL

Topic: Improvement in Fat Saturation During MR imaging Using  
Perfluorocarbon-filled Pouches

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

**1995**

Department of Radiology, Drew Medical Center  
Los Angeles, California

Topic: MR Bioeffects, Safety and Patient Management

81st Scientific Assembly of the Radiological Society of North America, Special Symposium  
Chicago, IL

Topic: Future Directions in MRI of the Musculoskeletal System

Sacramento Radiological Society  
Sacramento, California

Topic: MR Bioeffects, Safety and Patient Management

Department of Radiological Sciences, University of California at Davis  
Davis, California

Topic: MRI of the Musculoskeletal System

Department of Radiology, Providence Medical Center  
Cincinnati, Ohio

Topics: MRI of Muscle Injuries  
MRI of the Temporomandibular Joint  
MRI of the Breast

Society of Magnetic Resonance Technologists, Regional Meeting  
Boise, Idaho

Topic: MRI Bioeffects, Safety, and Patient Management

Department of Radiology, David Grant Airforce Base  
Fairfield, California

Topics: MRI of Sports-Related Injuries  
Kinematic MRI of the Patellofemoral Joint  
MRI of the Temporomandibular Joint

Phoenix Radiologic Society  
Phoenix, Arizona

Topic: MR Bioeffects, Safety, and Patient Management

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

**1995**

Society of Magnetic Resonance Technologists, President's Meeting  
Dallas, Texas

Topic: MR Bioeffects, Safety, and Patient Management  
Musculoskeletal MR Imaging

Department of Radiology, University of Iowa  
Iowa City, Iowa

Topic: MR Bioeffects, Safety, and Patient Management

Department of Radiology, University of Kentucky  
Lexington, Kentucky

Topics: MR Bioeffects, Safety, and Patient Management  
MRI of the Breast  
Kinematic MRI of the Joints

Department of Radiology, University of Buffalo  
Buffalo, New York

Topic: MR Bioeffects, Safety, and Patient Management  
Kinematic MRI of the Joints

Fourth Annual Current Issues of Magnetic Resonance Imaging in Orthopedics and Sports  
Medicine

San Francisco, California

Topics: MR of Muscle Injuries  
MRI Safety and Bioeffects  
Kinematic and Dynamic MR of the Patellofemoral Joint

81st Scientific Assembly of the Radiological Society of North America, Scientific Sessions  
Chicago, IL

Topic: An Evaluation of Prospective Utilization Review for  
Requests of Performing MRI of the Lumbar Spine

81st Scientific Assembly of the Radiological Society of North America, Scientific Sessions  
Chicago, IL

Topic: Evaluation of MR Compatibility of 38 Bioimplants and  
Devices

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

**1995**

81st Scientific Assembly of the Radiological Society of North America, Scientific Sessions  
Chicago, IL

Topic: Active Movement, Loaded Kinematic MRI of the Patellofemoral Joint:  
Reliability of Quantitative Measurements

Department of Radiology, Marion Hospital  
Sioux City, Iowa

Topic: MRI Bioeffects, Safety, and Patient Management

Department of Radiology, Fort Dodge Medical Center  
Fort Dodge, Iowa

Topic: MRI Bioeffects, Safety, and Patient Management

Department of Radiology, Brook Army Hospital  
San Antonio, Texas

Topic: MRI Bioeffects, Safety, and Patient Management

Department of Radiology, Wilford Hall, Lackland Airforce Base Hospital  
San Antonio, Texas

Topic: MRI Bioeffects, Safety, and Patient Management

Grand Rounds, Department of Orthopedic Surgery, Harbor/UCLA  
Los Angeles, CA

Topic: Kinematic MRI of the Patellofemoral Joint

Section for Magnetic Resonance Technologists, Regional Educational Seminar  
Dallas, Texas

Topics: Kinematic MR Imaging: The Musculoskeletal System in Motion  
The Latest on MRI Safety Considerations

Canadian Association of Medical Radiation Technologists  
Toronto, Ontario Canada

Topic: Bioeffects, Safety, and Patient Management

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

**1995**

Strong Memorial Hospital  
Rochester, New York

Topic: MR Imaging of Cartilage

Radiologic Society of Rochester  
Rochester, New York

Topic: MR Imaging of Muscle Injuries

Radiologic Society of Albany  
Albany, New York

Topic: New Applications of MR Imaging

Syracuse Radiological Society  
Syracuse, New York

Topic: MR Imaging of Muscle Injuries  
MR Imaging of Cartilage

Department of Radiology, Brook Army Hospital  
San Antonio, Texas

Topic: MRI of the Breast

Department of Radiology, Wilford Hall, Lackland Airforce Base Hospital  
San Antonio, Texas

Topic: MRI of the Breast

**1996**

Department of Radiology, Southwestern School of Medicine, University of Texas  
San Antonio, Texas

Topics: MRI Bioeffects and Safety  
Kinematic MRI of the Joints

Department of Radiology, Wilford Hall, Lackland Airforce Base Hospital  
San Antonio, Texas

Topics: MRI of Articular Cartilage  
Kinematic MRI of the Joints

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

**1996**

Department of Radiology, Brook Army Hospital  
San Antonio, Texas

Topics:       MRI of Articular Cartilage  
                  Kinematic MRI of the Joints

Department of Radiology, Mayo Clinic Foundation  
Rochester, MN

Topic:         Advanced Techniques for MRI of the  
                  Musculoskeletal System

Department of Radiology, Sloan Memorial Hospital  
Waterloo, Iowa

Topic:         MRI Safety and Bioeffects  
                  Kinematic MRI of the Joints

Omaha MRI Society  
Omaha, Nebraska

Topics:        MRI Safety, Bioeffects, and Patient Management  
                  Kinematic MRI of the Joints

North County MRI Center/Mediscan  
San Diego, California

Topic:         MRI Safety, Bioeffects, and Patient Management

Annual Meeting of the Head and Neck Radiology Society  
Los Angeles, California

Topic:         Update on MRI Bioeffects and Safety

Fourth Annual Meeting of the International Society for Magnetic Resonance in Medicine  
New York, New York

Topic:         MR Imaging of Musculoskeletal Injuries  
                  Magnetic Resonance: Safety and Bioeffects

Sacramento Radiologic Society  
Sacramento, California

Topic:         MRI of Skeletal Muscle  
                  MRI: Bioeffects, Safety and Patient Management

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

**1996**

MRI of Chula Vista

Chula Vista, California

Topics: Kinematic MRI of the Joints  
Bioeffects and Safety of MRI

Department of Radiology, Herman Hospital, University of Texas

Houston, Texas

Topics: MRI Safety, Bioeffects, and Patient Management  
Functional MRI of the Joints

MRI Society of Houston

Houston, Texas

Topic: Functional MRI of the Joints

MRI Society of Greater Kansas City

Kansas City, MO

Topic: MRI Bioeffects and Safety

MIREX

Washington, DC

Topic: Radiology Utilization Management: Guidelines and Their  
Effect on Physician Practices and Quality Standards

Workshop on Advances in MR Safety and Compatibility, International Society for Magnetic  
Resonance in Medicine, American College of Radiology, and United States Food and Drug  
Administration

McLean, Virginia

Topics: Safety of Medical Instrumentation and Patient Monitoring  
MR-Compatible Ceramic Surgical Instruments Designed for Use in  
MR-Guided Procedures

Mid-West MR Society

Wichita, Kansas

Topic: MRI Bioeffects and Safety

Phillipino Medical Society

Escondido, California

Topic: Functional MR Imaging of the Joints

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

**1996**

Department of Radiology, St. Luke's Medical Center  
Houston, Texas

Topic: MRI Bioeffects, Safety, and Patient Management

Fourth Annual Meeting of the International Society for Magnetic Resonance in Medicine  
New York, New York

Topics: Response of Radiologists to a Request for Use of  
Standardized Terminology When Findings Seen on Shoulder MRI  
MR-compatibility of Ceramic Surgical Instruments  
Designed for Use in MR-Guided Procedures

Clinical Magnetic Resonance Society, Annual Meeting  
Orlando, Florida

Topic: Safety and Bioeffects Issues in MRI

Department of Radiology, Methodist Hospital  
Cedar Rapids, Iowa

Topic: Kinematic MRI of the Joints

Department of Radiology, Mercy Hospital  
Des Moines, Iowa

Topic: Kinematic MRI of the Joints

Regional MRI Meeting  
Kansas City, Kansas

Topic: MRI Bioeffects and Safety

Department of Radiology, Naval Hospital  
San Diego, California

Topic: MRI Safety, Bioeffects, and Patient Management

Department of Radiology  
Sharps/Children's Hospital  
San Diego, California

Topic: MRI Safety, Bioeffects, and Patient Management

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

**1996**

Norris Cancer Center, University Hospital, University of Southern California Medical Center  
Los Angeles, California

Topic: MRI of the Breast

Section for Magnetic Resonance Technologists, David Grant Medical Center, Travis Air Force  
Base

Vacaville, California

Topics: Kinematic MRI of the Joints  
MRI Safety Update

Visiting Professor, Department of Radiology, School of Medicine, University of Pittsburgh  
Pittsburgh, Pennsylvania

Topic: MRI of Skeletal Muscle  
Kinematic MRI of the Joints

Fifth Annual International Meeting, Magnetic Resonance Imaging: Musculoskeletal and  
Orthopedic Applications

San Francisco, California

Topics: MRI of Muscle Injuries  
Kinematic MRI of the Joints

Department of Radiology, Brook Army Hospital

San Antonio, Texas

Topic: Dynamic MRI of the Upper Airway

Department of Radiology, Wilford Hall, Lackland Airforce Base Hospital

San Antonio, Texas

Topic: Dynamic MRI of the Upper Airway

Tanner Medical Center, Department of Radiology

Carrollton, Georgia

Topic: Magnetic Resonance: Safety and Patient Management

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

**1996**

82nd Scientific Assembly of the Radiological Society of North America  
Chicago, IL

Topic: MR Imaging Assessment of Internal Derangement of the  
Knee and Patellar Tracking Abnormalities: High  
Incidence of Combined Abnormalities

82nd Scientific Assembly of the Radiological Society of North America  
Chicago, IL

Topic: MR-Compatibility of the Guglielmi Detachable Coil Used  
for Embolizing Intracranial Aneurysms

**1997**

South Carolina Society of Radiologic Technologists, Annual Meeting  
Greenville, SC

Topics: Kinematic MRI of the Joints  
Magnetic Resonance: Bioeffects, Safety, and Patient  
Management

Section for Magnetic Resonance Technologists, Annual Meeting  
Vancouver, British Columbia

Topic: Kinematic MRI of the Joints and Niche MR Systems

Fifth Annual Meeting of the International Society for Magnetic Resonance in Medicine  
Vancouver, British Columbia

Topics: Assessment of Acoustic Noise During MR Imaging  
Using Echo Planar and 3D-Fast Spin Echo Techniques  
Development and Clinical Application of Kinematic  
MRI of the Patellofemoral Joint Using an Extremity  
MR System

Department of Radiology, Scott and White Medical Center  
Temple, TX

Topic: Magnetic Resonance: Bioeffects, Safety, and Patient Management

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

**1997**

Department of Radiology, Seton Medical Center  
Austin, TX

Topic:           Magnetic Resonance: Bioeffects, Safety, and Patient Management

Chiropractic Sports Sciences Symposium  
Los Angeles, CA

Topic:           Development and Clinical Applications of the Extremity MR System

St. Mary's MRI Center  
Richmond, VA

Topic:           Kinematic MRI of the Joints

Food and Drug Administration, Center for Devices and Radiologic Health  
Rockville, MD

Topic:           Testing Procedures for MR-Compatibility

Interventional MRI - General Electric Company  
Quebec City, Quebec Canada

Topic:           MR-Compatibility of Instruments and Devices Used  
for Interventional MR Procedures

Sixth Annual International Meeting, Magnetic Resonance Imaging: Musculoskeletal and  
Orthopedic Applications  
San Francisco, California

Topics:          MRI of Muscle Injuries  
Kinematic MRI of the Joints

Society of Magnetic Resonance Technologists, Regional Meeting  
Dallas, TX

Topic:           MRI Using a Dedicated-Extremity MR System

Illinois State Society of Magnetic Resonance Imaging  
Rockford, IL

Topic:           MRI: Safety and Bioeffects

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

**1997**

83rd Scientific Assembly of the Radiological Society of North America  
Chicago, IL

Topic: Ex Vivo Evaluation of Ferromagnetic Aneurysm Clips  
Using a 0.2 T Extremity MR System: Safety Implications for Patients

83rd Scientific Assembly of the Radiological Society of North America  
Chicago, IL

Topic: Pacemakers and Implantable Cardiac Defibrillators  
Are Unaffected by Operation of An Extremity  
MR System

83rd Scientific Assembly of the Radiological Society of North America  
Chicago, IL

Topic: A New Device for Determining Ferromagnetism: Evaluation and Use  
in the Assessment of Metallic Bioimplants and Devices

**1998**

General Electric Medical Systems, Education Center, Applications Specialists  
Waukesha, WI

Topic: Kinematic MRI of the Joints Using the Profile MR System

General Electric Medical Systems, Steamboat Sheraton Resort and Conference Center  
Steamboat Springs, CO

Topic: Kinematic MRI of the Joints

Section for Magnetic Resonance Technologists, Annual Meeting  
Sydney, Australia

Topic: Musculoskeletal MRI

Annual Meeting of the American College of Sports Medicine  
Orlando, Florida

Topic: Evaluation of the Knee Using an Extremity MRI System:  
Diagnostic Findings Compared to Arthroscopy.

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

Orange County and Inland Empire Neuroradiological Club  
Orange, California

Topic: Dynamic MRI of the Upper Airway: Evaluation  
of Obstructive Sleep Apnea

Billings MRI Center  
Billings, Montana

Topic: Bioeffects and Safety of MRI

Canadian Association of Medical Radiation Technologists, Annual Meeting  
Richmond, British Columbia, Canada

Topics: Kinematic MRI of the Joints  
Dynamic MRI of the Upper Airway

Seventh Annual International Meeting, Magnetic Resonance Imaging: Musculoskeletal and  
Orthopedic Applications  
San Francisco, California

Topics: MRI of Muscle Injuries  
Kinematic MRI of the Joints

School of Physical Therapy, University of Southern California Medical Ctr.  
Los Angeles, California

Topics: MRI of Muscle Injuries  
Kinematic MRI of the Joints  
MRI of the Temporomandibular Joint

84th Scientific Assembly of the Radiological Society of North America  
Chicago, IL

Topic: Assessment of the Knee Using an Extremity MRI System:  
Diagnostic Findings Compared to Arthroscopy

84th Scientific Assembly of the Radiological Society of North America  
Chicago, IL

Topic: Evaluation of Patellar Alignment Without and With a  
Brace Using Kinematic MRI of the Patellofemoral Joint

Johnson & Johnson Professional Inc.  
Raynham, MA

Topics: Safety and Bioeffects of MRI  
Testing Implants and Devices for MR Safety  
Overview of Interventional MRI

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

New Insights into Safety and Compatibility Issues Affecting In Vivo MR  
Washington, D.C.

Topics: MRI Safety of Implants and Devices  
Evaluation of Instruments Designed for Use  
in Interventional MRI

**1999**

Second Annual American Association of Orthopaedic Surgeons, Reception, Mitek Products  
Anaheim, CA

Topic: Evaluation of Tissue Temperatures During RF-Energy Induced Heating

Annual Meeting of the American College of Sports Medicine  
Seattle, Washington

Topics: Evaluation of Patellar Alignment Without and With Application of a Brace  
Using Kinematic MRI of the Patellofemoral Joint  
Characterization of Radiofrequency-induced Heating of Bovine Capsular  
Tissue

Department of Radiology, University of Vancouver, British Columbia, Canada  
Vancouver, British Columbia, Canada

Topics: Kinematic MRI of the Joints  
MRI Safety: Update 1999

Section for Magnetic Resonance Technologists, President's Regional Educational Seminar  
Woodland Hills, California

Topic: MRI Safety: Update 1999

Fourth Annual Open MRI National Meeting  
Las Vegas, Nevada

Topics: Kinematic MRI of the Joints  
MRI Safety: Update 1999

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

Seventh Annual Meeting of the International Society for Magnetic Resonance in Medicine  
Philadelphia, Pennsylvania

Topic: MRI Safety Evaluation of Electrosurgical Instruments:  
Assessment of Ferromagnetism, Heating, and Artifacts

School of Physical Therapy, University of Southern California Medical Center  
Los Angeles, California

Topics: MRI of Muscle Injuries  
Kinematic MRI of the Joints  
Static and Kinematic MRI of the Temporomandibular Joint

Centinella Hospital  
Los Angeles, California

Topic: MRI Safety: Update 1999

Annual Meeting of the American Orthopaedic Society for Sports Medicine  
Travis, Michigan

Topics: RF Energy-induced Heating of Bovine Tissue: Disparity  
Between Measurements Obtained Using a Temperature-Controlled RF  
Electrode and Fluoroptic Thermometry

Temperature Changes Associated with Radiofrequency Energy-induced  
Heating of Bovine Capsular Tissue

Eight Annual International Meeting, Magnetic Resonance Imaging: Musculoskeletal and  
Orthopedic Applications  
San Francisco, CA

Topic: Musculoskeletal Imaging Protocol Workshop

MRI Seminar, St. Mary's MRI Center, Continuing Education Conference  
Richmond, Virginia

Topics: MRI Bioeffects, Safety, and Patient Management  
Musculoskeletal MRI Workshop  
Kinematic MRI  
Dedicated Extremity MRI  
MRI of the Foot and Ankle  
MRI of the TMJ  
MRI of Muscle Injuries

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

Radiology Society of Australasia and General Electric Medical Systems  
Sydney, New South Wales, Australia

Topic: MRI Safety: Update 1999

Radiology Society of Australasia and General Electric Medical Systems  
Brisbane, Queensland, Australia

Topic: MRI Safety: Update 1999

Department of Radiology, University of Missouri at Kansas City  
Kansas City, Missouri

Topic: MRI: Bioeffects, Safety and Patient Management

84th Scientific Assembly and Annual Meeting of the Radiological Society of North America  
Chicago, IL

Topic: Determination of Chondral Lesions Using a 0.2 Tesla Extremity MR System: Diagnostic Findings Compared to Arthroscopy

84th Scientific Assembly and Annual Meeting of the Radiological Society of North America  
Chicago, IL

Topic: MRI Safety of Cardiovascular Implants: Evaluation of Ferromagnetism, Heating, and Artifacts

**2000**

Educational Symposium, Eighth Annual Meeting of the International Society for Magnetic Resonance in Medicine

Denver, CO

Topic: Kinematic MRI of the Joints

Magnetic Resonance Managers Society, Annual Meeting  
Scottsdale, AZ

Topic: MRI and Safety: Update 2000

Ninth Annual International Meeting, Magnetic Resonance Imaging: Musculoskeletal and Orthopedic Applications

San Francisco, CA

Topic: MRI of Muscle Injuries

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

North American Academy of Magnetic Therapy  
Los Angeles, CA

Topic: MRI: Bioeffects, Safety and Patient Management

Kerlan-Jobe Orthopaedic Clinic  
Los Angeles, CA

Topic: Kinematic MRI of the Joints

Arthroscopy Association of North America, Annual Meeting  
Miami, FL

Topics: RF Energy Induced Heating of Bovine Capsular Tissue:  
Temperature Changes Produced by Bipolar vs. Monopolar RF Electrodes

Temperature Changes Associated With RF Energy-Induced Heating of  
Articular Cartilage: Implications for Thermal-Assisted Chondroplasty

Finnish Radiological Society and Department of Radiology, University of Helsinki  
Helsinki, Finland

Topic: MR Safety: Update 2000  
MRI of Skeletal Muscle

Finnish Radiological Society  
Naantali, Finland

Topic: Kinematic MRI of the Joints  
MRI Using a Dedicated Extremity MR System

Refresher Course, 85th Scientific Assembly and Annual Meeting of the Radiological Society of  
North America  
Chicago, IL

Topic: MR Practical Safety Issues

Syncor Corporation, Annual Meeting  
Marina Del Rey, CA

Topic: MRI Safety: Update 2000

**Frank G. Shellock, Ph.D.**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS: (continued)**

85th Scientific Assembly and Annual Meeting of the Radiological Society of North America  
Chicago, IL

Topic:           Metallic Neurosurgical Implants: Assessment of Magnetic Field  
Interactions, Heating, and Artifacts at 1.5-Tesla.

Regional Meeting, Section for Magnetic Resonance Technologists  
Chicago, IL

Topic:           MRI Safety: Update 2000

Regional Meeting, Section for Magnetic Resonance Technologists  
Atlanta, GA

Topic:           MRI Safety: Update 2000

Regional Meeting, Section for Magnetic Resonance Technologists  
Providence, RI

Topic:           MRI Safety: Update 2000

Mitek Products, Arthroscopy Association of North America, Fall Meeting  
Palm Desert, CA

Topic:           RF Energy-Induced Heating of Bovine Capsular Tissue:  
Evaluation of Temperature-Controlled Monopolar and  
Bipolar RF Electrodes

Arthroscopy Association of North America, Annual Meeting  
Seattle, FL

Topic:           RF Energy Induced-Heating of Bovine Capsular Tissue: Evaluation of  
Temperature-Controlled Monopolar and Bipolar RF Electrodes

**Frank G. Shellock, Ph.D.**

**2001**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Radiology Society of Australasia and General Electric Medical Systems  
Melbourne, Australia

Topic: MRI Safety: Update 2001

74<sup>th</sup> Annual Meeting of the Japanese Orthopedic Associations  
Tokyo, Japan

Topic: Functional Assessment of the Joints Using Kinematic MRI

Department of Physiology, University of Tokyo  
Tokyo, Japan

Topic: Functional Assessment of the Joints

10<sup>th</sup> Annual Convention, Society of Permanent Cosmetic Professionals  
Las Vegas, Nevada

Topic: MRI – Dispelling the Myths

MRI Department, Kaiser-Permanente Medical Center  
Honolulu, Hawaii

Topic: MRI Safety and Patient Management

MRI Department, North Hawaii Community Hospital  
Topic: MRI Safety and Patient Management

Visiting Professor, Department of Radiology, Tripler Army Medical Center  
Honolulu, Hawaii

Topic: MRI Safety: Update 2001

Department of Radiology and MRI, St. Francis Medical Center  
Honolulu, Hawaii

Topic: MRI Safety: Update 2001

Regional Meeting, Section for Magnetic Resonance Technologists  
Atlanta, Georgia

Topic: Functional Assessment of the Joints Using Kinematic MRI

## **Frank G. Shellock, Ph.D.**

**2001**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Grossman Imaging Center  
Oxnard, California

Topic: Functional Assessment of the Joints Using Kinematic MRI

Tenth Annual International Meeting, Magnetic Resonance Imaging: Musculoskeletal and  
Orthopedic Applications  
San Francisco, CA

Topic: MRI Safety: Update 2001

Visiting Professor, North Hawaii Community Hospital  
Waimea, HI

Topic: Functional Assessment of the Joints Using Kinematic MRI

Visiting Professor, Department of Radiology, Tripler Army Medical Center  
Honolulu, Hawaii

Topic: Functional Assessment of the Joints Using Kinematic MRI

Refresher and Categorical Course, 86th Scientific Assembly and Annual Meeting of the  
Radiological Society of North America  
Chicago, IL

Topics: MRI Safety: Implants and Patient Monitoring  
Expert Panel on MRI Safety

86th Scientific Assembly and Annual Meeting of the Radiological Society of North America  
Chicago, IL

Topic: Evaluation of the Rotator Cuff and Glenoid Labrum Using a 0.2-Tesla,  
Dedicated Extremity MR System: MR Results Compared to Surgical  
Findings

86th Scientific Assembly and Annual Meeting of the Radiological Society of North America  
Chicago, IL

Topic: Neurostimulation Systems Used for Deep Brain Stimulation: *In Vitro*  
Assessment of MRI-Related Heating at 1.5-Tesla

## **Frank G. Shellock, Ph.D.**

### **2001**

#### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

86th Scientific Assembly and Annual Meeting of the Radiological Society of North America  
Chicago, IL

Topic: Assessment of the Rotator Cuff and Glenoid Labrum Using a 0.2-T,  
Extremity MR System: MR Results and Surgical Findings from a Multi-  
Center Study

### **2002**

Brain Institute, University of Florida  
Gainesville, FL

Topic: Magnetic Resonance Health Effects and Safety: Update 2002

Fifth Annual Scientific Sessions, Society for Cardiovascular Magnetic Resonance  
Orlando, FL

Topic: Safety Issues for Intravascular Guide Wires, Catheters,  
Stents and other Devices for Interventional CMR

The 18<sup>th</sup> Annual Masters Radiology Conference and the Hawaii Radiological Society Annual  
Outer Island Meeting  
Maui, HI

Topic: Functional Assessment of the Joints Using Kinematic MRI

Continuing Education Meeting, General Electric Medical Systems  
Sydney, New South Wales, Australia

Topic: MRI Safety: Update 2002

Continuing Education Meeting, General Electric Medical Systems  
Brisbane, Queensland, Australia

Topic: MRI Safety: Update 2002

Educational Symposium, Tenth Annual Meeting of the International Society for Magnetic  
Resonance in Medicine  
Honolulu, HI

Topics: Magnetic Resonance Health Effects and Safety  
Functional Assessment of the Joints Using Kinematic MRI

**Frank G. Shellock, Ph.D.**

**2002**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Educational Symposium, Tenth Annual Meeting of the Section for Magnetic Resonance Technologists

Honolulu, HI

Topic: Magnetic Resonance Safety Open Forum

Moderator, Section for Magnetic Resonance Technologists, Forum for the Tenth Annual Meeting of the International Society for Magnetic Resonance in Medicine

Honolulu, HI

Topic: MRI Safety and Compatibility of Implants and Devices:  
Update 2002

Tenth Annual Meeting of the International Society for Magnetic Resonance in Medicine

Honolulu, HI

Topic: Knees of Triathletes: MR Imaging Assessment of Older,  
Competitors (>35 Years Old)

International Cartilage Repair Society

Toronto, Ontario, Canada

Topic: In Vitro Evaluation of Radiofrequency Energy-Induced  
Heating of Bovine Articular Cartilage: Comparison  
Between Temperature-Controlled Monopolar and Bipolar  
RF Systems

New Orleans Radiological Society

New Orleans, LA

Topic: MRI Safety and Patient Management: Update 2002

Visiting Professor, Louisiana State University Medical Center, Department of Radiology

New Orleans, LA

Topic: MRI Safety and Patient Management: Update 2002

Department of Radiology, Veterans Administration Medical Center

New Orleans, LA

Topic: MRI Safety and Patient Management: Update 2002

4<sup>th</sup> Annual Meeting, Oklahoma Heart Institute

Tulsa, OK

Topic: MRI Safety and Patient Management: Update 2002

**Frank G. Shellock, Ph.D.**

**2002**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Beth Israel Hospital, Harvard University  
Boston, MA

Topic: MRI Safety and Patient Management: Update 2002

Eleventh Annual International Meeting, Magnetic Resonance Imaging: Musculoskeletal and  
Orthopedic Applications  
San Francisco, CA

Topic: MRI Safety: Update 2002

Centro de Imagenes y Diagnostico Bellas Artes  
Maracaibo, Venezuela

Topic: Functional MRI of the Joints

Department of Radiology, Beth Israel Deaconess Medical Center  
Boston, MA

Topic: MRI Safety and Patient Management

87th Scientific Assembly and Annual Meeting of the Radiological Society of North America  
Chicago, IL

Topic: Biomedical Implants and Devices: Assessment of Magnetic  
Field Interactions With a 3.0-Tesla MR System

Refresher and Categorical Course, 87th Scientific Assembly and Annual Meeting of the  
Radiological Society of North America  
Chicago, IL

Topics: MRI Safety: Implants and Patient Monitoring  
Expert Panel on MRI Safety

**2003**

Children's Hospital of Philadelphia, University of Pennsylvania  
Philadelphia, PA

Topic: Bioeffects, Safety and Patient Management: Update 2003

Radiology Grand Rounds, University of British Columbia  
Vancouver, British Columbia, Canada

Topic: Bioeffects, Safety and Patient Management: Update 2003

Department of Radiology, University of British Columbia  
Vancouver, British Columbia, Canada

Topic: MR Safety and 3-Tesla Issues

**Frank G. Shellock, Ph.D.**

**2003**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Department of Radiology, Vancouver General Hospital  
Vancouver, British Columbia, Canada

Topic: Bioeffects, Safety and Patient Management: Update 2003

Sixth Annual Scientific Sessions, Society for Cardiovascular Magnetic Resonance  
Orlando, FL

Topic: Safety Issues for Cardiovascular Magnetic Resonance

Michener Institute for Health Sciences  
Toronto, Ontario

Topic: MRI Safety: Update 2003

Section for Magnetic Resonance Technologists, Central Virginia Regional Educational Seminar,  
University of Virginia Health System  
Charlottesville, Virginia

Topic: Safety, Bioeffects, and Patient Management

12<sup>th</sup> Annual, Magnetic Resonance Managers Society  
Tampa, Florida

Topic: Magnetic Resonance Health Effects and Safety

12<sup>th</sup> Annual Convention, Society of Permanent Cosmetic Professionals  
West Palm Beach, FL

Topic: MRI Safety and Permanent Cosmetics and Tattoos

Department of Radiology, University of California at Los Angeles  
Los Angeles, CA

Topic: Magnetic Resonance: Bioeffects, Safety, and Patient Management - 2003

Department of Radiology, Massachusetts General Hospital  
Boston, MA

Topic: Magnetic Resonance: Bioeffects, Safety, and Patient Management - 2003

Shriner's Hospital for Children  
Boston, MA

Topic: Magnetic Resonance: Bioeffects, Safety, and Patient Management - 2003

**Frank G. Shellock, Ph.D.**

**2003**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

MRI Department, Massachusetts General Hospital  
Boston, MA

Topic:           Magnetic Resonance Safety for Non-MRI Healthcare Workers

Moderator and Presenter, MRI Safety Forum, Educational Symposium, Eleventh Annual Meeting  
of the Section for Magnetic Resonance Technologists

Toronto, Ontario, Canada

Topic:           MRI Safety and Compatibility of Implants and Devices:  
Update 2003

Educational Symposium, Eleventh Annual Meeting of the International Society for Magnetic  
Resonance in Medicine

Toronto, Ontario, Canada

Topic:           Magnetic Resonance Health Effects and Safety: Facts and  
Controversies

Eleventh Annual Meeting of the International Society for Magnetic Resonance in Medicine

Toronto, Ontario, Canada

Topic:           Identification of Wrist and MCP Joint Erosions Using a  
Portable, Low-Field, Extremity MR System: Results  
Compared to Conventional X-ray

Eleventh Annual Meeting of the International Society for Magnetic Resonance in Medicine

Toronto, Ontario, Canada

Topic:           Kinematic MRI of the Patellofemoral Joint: Evaluation  
Ironman Triathletes

Eleventh Annual Meeting of the International Society for Magnetic Resonance in Medicine

Toronto, Ontario, Canada

Topic:           Cardiac Pacemakers and MRI: Safe Evaluation of 47  
Patients Using a 1.5-Tesla MR System Without Altering  
Pacemaker or Imaging Parameters

Cardiovascular MRI Summit, Oklahoma Heart Institute

Tulsa, OK

Topic:           MRI Safety and Patient Management: Update 2003

**Frank G. Shellock, Ph.D.**

**2003**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

MRI Technologist Meeting, Northwestern University, Northwestern Memorial Medical Center  
Chicago, IL

Topic: MRI Safety and Patient Management: Update 2003

Twelfth Annual International Meeting, Magnetic Resonance Imaging:  
Musculoskeletal and Orthopedic Applications  
San Francisco, CA

Topics: MRI Safety: Update 2003  
MRI Musculoskeletal Protocol Workshop

Second Annual Global Symposium on Clinical High Field MRI  
Stanford School of Medicine  
Las Vegas, NV

Topic: MRI Safety at 3-Tesla

Second Annual Siemens MAGNETOM World Summit Meeting  
Miami, FL

Topic: MRI Safety at 3-Tesla

Section for Magnetic Resonance Technologists, Northeast Regional Educational Seminar  
Pittsburgh, PA

Topics: MRI Safety: Update 2003  
Functional Assessment of the Joints Using Kinematic MRI

Department of Radiology, Toronto Western Hospital  
Toronto, Ontario

Topic: MRI Safety at 1.5- and 3-Tesla

**2004**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Section for Magnetic Resonance Technologists, Regional Educational Seminar  
Cleveland, OH

Topic: MRI Safety and Patient Management: Update 2004

## **Frank G. Shellock, Ph.D.**

**2004**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Section for Magnetic Resonance Technologists, Regional Educational Seminar, St. Luke's Medical Center  
Bethlehem, PA

Topic: MRI Safety and Patient Management: Update 2004

Visiting Professor, Neurosurgery Grand Rounds, Thomas Jefferson University Hospital  
Philadelphia, PA

Topic: Neurosurgical Implications for MRI Safety

Cardiology Grand Rounds, Cedars-Sinai Medical Center  
Los Angeles, CA

Topic: MRI Safety: Implications for Cardiovascular Patients

Grand Rounds, St. Joseph's Medical Center  
Burbank, CA

Topic: MRI Safety and Patient Management

Moderator and Presenter, MRI Safety Forum, Educational Symposium, Eleventh Annual Meeting of the Section for Magnetic Resonance Technologists  
Kyoto, Japan

Topic: MRI Safety for Implants and Devices: Update 2004

Eleventh Annual Meeting of the International Society for Magnetic Resonance in Medicine  
Kyoto, Japan

Topic: Neurostimulation Systems Used for Deep Brain Stimulation: Factors Impacting MRI-Related Heating at 1.5- and 3-Tesla

Eleventh Annual Meeting of the International Society for Magnetic Resonance in Medicine  
Kyoto, Japan

Topic: Assessment of magnetic field Interactions at 1.5- and 3-Tesla for Implantable Pulse Generators and Receivers Used for Neurostimulation Systems

Eleventh Annual Meeting of the International Society for Magnetic Resonance in Medicine  
Kyoto, Japan

Topic: Specific Absorption Rate: A Specious Dosimeter of MRI-Related Heating for Metallic Implants

Section for Magnetic Resonance Technologists, Regional Educational Seminar, University of Virginia Medical Center  
Charlottesville, VA

Topic: MRI Safety and Patient Management: Update 2004

**Frank G. Shellock, Ph.D.**

**2004**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

23rd International Congress of Radiology

Montreal, Canada

Topics: MRI Safety: Update 2004  
MRI Safety Controversies  
Functional Assessment of The Joints Using Kinematic MRI  
Magnetic Resonance Imaging Safety

Visiting Professor, Department of Radiology, Tripler Army Medical Center

Honolulu, Hawaii

Topic: MRI Safety: Update 2004

Cardiovascular MRI Summit, Oklahoma Heart Institute

Chicago, IL

Topic: MRI Safety and Patient Management: Update 2004

Department of Radiology, Hospital for Sick Children

Toronto, Ontario, Canada

Topics: MRI Safety: Update 2004  
Safety Considerations for Interventional MRI

Thirteenth Annual International Meeting, Magnetic Resonance Imaging:

Musculoskeletal and Orthopedic Applications

San Francisco, CA

Topics: MRI Safety: Update 2004  
MRI Musculoskeletal Protocol Workshop

Visiting Professor, Radiology Department, Thomas Jefferson University Hospital

Philadelphia, PA

Topic: MRI Safety and 3-Tesla Issues

Section for Magnetic Resonance Technologists, Regional Educational Seminar

New York, NY

Topic: MRI Safety and Patient Management: Update 2004

Third Annual Global Symposium on Clinical High Field MRI

Stanford School of Medicine

Las Vegas, NV

Topic: MRI Safety at 3-Tesla

Section for Magnetic Resonance Technologists, Regional Educational Seminar, President's Meeting

Charleston, NC

Topic: MRI Safety and Patient Management: Update 2004

**Frank G. Sherlock, Ph.D.**

**2004**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Special Focus Session, 89th Scientific Assembly and Annual Meeting of the Radiological Society of North America

Chicago, IL

Topic: Special Focus Session: MRI and Implants

Refresher Course, 89th Scientific Assembly and Annual Meeting of the Radiological Society of North America

Chicago, IL

Topic: MRI Safety: Controversies

89th Scientific Assembly and Annual Meeting of the Radiological Society of North America  
Chicago, IL

Topic: Spinal Cord Stimulation Implants: Evaluation of MRI Safety

89th Scientific Assembly and Annual Meeting of the Radiological Society of North America  
Chicago, IL

Topic: Cardiac Pacemakers: *In Vitro* Assessment of MRI Safety at 1.5-Tesla

American Society for Stereotactic and Functional Neurosurgery,  
Cleveland, OH

Topic: Neurostimulation Systems Used for Deep Brain Stimulation: Factors Influencing MRI-related Heating at 1.5- and 3-Tesla and Safety

Department of Radiology, Scott and White Medical Center  
Temple, TX

Topic: Magnetic Resonance Safety: Practical Considerations

British Association of Magnetic Resonance Radiographers and Irish MR Users  
Dublin, Ireland

Topics: Magnetic Resonance Imaging Safety  
Kinematic MRI of the Joints

Continuing Education Meeting, General Electric Healthcare  
Sydney, New South Wales, Australia

Topic: MRI Safety: Update 2004

Division of Imaging, Westmead Hospital  
Sydney, New South Wales, Australia

Topic: MRI Safety: Update 2004

**Frank G. Shellock, Ph.D.**

**2005**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Eight Annual Scientific Sessions, Society for Cardiovascular Magnetic Resonance  
Orlando, FL

Topic: Safety Issues for Cardiovascular MRI at 3-Tesla

Beth Israel Hospital  
Boston, MA

Topic: MRI Safety and Patient Management: Update 2005

Department of Radiology, Children's Hospital, Harvard University  
Boston, MA

Topic: MRI Safety and Patient Management: Update 2005

Children's Hospital of Philadelphia, University of Pennsylvania  
Philadelphia, PA

Topic: MRI Safety: Update 2005

34<sup>th</sup> Annual Meeting of the Japanese Society of Neuroradiology, Special  
Nagoya, Japan

Topic: MRI Safety: Update 2005

Hawaii Radiological Society  
Honolulu, HI

Topic: MRI Safety: Update 2005

Brookhaven National Laboratory  
Islip, NY

Topic: MRI Safety and Patient Management

Grand Rounds, St. Joseph's Medical Center  
Burbank, CA

Topic: MRI Safety and Patient Management: Update 2005

14<sup>th</sup> Annual, Magnetic Resonance Managers Society  
Tampa, Florida

Topic: MRI Health Effects, Safety, and Patient Management: Update 2005

Heart Rhythm Society Meeting  
New Orleans, LA

Topic: Pacemakers and ICDs: *In Vitro* assessment of magnetic  
Resonance Imaging Safety at 1.5-Tesla

**Frank G. Sherlock, Ph.D.**

**2005**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Special Symposium, A Force to be Reckoned With: Implications of MRI Procedures for Device Patients, Heart Rhythm Society Meeting  
New Orleans, LA

Topic:

MRI Safety for Pacemakers and ICDs: The Basics

Eleventh Annual Meeting of the Section for Magnetic Resonance Technologists  
Miami, Florida

Topic:

MRI Safety: Update 2005

Canadian Association of Medical Radiation Technologists, Annual Meeting  
Prince Edward Island, Canada

Topics:

MRI Safety and Patient Management

Functional Assessment of the Joints Using Kinematic MRI

American College of Cardiology, Cardiovascular Magnetic Resonance and Computed Tomography – State of the Art  
Washington, D.C.

Topic:

MRI Safety for Cardiac MR Patients

Visiting Professor, Department of Radiology, Loma Linda University  
Loma Linda, California

Topic:

MRI Safety and Patient Management

American Heart Association, Scientific Sessions  
Dallas, Texas

Topic:

MRI-Related Heating of Pacemaker at 1.5- and 3-Tesla:

Evaluation With and Without Pulse Generator Attached to Leads

Fourteenth Annual Current Issues of Magnetic Resonance Imaging in Orthopaedics and Sports Medicine  
San Francisco, CA

Topics:

MRI Safety: Update 2005

MRI Musculoskeletal Protocol Workshop

British Chapter of the International Society for Magnetic Resonance in Medicine and Oxford University  
Oxford, England

Topic:

MRI Safety at High Field

MRI at Sea, Society of Radiographers in Finland and The Club of Radiologists  
Tallin, Estonia

Topic:

MRI Safety: Updated 2005

**Frank G. Shellock, Ph.D.**

**2005**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Department of Anesthesiology, Children's Hospital, Harvard University  
Boston, MA

Topic: MRI Safety and Patient Management

Cardiovascular Imaging 2005: North American Society of Cardiac Imaging (NASCI), 33rd  
Annual Meeting & Scientific Sessions  
Amelia Island, Florida

Topic: MRI Safety

Regional Meeting, Section for Magnetic Resonance Technologists  
Canton, OH

Topic: MRI Safety and Patient Management: Update 2005

Fourth Annual Global Symposium on Clinical High Field MRI  
Stanford School of Medicine  
Las Vegas, NV

Topic: MRI Safety at 3-Tesla and Higher

MRI Safety Workshop: Update, Practical Information, and Future Implications, International  
Society for Magnetic Resonance in Medicine  
McLean, Virginia

Topic: MRI Safety for Implants and Devices: Update 2005

Regional Meeting, Section for Magnetic Resonance Technologists, Stanford University Medical  
Center  
Palo Alto, CA

Topic: MRI Safety and Patient Management: Update 2005

Grand Rounds, Department of Radiology, University of California, San Diego  
San Diego, CA

Topic: MRI Safety and Patient Management at 3-Tesla

90th Scientific Assembly and Annual Meeting of the Radiological Society of North America  
Chicago, IL

Topic: VNS Therapy System: In Vitro Evaluation of MRI-Related  
Heating, Magnetic Field Effects, and Function at 1.5- and  
3-Tesla

90th Scientific Assembly and Annual Meeting of the Radiological Society of North America  
Chicago, IL

Topic: MRI of the shoulder: Findings in asymptomatic and  
Symptomatic Ironman Triathletes

**Frank G. Sherlock, Ph.D.**

**2005**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Special Focus Session, 90th Scientific Assembly and Annual Meeting of the Radiological Society of North America

Chicago, IL

Topic: Special Focus Session: MRI and Implants

**2006**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

American Radiological Nurse Association, Regional Meeting

Houston, TX

Topic: Safety Issues and Patient Management: Update 2006

MRI Technologists Program, Ninth Annual Scientific Sessions, Society for Cardiovascular Magnetic Resonance

Miami, FL

Topic: Safety Issues for Cardiovascular MRI

Ninth Annual Scientific Sessions, Society for Cardiovascular Magnetic Resonance

Miami, FL

Topic: Safety Issues for 3-Tesla MR Systems

The Third Annual Magnetic Resonance Imaging Seminar Hosted by The Ohio State University

Topic: Safety, Bioeffects, and Patient Management: Update 2006

Section for Magnetic Resonance Technologists, Central Virginia Regional Educational Seminar, University of Virginia Health System, University of Virginia, Medical Center

Charlottesville, Virginia

Topics: Safety, Bioeffects, and Patient Management: Update 2006  
Kinematic MRI of the Joints

Moderator and Presenter, MRI Safety Forum, Educational Symposium, Thirteenth Annual Meeting of the Section for Magnetic Resonance Technologists

Seattle, WA

Topic: MRI Safety: Update 2006

American Roentgen Ray Society

Vancouver, B.C.

Topic: MRI Safety and Patient Management: Update 2006

**Frank G. Shellock, Ph.D.**

**2006**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

American Society for Stereotactic and Functional Neurosurgery  
Boston, MA

Topic: VNS Therapy System: *In Vitro* Evaluation of MRI-Related  
Heating and Function at 1.5- and 3-Tesla

University of Louisville Hospital  
Louisville, KY

Topic: MRI Safety and Patient Management: Update 2006

4<sup>th</sup> Annual, American College of Cardiology, Cardiovascular Magnetic Resonance and Computed  
Tomography – State of the Art  
Washington, D.C.

Topic: MRI Safety for Cardiac MR Patients: Update 2006  
MRI Safety Workshop

Fifteenth Annual Current Issues of Magnetic Resonance Imaging in Orthopaedics and Sports  
Medicine  
San Francisco, CA

Topics: MRI Safety: Update 2006  
MRI Musculoskeletal Protocol Workshop

National Institute of Biomedical Imaging and Bioengineering, National Institutes of Health, High  
Field Cardiovascular Workshop  
Washington, D.C.

Topic: Safety for Implants and Monitoring Devices

Fifth Annual Global Symposium on Clinical High Field MRI  
Stanford School of Medicine  
Las Vegas, NV

Topic: MRI Safety at 3-Tesla and Higher

American Heart Association, Scientific Sessions  
Chicago, IL

Topic: Cardiac MR and Device Safety

Special Focus Session, 91st Scientific Assembly and Annual Meeting of the Radiological Society  
of North America  
Chicago, IL

Topic: Special Focus Session: MRI and Implants

## **Frank G. Shellock, Ph.D.**

**2007**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Los Angeles Radiological Society

Los Angeles, CA

Topic: MRI Safety at 3-Tesla

Society for Magnetic Resonance Technologists and Siemens Medical Solutions

Sydney, New South Wales, Australia

Topic: MRI Safety: Update 2007

Society for Magnetic Resonance Technologists and General Electric Healthcare

Brisbane, Australia

Topic: MRI Safety: Update 2007

Department of Radiology, University of Southern California Medical Center

Los Angeles, California

Topic: MRI Safety: Update 2007

Visiting Professor, Department of Radiology, Tripler Army Medical Center

Honolulu, Hawaii

Topic: MRI Safety: Update 2007

School of Physical Therapy, University of Southern California Medical Center

Los Angeles, California

Topics: Kinematic MRI of the Joints  
MRI Safety: Update 2007

Sixteenth Annual Current Issues of Magnetic Resonance Imaging in Orthopaedics and Sports Medicine

San Francisco, CA

Topic: MRI Safety: Update 2007

Sixth Annual Global Symposium on Clinical High Field MRI

Stanford School of Medicine

Las Vegas, NV

Topic: MRI Safety at 3-Tesla: Update 2007

American Heart Association, Scientific Sessions

Orlando, Florida

Topic: MRI Safety Issues for Cardiovascular Implants and Devices

International Society for Neuromodulation

Acapulco, Mexico

Topic: MRI Safety Issues for Neuromodulation Devices

**Frank G. Shellock, Ph.D.**

**2008**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Workshop on High Field Cardiac Magnetic Resonance (CMR)  
Los Angeles, CA

Topic: Technical Issues: Panelist

The Fourth Annual Magnetic Resonance Imaging Seminar Hosted by The Ohio State University  
Columbus, OH

Topic: Safety, Bioeffects, and Patient Management: Update 2008

Magnetic Resonance Managers Society, Annual Meeting  
Clearwater, FL

Topic: MRI Safety: Update 2008

Children's Hospital of Philadelphia, University of Pennsylvania  
Philadelphia, PA

Topic: Bioeffects, Safety and Patient Management: Update 2008

From Clinical Evidence to Best Practices for Contrast-Enhanced MRI  
Las Vegas, NV

Moderator: Moderator, Science to Practice: How to Improve Safety of Contrast-Enhanced MRI Examinations

6<sup>th</sup> Annual, American College of Cardiology, Cardiovascular Magnetic Resonance and Computed Tomography – State of the Art  
Washington, D.C.

Topic: MRI Safety for Cardiac MR Patients: Update 2008  
MRI Safety Workshop

MRI Safety Workshop, International Society for Magnetic Resonance in Medicine  
Lisbon, Portugal

Topic: MRI Safety for Implants and Devices: Update 2008

Seventeenth Annual Current Issues of Magnetic Resonance Imaging in Orthopaedics and Sports Medicine  
San Francisco, CA

Topic: MRI Safety: Update 2008

Seventh Annual Global Symposium on Clinical High Field MRI  
Stanford School of Medicine  
Las Vegas, NV

Topic: MRI Safety at 3-Tesla: Update 2008

## **Frank G. Shellock, Ph.D.**

North American Neuromodulation Society (NANS)  
Las Vegas, NV

Topic: MRI Issues for Neuromodulation Systems: Update 2008

### **2009**

#### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Eleventh Annual Scientific Sessions, Society for Cardiovascular Magnetic Resonance  
Orlando, FL

Topic: MRI Safety and Patient Management: Update 2009

The Fifth Annual Magnetic Resonance Imaging Seminar Hosted by The Ohio State University  
Columbus, OH

Topic: Safety, Bioeffects, and Patient Management: Update 2009

Educational Symposium, Eighteenth Annual Meeting of the Section for Magnetic Resonance Technologists  
Honolulu, HI

Topic: MRI Safety and Patient Management: Update 2009

Department of Radiology, UCLA Medical Center  
Los Angeles, CA

Topic: MRI Safety and Patient Management: Update 2009

Department of Neurology, University of Southern California  
Los Angeles, CA

Topic: MRI Safety and Patient Management: Update 2009

Royal Australian and New Zealand College of Radiologists  
Brisbane, Australia

Topic: MRI Safety

94th Scientific Assembly and Annual Meeting of the Radiological Society of North America  
Chicago, IL

Topic: MRI and Implants: Update 2009

North American Neuromodulation Society (NANS)  
Las Vegas, NV

Topic: MRI Issues for Neuromodulation Systems: Update 2009

### **2010**

#### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

MRI Technologists Program, Society for Cardiovascular Magnetic Resonance  
Phoenix, AZ

Topic: Safety Issues for MRI: Update 2010

**2010**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Section for Magnetic Resonance Technologists, Western Regional Educational Seminar  
Los Angeles, CA

Topic: MRI Safety Issues and Patient Management: Update 2010

The Sixth Annual Magnetic Resonance Imaging Seminar Hosted by The Ohio State University  
Columbus, OH

Topic: Safety, Bioeffects, and Patient Management: Update 2010

Grand Rounds, Children's Hospital of Philadelphia, University of Pennsylvania  
Philadelphia, PA

Topic: MRI Safety and Patient Management: Update 2010

Child Health Corporations of America (CHCA)  
San Francisco, CA

Topic: MRI Safety and Patient Management: Update 2010

Magnetic Resonance Managers Meeting  
San Antonio, TX

Topic: MRI Safety and Patient Management: Update 2010

West Virginia Society of Interventional Pain Physicians  
Paradise Island, Bahamas

Topic: MRI Issues for Neuromodulation Systems

Neural Interfaces Conference 2010  
Long Beach, CA

Topic: MRI Issues for Neural Implants

W.L. Gore and Associates  
Flagstaff, AZ

Topic: MRI Issues for Biomedical Implants and Devices

Seton Medical Center  
Austin, TX

Topic: MRI Safety and Patient Management: Update 2010

Dell Children's Hospital  
Austin, TX

Topic: MRI Safety and Patient Management: Update 2010

Nineteenth Annual Current Issues of Magnetic Resonance Imaging in Orthopaedics and Sports  
Medicine

San Francisco, CA

Topic: MRI Safety: Update 2010

95th Scientific Assembly and Annual Meeting of the Radiological Society of North America  
Chicago, IL

Topic: MRI and Implants: Update 2010

North American Neuromodulation Society (NANS)

Las Vegas, NV

Topic: MRI Issues for Neuromodulation Systems: Update 2010

## **2011**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

The Seventh Annual Magnetic Resonance Imaging Seminar, The Ohio State University  
Columbus, OH

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2011

St. John's Mercy Medical Center, Department of Radiology

St. Louis, MO

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2011

Los Angeles Radiological Society, Breast Imaging Symposium

Los Angeles, CA

Topic: MRI Safety and Patient Management

DePuy/Mitek, Johnson & Johnson Professional Inc.

Raynham, MA

Topic: Testing Implants and Devices for MR Safety

The Association for Medical Imaging Management, AHRA, 39<sup>th</sup> Annual Meeting and Exposition  
Dallas, TX

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2011

Twentieth Annual Current Issues of Magnetic Resonance Imaging in Orthopaedics and Sports  
Medicine

San Francisco, CA

Topic: MRI Safety: Update 2011

Brigham and Women's Hospital, Harvard Medical School

Boston, MA

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2011

Imaging Research Center, Cincinnati Children's Hospital Medical Center

Cincinnati, Ohio

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2011

Section for Magnetic Resonance Technologists (SMRT), John A. Koveleski 5th Annual  
Memorial Regional Educational Seminar, The Penn State University, Milton S. Hershey Medical  
Center

Hershey, PA

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2011

## **2011**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Section for Magnetic Resonance Technologists (SMRT), President's Regional Educational Seminar, Stanford University, Lucille Packard Children's Hospital  
Stanford, CA

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2011

Institute of Physics and Engineering in Medicine, Supported by the British Chapter of the Society of Magnetic Resonance in Medicine and the British Association of Radiographers  
London, England

Topic: MRI Information for Implants and Devices: Update 2011

The University of Texas Medical Branch, School of Medicine, Robert Cooley Visiting Professor  
Galveston, TX

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2011

## **2012**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Billings MRI Center  
Billings, Montana

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2012

Fourteenth Annual Scientific Sessions, Society for Cardiovascular Magnetic Resonance  
Orlando, FL

Topics: MRI and Cardiac Pacemakers: Con Presentation  
MRI Safety and Patient Management: Update 2012

The Eight Annual Magnetic Resonance Imaging Seminar, The Ohio State University  
Columbus, OH

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2012

Vanderbilt University Institute of Imaging Science  
Nashville, TN

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2012

Children's Hospital of Philadelphia, University of Pennsylvania  
Philadelphia, PA

Topic: MRI Safety and Patient Management: Update 2012

Twenty-First Annual Current Issues of Magnetic Resonance Imaging in Orthopaedics and Sports Medicine  
San Francisco, CA

Topic: MRI Safety: Update 2012

## **2012**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

40<sup>th</sup> Annual Meeting, North American Society for Cardiovascular Imaging  
Pasadena, CA

Topics: MRI Study in Patients with Non-MRI Conditional Pacemakers  
MRI Conditional Pacemakers: Imaging Considerations

Section for Magnetic Resonance Technologists (SMRT), Regional Meeting  
Seattle, WA

Topic: MRI Safety and Patient Management: Update 2012

CT/MRI Neuro Medicine Study Day, Siemens Medical Systems  
Dublin, Ireland

Topic: MRI Safety and Patient Management: Update 2012

North American Neuromodulation Society (NANS)  
Las Vegas, NV

Topic: MRI Issues for Neuromodulation Systems: Update 2012

## **2013**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

65<sup>th</sup> Annual Midwinter Radiology and Radiation Oncology Conference, Los Angeles Radiological Society  
Pasadena, CA

Topic: MRI Safety and Patient Management: Update 2013

The Ninth Annual Magnetic Resonance Imaging Seminar, The Ohio State University  
Columbus, OH

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2013

Association for Radiologic and Imaging Nursing  
New Orleans, LA

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2013

21<sup>st</sup> Annual Meeting, International Society for Magnetic Resonance in Medicine  
Salt Lake City, UT

Topic: Active Implants and MRI Issues

Cape Peninsula University of Technology  
Cape Town, South Africa

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2013

Children's Hospital of Los Angeles  
Los Angeles, CA

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2013

## **2013**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Twenty-Second Annual Current Issues of Magnetic Resonance Imaging in Orthopaedics and Sports Medicine  
San Francisco, CA

Topic: MRI Safety: Update 2013

13<sup>th</sup> Annual Meeting of the Congress of Neurological Surgeons  
San Francisco, CA

Topic: MRI Safety for Spine and Neurological Implants

Educational Refresher Course, 99th Scientific Assembly and Annual Meeting of the Radiological Society of North America  
Chicago, IL

Topic: MRI and Implants: Update 2013

## **2014**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

The Tenth Annual Magnetic Resonance Imaging Seminar, The Ohio State University  
Columbus, OH

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2014

63<sup>rd</sup> Annual Scientific Sessions of the American College of Cardiology  
Washington, D.C.

Topic: MRI Safety for Cardiac Patients: Update 2014

Hawaii Radiological Society  
Honolulu, HI

Topics: MRI Safety: Part 1 and Part 2

Radiology Business Management Association  
Seattle, WA

Topic: MRI Safety, Bioeffects, and Patient Management: What You Need to Know to Ensure Safety for Your Patients and Staff Members

## **2015**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Kaiser Radiology  
San Jose, CA

Topic: MRI Safety, Bioeffects, and Patient Management Including Special Considerations for Cardiac Pacemaker Patients

## **2015**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

MR Workshop, Non-Contrast Cardiovascular MRI, International Society for Magnetic Resonance in Medicine

Long Beach, CA

Topic: MRI Issues for Cardiovascular Devices

The Eleventh Annual Magnetic Resonance Imaging Seminar, The Ohio State University  
Columbus, OH

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2015

Geffen School of Medicine, University of California, Los Angeles  
Los Angeles, CA

Topic: MRI Safety, Bioeffects, and Patient Management

Department of Medical Imaging and Radiation Sciences, University of Johannesburg  
Johannesburg, South Africa

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2015

## **2016**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Vanderbilt University Institute of Imaging Science  
Nashville, TN

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2016

Imaging Grand Rounds and Continuing Education, Cedars-Sinai Medical Center  
Los Angeles, CA

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2016

MicroVention, Inc.  
Tustin, CA

Topic: MRI Issues for Implants and Devices

## **2017**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

North American Neuromodulation Society (NANS)  
Las Vegas, NV

Topic: MRI Issues for Neuromodulation Systems: Update 2017

**2017**

**SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

North American Neuromodulation Society (NANS)

Las Vegas, NV

Topic: *In Vitro* MRI Evaluation of the Open-Coil Lead Used for Percutaneous Peripheral Nerve Stimulation

W. L. Gore and Associates

Flagstaff, AZ

Topic: MRI Issues for Biomedical Implants and Devices

The Thirteenth Annual Magnetic Resonance Imaging Seminar, The Ohio State University

Columbus, OH

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2017

Department of Radiology, Tucson Medical Center

Tucson, Arizona

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2017

25<sup>st</sup> Annual Meeting, International Society for Magnetic Resonance in Medicine and SMRT

Honolulu, HI

Topic: MRI Issues for Implants and Devices  
MRI Safety: How Testing is Performed on Implants

Department of Radiology, Kaiser Permanente, West Los Angeles Medical Center

Los Angeles, CA

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2017

MRI Safety Update Day, Scottish Chapter of the Society of MR Radiographers and Technologists and National Health Service National Education for Scotland

Edinburgh, Scotland

Topics: MRI Safety, Bioeffects, and Patient Management: Update 2017, Part I  
MRI Safety, Bioeffects, and Patient Management: Update 2017, Part II

Association for Medical Imaging Management, AHRA, 45<sup>th</sup> Annual Meeting and Exposition  
Anaheim, CA

Topic: The Joint Commission: Understanding & Complying with the Latest Requirements for MRI Safety

Division of MRI, Department of Radiology, Tan Tock Seng Hospital

Singapore

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2017

Karolinska Institute

Stockholm, Sweden

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2017

## **2017**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Finish Radiological Society  
Helsinki, Finland

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2017

Vanderbilt University Institute of Imaging Science  
Nashville, TN

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2017

MRI Safety Day, Rush University Medical Center  
Chicago, IL

Topic: MRI Safety, Bioeffects, and Patient Management

Refresher Course, 103rd Scientific Assembly and Annual Meeting of the Radiological Society of  
North America  
Chicago, IL

Topic: MRI Safety: Managing Patients with Implants and Devices

## **2018**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

Society for MR Radiographers & Technologists (SMRT), ANZ Chapter  
Sydney, Australia

Topic: MRI Safety and Patient Management Update 2018

Society for MR Radiographers & Technologists (SMRT), ANZ Chapter  
Brisbane, Australia

Topic: MRI Safety and Patient Management Update 2018

The Fourteenth Annual Magnetic Resonance Imaging Seminar, The Ohio State University  
Columbus, OH

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2018

Radiology Symposium, Kaiser Permanente  
Costa Mesa, CA

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2018

Association for Radiologic and Imaging Nursing  
Los Angeles, CA

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2018

## **2018**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

MRI Safety Education Day, Ontario Society of Medical Radiation Sciences  
London, Ontario, Canada

Topic: MRI: Prevention of Burn Injuries and How to Perform Proper Screening

China-US Summit Seminar of Medical Device Life  
Shanghai, China

Topic: The History of ASTM International Standards for MRI: Implant Testing and Labeling

Children's Hospital of Los Angeles  
Los Angeles, CA

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2018

Fifth Annual St. Michael's Hospital MRI Symposium  
Toronto, Ontario, Canada

Topic: MRI Patient Screening Including Issues for Implants  
MRI Safety Information for Passive Implants  
MRI Safety Information for Active Implants

Louisiana State University Health Sciences Center  
New Orleans, LA

Topic: MRI Safety, Bioeffects, and Patient Management: Update 2018

Second Annual MRI Safety Day, Rush University Medical Center  
Chicago, IL

Topic: MRI Safety, Bioeffects, and Patient Management

Refresher Course, 104rd Scientific Assembly and Annual Meeting of the Radiological Society of North America  
Chicago, IL

Topic: MRI Safety: Managing Patients with Implants and Devices

## **2019**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

68<sup>th</sup> Annual Scientific Sessions of the American College of Cardiology  
New Orleans, LA

Topic: Safety and Recommendations for Use of MRI in Patients with Cardiac Implants Including Cardiovascular Implantable Electronic Devices (CIED)

## **2019**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

MRI Physics and Safety

Las Vegas, NV

Topics:      Prevention of Excessive Heating and Burns  
Screening Patients & Other Individuals  
Implant Information & Labeling Terminology  
Information for Passive Implants  
Information for Active Implants

V World Symposium on Ergonomic Implants

Lago di Garda, Italy

Topics:      MRI Safety of Implantable Breast Devices  
Information for Breast Tissue Expanders with RFID Port

California Society for Radiologic Technologists, 80<sup>th</sup> Annual Conference

Los Angeles, CA

Topics:      MRI Safety, Bioeffects, and Patient Management: Update 2019

Fourth Annual MRI Safety Day, Rush University Medical Center

Chicago, IL

Topic:      MRI Safety, Bioeffects, and Patient Management

## **2020**

### **SCIENTIFIC AND ACADEMIC PRESENTATIONS:**

**Frank G. Shellock, Ph.D.**

**GRANTS RECEIVED:**

National Institutes of Health - National Heart, Lung, and Blood Institute  
National Research Service Award. PHS-2271 T32 HLO738-05.  
1982 to 1984

Biomedical Research Support Grant  
Acute and Long-term Cardiovascular Effects of Simulated Weightlessness.  
Cedars-Sinai Medical Center.  
1983 to 1984  
Principal Investigator: Frank G. Shellock, Ph.D.

General Electric Company, Medical Systems Group  
Thermophysiological Studies of Radiofrequency Heating During Diagnostic Magnetic Resonance Imaging.  
1985 to 1987  
Principal Investigator: Frank G. Shellock, Ph.D.

National Institutes of Health - National Cancer Institute  
1 RO1 CA44014-01  
Thermophysiological Effects of Magnetic Resonance Imaging.  
01/87 to 06/89  
Principal Investigator: Frank G. Shellock, Ph.D.  
Co-Investigators: John V. Crues, M.D.; Jerrold Mink, M.D.; and Robert J. Herfkens, M.D.

National Institutes of Health - National Cancer Institute  
2 RO1 CA44014-05  
Thermophysiologic Effects of Magnetic Resonance Imaging.  
04/90 to 03/92  
Principal Investigator: Frank G. Shellock, Ph.D.  
Co-Investigator: Fred Steinberg, M.D. Consultants: Daniel J. Schaefer, Ph.D.; General Electric Company, Medical Systems Group, Milwaukee, WI; Christopher J. Schaefer, Ph.D.; Environmental Protection Agency, Durham, NC

Naturapathic Laboratories, Inc.  
Effect of a Counterirritant/Analgesic on Skin Blood Flow, Skin Temperature, and Muscle Temperature.  
01/89 to 12/89  
Investigators: John Hong, M.D. and Frank G. Shellock, Ph.D.

## **Frank G. Shellock, Ph.D.**

### **GRANTS RECEIVED (continued):**

Berlex/Schering, Inc.

Magnetic Resonance Imaging and Pregnant Health Workers: An Epidemiological Study.

4/90 to 3/91

Principal Investigator: Emanuel Kanal, M.D.; Pittsburgh NMR Institute, Pittsburgh, PA; Co-Investigators: Frank G. Shellock, Ph.D.; David Savitz, Ph.D.

Bauerfeind USA, Inc.

Evaluation of the Bauerfeind Patellar Realignment Brace by Kinematic MRI. 7/91 to 12/92

Investigators: Frank G. Shellock, Ph.D.; Jerrold Mink, M.D.; Todd Molnar, M.D.; James Fox, M.D.; Richard Ferkel, M.D.

NASA

1992

MRI and Ultrasound Assessment of Muscle Atrophy.

Principal Investigators: Robert Selzer, Ph.D. and Paul Lee, Ph.D.

Co-Investigators: V.R. Edgerton, Ph.D.; Roland Roy, Ph.D., Dieter Kramsch, Ph.D., Frank G. Shellock, Ph.D.

National Institutes of Health - National Cancer Institute

Thermophysiological Effects of Magnetic Resonance Imaging.

04/92 to 03/95

Principal Investigator: Frank G. Shellock, Ph.D.

Co-Investigator: Robert Lufkin, M.D.; UCLA School of Medicine

Consultants: Daniel J. Schaefer, Ph.D.; General Electric Co, Medical Systems Group, Milwaukee, WI; Christopher J. Gordon, Ph.D.; United States Environmental Protection Agency.

National Institutes of Health - Project Program Grant

Neuromuscular Plasticity: Functional Recovery After Spinalization.

07/92 to 06/95

Principal Investigator: V. Reggie Edgerton, Ph.D.

Consultant: Frank G. Shellock, Ph.D.

Ciba-Geigy

MRI Usefulness in Detecting and Quantifying Proteoglycan Depletion Initiated in the Articular Cartilage by Sports Related Knee Injury.

8/92 to 8/93

Investigators: Frank G. Shellock, Ph.D.; Jerrold H. Mink M.D.; Bert Mandelbaum, M.D.; Andrew Deutsch, M.D.

## **Frank G. Shellock, Ph.D.**

### **GRANTS RECEIVED (continued):**

Bauerfeind USA, Inc.

1993 to 1996

Evaluation of the Bauerfeind Genutrain P3 Brace by Kinematic MRI, EMG, Functional Testing and Clinical Criteria

Investigators: Frank G. Shellock, Ph.D.; Jerrold Mink, M.D.; Andrew Deutsch, M.D.; Todd Molnar, M.D.; Christopher Powers, P.T., M.S.

Mallinckrodt Medical, Inc.

1994 to 1995

A Multi-Center, Double-Blind, Multidose, Within-Patient Study to Evaluate the Safety, Tolerance, and Efficacy of MP-1177/10 Injection in MRI of the Breast

Investigators: Jerrold Mink, M.D.; Andrew Deutsch, M.D.; David Allegra, M.D.; Frank G. Shellock, Ph.D.

Pharmacyclics, Inc.

1994 to 1995

A Phase III Open-Label Study of Gadolite Oral Suspension: A Gastrointestinal Contrast Agent for Magnetic Resonance Imaging

Investigators: Frank G. Shellock, Ph.D.; Andrew Deutsch, M.D.; Barry Rothman, M.D.; David Allegra, M.D.

Mallinckrodt Medical, Inc.

1994 to 1995

A Multi-Center, Double-Blind, Multidose, Within-Patient Study to Evaluate the Safety, Tolerance, and Efficacy of MP-1177/10 Injection in MRI of the Musculoskeletal System

Investigators: Jerrold Mink, M.D.; Andrew Deutsch, M.D.; David Allegra, M.D.; Frank G. Shellock, Ph.D.

Lunar Corporation, Madison, WI and Esaote, Milan, Italy

1996 to 1999

Performance Testing of the 0.2 Tesla Dedicated Extremity MRI System (Artoscan)

Investigators: Frank G. Shellock, Ph.D.; John V. Crues, M.D.; Robert Bell, Ph.D.

Hely-Webber, Santa Paula, CA

1998

Evaluation of the Shields Patellar Stabilizing Brace by Kinematic MRI

Investigators: Frank G. Shellock, Ph.D. and Clarence L. Shields, M.D.

## **Frank G. Shellock, Ph.D.**

### **GRANTS RECEIVED (continued):**

Lunar Corporation, Madison, WI and Esaote, Milan, Italy

1998 to 1999

- (1) Additional Performance Testing of the 0.2-T Dedicated Extremity MRI System (Artoscan)
- (2) MRI Assessment of the Knee Using the 0.2-T Extremity MRI System
- (3) Evaluation of Pacemakers and ICDs Using the Extremity MRI System: Clinical Studies

Investigators: Frank G. Shellock, Ph.D.; John V. Crues, M.D.; Charles Peterfy, M.D.; Kevin Stone, M.D.

Mitek Products, Westwood, MA

1999 to 2000

Evaluation of Tissue Temperatures During Application of RF Electrodes

Investigators: Frank G. Shellock, Ph.D. and Clarence Shields, M.D.

Mitek Products, Westwood, MA

1999

RF Energy Induced Heating of Articular Cartilage

Investigators: Frank G. Shellock, Ph.D. and Clarence Shields, M.D.

ArthroCare Corporation, Sunnyvale, CA

1999

Evaluation of Tissue Temperatures During Application of RF Electrodes:

Comparison Between Monopolar and Bipolar RF Electrodes

Principal Investigator: Frank G. Shellock, Ph.D.

Bauerfeind USA, Inc.

1999 to 2000

Evaluation of the Bauerfeind Genutrain P3 Brace Using Axial Loaded, Upright Kinematic MRI

Investigators: Frank G. Shellock, Ph.D.; Christopher Powers, P.T, Ph.D., Department of Biomechanics, University of Southern California, Los Angeles, CA, Robert Herfkens, M.D., Stanford University Hospital, Stanford, CA

Lunar Corporation, Madison, WI and Esaote, Milan, Italy

1999 to 2000

MRI Assessment of the Cartilage Transplants at Using a 0.2 Tesla Extremity MRI System

Investigators: Frank G. Shellock, Ph.D.; John V. Crues, M.D.; Kevin Stone, M.D.

**Frank G. Shellock, Ph.D.**

**GRANTS RECEIVED (continued):**

Mitek Products, Westwood, MA

2000

Evaluation of Tissue Temperatures During Application of RF Electrodes Using Small RF Electrodes

Investigators: Frank G. Shellock, Ph.D.

Lunar Corporation, Madison, WI and Esaote, Milan, Italy

2000

MRI Assessment of the Shoulder Using a 0.2 Tesla Extremity MRI System

Investigators: Frank G. Shellock, Ph.D.; John V. Crues, M.D.; Jack M. Bert, M.D.

ENTec/ArthroCare Corporation, Sunnyvale, CA

2000

Evaluation of Tissue Temperatures During Application of RF Electrodes:

Assessment of Devices Used for the Upper Airway

Principal Investigator: Frank G. Shellock, Ph.D.

Breg, Inc.

2000

Evaluation of the Breg Patellar Brace Using Closed Chain and Open Chain Kinematic MRI of the Patellofemoral Joint

Investigators: Frank G. Shellock, Ph.D.; Christopher Powers, P.T, Ph.D., Department of Biomechanics, University of Southern California, Los Angeles, CA; Robert Herfkens, M.D., Stanford University Hospital, Stanford, CA

Mitek Products, Westwood, MA

2000

Evaluation of the Temperature-Controlled Bipolar RF Electrode and RF System for Capsular Tissue and Articular Cartilage Applications

Investigator: Frank G. Shellock, Ph.D.

Bracco Diagnostics, Inc.

2000 to 2020

Unrestricted research grant to develop and maintain website devoted to MRI safety, bioeffects, and patient management, [www.MRIsafety.com](http://www.MRIsafety.com)

Recipient: Frank G. Shellock, Ph.D.

## **Frank G. Shellock, Ph.D.**

### **GRANTS RECEIVED (continued):**

General Electric Lunar Corporation, Madison, WI and Esaote, Milan, Italy  
2001 to 2002

Multi-Center Using a 0.2-Tesla Extremity MR System (E-scan) to Assess Shoulder Pathology  
Investigators: Michael Zlatkin, M.D., Frank G. Shellock, Ph.D.

General Electric Medical Systems, 2002

MRI Evaluation of Implants and Devices at 3.0-Tesla  
Investigator: Frank G. Shellock, Ph.D.

National Institutes of Health, No. NS44575-01, 2002 to 2006

Evaluation of MRI Safety for Deep Brain Simulation

Investigators: Ali Rezai, M.D., John Nyenhuis, Ph.D., Jean Tkach, Ph.D., Paul Ruggieri, M.D., A. Sharon, M.D., Frank Shellock, Ph.D.

North Hawaii Community Hospital, 2002 to 2003

MRI Evaluation of Ironman Triathletes

Investigators: Frank G. Shellock, Ph.D., W. Douglas Hiller, M.D., George Ainge, M.D., David Brown, M.D.

Parkinson's Disease Foundation, 2003 to 2004

Functional MRI During Deep Brain Stimulation in Parkinson's Disease

Investigators: Roongroj Bhidayasiri, M.D., MRCP; Jeff Bronstein, M.D.  
Consultant: Frank G. Shellock, Ph.D.

American Association of Radiologic Technologists, 2013

Evaluation of Common Orthopedic Implants at 7 Tesla

David Pennell, M.S., R.T.(MR), CNMT, Adrienne Dula, Ph.D., and Frank G. Shellock, PhD

**Frank G. Shellock, Ph.D.**

**AWARDS AND HONORS:**

Member, Program Committee, SOCIETY FOR RADIOGRAPHERS & TECHNOLOGISTS, 2019 to 2020

Member, MRI Safety Committee, SOCIETY FOR RADIOGRAPHERS & TECHNOLOGISTS, 2019 to 2022

Member, Subcommittee on MR Safety, Committee on Safety of the Commission on Quality and Safety, AMERICAN COLLEGE OF RADIOLOGY, 2018 to 2019.

Member, MRI Safety Committee, INTERNATIONAL SOCIETY FOR MAGNETIC RESONANCE IN MEDICINE, 2013 to 2017.

Member, MR Cardiac Pacemaker Work Group, AMERICAN COLLEGE OF RADIOLOGY, 2015.

Member, Subcommittee on MR Safety, Committee on Safety of the Commission on Quality and Safety, AMERICAN COLLEGE OF RADIOLOGY, 2012 to 2014.

Member, Diagnostic Ionizing Radiation and Magnetic Resonance Expert Panel, THE JOINT COMMISSION, 2012 to 2015.

Distinguished Service as a Reviewer, JOURNAL OF MAGNETIC RESONANCE IMAGING, 2012.

Distinguished Service as a Reviewer, JOURNAL OF MAGNETIC RESONANCE IMAGING, 2011.

Editor's Recognition Award With Distinction, Reviewing Editor for RADIOLOGY, 2006

Distinguished Committee Service Award, Practice Guidelines and Technical Standards Committee – Body MRI, AMERICAN COLLEGE OF RADIOLOGY, 2005.

Fellow, INTERNATIONAL SOCIETY FOR MAGNETIC RESONANCE IN MEDICINE, 2004.

Editor's Recognition Award With Distinction, Reviewing Editor for RADIOLOGY, 1991

Editor's Recognition Award With Distinction, Reviewing Editor for RADIOLOGY, 1992

Editor's Recognition Award With Distinction, Reviewing Editor for RADIOLOGY, 1993

Received, KRESSEL AND CRUES EDUCATIONAL APPRECIATION AWARD for exceptional educational contributions to the Section for Magnetic Resonance Technologists (SMRT), 1994

Editor's Recognition Award With Distinction, Reviewing Editor for RADIOLOGY, 1994

Editor's Recognition Award With Distinction, Reviewing Editor for RADIOLOGY, 1996

**Frank G. Shellock, Ph.D.**

**ACADEMIC AND OTHER ACTIVITIES:**

Distinguished Roster of Scientific Advisors, RADIOLOGICAL SOCIETY OF NORTH AMERICA – 1999

National Athletic Trainers Association, 2000 JOURNAL OF ATHLETIC TRAINING, KENNETH L. KNIGHT AWARD FOR OUTSTANDING RESEARCH MANUSCRIPT, Kinematic Magnetic Resonance Imaging of the Effect of Bracing on Patellar Position: Qualitative Assessment Using an Extremity Magnetic Resonance System - 2000

Honorary Member, SOCIETY FOR RADIOGRAPHERS & TECHNOLOGISTS (SECTION FOR MAGNETIC RESONANCE TECHNOLOGISTS) – 2003 to 2019

Editor's Recognition Award With Distinction, Reviewing Editor for RADIOLOGY – 2003

Awarded the Communicator Award- Honorable Mention by the Communicator Awards Organization, given in recognition of the outstanding non-network and cable film, video and commercial products; Shellock FG. QUENCH YOUR THIRST FOR MR SAFETY. Video lecture program for MRI professionals. General Electric Healthcare, 2005.

Reviewer for NEUROSURGERY, 2011

Co-Chairperson, Organizing Committee, and Moderator, MRI SAFETY WORKSHOP: UPDATE 2008, INTERNATIONAL SOCIETY FOR MAGNETIC RESONANCE IN MEDICINE. Lisbon, Portugal, 2008.

MR SAFETY STUDY GROUP, Governing Committee, Program Director, International Society for Magnetic Resonance in Medicine, 2006 to 2007.

MUSCULOSKELETAL STUDY GROUP, Governing Committee, Secretary, International Society for Magnetic Resonance in Medicine, 2004 to 2006.

Co-Chairperson and Organizing Committee, MRI SAFETY WORKSHOP: UPDATE, PRACTICAL INFORMATION AND FUTURE IMPLICATIONS, INTERNATIONAL SOCIETY FOR MAGNETIC RESONANCE IN MEDICINE. McLean, VA, 2005.

Deputy Editor, JOURNAL OF MAGNETIC RESONANCE IMAGING – 2019 to present

Associate Editor, JOURNAL OF MAGNETIC RESONANCE IMAGING – 2001 to 2018

Reviewer for the MAGNETIC RESONANCE IN MEDICINE- 2019

Reviewer for the JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY - 2018

Reviewer for the AMERICAN JOURNAL OF NEURORADIOLOGY – 2018

Reviewer for the JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY - 2018

**Frank G. Shellock, Ph.D.**

**ACADEMIC AND OTHER ACTIVITIES:**

Member, American College of Radiology, GUIDELINES AND STANDARDS COMMITTEE (BODY MRI), COMMISSION ON NEURORADIOLOGY AND MAGNETIC RESONANCE, 2003 to 2005

Member, American College of Radiology, COMMITTEE FOR STANDARDS AND ACCREDITATION OF THE COMMISSION ON NEURORADIOLOGY AND MAGNETIC RESONANCE-BODY MRI, 2003.

Board of Directors, Ex-Officio, INTERSOCIETAL COMMISSION FOR THE ACCREDITATION OF MAGNETIC RESONANCE LABORATORIES, 2004

Public Information Advisors Network (PIAN), RADIOLOGICAL SOCIETY OF NORTH AMERICA, 2003 to 2020

Editorial Consultant, RT IMAGE, 2002 to 2012

North Hawaii Community Hospital, MRI RESEARCH COMMITTEE , Kamauela, HI, 2001 to 2003

Guest Columnist for Diagnostic Imaging, www.DiagnosticImaging.com, 2002 to 2012

Guest Editor, Special Issue on MRI Safety, JOURNAL OF MAGNETIC RESONANCE IMAGING - 2000

Guest Columnist for www.AuntMinnie.com, 2002

Reviewer for PACING AND CLINICAL ELECTROPHYSIOLOGY – 2005, 2006

Reviewer for EUROPEAN RADIOLOGY - 2010

Reviewer for RADIOLOGY - 1987 to 2020

Reviewer for CIRCULATION- 1989, 2010

Reviewer for EUROPEAN HEART JOURNAL - 2004

Reviewer for BIOELECTROMAGNETICS, 2002

Reviewer for MAGNETIC RESONANCE IN MEDICINE AND BIOLOGY, (MAGMA), 2002, 2005

Reviewer for JOURNAL OF CARDIOVASCULAR MAGNETIC RESONANCE, 1999 to 2012

Member, MEDICAL ADVISORY COMMITTEE, General Electric Medical Systems, 1999 to 2002

**Frank G. Sherlock, Ph.D.**

**ACADEMIC AND OTHER ACTIVITIES:**

Member, SCIENTIFIC ADVISORY BOARD, ArthroCare Corporation, 2001 to 2003

Member, Expert Panel, RADINFONET, 2000 to 2012

Reviewer for JOURNAL OF ATHLETIC TRAINING – 1999 to 2002

Reviewer for MEDICAL & BIOLOGICAL ENGINEERING & COMPUTING - 2002

Reviewer for JOURNAL OF ORTHOPAEDIC & SPORTS PHYSICAL THERAPY, 2001

Editorial Board, DIAGNOSTIC IMAGING: INDEX & REVIEWS – 1999 to 2002

Reviewer for INVESTIGATIVE RADIOLOGY – 1996 to 2011

Reviewer for MAGNETIC RESONANCE IN MEDICINE– 1988 to 2008, 2011, 2014

Reviewer for AMERICAN COLLEGE OF SPORTS MEDICINE, Scientific Abstracts - 1994, 1995

Reviewer for INTERNATIONAL SOCIETY FOR MAGNETIC RESONANCE IN MEDICINE, Scientific Abstracts – 1997 to 2019

Reviewer for AMERICAN JOURNAL OF ROENTGENOLOGY - 1992 to 2020

Reviewer for JOURNAL OF COMPUTER ASSISTED TOMOGRAPHY - 1995 to 1998

Reviewer for PHYSICA MEDICA, 1999

Reviewer for SOCIETY OF MAGNETIC RESONANCE IMAGING, Scientific Abstracts - 1994 to 1996

Reviewer for NATIONAL INSTITUTES OF HEALTH, RADIATION STUDY SECTION - 1997

Reviewer for JOURNAL OF MAGNETIC RESONANCE IMAGING - 1990 to 2019

Reviewer for SOCIETY FOR MAGNETIC RESONANCE IN MEDICINE, Scientific Abstracts - 1992, 1993

Reviewer for NATIONAL INSTITUTES OF HEALTH, RADIATION STUDY SECTION - 1991

Reviewer for NEW YORK UNIVERSITY, PRESIDENTIAL FELLOWSHIPS FOR JUNIOR FACULTY - 1989

Member, AMERICAN SOCIETY FOR TESTING AND MATERIALS, ASTM Committee FO4 on Medical & Surgical Materials and Devices, Magnetic Resonance Safety, 1998 to 2020

**Frank G. Sherlock, Ph.D.**

**ACADEMIC AND OTHER ACTIVITIES:**

Member, EDUCATION COMMITTEE, INTERNATIONAL SOCIETY FOR MAGNETIC RESONANCE IN MEDICINE, 1998 to 2001

Member, SAFETY COMMITTEE, INTERNATIONAL SOCIETY FOR MAGNETIC RESONANCE IN MEDICINE, 1996 to 2004

Co-Chairman, MRI SAFETY COMMITTEE, SOCIETY FOR MAGNETIC RESONANCE IMAGING - 1989 to 1995

Reviewer for MEDICAL RESEARCH COUNCIL, London, England -1989

Reviewer for NEW ENGLAND JOURNAL OF MEDICINE - 2006

Reviewer for AMERICAN HEART JOURNAL - 1982

Reviewer for ASSOCIATION FOR FITNESS IN BUSINESS – 1986

Speakers Panel, NYCOMED-AMERSHAM, 1999 to 2002

Member, SUBCOMMITTEE ON MR BIOLOGICAL EFFECTS OF THE COMMITTEE ON RESEARCH AND TECHNOLOGY ASSESSMENT, American College of Radiology - 1993 to 1998

Speakers Panel, BRACCO DIAGNOSTICS, 1993 to 2013

Reviewer for MAGNETIC RESONANCE IMAGING - 1992 to 1999, 2005 to 2017

Reviewer for JOURNAL OF APPLIED PHYSIOLOGY – 1991 to 1993

Reviewer for MEDICINE AND SCIENCE IN SPORTS AND EXERCISE –1993 to 1994

Reviewer for HEART AND LUNG - 1986 to 1989

Reviewer for AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES, ARMY BREAST CANCER RESEARCH PROGRAM - 1994

Reviewer for NATIONAL INSTITUTES OF HEALTH, SPECIAL GRANT APPLICATIONS – 1993

Member, Board of Directors, SOCIETY FOR MAGNETIC RESONANCE IMAGING, 1990 to 1993

Member, MRI INDUSTRIAL COMMITTEE, SOCIETY FOR MAGNETIC RESONANCE IMAGING - 1990 to 1991

**Frank G. Shellock, Ph.D.**

**ACADEMIC AND OTHER ACTIVITIES:**

Member, NMR TASK FORCE ON GUIDELINES, REGULATORY REQUIREMENTS, AND SAFETY STANDARDS - American Association of Physicists in Medicine, 1987 to 1989

Member, MRI SAFETY COMMITTEE, SOCIETY FOR MAGNETIC RESONANCE IMAGING- 1988 to 1989

Member, LOCAL ARRANGEMENTS COMMITTEE, National Meeting, SOCIETY FOR MAGNETIC RESONANCE IMAGING - 1989

Member, Editorial Board, HEART AND LUNG - 1986 to 1989

Member, Organizing Committee, WORKSHOP ON NEW INSIGHTS INTO SAFETY AND COMPATIBILITY ISSUES AFFECTING IN VIVO MR, INTERNATIONAL SOCIETY FOR MAGNETIC RESONANCE IN MEDICINE. Washington, D.C., 1998

**PATENTS**

**Title: An Electromagnetic Interference Immune Tissue Invasive System**

Inventors: Helfer, Jeffrey L. (Webster, NY), Connelly, Patrick R. (Rochester, NY), MacDonald, Stuart G. (Pultneyville, NY), Miller; Victor (Clarence, NY), Shellock, Frank G. (Los Angeles, CA), November 21, 2007; United States Patent - 7,010,357

**Title: Excess Lead Retaining and Management Devices and Methods of Using Same**

Inventors: Rezai, Ali R. (Bratenahl, OH); Baker, Kenneth B. (Chesterland, OH); Hall, John D. (Mayfield Heights, OH); Shellock, Frank G. (Los Angeles, CA), November 18, 2008; United States Patent – 7,454,251