

May 2010

→ Impedance
Technology
Publication
Bibliography



SANDHILL
SCIENTIFIC

A stylized logo graphic for Sandhill Scientific, consisting of a yellow and blue geometric shape that resembles a mountain peak or a stylized 'S'.

Adult Impedance/pH Reflux Monitoring

1. Intraluminal Multiple Electric Impedance Procedure for Measurement of Gastrointestinal Motility; Silny; Journal of Gastrointestinal Motility; Volume 3; No 3; September 1991
2. Measuring Esophageal Motility with a New Intraluminal Impedance Device; First Clinical Trial Results in Reflux Patients; Fass et al; Scandinavian Journal of Gastroenterology 1994; 29:693-702
3. Multiple Intraluminal Electrical Impedance for Recording of Upper GI Motility; H. Nguyen et al.; The American Journal of Gastroenterology; Volume 94; Number 2; 1999; pp 1-11
4. Patterns of Gas and Liquid Reflux During Transient Lower Oesophageal Sphincter Relaxation; A Study Using Intraluminal Electrical Impedance; D. Sifrim et al.; Gut; Volume 44; July 1998; pp 47-54
5. Composition of the Postprandial Refluxate in Patients With Gastroesophageal Reflux Disease; D. Sifrim et al.; The American Journal of Gastroenterology; Volume 96; Number 3; 2001
6. Acid, Non-Acid, and Gas Reflux in Patients With Gastroesophageal Reflux Disease During Ambulatory 24-Hour pH-Impedance Recordings; D. Sifrim et al.; American Journal of Gastroenterology 2001;120:1588-1598
7. Simultaneous Intraesophageal Impedance and pH Measurement of Acid and Nonacid Reflux: Effect of Omeprazole; M. Vela et al.; Gastroenterology 2001; 120:1599-1606
8. MultiChannel Intraluminal Impedance Accurately Detects Fasting, Recumbent Reflux Events And Their Clearing; S. Shay et al.; American Journal Physiology; Gastrointestinal & Liver Physiology; April 2002;10.1152/G376-383
9. Baclofen Decreases Acid and Nonacid Postprandial Gastroesophageal Reflux Measured by Combined Multichannel Intraluminal Impedance and pH; M.F.Vela et al; Alimentary Pharmacology Therapy 2003;17:243-251.
10. Relevance of Ineffective Oesophageal Motility During Oesophageal Acid Clearance; M. Simren et al.; Gut 2003; 52:784-790.
11. Redefining Gastroesophageal Reflux (GER) Detection Using Multichannel Intraluminal Impedance in Healthy Volunteers; N.S. Balaji et al; Surgical Endoscopy (2003) pp 1-8
12. Acid Rereflux, A Review, Emphasizing Detection by Impedance, Manometry and Scintigraphy, and The Impact of Acid Clearing Pathophysiology as Well as interpreting the pH Record; S.Shay et al; Digestive Diseases and Sciences, Vol 48, No 1, January 2003; 1-9.
13. MultiChannel Intraluminal Impedance in Esophageal Function Testing and Gastroesophageal Reflux Monitoring; R. Tutuian et al; Journal Clinical Gastroenterology, Vol 37, No 3, 2003; 206-215
14. Use of MultiChannel Intraluminal Impedance to Document Proximal Esophageal and Pharyngeal Nonacid Reflux Episodes; Tutuian et al; The American Journal of Medicine; Vol 115; (3A); 2003; 119S-123S
15. Esophageal Impedance Monitoring; The Ups and Downs of a New Test; Steven Shay; American Journal of Gastroenterology May 2004: 1020-1022
16. Twenty-Four Hour Ambulatory Simultaneous impedance and pH Monitoring: A Multicenter Report of Normal Values From 60 Healthy Volunteers' S. Shay et al; American Journal of Gastroenterology 2004: 99; 1037-43
17. Gastro-oesophageal Reflux Monitoring: Review and Consensus Report on Detection and Definitions of Acid, Non-acid and Gas Reflux; Sifrim et al; Gut; 2004-53;1024-1031
18. Omeprazole Does Not Reduce Gastroesophageal Reflux: New Insights Using MultiChannel Intraluminal Impedance Technology A. Tamhankar et al; Journal of Gastrointestinal Surgery; Vol. 8, Number 7, 888-896
19. Aerophagia, Gastric & Supraesophageal Belching: A Study Using Intraluminal Electrical Impedance Monitoring; AJ Bredenoord et al; GUT; 2004;53; 1561-1565
20. Minimum Sample Frequency for MultiChannel Intraluminal Impedance Measurement of the Oesophagus; AJ Bredenoord et al; Neurogastroenterology Motility; 2004;16; 713-719
21. Physical and pH Properties Gastroesophagopharyngeal Refluxate: A 24-hour Simultaneous Ambulatory Impedance and pH Monitoring Study; Kawamura et al; American Journal of Gastroenterology; 2004:120:1588-1598.
22. An Evaluation of the Antireflux Properties of Sodium Alginate by Means of Combined MultiChannel Intraluminal Impedance and pH-metry; Zentilin et al; Alimentary Pharmacol Therapy 2005;21:29-34.
23. Reproducibility of MultiChannel Intraluminal Electrical Impedance Monitoring of Gastroesophageal Reflux; AJ Bredenoord et al; American Journal of Gastroenterology; 2005;100: 265-269
24. Mechanisms of Gastroesophageal Reflux in Critically Ill Mechanically Ventilated Patients; G. Nind et al; Gastroenterology; 2005;128:600-606
25. Relationships Between Air Swallowing, Intra-gastric Air, Belching and Gastro-oesophageal Reflux; A. J. Bredenoord et al; Neurogastroenterology Motility; 2005;17; 341-347
26. The Influence of Postural Changes on Gastroesophageal Reflux and Barrier Pressure in Nonfasting Individuals; Hans-Christian Jeske et al; Anesthesia Analg.2005; 101: 597-600
27. Direct Comparison of Impedance, Manometry and pH in Detecting Reflux Before and After a Meal; Shay & Richter; Digestive Disease & Sciences; Vol 50, No 9, pp 1584-1590.

Adult Impedance/pH Reflux Monitoring

28. Determinants of Perception of Heartburn and Regurgitation; A. Bredenoord et al; *Gut* 2005;55;313-8
29. Direct Comparison of Impedance, Manometry and pH Probe in Detecting Reflux Before and After a Meal; Shay & Richter; *Digestive Diseases & Sciences*, Vol 50, No 9 (September 2005),pp1584-1590.
30. Normal Values and Day to Day Variability of 24-H Ambulatory Oesophageal Impedance-pH Monitoring in a Belgian-French Cohort of Healthy Subjects; Zerbib et al; *Aliment Pharmacol Ther* 2005; 22:1011-21.
31. Gastric Fullness, Physical Activity and Proximal Extent of Gastroesophageal Reflux; Emerenziani et al, *American Journal of Gastroenterology*, 2005; 100: 1251-1256.
32. Weakly Acidic Reflux in Patients with Chronic Unexplained Cough During 24 Hour Pressure, pH and Impedance Monitoring; D. Sifrim et al; *GUT*; 2005; 54;449-454.
33. Addition of Esophageal Impedance Monitoring to pH Monitoring Increases the Yield of Symptom Association Analysis in Patients off PPI Therapy; Bredenoord et al; *Am. Journal of Gastroenterology*; 2006;101:453-459.
34. Esophageal pH-Impedance Monitoring and Symptom Analysis in GERD: A Study in Patients Off & On Therapy; Zerbib et al; *American Journal of Gastroenterology*; 2006;101;1956-63.
35. Nonacid Reflux in Patients With Chronic Cough on Acid-Suppressive Therapy; Tutuian et al; *CHEST* 2006;130;386-391
36. Gastroesophageal and Pharyngeal Reflux Detection Using Impedance and 24-Hour pH Monitoring in Asymptomatic Subjects: Defining The Normal Environment; B.K. Oelschlager et al, *Journal of Gastrointestinal Surgery*, 2006 Jan;10(1):54-62.
37. Normal Values of 24-h Ambulatory Intraluminal Impedance Combined Is There a Role for Immunotherapy in Hepatocellular Carcinoma with pH-metry in Subjects Eating a Mediterranean Diet; Zentilin et al; *Digestive and Liver Disease* 2006;38;226-32.
38. Air Swallowing, Belching and Reflux in Patients with Gastroesophageal Reflux Disease; A. Bredenoord et al; *Am J Gastroenterology* 2006; 101:1721-1726.
39. MultiChannel Intraluminal Impedance in the Evaluation of Patients With Persistent Globus on Proton Pump Inhibitor Therapy; Anandasabapathy & Jaffin; *Annals of Otolaryngology & Laryngology* 2006 n5(8):563-570.
40. Combined MultiChannel Intraluminal Impedance-pH Monitoring to Select Patients with Persistent Gastro-oesophageal Reflux for Laparoscopic Nissen Fundoplication; Mainie et al; *British Journal of Surgery*; 10.1002/bjs.5493; 2006.
41. Ambulatory 24-h Oesophageal Impedance-pH Recordings: reliability of Automatic Analysis for Gastro- Esophageal Reflux Assessment; Roman et al; *Neurogastroenterol Motil* (2006) 18, 978-986.
42. Acid and Nonacid Reflux in Patients with Persistent Symptoms Despite Acid Suppressive Therapy: a Multicentre Study Using Combined Ambulatory Impedance-pH Monitoring; Mainie et al; *GUT* 2006;55:1398-1402.
43. Impedance Signature of Pharyngeal Gaseous Reflux; Kawamura et al; *European Journal of Gastroenterology & Hepatology* 2007, Vol 19 No 1, 65-71.
44. Characteristics of Gastroesophageal Reflux in Symptomatic Patients With and Without Excessive Esophageal Acid Exposure; Bredenoord et al; *American Journal of Gastroenterology*; 2006;101:2470-2475
45. Performance and Optimal Technique for Pharyngeal Impedance Recording: A Simulated Pharyngeal Reflux Study; Aslam et al; *American Journal Gastroenterology* 2007;102:33-39.
46. Impedance Monitoring Shows that Posture and Meal Influence Gastro-oesophageal Reflux Composition and Frequency; Shay & Lopez; *Neurogastroenterology Motility* (2007) 19,94-102.
47. Combined MultiChannel Intraluminal Impedance and pH Esophageal Testing Compared to pH Alone for Diagnosing Both Acid and Weakly Acidic Gastroesophageal Reflux; Hila et al; *Clinical Gastroenterology & Hepatology* 2007;5:172-177
48. Improved Diagnosis of Gastro-Oesophageal Reflux in Patients with Unexplained Chronic Cough; Blondeau et al; *Alimentary Pharmacology & Therapeutics* 25, 723-732 2007
49. Distension During Gastroesophageal Reflux: Effects of Acid Inhibition and Correlation with Symptoms; Tipnis et al; *Am J Physiol Gastrointest Liver Physiol* 293: G469-G474, 2007.
50. Effect of Oesophagitis on Proximal Extent of Gastroesophageal Reflux; Emerenziani et al; *Neurogastroenterology Motility* (2007) 19, 459-464
51. Physiological Acid Exposure Of The Oesophagus Perception In Non-Erosive Patients With Presence; Emerenziani et al; doi:10.1136/Gut 2007.130104; published online 31 Aug 2007.
52. Acid, Nonacid GER & Gastric Aspiration in Lung Transplant Patients with or without Chronic Rejection; Blondeau et al; *European Journal of Respiratory Disorders* 2007
53. Total Fundoplication Does Not Obstruct the Esophageal Secondary Peristalsis: Investigation with Pre- and Postoperative 24-Hour pH-MultiChannel Intraluminal Impedance; Genio; *Eur Surg Res* 2008;40:230-234
54. Combined pH-Metry/Impedance Monitoring Increases the Diagnostic Yield in Patients with Atypical Gastroesophageal Reflux Symptoms; Bajbouj; *Digestion* 2007;76:223-228

Adult Impedance/pH Reflux Monitoring

55. Characterization of Reflux Events After Fundoplication Using Combined Impedance-pH Recording; Roman et al; *British Journal of Surgery* 2007; 94: 48–52
56. Role of Intra-Oesophageal Impedance Monitoring in the Evaluation of Endoscopic Gastroplication for Gastro-Oesophageal Reflux Disease; J. M. Conchillo et al; *Alimentary Pharmacology Therapeutics* 26, 61–68
57. Efficacy of Laparoscopic Mesh-Augmented Hiataloplasty in GERD and Symptomatic Hiatal Hernia. Study Using Combined Impedance-pH Monitoring; Linke et al; *Journal of Gastrointestinal Surgery*; DOI 10.1007/s11605-008-0470-6
Adult Impedance-pH Reflux Monitoring
58. Biliary Reflux and Nonacid Reflux are Two Distinct Phenomena: A Comparison Between 24-hour MultiChannel Intraesophageal Impedance and Bilirubin Monitoring; Pace et al; *Scandinavian Journal of Gastroenterology*, 2007; 42: 1031_1039
59. Mechanisms of Acid, Weakly Acidic and Gas Reflux After Anti-Reflux Surgery; A J Bredenoord et al; *Gut*; 2008;57:161–166
60. Prospective Assessment of Patient Selection for Antireflux Surgery by Combined Multichannel Intraluminal Impedance pH Monitoring; DelGenio et al; *Journal of Gastrointestinal Surgery* 2008;12:1491-1496.
61. Gastro-Oesophageal Reflux and Aspiration of Gastric Contents in Adult Patients with Cystic Fibrosis; Blondeau et al; *Gut*. 2008 Mar 27
62. An Analysis of Persistent Symptoms in Acid-Suppressed Patients Undergoing Impedance-pH Monitoring; Sharma et al; *Clinical Gastroenterology and Hepatology* 2008;6:521-524
63. Clinical Trial: Persistent Gastro-Oesophageal Reflux Symptoms Despite Standard Therapy with Proton Pump Inhibitors – A Follow-up Study of Intraluminal-Impedance Guided Therapy; Becker et al; *Alimentary Pharmacology & Therapeutics* 26, 1355–1360
64. Characteristics of Symptomatic Reflux Episodes on Acid Suppressive Therapy; Tutuian et al; *American Journal Gastroenterology* 2008;103:1090–1096
65. Total Fundoplication Controls Acid and Nonacid Reflux: Evaluation by Pre- and Postoperative 24-h pH-Multichannel Intraluminal Impedance; del Genio et al; *Surgical Endoscopy*; DOI 10.1007/s00464-008-9958-0
66. The Utility of Intraluminal Impedance in Patients with Gastroesophageal Reflux Disease-Like Symptoms but Normal Endoscopy and 24 Hour pH Testing; Kline et al; *Clinical Gastroenterology & Hepatology* 2008;6:880-885
67. Esophageal pH-Impedance Monitoring in Patients With Therapy-Resistant Reflux Symptoms: 'On' or 'Off' Proton Pump Inhibitor? Hemmink et al; *American Journal of Gastroenterology*; 2008;103:1–8
68. Reproducibility of Symptom Association Analysis in Ambulatory Reflux Monitoring; Aanen et al; *American Journal of Gastroenterology*; 2008;103:2200–2208
69. The Role of Nonacid Reflux in NERD: Lessons Learned From Impedance-pH Monitoring in 150 Patients off Therapy; Savarino et al; *Journal of Gastroenterology*; 2008;103:1–9
70. Determinants of Gastro-oesophageal Reflux Perception in Patients with Persistent Symptoms Despite Proton Pump Inhibitors; Zerbib et al; *Gut* 2008;57;156-160
71. Gastro-oesophageal Reflux and Gastric Aspiration in Lung Transplant Patients With or Without Chronic Rejection; Blondeau et al; *European Respiratory Journal*; Vol 31, No 4.
72. Regional Oesophageal Sensitivity to Acid and Weakly Acidic Reflux in Patients with Non-erosive Reflux Disease; Emerenziani et al; *Neurogastroenterology Motility* (2009) 21, 253–258
73. Gastroesophageal Reflux and Pulmonary Fibrosis in Scleroderma; A Study Using pH-Impedance Monitoring; Savarino et al; *American Journal Respiratory Critical Care Med* Vol 179. pp 408–413, 2009
74. Normal Values of 24-Hour Combined Esophageal Multichannel Intraluminal Impedance and pH Monitoring in the Chinese Population; Xiao et al; *Digestion* 2009;79:109–114
75. Azithromycin Reduces Gastroesophageal Reflux and Aspiration in Lung Transplant Recipients; Mertens et al; *Dig Dis Sci* (2009) 54:972–979
76. Efficacy of Esophageal Impedance/pH Monitoring in Patients With Refractory Gastroesophageal Reflux Disease, on and off Therapy; Pritchett et al; *Clinical Gastroenterology and Hepatology* 2009;xx:xxx
77. Association of Gastroesophageal Reflux and O₂ Desaturation: A Novel Study of Simultaneous 24-h Mill-pH and Continuous Pulse Oximetry; Salvador et al; *Journal Gastrointest Surg* (2009) 13:854–861
78. Functional Heartburn Has More in Common with Functional Dyspepsia than with Non-Erosive Reflux Disease; Savarino et al; *Gut* published online 20 May 2009; doi:10.1136/gut.2008.175810
79. Nonacid Reflux Episodes Reaching the Pharynx are Important Factors Associated With Cough; Patterson et al; *Journal Clinical Gastroenterology*; 2009 XXXX
80. Supragastric Belching in Patients With Reflux Symptoms; Hemmink et al; *American Journal of Gastroenterology*; online;19 May 2009
81. Symptoms with Acid and Nonacid Reflux may be Produced by Different Mechanisms; Agrawal et al; *Diseases of the Esophagus* (2009) 22, 467–470
82. Multichannel Intraluminal Impedance Measurement of Gastroesophageal Reflux in Patients with Different Stages of Morbid Obesity; Schneider et al; *OBES SURG* (2009) 19:1522–1529

Pediatric Impedance/pH Reflux Monitoring

1. Gastroesophageal Reflux in Infants: Evaluation of a New Intraluminal Impedance Technique; H. Skopnik et al.; Journal of Pediatric Gastroenterology and Nutrition; Volume 23; Number 5;591-598; 1996
2. Procedure for the SemiAutomatic Detection of Gastro-oesophageal Reflux Patterns in Intraluminal Impedance Measurements in Infants; M. Trachterna, T. G. Wenzl, J. Silny, G. Rau, G. Heimann; Med Eng Phys 1999, 21: 195-201
3. Gastroesophageal Reflux and Respiratory Phenomena in Infants: Status of the Intraluminal Impedance Technique T. G. Wenzl, J. Silny, S. Schenke, T. Peschgens, G. Heimann, H. Skopnik; Journal of Pediatric Gastroenterology & Nutrition; 1999, 28: 423-8
4. Intraluminal Impedance: an Ideal Technique For Evaluating Pediatric Gastroesophageal Reflux Disease; T. G. Wenzl, H. Skopnik; Curr Gastroenterol Rep 2000, 2: 259-64
5. Association of Apnea and Nonacid Gastroesophageal Reflux in Infants: Investigations with the Intraluminal Impedance Technique; T. G. Wenzl, S. Schenke, T. Peschgens, J. Silny, H. Skopnik, G. Heimann; Pediatric Pulmonology; 31:144-149 (2001)
6. Esophageal pH Monitoring and Impedance Measurement: A Comparison of Two Diagnostic Tests for Gastroesophageal Reflux; T. Wenzl et al; Pediatric Gastroenterology and Nutrition 2002; 34:519-523
7. Gastroesophageal Reflux and Apnea of Prematurity: No Temporal Relationship; Peter C.S. / Poets C.F.et al; Pediatrics; Volume 109 No 1, January 2002.
8. Effects of Thickened Feeding on Gastroesophageal Reflux in Infants: A Placebo-Controlled Crossover Study Using Intraluminal Impedance; T.Wenzl et al; Pediatrics; Volume 111 No 4, April 2003.
9. Evaluation of Gastroesophageal Reflux Events in Children Using Multichannel Intraluminal Electrical Impedance; T. Wenzl; The American Journal of Medicine; Volume 115 (3A) 161S-165S;2003
10. Influence of Nasogastric Tubes on Gastroesophageal Reflux in Preterm Infants: A Multiple intraluminal Impedance Study; Peter CS et al; ;Journal Pediatric 2002, 141: 227-9
11. Investigating Esophageal Reflux with the Intraluminal Impedance Technique; Wenzl TG; Journal Pediatric Gastroenterology Nutrition; 2002, 34: 261-268
12. Detection of Small Bolus Volumes Using Multiple Intraluminal Impedance in Preterm Infants; Peter CS et al; Journal Pediatric Gastroenterology Nutrition; 2003, 36: 381-4
13. Gastroesophageal Reflux; A Critical Review of Its Role in Preterm Infants; Poets FP; Pediatrics; Vol 113 No 2;Feb 2004
14. Inter- and Intra Observer Agreement for Gastroesophageal Reflux Detection in Infants Using Multiple Intraluminal Impedance; Peter CS, Sprodowski N, Ahlborn V, Wiechers C, Schlaud M, Silny J, Poets CF; Biol Neonate 2004, 85: 11-14
15. The Importance of MultiChannel Intraluminal Impedance in The Evaluation of Children with Persistent Respiratory Symptoms; Rosen R. & Nurko S.; American Journal of Gastroenterology; 2004;99:1-7
16. Paradoxical Impact of Body Positioning on Gastroesophageal Reflux and Gastric Emptying in the Premature Neonate; Omari et al; Journal Pediatrics 2004, 145: 194-200
17. Effect of Gaviscon Infant on Gastro-Oesophageal Reflux in Infants Assessed by Combined Intraluminal Impedance-pH, R Del Buono, TG Wenzl, G Ball, S Keady, m Thomson, Arch. Dis. Child, 2005; 90; 460-463.
18. Testing the Association Between Gastroesophageal Reflux and Apnea in Infants; H. Mousa et al; Journal Pediatric Gastroenterology Nutrition; 2005, 41: 169-177.
19. Evaluation of Infantile Acid and Nonacid Gastroesophageal Reflux Using Combined pH Monitoring and Impedance Measurement; Journal Pediatric Gastroenterology Nutrition; 2005, 42: 16-21.
20. Gastroesophageal Reflux Alkaline Neonates: Rate and Characteristics of Acid, Weakly Acidic, and Weakly Twenty-Four-Hour Esophageal Impedance-pH Monitoring in Healthy Preterm; Manuel López-Alonso & Daniel Sifrim et al; Pediatrics 2006;118;299-308
21. Relationship Between Gastro-Oesophageal Reflux and Gastric Activity in Newborns Assessed by Combined Intraluminal Impedance,-pH metry and Epigastric impedance; Cresi et al; Neurogastroenterology and Motility; doi: 10.1111/j.1365-2982.2006.00769.
22. Acid and Nonacid Gastro-Oesophageal Reflux in Neurologically impaired Children: investigation with the Multiple Intraluminal Impedance Procedure: Del Buono et al; JPGN 2006, 43: 331-5
23. The Sensitivity of MultiChannel Intraluminal Impedance and the pH Probe in the Evaluation of Gastroesophageal Reflux in Children; Rosen et al; Clinical Gastroenterology & Hepatology 2006, 4: 167-72
24. Esophageal Impedance/pH Monitoring in Pediatric Patients: Preliminary Experience with 50 Cases; Mattioli et al, Digestive Diseases Science 2006, 51: 2341-7
25. Twenty-Four-Hour Esophageal Impedance-pH Monitoring in Healthy Preterm Neonates: Rate and Characteristics of Acid, Weakly Acidic, and Weakly Alkaline Gastroesophageal Reflux; Lopez-Alonso et al; Pediatrics 2006, 118: e299-308
26. Acid Gastroesophageal Reflux Reports in Infants: a Comparison of Esophageal pH Monitoring and MultiChannel Intraluminal Impedance Measurements; Woodley & Mousa; Digestive Diseases Science 2006, 51: 1910-6
27. Evaluation of Gastroesophageal Reflux in Pediatric Patients with Asthma Using Impedance-pH Monitoring; Condino et al; Journal Pediatrics 2006, 149: 216-9
28. Acid and Nonacid Gastro-Esophageal Refluxes in Children with Chronic Pulmonary Disease; Thilmany et al; Respir Med (epub 10/2006

Pediatric Impedance/pH Reflux Monitoring

29. Starch Thickening of Human Milk is Ineffective in Reducing the Gastroesophageal Reflux in Preterm Infants: a Crossover Study Using Intraluminal Impedance; Corvaglia et al; *Journal Pediatrics* 2006, 148: 265-8
30. Diurnal Variation in the Chemical Clearance of Acid Gastroesophageal Reflux in Infants; Woodley et al; *Clinical Gastroenterology & Hepatology*; 2007, 5: 37-43
31. MultiChannel Intraluminal Impedance to Detect Relationship Between Gastroesophageal Reflux and Apnea of Prematurity; Magista et al; *Dig Liver Dis* 2007, 39: 216-21
32. Effect of Body Position Changes on Postprandial Gastroesophageal Reflux and Gastric Emptying in the Healthy Premature Neonate; Michiel Van Wijk et al; *Journal of Pediatrics* 2007;151:585-90
33. The Effect of Body Positioning on Gastroesophageal Reflux in Premature Infants: Evaluation by Combined Impedance and pH Monitoring; Luigi Corvaglia; *Journal of Pediatrics* 2007;151:591-6
34. Spatiotemporal Characteristics of Acid Refluxate and Relationship to Symptoms in Premature and Term Infants with Chronic Lung Disease; Jadcherla et al; *American Journal of Gastroenterology* 2008;103:720-728.
35. Short-term Effect of Domperidone on Gastroesophageal Reflux in Newborns Assessed by Combined Intraluminal Impedance and pH Monitoring; F Cresi et al; *Journal of Perinatology* (2008), 1–5; doi:10.1038/jp.2008.81
36. Gastroesophageal Reflux Increases the Number of Apneas in Very Preterm Infants; Corvaglia et al ; *Archives of Disease in Childhood; Neonatal Edition*; Online Publication 11 September 2008.
37. Addition of pH-Impedance Monitoring to Standard pH Monitoring Increases the Yield of Symptom Association Analysis in Infants and Children with Gastroesophageal Reflux; Loots et a; *The Journal of Pediatrics*; Volume 154, Issue 2, Pages 248-252
38. Combined Esophageal Multichannel Intraluminal Impedance and pH Monitoring After Repair of Esophageal Atresia; Fröhlich et al; *Journal of Pediatric Gastroenterology & Nutrition*; Vol. 47, No. 4, October

Impedance-Manometry Esophageal Function Testing

1. Intraluminal Multiple Electric Impedance Procedure for Measurement of Gastrointestinal Motility; Jiri Silny; *Journal of Gastrointestinal Motility*; 1991:3:151-62.
2. Verification of the Intraluminal Multiple Electrical Impedance Measurement for the Recording of Gastrointestinal Motility; J. Silny et al.; *Journal of Gastrointestinal Motility*; Volume 5, No 2, Page 107-122, June 1993
3. Measuring Esophageal Motility with a New Intraluminal Impedance Device; J. Fass et al; *Scandinavian Journal of Gastroenterology*; 1994; 29: 693-702
4. Comparison Between Intraluminal Multiple Electric Impedance Measurement and Manometry in the Human Oesophagus; T. Frieling et al.; *Neurogastroenterology & Motility*; 1996:8:45-50.
5. Dynamics of Esophageal Bolus Transport in Healthy Subjects Studied Using Multiple Intraluminal Impedance; H. Nguyen et al.; *The American Physiological Society*; 1997: 273:G958-64.
6. Multiple Intraluminal Electrical Impedance for Recording of Upper GI Motility; H. Nguyen et al.; *The American Journal of Gastroenterology*; Volume 94; Number 2, page 1-12, 1999
7. Esophageal Function Testing Using MultiChannel Intraluminal Impedance; R. Srinivasan et al.; *Journal of The American Journal of Physiology*; 0193-1857, page G457-G462, 2001
8. Esophageal Function Testing With Combined MultiChannel Intraluminal Impedance & Manometry. Multicenter Study in Healthy Volunteers. R. Tutuian et al; *Clinical Gastroenterology and Hepatology*; 2003:1:174-82.
9. Impedance Characteristics of Normal Oesophageal Motor Function; Nguyen et al; *European Journal of Gastroenterology & Hepatology*; 2003;15:773-780
10. Effects of Position on Oesophageal Function; Studies Using Combined Manometry and MultiChannel Intraluminal Impedance; R. Tutuian et al; *Neurogastroenterology & Motility*; 2003;15:63-67
11. MultiChannel Intraluminal Impedance in Esophageal Function Testing and Gastroesophageal Reflux Monitoring; R. Tutuian et al; *Journal Clinical Gastroenterology*, Vol 37, No 3, 2003; 206-215
12. Clarification of the Esophageal Function Defect in Patients with Manometric Ineffective Esophageal Motility; Tutuian R, Castell DO; *Clinical Gastroenterology and Hepatology* 2003 1:174-182
13. Impedance Characteristics Normal Oesophageal Motor Function; H Nguyen et al; *European Journal of Gastroenterology & Hepatology*; 2003;15:773-80.
14. Regional Differences in Oesophageal Motor Function; J. Wise. J. Murray, J Conklin; *Neurogastroenterology Motility*, 2004 16,31-37

Impedance-Manometry Esophageal Function Testing

15. Effect of Interval Between Swallows on Oesophageal Pressures and Bolus Movement in the Normal Subjects-Studies with Combined Multichannel Intraluminal Impedance and Oesophageal Manometry; R. Tutuian, S. Jalil, P.O. Katz, D.O.Castell; *Neurogastroenterology Motility*, 2004 16,23-29
16. Clarification of the Esophageal Function Defect in Patients With Manometric Ineffective Esophageal Motility: Studies Using Combined Impedance-Manometry; R. Tutuian & D.O.Castell; *Clinical Gastroenterology and Hepatology*, 2004;2:230-236.
17. Rumination Documented by Using Combined MultiChannel Intraluminal Impedance and Manometry; R. Tutuian & D.O.Castell; *Clinical Gastroenterology and Hepatology*, 2004;2:340-343
18. Impedance Characteristics of Esophageal Motor Function in Achalasia; Nguyen et al; *Diseases of the Esophagus* (2004) 17, 44–50
19. Combined MultiChannel Intraluminal Impedance and Manometry Clarifies Esophageal Function Abnormalities: Study of 350 Patients; R. Tutuian & D. Castell; *American Journal of Gastroenterology*; 2004;99:1011-19
20. Aerophagia, Gastric and Supragastric Belching: a Study Using Intraluminal Electrical Impedance Monitoring; Bredenoord et al; *Gut* 2004,1561-1565
21. Characteristics of Oesophageal Bolus Transport in Patients with Mild Esophagitis; G. Domingues et al; *European Journal of Gastroenterology & Hepatology*; 2005;Volume 17, No 3. 323-332.
22. Bolus Transit Patterns in Healthy Subjects; a Study Using Simultaneous Impedance Monitoring, Videoesophagram and Esophageal Manometry; Hala Imam et al; *American Journal Physiology-Gastrointestinal & Liver Physiology* 2005;288:G1000-6.
23. Assessment of Oesophageal Motor Function Using Combined Perfusion Manometry and Multi-Channel Intraluminal Impedance Measurements in Normal Subjects; N.Q. Nguyen et al; *Neurogastroenterol Motility* : 2005;17:458-65.
24. Impaired Bolus Transit Across the Esophagogastric Junction in Postfundoplication Dysphagia; R.C.H. Scheffer et al; *American Journal of Gastroenterology*; 2005;100:1677-1684
25. MultiChannel Intraluminal Impedance Monitoring in the Evaluation of Patients with Non-Obstructive Dysphagia; J. M. Conchillo et al; *American Journal of Gastroenterology*; 2005; 100; 2624-2632.
26. Impaired Esophageal Function in Morbidly Obese Patients with Gastroesophageal Reflux Disease; Evaluation with MultiChannel Intraluminal Impedance; Quiroga et al; *Surgical Endoscopy*; 2006 March 16.
27. The Effect of Mosapride on Esophageal Motility and Bolus Transit in Asymptomatic Volunteers; Yu Kyung Cho et al; *J Clin Gastroenterology _ Volume 40, Number 4, April 2006*, 286-292.
28. MultiChannel Intraluminal Impedance for The Assessment of Post-fundoplication Dysphagia; Yigit, Quiroga & Oelschlagel; *Diseases of the Esophagus* (2006) 19, 382-388.
29. Symptom and Function Heterogenicity Among Patients with Distal Esophageal Spasm: Studies Using Combined Impedance–Manometry; Tutuian et al; *American Journal of Gastroenterology*; 2006; 101:464-9
30. The Effect of Sildenafil on Segmental Oesophageal Motility and Gastro-oesophageal Reflux; Kim, Conklin & Park; *Alimentary Pharmacology & Therapeutics*; 24, 1029-1036; 2006
31. Assessment of Esophageal Motor Function Using Combined MultiChannel Intraluminal Impedance and Manometry in Healthy Volunteers: A Single-Center Study in Taiwan; Chien-Lin Chen et al; *Journal of Gastroenterology and Hepatology*; doi:10.1111/j.1440-1746.2006.04565.x
32. Bethanechol Improves Smooth Muscle Function in Patients With Severe Ineffective Esophageal Motility; Agrawal et al; *Journal Clinical Gastroenterology* 2007;41:366–370)
33. Return of Esophageal Function after Treatment for Achalasia as Determined by Impedance-Manometry; Tatum et al; *Journal Gastrointestinal Surgery*; DOI 10.1007/s11605-007-0293-x
34. Impedance Manometry with Viscous Test Solution Increases Detection of Esophageal Function Defects Compared to Liquid Swallows; Blonski; *Scandinavian Journal of Gastroenterology*, 2007; 42: 917_922
35. Optimal Criteria for Detecting Bolus Passage Across the Pharyngo-Oesophageal Segment During the Normal Swallow Using Intraluminal Impedance Recording; M. Szczesniak et al; *Neurogastroenterology Motility* (2007)
36. MultiChannel Intraluminal Impedance and Esophageal Manometry Data for Unrestricted Swallowing: Establishing Normal Values; Wilson et al; *Diseases of the Esophagus* (2008) 21, 51–56
37. Differences in Oesophageal Bolus Transit Between Patients With and Without Erosive Reflux Disease; Chen et al; *Digestive & Liver Disease* doi.org/10.1016/j.dld.2007.12.017
38. Manometry and Impedance Characteristics of Achalasia. Facts and Myths; Agrawal et al; *Journal Clinical Gastroenterology* 2008;42:266–270
39. Clinical Correlates of Dysphagia to Oesophageal Dysmotility: Studies Using Combined Manometry and Impedance; Chen et al; *Neurogastroenterology Motility* (2008) 20, 611–617
40. Utility of Esophageal Impedance in Identifying Dysmotility in Patients with Erosive Esophagitis; Chen et al; *Diseases of the Esophagus* (2008) 21, 539–543

Impedance-Manometry Esophageal Function Testing

41. Impedance Detected Abnormal Bolus Transit in Patients with Normal Esophageal Manometry. Sensitive Indicator of Esophageal Functional Abnormality?; Koya et al; Diseases of the Esophagus (2008) 21, 563-569
42. Oesophageal Bolus Transit and Clearance by Secondary Peristalsis in Normal Individuals; Chen et al; European Journal Gastroenterology & Hepatology; 20:1129-1135
43. The Effect of Oral Buspirone, Pyridostigmine, and Bethanechol on Esophageal Function Evaluated With Combined Multichannel Esophageal Impedance-manometry in Healthy Volunteers; Blonski et al; Journal Clinical Gastroenterology 2009; 43:253-260
44. Proximal Versus Distal Oesophageal Motility as Assessed by Combined Impedance and Manometry; Chen et al; Digestive and Liver Disease 41 (2009) 104-109
45. Esophageal Pressure Topography Criteria Indicative of Incomplete Bolus Clearance: A Study Using High-Resolution Impedance Manometry; Bulsiewicz et al; American Journal of Gastroenterology (2009); 104:2721-2728

Compliments of Sandhill Scientific, Inc.
9150 Commerce Center Circle; Suite 500
Highlands Ranch, Colorado 80129 USA
800.468.4556 303.470.7020
www.sandhillsci.com

