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Methods: Single-Voxel Versus Chemical Shift Imaging"  
"Single-Voxel Magnetic Resonance Spectroscopy" 2D or 3D Chemical Shift Imaging"; "When to Use What Method?"; "Signal-to-Noise Ratio"; "Rules (and Qualifiers) for Signal-to-Noise Ratio"; "Selecting the Region of Interest"; "How to Acquire Good Quality Spectra"; "Processing and Quantitation"; "Absolute Quantitation"; "Miscellaneous"; "Safety"; "Magnetic Resonance Spectroscopy at 3T"; "Basic Questions/Answers"; "References"; "3: Metabolites of Proton Magnetic Resonance Spectroscopy and Normal Age-Dependent Changes"; "Important Limitations"  
"Materials and Methods" "Controls/Patients and Brain Regions"; "Presentation of the Data"; "Acquisition, Processing, and Quantitation of Magnetic Resonance Spectra"; "Metabolites of 1 H Magnetic Resonance Spectroscopy and Their Age-Dependent Changes in Normal Brain"; "N -acetyl-aspartate, N -acetyl-aspartyl-glutamate"; "Creatine"; "Total Choline"; "Myo-inositol"; "Ratios of NAA, Cho, and ml Relative to Cr"; "Glutamate and Glutamine"; "Taurine"; "Lactate"; "Glucose"; "Lipids and Macromolecules"; "Citrate, Alanine, Scyllo-Inositol, Glycine"  
"Other Metabolites Detectable with 1 H Magnetic Resonance Spectroscopy" "Regional Variations"; "Frontal White Matter, Basal Ganglia, Pons, and Cerebellum"; "References"; "4: Challenges in Pediatric Magnetic Resonance Imaging"; "Technological Advancements That Aid Pediatric Magnetic Resonance Imaging"; "Summary"; "References"; "Part II: Pathologies "; "5: Magnetic Resonance Spectroscopy of Pediatric Brain Tumors"; "Overview"; "Pediatric Brain Tumors"; "Prognoses"; "The Potential Benefits of Magnetic Resonance Spectroscopy"  
"Acquiring and Processing Magnetic Resonance Spectroscopy Data from Children with Brain Tumors"

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## Sommario/riassunto

Magnetic resonance spectroscopy (MRS) is a user-friendly, widely available imaging modality that can be of particular use for brain conditions, including tumors, metabolic disorders, and systemic diseases. MR Spectroscopy of Pediatric Brain Disorders is a groundbreaking survey of the many applications of MRS in pediatrics, taking into account how dramatically the young brain matures as well as the unique presentation of many brain disorders in this population. The first section of this book carefully explains the basic science and practice of MRS. The following section is filled with case studies designed for the clinician who wants to quickly and easily understand how to use MRS for various pediatric brain conditions and disorders. Ideal for the radiologist, neurologist, neurooncologist, neurosurgeon, and even the neuroscience and neurobiology community, MR Spectroscopy of Pediatric Brain Disorders is a fascinating reference for clinicians and researchers alike.

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