

# CURRICULUM VITAE

**Mohamed A. Sabbahi, PhD, PT, ECS**

Date of This Vita: 1/18/2012

## Education

Ph.D. Year 1976 Neurophysiology, University of Southampton, UK

Graduate studies in Biochemical Pharmacology, 1973, University of Southampton, UK

B. Sc. Year 1966 Physical Therapy, Cairo University, Cairo, Egypt

**Dissertation's Title:** "Motoneurone and Monosynaptic Reflexes Excitability Studies In Man"

University of Southampton; Advisor: Professor E. M. Sedgwick.

## Professional Certification/Licensure

- **Board Certified specialist in Electrophysiologic Physical Therapy, 1992, 2002**
- **Texas License 1985**

## Employment

2012: Professor Emeritus, Texas Woman's University, School of Physical Therapy, Houston, Texas

1992: Professor, Texas Woman's University, School of Physical Therapy, Houston, Texas

1985: Associate professor, Texas Woman's University, School of Physical Therapy, Houston, Texas

1983- 1985 Senior research associate, Neuromuscular Research center, Boston University, Boston, Mass.

1979- 1983 Senior research associate, Liberty Mutual research center, Hopkinton, Mass.

1976- 1977 Lecturer, Cairo University, Faculty of Physical Therapy, Cairo, Egypt.

1966- 1972 Instructor, Cairo University, School of Physical Therapy

## TEACHING

### Courses Taught at TWU

#### Graduate Post-professional Courses (in the last 5 years):

- PT 5293 Pathokinesiology of Gait, fall 2005 (Co-teach)
- PT 5913 Diagnostic EMG/NCV for clinicians, Summer 2005
- PT 5903 Basal Ganglia Disorders, Fall 2003
- PT 5023 Neurobiological basis of movement disorders in patients with spinal cord Injuries.
- PT 6503 Advanced research problems in Physical Therapy (co-teach with Dr. Olson)
- PT 5063 Advanced Instrumentation for Physical Therapists (coordinator)

#### Professional Program Courses (in the last 5 years):

- PT 5221 Exercise Testing and Prescription (Fall 2007).
- PT 5233 Research in Physical Therapy
- PT 5024 Clinical Neuroscience (Co-teach with Dr Bartlett and others)
- PT 5062 Clinical Medicine- Orthopedic (coordinator)
- PT 5811 Introduction to Physical Therapy Skills (co-teaching)

## **Doctoral Dissertations Supervised**

- Abdulkader Alattas, The effect of closed kinetic chain exercise in the recovery of upper limb function and muscle activity in patients with stroke, 2006 (Chairman)
- Hisham AlRowayeh, Electrophysiological studies of Quadriceps muscle activation in Healthy subjects and subjects with anterior cruciate ligament Injury or reconstruction, 2003 (Chairman)
- Enrique Pineda, Evaluation and Treatment of patients with Stroke: An EMG and H-reflex study, 2002 (Chairman)
- Magdi Attia, Electrophysiologic evaluation and treatment effects in patients with Tension-type headache, 2002 (Chairman)
- Alaa-Eldin Balbaa, Early detection of cervical spine disorders in industrial and job-related Injuries, 1999 (Chairman)
- Ibrahim Al-Jawayed, H-reflex studies in patients with movement disorders, 1997 (Chairman)
- Charles Costello, The optimization of Drug delivery with Iontophoresis, 1993, (Chairman)
- Fu-mai Lin Modulation of the stretch reflexes of the hand, 1992 (Chairman)
- Prem Gogia, Electromyographic analysis of cervical muscle fatigue in normal subjects and patients with Osteoarthritis of cervical spine, 1991 (Chairman)
- Nancy Henderson, Postural control and the H-reflex in persons with essential tremor: An exploratory study, 1995, (committee member)
- Sharon L. Olson, The effects of TENS on Late wave somatosensory evoked cortical potentials and subjective response to experimental pain, 1991, (committee member)
- Manuela Jasso Giannini, Arobic Capacity and isometric muscle torque in Children with Juvenile Rheumatoid Arthritis and Healthy Children: A case comparison Study, 1990 (committee member)

## **Master's Theses**

- Abdulkader Alattas. Volitional and reflex modulation in closed and open Kinetic chain activities of upper extremity in Healthy individuals, 2003 (Chairman)
- Ashraf Ali, H-reflex changes with loading and unloading, 1997 (Chairman)
- Choi-Choi Irene Luk, Effect of desensitization of muscle receptors by Iontophoresis on Inhibitory mechanisms and muscle mechanics, 1987 (Chairman)
- John Mullen. Correlation of experimental pain and thermal stimulation in Healthy subjects, 1986 (Chairman)

## **Master's Professional Papers (Chairing an average of 3 professional papers per year during the last 20 years (Sample)**

- Boehme A., Brown A., Pinkney C., Schoene C., Smith A., Effect of loading, unloading and spinal posture on the soleus and FCR H-reflex. (in progress) (Chairman)
- Debra Cohen, Comparison of Ipsilateral upper and lower limb H-reflex behavior. 2005 (Chairman)
- Ralph Hall, Kristina Jones, Mica Smith, Victoria Zumberge, Test/retest reliability study of volitional and reflex modulation in closed & open Kinetic chain activities of the upper extremities in a patient with stroke, 2005 (Chairman)
- Spencer McCombs, Laurie Gaul, Adrienne Lewis, Nerve conduction changes with different wrist postures, 2004 (Chairman)
- Kendel Stone H-Reflex Changes with posture. 2002 (Chairman)

- David Blanchard, Brian Anderson, Carina Lawry. Blood Pressure changes with Rocking. 2001 (Chairman)

## **Other Scholarly Teaching, Mentoring and Curricular Achievements**

### SCHOLARSHIP/CREATIVE ACHIEVEMENTS

#### **Refereed Publications or Other Creative Achievements**

Published or completed works (accepted or in press) only. Works still "in progress" should be included under the category "Scholarly Works in Progress." Give author(s) name(s) in same order as they appear in the publication.

#### **1. Books (give author(s), title, press and date of publication)**

- (1) - Sabbahi, M.A. Modern Trends in Physical Therapy for Neurology. Cairo, Egypt: Cairo Press, 1978.
- (2) Sabbahi, M.A., "The use of topical anesthesia in the rehabilitation of patients with spasticity" Neurotrauma: Treatment, Rehabilitation and Related Issues. Miner and Wagner (Edts), Butterworth, Boston, 65-80, 1987.
- (3) Nalty T. and Sabbahi M. Electrotherapy : Clinical Procedures Manual. McGraw Hill (Pub.) 2001

#### **2. Chapters (give author(s), titles, press, date of publication and page numbers)**

- (1) DeLuca, C.J., Sabbahi, M.A., Stulen, F.B. and Bilotto, G. "Some properties Of the median frequency of the myoelectric signal during localized Muscular fatigue", Biochemistry of Exercise, Kuttgen, H., Vogel, J. and Poortmans, J. (edts) pp. 175-186, (1983).

#### **3. Articles**

- (1) Sabbahi M., Sengul Y. Cervical multisegmental Motor responses in Healthy Subjects. Spinal Cord January 17, 2012; doi; 10.1038/sc. 2011.166; 1-8.
- (2) Uzun S., Sabbahi M. Ovak-Bittar F. Intersession Reliability of Cervical and Thoracolumbar Multisegmental Motor responses. In review- Spinal Cord Medicine.
- (3) Mohamed A. Sabbahi; Selda Uzun, Yesim Sengul, Fikreyeh Ovak-Bittar, Similarities and Differences in cervical and Thoracolumbar responses and the Combined use for testing spinal circuitries. Submitted for publication.

- (4) Alrowayeh H., Sabbahi M. H-reflex amplitude asymmetry is an earlier sign of nerve root involvement than latency in patients with S1 radiculopathy. *BMC Research Notes* 4:102, 1-8, 2011
- (5) Sabbahi M, Sengul Y. Thoracolumbar multisegmental motor responses in the upper and lower limbs in healthy subjects. *Spinal Cord* 10; 1-8, 2010
- (6) Pinada E., Sabbahi M. Etnyre B. Using standing postures as a practical alternative to Gait analysis for assessing normal Neuromotor activity Variation of the ankle muscle antagonists: A soleus H-reflex and EMG activity study. *Int. J. Morphology* 28; 7- 12, 2010
- (7) Pinada E., Sabbahi M., Etnyre B. Using Standing postures as a Practical Alternative to gait Analysis for assessing Normal Neuromotor activity variation of the ankle muscle antagonists: A Soleus H-reflex and EMG activity study comparing Patients with Hemiplegia to Healthy subjects. *Int. J. Morphology* 28; 591- 594, 2010
- (8) Alrowayeh H., Sabbahi M. The Proportion of patients with Non- Specific Low Back Pain and Neural Compromise. *EMG. Clin. Neurophysiol.* 50; 67-73, 2010
- (9) Al-Rowayeh H., Sabbahi M., Etnyre B. Flexor carpi Radialis H-reflex Modulation during spinal loading and unloading with varied forearm posture. *J. Clin. Neurophysiol.* 27; 116-119, 2010
- (10) Al-Rowayeh H, Sabbahi M. and Etnyre B., Medial and Lateral Gastrocnemius H-reflexes Intersession Reliability during Standing and Lying Postures at varied Foot Positions in Healthy Participants. *EMG. Clin. Neurophysiol*,49; 143-148, 2009.
- (11) Al-Rowayeh H. Sabbahi M., Etnyre B. Vastus Medialis H-reflex Reliability during Standing. *J. Clin. Neurophysiol.*145; 79-84, 2006
- (12) Al-Rowayeh H., Sabbahi M., Etnyre B. Soleus and Vastus Medialis H-reflexes: Similarities and differences during selective functional and movement Tasks. *J. Neurosci. Methods* 144; 215-225, 2005.
- (13) Brennan K., Sabbahi M., Etnyre B., Olson S. Pain Disability Outcomes of Manual Therapy in patients with sub-acute low back Pain. Submitted: *J. Orthop. & Sports Physical Therapy*.
- (14) Sabbahi M. Etnyre B., Aljawayed I., Hasson, and Jankovic J. Soleus H-reflex measures in Patients with Focal and Generalized Dystonis. *Clinical Neurophysiology Clin. Neurophysiol.* 114; 288-294, 2003.
- (15) Sabbahi M. H-Reflex Changes Under Spinal loading and Unloading of the spine and their relation to the diagnosis of lumbosacral radiculopathy in mechanical back pain.. *Clin. Neurophysiol.*112;1952-1954, 2001

- (16) Sabbahi M., Etnyre B., Al-Jawayed I., Jankovic J. "H-Reflex recovery Curves to differentiate essential tremor from Parkinson's Disease and the combination of essential tremor and Parkinson's disease. *Journal of Clin. Neurophysiol.* 19, 519- 526, 2002
- (17) Ali A., Sabbahi M. Test – Retest Reliability of the Soleus H-Reflex in Three Different Positions. *Electromyog. Clin. Neurophysiol.* 41, 209-214, 2001
- (18) Sabbahi M, Etnyre B., Aljawayed I., Hasson S. and Jankovic J. Methods of H-reflex evaluation in early stages of Parkinson’s Disease. *Journal Clin. Neurophysiol.* 19 (1): 67- 72, 2002
- (19) Ali A., Sabbahi M. H-Reflex Changes Under Spinal Loading and Unloading Conditions in Normal Subjects. *Clin. Neurophysiol.* 111: 664-670, 2000.
- (20) Al-jawayed I., Sabbahi M., Etnyre B. and Hasson S. The H-reflex Modulation in Lying and a semireclining (sitting) position. *Clin, Neurophysiol.* 110:2044-2048. 1999.
- (21) Abdulwahab S and Sabbahi M. Electrodiagnosis-based evaluation and treatment of patients with cervical radiculopathy. Submitted for Publication.
- (22) Abdulwahab S and Sabbahi M. Cervical root compression monitoring by flexor carpi radialis H-reflex in normal subjects. *Spine* 24:137-141, 1999.
- (23) Abdulwahab S and Sabbahi M. Neck retractions, Cervical Root Decompression, and Radicular Pain. *JOSPT* 30:4-12, 2000.
- (24) Lin F and Sabbahi m. Correlation of Spasticity with the hyperactive stretch reflexes and the motor dysfunction in hemiplegia. *Arch Phys. Med. Rehab.* 80:526-530, 1999.
- (25) Lin F and Sabbahi M. The aging effect on the EMG and mechanical responses of the human wrist-flexor stretch reflexes. *EMG. Clin. Neurophysiology* 38:323-331,1999.
- (26) Sabbahi M. Electrodiagnosis – directed treatment of lumbosacral radiculopathy after spinal surgeries. *J. Neurol. Orth. Med. Surg.* 17:182-186, 1997.
- (27) Sabbahi M. Fixing lumbosacral radiculopathy with postural modification: A new method for evaluation and treatment based on electrodiagnostic testing. *J. Neurol. Orth. Med. Surg.* 17:182-186, 1997.
- (28) Lin F., Pan Y., Hom C., Sabbahi M. & Shenaq S. Ankle stance angle: A functional index for the evaluation of sciatic nerve recovery after complete transection. *J. Reconstructive Microsurgery* 12:173-177, 1996.
- (29) Xu Y., Sabbahi M. & Khalifa A. Early detection of carpal tunnel syndrome in office workers. Submitted for Publication.

- (30) Lin F., Pan Y., Dinh T., Sabbahi M. & Shenaq S. Functional assessment of tibial nerve recovery in the cat using gait analysis. (*J. Recon. Microsurg.*, 13: 177-183, (1997).
- (31) Gogia P. & Sabbahi M. Electromyographic analysis of neck muscle fatigue in patients with osteoarthritis of cervical spine. *Spine* 19:502-506, 1994.
- (32) Sabbahi M. and Judy D. Kinesthetic sensation in the thumb interphalangeal joint. *Bull. Faculty of Physical Therapy, Cairo Univ.*, vol. 1, pp. 1-9, 1996.
- (33) Gogia P. and Sabbahi M. Changes in fatigue characteristics of cervical paraspinal muscles with posture. *Spine* 16:1135-1140, 1991.
- (34) Gogia P. and Sabbahi M. Median frequency of the myoelectric signal in cervical paraspinal muscles. *Arch Phys Med. & Rehab.* 71:408-414, 1990.
- (35) Sabbahi M., and Sabbahi N.M. Movement analysis system: A new method for measuring movement performance. *J Neurol Ortho Med & Surg.* 10: 319-322, 1989
- (36) Khalil M. and Sabbahi M. H-reflex studies for C6, L4 and S1 spinal nerve root pathology. *Journal of Neurology and Orthopedic Medicine and Surgery* 9: 319-322, 1988.
- (37) Sabbahi, M.A., and Khalil M.: Segmental H-reflex studies in upper and lower limbs in patients with radioculopathy. *Arch phys Med. Rehab.* 71:223-227, 1990.
- (38) Sabbahi, M.A., and Khalil M.: Segmental H-reflex studies in upper and lower limbs of normal subjects. *Arch Phys Med Rehab. Arch. Phys. Med. Rehab.* 71:216-222, 1990.
- (39) Sabbahi, M.A., Fox A.M., and Druffel C.: Do joint receptors modulate the Motoneuron excitability? *EMG Clin. Neurophysiol.* 30:1300-140, 1990.
- (40) Sabbahi, M.A. and DeLuca, C. J. "Topical Anesthetic induced improvements in the mobility of patients with muscular hypertonicity": Preliminary Results, *J. EMG Kinesiol.* 1:41-48, 1991.
- (41) DeLuca, C. J., Sabbahi, M.A. and Roy, S. Median frequency of the myoelectric signal: Effect of Hand Dominance. *Eur. J. Appl. Physiology* 55: 457-464, 1986.
- (42) Sabbahi, M.A. and Sedgwick, E.M. "Recovery profile of single Motoneuron after electrical stimuli in man". *Brain Research* 423: 125-134, 1987.
- (43) Sabbahi, M.A. and DeLuca, C.J. "Topical Anesthesia: Modulation of the Monosynaptic Reflexes by Desensitization of the Skin". *Electroenceph Clin Neurophysiol.* 54: 677-688, 1982.
- (44) Merletti, R., Sabbahi, M.A., DeLuca, C.J. "Effect of Ischemia and Temperature on the Median Frequency of the Myoelectric Signal". *Europ. J. Appl. Physiol.* 52: 258-265, 1982.
- (45) Sabbahi, M.A. and Sedgwick, E.M. "Age-related Changes in Monosynaptic Reflex Excitability: J. Gerontol 37: 24-32, 1982.

- (46) Sabbahi, M.A. and Deluca, C.J. "Topical Anesthesia: H-reflex Recovery Changes by Desensitization of the Skin". *Electroenceph. Clin. Neurophysiol.* 52: 328-335, 1981.
- (47) Sabbahi, M.A., DeLuca, C.J. and Powers, W.R. "Topical Anesthesia: A Possible Treatment Method for Spasticity". *Arch Phys. Med. And Rehab* 62: 310-314, 1981.
- (48) Illis, L.S., Oygar, A.E., Sedgwick, E.M. and Sabbahi Awadalla, M.A. *The Lancet* 1973: 1383-1386, 1976.

- 4. Book reviews: NA
- 5. Other completed works (Be specific, i.e., author(s), title, press or journal, chapters completed or title of article, number of pages and expected date of publication) NA
- 6. Completed exhibitions, performances, productions, films, etc. (describe nature of accomplishment, location, dates, etc.) NA
- 7. Completed compositions, scripts, scores, commissions, etc. (Accepted or installed) NA
- 8. Other

**Non-Refereed Publications or Other Creative Achievements**

Give author(s) name(s) in same order as they appear in the publication.

- 1. Books (give author(s) title, press and date of publication)
  - a) Authored
  - b) Edited
- 2. Chapters (give author(s) title, press, date of publication and page numbers)
- 3. Articles (give author(s) title, journal, date and page numbers)
- 4. Book reviews (include full publication data)
- 5. Other completed works (accepted or in press) (Be specific, i.e., author(s) title, press or journal, chapters completed or title of article, number of pages and expected date of publication.)
- 6. Completed exhibitions, performances, productions, films, etc. (Describe nature of accomplishment, location, dates, etc.)
- 7. Completed compositions, scripts, scores, commissions, etc. (Accepted or installed).
- 8. Other

## **Presentations at Professional Meetings**

- (1) Sabbahi, Awadalla, M.A. and Sedgwick, E.M. "Excitability Changes in Human Motoneurons Measured by H-reflex and Produced by Local Cooling of the Skin". J. Physiol. (London) 232: 58, 1973.
- (2) Sabbahi Awadalla, M.A. and Sedgwick, E.M. "H-reflex Modulation by Natural Stimulation of the Skin". Electroenceph. Clin. Neurophysiol. 41: 537, 1976.
- (3) Sabbahi, M.A., Powers, W.R. and DeLuca, C.J. and Stulen, F.B. "Intramuscular Conduction Velocity during Ischemia and Cooling. Physical Therapy 59: 579,1979
- (4) Sabbahi, M.A., Powers, W.R. and DeLuca, C.J. "Effect of Topical Anesthesia on Various Skin Areas of the H-reflex". Proc. Of the 9<sup>th</sup> Annual Meeting of the Soc. For Neuroscience. 384, 1979.
- (5) Sabbahi, M.A. and Sedgwick, E.M. "H-reflex Recovery Curve-Single Fiber EMG Studies". Proc. Of the 4<sup>th</sup> Congress of I.S.E.K., 188-189, 1979.
- (6) Sabbahi, M.A., Powers, M.R. and DeLuca, C.J. "Excitability of the Monosynaptic Reflexes with Topical Anesthesia". Proc. of the 4<sup>th</sup> Congress of I.S.E.K., 132-133, 1979.
- (7) Sabbahi, M.A., DeLuca, C.J. and Powers, W.R. "Effect of Ischemia, Cooling and Local Anesthesia on the Median Frequency of the Myoelectric Signal". Proc. of the 4<sup>th</sup> Congress of I.S.E.K., 94-95, 1979.
- (8) Sabbahi, M.A., DeLuca, C.J. and Powers, W.R. "Topical Anesthesia in the Treatment of Spasticity". Proc. of the International Conference on Rehabilitation Engineering. 205-207, 1980.
- (9) Sabbahi, M.A. DeLuca, C.J. and Powers, W.R. "Motoneuron Excitability Changes by Desensitization of Cutaneous Receptors" Proc. of the 10<sup>th</sup> Annual Meeting of the Soc. For Neuroscience 674, 1980.
- (10) Sabbahi, M.A., DeLuca, C.J. and Johnson, L.A. "Topical Anesthesia: A New Method for Improving Control in Spasticity". Physical Therapy 61: 673-717, 1981.
- (11) Sabbahi, M.A., Keefe, D.M., Powers, W.R. and Mawdsley, R. "Motoneuron Excitability Changes with TENS". Physical Therapy 61: 673-717, 1981.
- (12) Sabbahi, M.A., Merletti, R., DeLuca, C.J. and Rosenthal, R.G. "How Handedness, Sex and Force level affect the Median Frequency of the Myoelectric Signal". Proc. of the 4<sup>th</sup> Annual Conf. On Rehab. Engineering, 232-234, 1981.
- (13) Sabbahi, M.A. and Sedgwick, E.M. "H-reflex Recovery Studies with Single Fiber EMG". Proc. of the 11<sup>th</sup> Annual Meeting of the Soc. For Neuroscience, 248, 1981.



- (14) Rosenthal, R.G., Sabbahi, M.A., Merletti, R. and DeLuca, C.J. "Possible Fiber Typing by Analysis of Surface EMG Signals". Proc. of the 11<sup>th</sup> Annual Meeting of the Soc. For Neuroscience. 683, 1981.
- (15) Merletti R., DeLuca, C.J. Sabbahi, M.A. and Rosenthal, R. "Valutazione Non-invasiva Della Velocita Di Conduzione Delle Fibre Muscolari Umane". Proc. of the national Cong. of the Italian Soc. of Physical Med. & Rehab., 73, Oct. 1981.
- (16) DeLuca, C.J., Sabbahi, M.A., Stulen, F.B., and Bilotto, G. "Some Properties of the Median Frequency of the Myoelectric Signal During Localized Muscle Fatigue". Proc. of the 5<sup>th</sup> Congress of I.S.E.K., June, 1982.
- (17) Sabbahi, M.A., DeLuca, C.J., Johnson, L.A. and Bailin, M. "Topical Anesthesia: Kinematic Improvements in Patients with Stroke". Proc. of the 5<sup>th</sup> Congress of I.S.E.K., June 1982.
- (18) Sabbahi, M.A., DeLuca, C.J. and Powers, W.R. "Topical Anesthesia: Possible Application in Bladder Control". Proc. of the IXth. International Congress of the World Confederation for Physical Therapy, Part I. Stockholm, Sweden, 107-109, 1982.
- (19) Keefe, D. M., Sabbahi, M.A. Powers, W.R. and Mawdsley, R. "H-reflex Modulation with Transcutaneous Electrical Nerve Stimulation". Proc. of the IXth. International Congress of the World Confederation for Physical Therapy. Part II. Stockholm, Sweden, 528-534, 1982.
- (20) Sabbahi, M.A., DeLuca, C.J., and Johnson, L.A. "Topical Anesthesia: A New Treatment Method for Spasticity". Proc. of the IXth. International Congress of the World Confederation for Physical Therapy. Part II. Stockholm, Sweden, 601-604, 1982.
- (21) Sabbahi, M.A., Roy S., DeLuca, C.J. and Van Volkinburg, L. "Topical Anesthesia: Changes in the Control of Movements in Spastic Patients". Proc. of the Ann. Meeting of Soc. For Neuroscience, Boston, p. 1037, 1983.
- (22) Roy, S., sabbahi, M.A. and DeLuca, C.J. "Topical Anesthesia: Changes in Gait Following Desensitization of the Skin in Normal Subjects". Proceed. Of the Ann. Meeting of Soc. For Neuroscience, Boston, p. 636, 1983.
- (23) Sabbahi, M.A., Roy, S., DeLuca, C.J. and Van Volkinburg, L.A. "Topical Anesthesia: A New Treatment Method for the Rehabilitation of patients with Spasticity". Proceed of the 8<sup>th</sup> Saudi Medical Conference, Rivadh, p. 103, 1983.
- (24) Sabbahi, M.A., Roy, S. DeLuca, C.J., and Van Volkinburg, L "Active and Passive Range of Joints Movements in Stroke patients After Desensitization of the Skin". Proceed. of the ann. Meeting of Soc. For Neuroscience, Anaheim, p. 905, 1984.

- (25) Sabbahi, M. A. "Topical Anesthesia: a Progress Report on Rehabilitation of Patients with Spasticity". Proceedings of the 2<sup>nd</sup> Congress on Neurotrauma, p. 23, Houston, Texas, 1985.
- (26) Sabbahi, M.A. "Topical Anesthesia: Rehabilitation of Spasticity". Proceedings of the Annual Meetings of the American Congress of Rehabilitation Medicine, Kansas City, p. 20, 1985.
- (27) Sabbahi, M.A., Mason, C.R., and Gleeson, P.B. "Topical anesthesia: Effect of desensitization of the skin of the upper limb on the excitability of the flexor Motoneuron pool". Proceedings of the annual meeting of the Society for Neuroscience, Dallas, Texas, p. 698, 1985.
- (28) Druffel, C., Fox, a. and sabbahi, M. "Do Joint Receptors Change the Excitability of the Motoneurons?" *Phy. Ther* 66: 797-797, 1986.
- (29) Lou, E., and Sabbahi, M. "topical Anesthesia: Effect of desensitization of the Skin of the Upplr Limb on Tonic Vibration Reflex". *Phys. Ther.* 66: 796, 1986.
- (30) Malecki, S., Jasso, M., and Sabbahi, M. "Effect of infrared laser stimulation on sensory and motor nerve conduction". *Phys. Ther.* 66: 793, 1986.
- (31) Sabbahi, M., Luk C.C., Estrella, J.E., and Sneath M: Modulation presynaptic inhibition by the skin and muscles. *Proc of the Soc. Neuroscience, New Orleans, LA* p. 1062, 1987.
- (32) Gould, W.R., Harlan L., Johnson K. and Sabbahi M: Analysis of late wave components of somatosensory evoked potentials (SEP) *Physical Therapy* 67: 776-777, 1987.
- (33) Gould WR, Johnson K, Harlan L & Sabbahi M: Effect of ultrasound on late wave components of somatosensory evoked potentials SSEP), *Physical Therapy* 67: 792, 1987.
- (34) Sabbahi, MA: Rehabilitation of spasticity: The noise hypothesis. *Phys. Ther.* Yi: 837, 1988.
- (35) Sabbahi MA & Khalil M: H-reflex studies for C6, L5 and S1 roots in normal subjects. *Phys. Ther.* 68: 785, 1988.
- (36) Sabbahi M and Khalil M: H-reflex studies for C6, L5 and S1 root in patients with radiculopathy. *Phys. Ther.* 68: 785-786, 1988.
- (37) Gogia PP, Moore S, and Sabbahi M: Fatigue characteristics of cervical paraspinal muscles. *Phys. Ther.* 68: 823-824, 1988.
- (38) Gogia PP, Moore S, Sabbahi M & Protas EJ: Fatigue characteristics of cervical paraspinal muscles. Proceedings of the annual meeting of the American college of Sports Medicine, 1988.
- (39) Sabbahi M, Olson S, and Aldea M: H-reflex modulation with GTO. *Proc of the Soc for Neuroscience, Toronto, Ontario*, p. 1302, 1988.

- (40) Sabbahi M. Movement Analysis System: A new clinical approach of evaluation of movement disorders. Annual meeting of the American Academy of Orthopedic and Neurological Surgeons, December 1988.
- (41) Sabbahi M. & Khalil M. Iontophoresis of Xylocaine in rehabilitation of chronic pain syndrome. Annual meeting of the American Academy of Orthopedic & Neurological Surgeons, December 1988.
- (42) Judy D. and Sabbahi M: Passive kinesthetic sensation in the thumb interphalangeal joint. *Phys Ther* 69: 387, 1989.
- (43) Sabbahi M. Evaluation of spasticity by movement analysis system in: A new concept combined section meeting, (Forum on Neurological Physical Therapy Assessment", APTA, Hawaii, February, 1989.
- (44) Sabbahi M and Judy D: Kinesthetic threshold in the thumb interphalangeal joint. *Proc Soc for Neuroscience*, Phoenix, Arizona, p. 395, 1989.
- (45) Sabbahi M. The validity of Roth technique in measuring sensory nerve compound action potential. Annual meeting of the American Academy of Orthopedic and Neurologic Surgeons, December 1989.
- (46) Sabbahi M. Rehabilitation of Young Versus Older Subjects: A proposed theory. *Proc. Annual Meeting APTA*, Anaheim, CA, p.3, 1990.
- (47) Gogia P, Sabbahi M., & Cook C. Median Frequency of the myoelectric signal in anterior and posterior cervical muscles. *Proc. Annual meetings, APTA*, Anaheim CA, p. 123, 1990.
- (48) Sabbahi M. & Gogia P. Median frequency of the myoelectric signal in anterior & posterior neck muscles. *Proc. Soc. Neurosci.*, St. Louis, Missouri, p. 421, 1990.
- (49) Sabbahi M. & DeVost B. Topical Anesthetic: Rehabilitation of patients with Cerebral Palsy. *Phys. Ther.* 71 (Supplement): S56, 1991.
- (50) Gogia P. & Sabbahi M. Localized muscle fatigue of the neck muscles in patients with osteoarthritis. *Phys. Ther.* 71 (Supplement): S88, 1991.
- (51) Sabbahi M., Metawy N. & DeVost B. Movement Analysis System: A new Clinical Method for measuring movement performance. *Proc. WCPT*, London,UK, p. 1625, 1991.
- (52) Gogia P, Sabbahi M. Localized muscle fatigue of the cervical muscles in patients with osteoarthritis of the cervical spine. *Proc. Arth. Foundation Clin. Res. Conf.* P. 93-94, Salt Lake City, UT, 1991.

- (53) Costello C, Emran A and Sabbahi M. Penetration of Lidocaine into the deep tissues with Iontophoresis. Proceedings of the annual meeting of the APTA, Denver, Colorado, 1992.
- (54) Sabbahi M and Neal G. Topical Anesthetic application in muscular hypertonicity. Proceedings of the annual meeting of the APTA, Denver Colorado, 1992.
- (55) Neal G and Sabbahi M. Topical anesthetic and electrical sensory stimulation produce cumulative reduction of muscular hypertonia in TBI: Preliminary Report. Proceedings of the annual meeting on the APTA, Denver Colorado, 1992.
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- (57) Lin F. and Sabbahi M. Topical anesthetic reduce the stretch reflexive and not the volitional torques of the wrist flexors. Proceedings of the annual meeting of the APTA, Denver, Colorado, 1992.
- (58) Lin F., Pan Y., Sabbahi M. and Shenaq S. Video imaging technique for assessment of motor function recovery after rat sciatic nerve repair. Proceedings of the Plastic Surgery Research Council, Toronto, Canada, April, 1992.
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- (63) Lin F, Pan Y, Sabbahi M and Shenaq S. The Kinematic studies of gain patterns in cats with tibial nerve injury. Proceedings of the annual meeting of the Plastic Surgery Research Council, p. , 1993.
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- (65) Lin F. and Sabbahi M. The effects of skin topical anesthesia on the EMG and torque responses of the wrist flexors to ramp stretches. Proc. annual meeting of the Society of Neuroscience, Washington, D.C., p. 141, 1993.

- (66) Sabbahi M, Metawy N, Smith T and Devost. Topical anesthesia evaluation and rehabilitation of patients with cerebral palsy and spinal cord injuries. Proceedings of the International Meeting of Egyptian Physical Therapy Association, Cairo, Egypt, Jan. 1994.
- (67) Sabbahi M and Costello C. Optimization of drug delivery by Iontophoresis. Proc. Of the annual meeting of the APTA, Toronto, Canada, 1994.
- (68) Sabbahi M and Costello C. A method for reducing skin irritation by Iontophoresis. Proc. of the annual meeting of the APTA, Toronto, Canada, 1994.
- (69) Sabbahi M and Dutton C. Standardization of the H-reflexes in Humans. Presented at the Annual meeting of the APTA, Toronto, Canada, 1994.
- (70) Sabbahi M and Xu Y. Detection of Carpal Tunnel Syndrome in office workers, using nerve conduction and tactile measurements. Proceedings of the WCPT meeting, Washington, D.C., 1995.
- (71) Sabbahi M, Sawan S, Allam M and Hafez S. Positional feedback improves gait pattern in stroke patients. Proceedings of the WCPT meeting, Washington, D.C., 1995.
- (72) Lin F and Sabbahi M. Characteristics and functional correlation of the EMG and torque of the stretch reflex in spasticity. Proceedings of the Neuroscience Society, San Diego, CA, p. 149, 1995.
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- (77) Gonzalez J., Greer R., Sabbahi M., and Bartlett W. Effect of gallium aluminum arsenide triple-dioxide laser on evoked action potentials in the median nerve of normal adults. Proceedings of the CSM of the APTA, Dallas, TX, 1997.
- (78) Sabbahi M. Increasing sensitivity of the electrophysiologic procedures by provocative maneuvers: standing and loading in patients with radiculopathy. Proc. annual meeting of the APTA, San Diego, CA June, 1997.

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- (80) Sabbahi M. of Kinesiologic H-reflex: Exercise prescription based on electrodiagnostic testing in patients with low back Pain. Proceedings of the CSM of the APTA, Boston, MA. 1998.
- (81) Sabbahi M. treating Low Back Pain: Not just an exercise in extension. Proceedings of the annual meeting of the APTA, Orlando, FL., 1998.
- (82) Abdulwahab S, and Sabbahi M. Modulation of flexor Carpi radialis H-reflex with head posture. Proceedings of the annual meeting of the APTA, Orlando, FL, 1998.
- (83) Ali A., Sabbahi M. H-reflex changes with loading and unloading - Proceedings of the annual meeting of the APTA, Orlando, FL, 1998.
- (84) Sabbahi M. The use of Soleus and vastus medialis H-reflexes in evaluation and treatment of patients with lumbosacral radiculopathy. Proceedings of the 16<sup>th</sup> annual Houston Conference on Biomedical Engineering Research, p. 123, April 2, 1998.
- (85) Abdulwahab S and Sabbahi M. The use of flexor carpi radialis H-reflex in evaluation and treatment of patients with cervical radiculopathy. Proceeding of the 16<sup>th</sup> annual Houston Conference on Biomedical Engineering Research, p. 124, April 2, 1998.
- (86) Sabbahi M., Hussein T., and Delitto T. Innovation in Evaluation and Treatment of patients with Back and Neck Pain based on Electrophysiologic Testing. Symposium at the Combines Section Meeting of the APTA, Seattle, Washington, 1999.
- (87) Sabbahi M. Treating Low Back pain in Two weeks: A Quick-fix for lumbosacral radiculopathy Based on Electrophysiologic testing. Proc. of the WCPT meeting, Yokohama, Japan, p. 187, 1999.
- (88) Balba'a A. and Sabbahi M. Early Detection of Cervical Spine Disorders in Computer Workers. Proc.WCPT meeting in Yokohama, Japan, p. 189,1999
- (89) Sabbahi A. and Abdulwahab S. A quickfix for cervical radiculopathy based on Electrophysiologic testing. Pro. WCPT mtg. in Yokohama, Japan, p. 190, 1990.
- (90) Hussain T. and Sabbahi M. Back Pain Treatment Based on Electrophysiologic Testing: Gait Improvement. Proc. WCPT meeting, Yokohama, Japan, P. 193, 1999
- (91) Ali A. and Sabbahi M. Test-retest Reliability of the Soleus H-Reflex in three different positions. Proc. WCPT meeting, Yokohama, Japan, p. 194, 1999.
- (92) Abdulwahab S. and Sabbahi M. Electrodiagnosis-Based Evaluation and

- (93) Etnyre B., Sabbahi M., Aljawayed I. H-Reflex modulation in Lying and semi- reclining (sitting) position. Proc. Annual Meeting of the Society for Neuroscience, Miami, Florida, P.109 , 1999.
- (94) Stanton V., Sabbahi M. Spinal Postural Modification Causes No Changes in the Soleus H-Reflex of Normal Subjects. Proc. of the annual meeting of the APTA, Indianapolis, IN, 2000.
- (95) Sabbahi M., Etnyre B., Al-Jawayed I. H-Reflex Changes in Dystonia. Proc. Ann. Meeting Soc. Neuro. Sci., New Orleans, LA., P 1231, 2000.
- (96) Sabbahi M. Topical Anesthesia may reduce disability and improve functional performance in selected patients with neurological disorders. Proc. 2<sup>nd</sup>.Intl. Conference on disability Rehabilitation. Riyadh, KSA, 2000.
- (97) Sabbahi M. Sabbahi's Technique of Electrodiagnosis-based evaluation and treatment of radiculopathy may reduce disability in Low back pain Patients. Proc. 2<sup>nd</sup>. Intl. Conference on Disability Rehabilitation. Riyadh, KSA, 2000.
- (98) Sabbahi M. Etnyre B. The Use of H-reflexes in Electrodiagnostic Testing of Neurologic and Orthopedic Conditions. Symposium, Combined Sections meeting of the APTA, San Antonio, Tx., 2001.
- (99) Sabbahi M. & Pineda E. Volitional & H-reflex modulation during five upright postures. Proc. ANN. Meeting of Society for Neuroscience, San Diego, Ca., 2001.
- (100) Sabbahi M. Electrophysiologic Basis for Evaluation & Treatment of Patients with Back & Neck Pain. Annual Meeting of the North American Spine Society (NASS), Seattle, WA., 2001.
- (101) Pineda E. , Sabbahi M. Volitional and reflex modulation of the ankle antagonists in Hemiparetic subjects during gait-simulating postures: An EMG and H-reflex study. To be presented in the annual meeting of the APTA, Cincinnati, OH. 2002.
- (102) Atteya M. , Sabbahi M. Head Posture changes neck muscle activity in patients with tension-type headache. To be presented in the annual meeting of the APTA, Cincinnati, OH, 2002
- (103) Al-Rowayeh H., Sabbahi M. Soleus and Vastus Medialis H-reflex Behaviors are different in Normal Subjects. Proc. Soc. Neuroscience, Orlando, FL. 2002.
- (104) Pineda E., Sabbahi M. Evaluation and treatment of Patients with Stroke: An EMG and H-reflex study. Proceedings of the WCPT meeting, Barcelona, Spain, 2003.

- (105) Sabbahi M. Acute Low Back Pain can be Evaluated and Treated with H-Reflex-based Technology. Proceedings of the WCPT meeting, Barcelona, Spain, 2003.
- (106) Atteya M., Sabbahi M. Head Posture and Cold application effects on the EMG activity in Tension-Type Headache. Proceedings of the WCPT meeting, Barcelona, Spain, 2003.
- (107) Sabbahi M., Balbaa A. Functional Changes after Positioning and exercise in the Optimum Spinal posture in patients with radiculopathy. Proceedings of the WCPT meeting, Barcelona, Spain, 2003.
- (108) Balbaa A., Sabbahi M. Changes of the EMG frequency parameters in symptomatic and non-symptomatic neck disorders- A study on computer users. Proceedings of the WCPT meeting, Barcelona, Spain, 2003.
- (109) Alrowayeh H, Sabbahi M. H-Reflex Inhibition in patients with ACL Injuries. Proceedings of the WCPT meeting, Barcelona, Spain, 2003.
- (110) Alrowayeh H., Sabbahi M. Does reflex inhibition change with ACL reconstruction. Proceedings of the ACSM meeting, San Francisco, Ca. 2003.
- (111) Alattas A., Sabbahi M. Modulation of the FCR H-reflex by closed and Open Kinetic chain exercise. Proceedings of the annual meeting of the Society for Neuroscience, San Diego, Ca., Oct. 2004.
- (112) Alattas A., Sabbahi M. Closed Kinetic chain Exercises Improve Hand Function and Normalize reflex and volitional control in a patient with stroke. To be presented in the Combined Sections meeting of the APTA, New Orleans, LA, Feb. 2005.
- (113) Sabbahi M. Is Non-Specific Low Back Pain Associated with Neural compression? Presented at the WCPT meeting, Vancouver, Canada, 2007
- (114) Al-Attas A., Sabbahi M., Roddey T, Hamilton M. and Olson S. Effect of Closed Kinetic Chain. Presented at the WCPT meeting, Vancouver, Canada, 2007
- (115) Hesham N. Alrowayeh; Mohamed A. Sabbahi; Talal A. Alshatti. Flexor Carpi Radialis H-reflex Modulation during Spinal Loading and Unloading with Varied Forearm Postures Annual meeting of the Society for neuroscience, Washington DC, 2008
- (116) Sabbahi M., Al-Rowayeh H. Medial & Lateral H-reflex modulation during loading & Unloading in Normal subjects. Annual meeting of the ACSM, Indianapolis, IN. 2008
- (117) Sabbahi M., Yesim S. Sengul. Multisegmental Thoraco-lumbar Spinal Cord stimulation: Annual meeting of the society for Neurosciences, San Diego, CA., Oct. 2010.



- (118) Sabbahi M., Uzun S., Ovak-Bittar F. Reliability and comparison of Multisegmental Motor Responses (MMR) in the upper extremity of healthy subjects. Annual meeting of the Society for Neurosciences, Washington-DC, 2011.
- (119) Ovak-Bittar, Sabbahi M., Uzun S., Abdilahi A.; Effect of Body posture on Multisegmental Motor Responses in the upper and lower limbs of healthy subjects. Accepted for presentation at the annual meeting of the society for Neurosciences, New Orleans, LA, 2012.
- (120) Uzun S., Sabbahi M., Ovak-Bittar F., Abillahi A. Similarities and Differences between H-Reflexes and Multisegmental Motor Responses (MMR). Accepted for presentation at the annual meeting of the society for Neurosciences, New Orleans, LA, 2012
- (121) Sabbahi M., Ovak-Bittar F., Uzun S. Testing Spinal Cord Circuitries with MMR: Is Complete Spinal cord Injury truly complete? Accepted for presentation at the annual meeting of the society for Neurosciences, New Orleans, LA, 2012.

### **Honors, Grants, and Fellowships**

1966	Achievement Award in Higher Education from the National Science Foundation. Cairo, Egypt
1972-1976	Egyptian Government Scholarship to U.K.
1978-1979	Project HOPE Secretariat Fellowship to the U.S.
1982	Who is Who in Frontier Science and Technology
1987	Diplomat of the American Academy of Neuro-orthopedic Electrodiagnosis

List all fellowships and financial support for research and scholarship, both internal and external, indicating period of award, amount awarded and role (principal investigator, co-principal investigator, or other role.)

### **- GRANT ACTIVITY**

- Topical anesthesia: Modulation of Motoneuron Excitability of the Upper Limb. Office of research and grant administration, 1985 – Granted \$3,250.00 (PI)
- Topical Anesthesia: Spinal reflex modulation after desensitization of the skin. TWU – Organized Research Award for Time (Research Associate Award), 1985 – Granted: 6 work units, (PI).
- Electromyographic analysis of cervical muscle fatigue in patients with osteoarthritis, Office of Research and grant administration, 1987, \$4000, Funded (PI)
- Topical Anesthesia: Rehabilitation of patients with spasticity. , requested \$500,000. The Moody Foundation, 1985 (Not Granted) (PI).
- Topical Anesthesia: Rehabilitation of patients with spasticity. Beutlick Pharmaceutical Company (Not Granted) (PI).

- Topical Anesthesia: Changes in the excitability of the muscle spindle afferent of the upper limb flexor muscles. TWU - Biomedical Research Support Grant 9BRSG), 1985 (Not Granted) (PI).
- Rehabilitation of Patients with Lidocaine Iontophoresis. Small Business Innovation Research, NIH, (NINCDS), 1986, (Not Granted) (PI).
- Rehabilitation of spasticity with Anesthetic Iontophoresis. TWU - Organized Research Grant Award, 1986. (Not Granted) (PI)
- Rehabilitation of spasticity by iontophoretic anesthesia. NINCDS (NS25297-01) 1987-1989 \$50,000 Funded (PI).
- Measurement of localized muscle fatigue using the frequency spectrum analysis of the myoelectric signal. Arthritis Foundation 1989-1990, \$10,000 Funded (Co-PI).
- Optimization of drug delivery by Iontophoresis' proposal submitted for funding from NIH for 1990-1993, \$191,059 (Not Funded) (PI).
- Optimization of drug delivery by Iontophoresis, 1992, Life Tech, \$12,000. (Funded) (PI).
- Promoting nerve regeneration with natural conduits, 1995 NIH, \$313,324. (Co-PI) (Not funded).
- Rehabilitation of Essential tremor with topical anesthesia. The VA medical center, Houston (Center of excellence in Movement disorders, \$ 32,047, 1995 (not funded) (Co-PI)
- Rehabilitation of Essential Tremor with topical anesthesia. Advance Research program, Texas Higher coordinating Board, \$111,982, 1995 (not funded) (PI)
- Modulation and Rehabilitation of wrist and hand movements by sensory intervention, 1996 NIH, \$459,817 (not funded) (PI).
- On-line monitoring of soleus H-reflex during spinal manipulation in patients with low back Pain. ORGA, 2002, \$3000,00, (not funded), (PI)
- Soleus H-reflex modulation during spinal mobilization in Back Pain. RehabNet West, \$107, 377 (for two years), 2002, not funded (PI)
- H-Reflex changes with limb side, body position and trunk posture: A computerized analysis. Texas Physical Therapy education and research foundation 2005, \$3000, Not funded, (PI).
- H-reflex changes with limb side, body position and trunk posture: A computerized analysis. Office of Research and sponsored programs 2005, \$ 6000.00 (not funded) (PI).
- EMG evaluation of thigh musculatures during Selected Functional Activities and Patient Satisfaction in Patients Implanted with the JOURNEY Bi-Cruciate Stabilized Knee System and

Stryker Triathlon: A synopsis. The Methodist Hospital Research Institute. Principal Investigator. \$48,000 (funded, on-going).

- Multisegmental Motor responses of Thoracolumbar region in Healthy subjects: Evaluation of Spinal cord Circuitries. Dana & Steve Reeves Foundation; 2011 \$ 75,000 (Not funded)

### **Scholarly Works in Progress**

Include expectations as to when each will be completed and in what form it will appear.

- Research project entitled "Computerized evaluation of H-reflexes in patients with lumbosacral and cervical radiculopathy"
- Research project entitled "Evaluation & treatment of patients with spine pain using electrodiagnostic approach".
- Research project entitled "The use of Open & closed kinetic changes in rehabilitation of patients with Stroke"
- Research project entitled "Modulation of soleus & FCR H-reflex by vestibular stimulation"

### **Other Research and Creative Achievements**

NA

## **PROFESSIONAL SERVICE**

### **Governance and Other Professionally Related Service**

- Manuscripts reviewer for the following journals:
  - o Physical Therapy
  - o Journal of Clinical Neurophysiology.
  - o Physical Therapy: Theory & Practice
  - o Archive of Physical Medicine & Rehabilitation.
  - o Journal of gerontology.
  - o Brain Research
  - o Journal of Orthopedic and Sports Physical Therapy.
  - o Neuroscience letters.
  - o Perceptual and motor Skills.
- Liaison of the EMG section of the APTA at the state of Texas.

### **Service Activities for the University, College, Component University Committees:**

- University Research Support Committee (2006-2008)
- Intercultural Service Advisory Board Committee.
- University senate (covering for Dr. Roddey) 2006.
- University senate representing Houston center for 2 years, 1998.
- Intellectual property committee (1995-1997)
- Research support committee member (1992-1994)
- Human subject review committee (Houston) member (1991-1993)

### **College Committees:**

- Member, College of health science research council (for the last 2 yrs).
- Member, Curriculum review committee (2003 – 2004)

### **School of Physical Therapy:**

- Member, Admission committee (since 1999)
- Member, Search committee (for the last 3 yrs)
- Member, Vision committee (2004)
- Member, Post-professional admission committee (2000-2004)
- Member, DPT curricular committee.

### **Professionally Related Service**

1976	Brain Research Association (U.K.)
1976	Egyptian Physical Therapy Association (President, 1978)
1977	World Confederation of Physical Therapy
1978	International Society of Electrophysiological Kinesiology
1979	Society of Neuroscience (USA)
1985	European Brain and Behavior Society
1989	American Academy of Neurologic and Orthopedic surgeons
2001	North American Spine Society

### **Other Community Outreach Achievements**

OTHER

### **Significant Professional Development Activities**

#### **Invited Speakers:**

- Changchun Symposium on Spinal Rehabilitation, Changchun, China, 2012.
- Beijing Symposium on Spinal Manipulative Therapy; Air force Hospital, Beijing 2010
- Advances in Diagnostic and Interventional Electrotherapy. Commissioned training 2006. Coordinating committee in Physiotherapy Hospital Authority, Hong Kong. Presented three lectures and two workshops. Dec. 8- 11, 2006.
- New Horizons in Rehabilitation. An International Physical Therapy Conference hosted by the Saudi Arabia Physical Therapy Association & Sultan Bin Abdulaziz Humanitarian City, Riyadh, KSA, Presented 2 lectures and member of the scientific committee for the conference. Dec. 6<sup>th</sup>.- 8<sup>th</sup>., 2005.
- Electrodiagnosis-based evaluation and treatment of patients with spine pain. Southeastern district meeting, TPTA, Houston, Texas 2001.
- Sabbahi M. Etnyre B. The Use of H-reflexes in Electrodiagnostic Testing of Neurologic and Orthopedic Conditions. Symposium, Combined Sections meeting of the APTA, San Antonio, Tx., 2001.

- Sabbahi, M.A. "Topical Anesthesia: Rehabilitation of Spasticity". Proceedings of the Annual Meetings of the American Congress of Rehabilitation Medicine, Kansas City, p. 20, 1985.

**Continuing Education Courses presented:**

- Sabbahi's Technique for evaluation and Treatment of Patients with lumbosacral radiculopathy. Jeddah, 2007.
- Electrodiagnostic testing procedures for Orthopedic and Neurological conditions. EMG/NCV studies. King Abdulazeez University, Jeddah, June 12-16, 2004.
- Sabbahi's Technique for Evaluation and Treatment of Neck and Back Pain. National Guard Health Affairs & King Abdulaziz Medical City, Riyadh, KSA, Dec 20-24, 2003.
- Sabbahi's Technique for Evaluation & Treatment of Patients with Back & Neck Pain. Directorate of Health center, Ministry of Health, Kingdom of Bahrain, Dec. 18<sup>th</sup>.-24<sup>th</sup>., 2002.
- Electrophysiologic Based Evaluation and Treatment of patients with Back and Neck Pain. King Faisal University, Dammam, KSA, April 18<sup>th</sup>.- 19<sup>th</sup>., 2001.

**Symposium Presented:**

- Electrophysiologic-based evaluation and treatment of lower back pain. M. Sabbahi and Toni Delitto, CSM; xxxx
- Surface Spinal Cord stimulation and recording Multisegmental Motor Responses in upper and lower limbs: A potential procedures for testing spinal cord injuries and diseases. Sabbahi M. and others. A symposium to be presented at the CSM meeting (APTA), San Diego, CA. 2013.
- Coupling testing and treatment of lumbosacral and cervical spine pain using H-Reflex studies: Saving patients spine surgeries. Sabbahi M., A symposium to be presented at the CSM meeting (APTA), San Diego, CA., 2013.

**Sessions Chairman:**

- WCPT meeting- Barcelona, 2003.
- Second Intl. Conference on Disability Rehabilitation. Riyadh, KSA, 2000.
- APTA annual meeting, Denver Colorado, 1992.
- International Society of Electrophysiologic Kinesiology (ISEK) 1979.