

ISMST

10th International Congress

Sutton Place Hotel
955 Bay Street, Toronto, ON M5S 2A2, Canada

June 6th – 9th, 2007
Scientific Program

Wednesday, June 6th

- 15:00 – 17:00 **Early registration**
16:00 – 18:00 **Meeting of the Managing Board**
“bistro 990” restaurant (990 bay street Toronto, across the street from the hotel)

Thursday, June 7th

- 08:00 - **Registration**
08:00 – 17:30 **Industrial exhibition**
09:00 – 09:30 **Opening Ceremony**
Words of welcome:
→ Dr. Robert Gordon (President of the ISMST)
→ Doz. Dr. Heinz Kuderna (Honorary ISMST President)
09:30 – 10:15 **Session 1: Physics of Shockwaves**
Chairmen: Reiner Schultheiss / Othmar Wess
09:30 – 09:38 Michael Chang (USA)
Modelling of an electrohydraulic shock wave device – implications for optimal device operation [1]

- 09:38 – 09:46 Tom Matula, J. Tu, K. Fagnan, M. Bailey, R. LeVeque (USA)
Shock wave energy deposition near model bone [2]
09:46 – 09:54 Michael Chang, Anh Truong, Daniel Santosa , Shahram Vaezy (USA)
Cavitation fields induced by shock wave propagation in polyacrylamide gel and ex-vivo porcine tissue [3]
09:54 - 10:02 Robin O. Cleveland, Parag V. Chitnis , Scott R. McClure (USA)
Acoustic and cavitation fields of three shock wave therapy devices [4]
10:02 – 10:15 Discussion
10:30 – 12:30 **Trigger point shockwave therapy hands on**
10:15 – 11:15 **Session 2: Experimental I**
Chairmen: Heinz Kuderna / M. Cristina d’Agostino
10:15 – 10:23 Tao-Chen Lee, Yu-Lin Yang, Ching-Jen Wang (Taiwan)
Vulnerability of the spinal cord to injury from extracorporeal shock waves. An experimental study in rabbits [5]
10:23 – 10:31 Tao-Chen Lee, Ching-Jen Wang (Taiwan)
Application of extracorporeal shock wave treatment to enhance spinal fusion: a rabbit experiment [6]
10:31 – 10:39 Roger Lyon, Xue Cheng Liu, Kiran Sekhar, Heidi Meyer, Beth Trost (USA)
Modulation of physal growth using extra corporeal shock wave lithotripsy in a rabbit model [7]
10:39 – 10:47 Helmut G. Neuland, A. Schmidt, Y. Delhase, W. Bloch, H. J. Duchstein (Germany)
Extracorporeal shockwaves manifest themselves as biological mechanotransduction [8]
10:47 – 10:55 Jutta Ninck, P. Lewandowski, Jens Dargel , Rüdiger Schmidt-Wiethoff , Wilhelm Bloch (Germany)
Activation of protein kinase B (Akt1/PKB α) in porcine cartilage after application of radial extracorporeal shock waves [9]
10:55 – 11:15 Discussion
11:15 – 11:45 **Coffee break**
11:45 – 12:30 **Session 3: Experimental II**

- Chairmen: Scott McClure / Sergio Russo
- 11:45 – 11:53 Annette Schmidt, M. Offermann, J. Dargel, G.-P. Brüggemann, W. Bloch, A. Niehoff (Germany)
The Akt signaling pathway is activated in porcine patello-femoral joint cartilage after cyclic compression [10]
- 11:53 – 12:01 Jui-Pin Lai, Feng-Sheng Wang, Ching-Jen Wang, Yur-Ren Kuo (Taiwan)
Extracorporeal shock waves accelerate consolidation of distraction osteogenesis of mandible in a rat model [11]
- 12:01 – 12:09 Antonio Morral, Jordi Grau, Laura Tibau, Laura Mata, Lluís Costa, Marta Prades, Toni Ramon
No influence of sedation on the clinical outcome of radial extracorporeal shock wave-treatment of the proximal suspensory desmopathy in sport horses [12]
- 12:09 – 12:17 Michelle Cortés, Juan J. Ramirez, Santiago Hernandez, Carlos Leal, (Colombia)
RSWT or splitting for the treatment of overuse tendon and ligament injuries in sport horses: Early results [13]
- 12:17 – 12:25 Scott McClure, Dean Morgan (USA)
Extracorporeal shockwave therapy in the treatment of distal limb lacerations [14]
- 12:25 – 12:45 Discussion
- 12:45 – 14:00 **Lunch (sponsored by Storz Medical AG)**
- 14:00 – 15:45 **Session 4: Tendinopathies**
Chairmen: Richard Coombs / Richard Thiele
- 14:00 – 14:08 Maria Cristina Ottone, Orazio Barresi, Filippo Fagnani (Italy)
ESWT in calcific tendonitis of the rotator cuff: 100 patients treated with the same piezoelectric generator but different focal dimensions [15]
- 14:08 – 14:16 Paulo R. Pires Rockett, Ana Cláudia de Souza, Paulo R. Dias dos Santos (Brazil)
Tendinosis calcarea of the shoulder: Treatment by extracorporeal shock waves [16]
- 14:16 – 14:24 Ana Cláudia Souza, Flavia Arkader, Paulo Rockett, Paulo Santos (Brazil)
Shockwave therapy for the treatment of the tendinosis with subacromial impingement of the shoulder [17]
- 14:24 – 14:32 Davide Volpe, Peter A. Mattei, Nicola Volpe, Paolo Pastore, Giuseppe Sessa, Alessandro Carriero (Italy)
Prognostic value of CT evaluation of calcifications for extracorporeal shock wave therapy (ESWT) in calcifying tendinitis of the rotator cuff [18]
- 14:32 – 14:40 Eli Peled, Zinman Chaim, Levin Daniel, Hana Kaufman and Norman Doron (Israel)
Shockwave and greater trochanteric bursitis [19]
- 14:40 – 14:48 Ana Cláudia Souza, Flavia Arkader, Paulo Rockett, Paulo Santos (Brazil)
Shockwave therapy for the treatment of the trochanteric bursitis with tendinosis of the gluteus [20]
- 14:48 – 14:56 Andreas Lang, Helmut Neuland (Germany)
Controversial results in treatment of epicondylitis up to now – Reasons? [21]
- 14:56 – 15:04 Ana Claudia Souza, Flavia Arkader, Paulo Rockett, Paulo Santos (Brazil)
Shockwave therapy for the lateral epicondylitis of the elbow [22]
- 15:04 – 15:12 Ching-Jen Wang, Jih-Yang Ko, Yi-Sheng Chan, Lin-Hsiu Weng, Shan-Lin Hsu (Taiwan)
Extracorporeal shockwave for Chronic Patellar tendinopathy [23]
- 15:12 – 15:45 Discussion
- 15:45 – 16:15 **Coffee break**
- 16:15 – 17:30 **Session 5: Bone Pathologies**
Chairmen: Robert Gordon / Vinzenz Auersperg
- 16:15 – 16:23 Ching-Jen Wang, Po-Chun Lin (Taiwan)
Extracorporeal shockwave treatment of osteonecrosis of the femoral head in systemic lupus erythematosus [24]
- 16:23 – 16:31 Carlos Leal, Juan C. Lopez, Oscar E. Reyes, Elkin Meyer (Colombia)
ESWT in Kienbock`s disease: a case report [25]
- 16:31 – 16:39 Ching-Jen Wang, Feng-Sheng Wang, Kuender D. Yang, Chung-Cheng Huang, Mel Shiuann-Sheng Lee, Yi-Sheng Chan, Jun-Wen Wang, Jih-Yang Ko (Taiwan)
Treatment of osteonecrosis of the femoral head: comparison of extracorporeal shockwaves versus shockwaves plus alendronate [26]

- 16:39 – 16:47 Manuel R. Brañes, Leonardo J. Guiloff, Julian A. Brañes (Chile)
ESWT on benign bone conditions [27]
- 16:47 – 16:55 Leonardo J. Guiloff, Manuel R. Brañes, Julian A. Brañes (Chile)
ESWT as treatment in adult delayed & non-union fractures: Considerations about failures [28]
- 16:55 – 17:03 Andrea Valentin, A. Fischer, A. Menschik, N. Haffner, W. Schaden (Austria)
Extracorporeal shockwave therapy for non-unions and delayed healing fractures [29]
- 17:03 – 17:11 Ching-Jen Wang, Feng-Sheng Wang, Hsuan-Ying Huang (Taiwan)
Extracorporeal shockwaves show regenerative effect in osteonecrosis of the femoral head [30]
- 17:11 – 17:30 Discussion
- 17:30 – 18:30 **Annual General Meeting**
- 19:30 – 23:30 **Come Together Meeting at the CN - Tower**

Friday, June 8th

- 08:30 – 14:00 **Industrial Exhibition**
- 08:30 – 10:00 **Session 6: Experimental III**
Chairmen: Ludger Gerdesmeyer / Ching-Jen Wang
- 08:30 – 08:38 Kevin Frederick Seals, Morgan Wise, Michael Chang (USA)
ESWT and Bacteria: A Critical Review [31]
- 08:38 – 08:46 John Novak, Meera Govindaswami, Karen Novak, Jeffrey Ebersole, Wolfgang Schaden, Neil House (USA)
Effects of unfocused extracorporeal shock waves on gram positive and gram negative bacteria [32]
- 08:46 – 08:52 Richard Coombs, M. Hafez, M. Petrou, M. Hanna, S. Maher, K. Seehra and J. Ramsay
Shockwave treatment for resistant bacterial infections- experience with two challenging cases [33]
- 08:52 – 08:58 Moustafa Hafez, R. Coombs, M. Petrou, M. Hanna, S. Maher, K. Seehra and J. Ramsay

- An experimental study to optimise the bactericidal effects of shockwave treatment [34]**
- 08:58 – 09:06 Sabapathi Sathishkumar, Meka Archana , Dolph Dawson , Neil House , Wolfgang Schaden, Michael Novak, Jeffrey Ebersole, Kesavalu Lakshmyya (USA)
Extracorporeal shock wave therapy induces alveolar bone regeneration in experimental periodontitis [35]
- 09:06 – 09:14 Lukasz Krokowicz, Mariusz Mielniczuk, Maria Siemionow (USA)
Microcirculatory response to shockwave therapy in acute model – preliminary report [36]
- 09:14 – 09:22 M. Cristina d'Agostino, Cristina Bonora, Emanuele Ungaro, Valerio Sansone (Italy)
Effects of unfocused shock waves stimulation on human microvascular endothelial cell line HMEC 1 [37]
- 09:22 – 09:30 Annette Schmidt, Y. Delhasse, C. Steingen, H. Neuland, W. Bloch (Germany)
The first non-invasive way for inducing migration in mesenchymal stem cells (MSC) [38]
- 09:30 – 09:38 Kuender D. Yang, Chi-Chin Chiu, Wan-Ching Chang , Chien-Ming Sheng, Chia-Yo Ou, Feng-Sheng Wang, Ching-Jen Wang (Taiwan)
Shock wave treatment enhances osteogenesis of mesenchymal stem cells from the blood or Wharton jelly of human umbilical cord [39]
- 09:38 – 10:00 Discussion
- 10:00 – 10:30 **Coffee break**
- 10:30 – 12:15 **Session 7: Experimental IV**
Chairmen: Carlos Leal / Wolfgang Schaden
- 10:30 – 10:38 Helmut Garrelt Neuland, Andreas Lang, Paul Kraemer (Germany, France)
Heat shock proteins, extracorporeal shockwaves and wound healing process [40]
- 10:38 – 10:46 Hans-Juergen Duchstein, Helmut Neuland (Germany)
Reactive oxygen and nitrogen species and mechanotransduction during shockwave application [41]
- 10:46 – 10:54 Ching-Jen Wang, Feng-Sheng Wang, Kuender D. Yang, Chung-Cheng Huang, Hsuan-Ying Huang (Taiwan)

- Nitric oxide mediates osteogenic factors in shockwave-promoted bone healing of long bone non-union [42]**
- 10:54 – 11:02 Martina Hofmann, Rainer Mittermayr, Tatjana Morton, Sabine Pfeifer, Heinz Redl, Wolfgang Schaden, Martijn van Griensven (Austria)
Shockwave induces up-regulation of endogenous VEGF-R2 during early hindlimb ischemia-reperfusion injury [43]
- 11:02 – 11:10 Gabriel Halat, H. Redl, T. Hausner, S. Zandieh, R. Hopf, W. Schaden, R. Schmidhammer (Austria)
Shock wave therapy in peripheral nerve repair [44]
- 11:10 – 11:18 Henry Vasconez, Stephanie Edelmann, Betsy F. Fink, Sreenatha Kirakodu, Robert E.H. Ferguson, Karen F. Novak, M. John Novak, Wolfgang Schaden, C. William Balke (USA)
A Study of the biological factors and wound healing of a skin flap model [45]
- 11:18 – 11:26 Rainer Mittermayr, Joachim Hartinger, Martina Hofmann, Tatjana Morton, Martijn van Griensven, Wolfgang Schaden, Heinz Redl (Austria)
Shockwave therapy is protective against ischemia induced tissue necrosis irrespective of application time [46]
- 11:26 – 11:34 Thomas A. Davis, Alexander Stojadinovic, Khairul Amare, Mihret Anam, Shruti Naik, George E. Peoples, Douglas Tadaki, Eric A. Elster (USA)
Extracorporeal shock wave therapy suppresses the acute early proinflammatory immune response to a severe cutaneous burn injury [47]
- 11:34 – 12:00 Discussion
- 12:00 – 12:20 **Special Lecture**
Prof. Ferid Murad, MD, Ph.D.
Nobel Laureate in Medicine, 1998
John s. Dunn Distinguished Chair
Regental Professor
Director, Institute of Molecular Medicine
University of Texas at Houston
"Does nitric oxide participate in the benefits of shock wave therapy?"
- 12:20 – 12:30 Discussion

- 13.30 **Departure in buses to Niagara Falls and dinner at Peller Estates**
- ca. 22.00 Return to the hotel
- ## Saturday, June 9th
- 09:00 – 16:30 **Industrial Exhibition**
- 09:00 – 11:00 **Triggerpoint Shockwave Therapy hands on**
- 09:00 – 10:30 **Session 8: Heel Pathologies**
Chairmen: Kimberly Eickmeier / Robert Gordon
- 09:00 – 09:08 Paulo Roberto Pires Rockett, Ana Cláudia de Souza, Paulo Roberto Dias dos Santos (Brazil)
Achilles tendinopathy: Treatment by extracorporeal shockwaves [48]
- 09:08 – 09:16 John A. Ogden, J. Jaakkola, S.S. Williams, J.G. Keating, T.M. Ganey (USA)
The effectiveness of ESW for patients who failed surgical release of the plantar fascia [49]
- 09:16 – 09:24 Paulo Roberto Pires Rockett, Ana Cláudia de Souza, Paulo Roberto Dias dos Santos (Brazil)
Plantar fasciitis: treatment by extracorporeal shockwaves [50]
- 09:24 – 09:32 Paulo Kertzman, Jose Eid (Brazil)
Fasciitis plantaris – comparison between three devices [51]
- 09:32 – 09:40 John A Ogden, SS Williams, JG Keating, R Thiele, TM Ganey (USA)
ESW for plantar fasciitis in patients with type 2 diabetes [52]
- 09:40 – 09:48 Claudio Tedeschi, Bianchini Dinetta, Camurri Giovanni Battista (Italy)
ESWT in the treatment of acute plantar fasciitis in high level basketball players [53]
- 09:48 – 09:56 Ludger Gerdesmeyer, L. Weil jr, L. Weil sr, C. Frey, K. Fedder, B. Scurran, J. Stienstra, J. Vester, M. Henne, M. Russlies, M. Maier (Germany)
Study to determine the effectiveness of rESWT for chronic plantar heel pain regarding the short- and long-term outcomes [54]

- 09:56 – 10:04 John A. Ogden, W. Schaden, R. Thiele (USA, Austria, Germany)
Shock wave treatment for plantar fasciopathy: a meta-analysis of the current literature [55]
- 10:04 – 10:25 Discussion
- 10:25 – 11:00 **Coffee break**
- 11:00 – 12:45 **Session 9: Miscellaneous**
Chairmen: Roland Hamisultane / Richad Thiele
- 11:00 – 11:08 Anil Kapoor, Michael Asumeng, Faten Mitchell (Canada)
Extracorporeal shock wave treatment (ESWT) for Peyronie's disease – Single center continuing experience [56]
- 11:08 – 11:16 Sergio Russo, C. Servodio Iammarrone, B. Corrado, E. Astarita, F. Servodio Iammarrone, E.M. Corrado (Italy)
Use of shock waves in complementary therapy of dermatomyositis (DMS) [57]
- 11:16 – 11:24 Viktor Vyacheslavovich Titov, Andrew Litvinenko (Russia)
Extracorporeal shockwave therapy in the treatment of the osteochondropathy of tibial bone roughness [58]
- 11:24 – 11:32 Zila Atanelov, D. Hoch, Y. Birenbaum, M. Gelferson, G. Yarkoni (Israel)
Radial shock wave therapy as an aid to physiotherapy [59]
- 11:32 – 11:40 Markus Gleitz (Luxembourg)
Results of the combined treatment with radial and focussed shockwaves in patients with chronic cervical pain [60]
- 11:40 – 11:48 Yong-Gon Ko, Jung-Hoon Ahn, Kwang-Hee Won (Korea)
Extracorporeal shockwave therapy (ESWT) in near-the-bone soft tissue pain [61]
- 11:48 – 11:56 Paolo Buselli, Sara Messina, Valeria Coco (Italy)
Improvements in ESWT: comparing two different clinical protocols in treatment of soft tissue [62]
- 11:56 – 12:04 Sara Messina, Paolo Buselli, Valeria Coco, Raoul Saggini (Italy)
Electronic case report form for multi-centre standardized data collection during ESWT [63]
- 12:04 – 12:12 Sergej Marx, Richard Thiele (Germany)
Focused and defocused ESWT. The comparison of the results in the treatment of heelspurs [64]
- 12:12 – 12:20 Morgan Mackenzie Wise, Kevin Seals, Michael Chang (USA)
Extracorporeal shock wave therapy and its effects on the nervous system – A critical review of current literature [65]
- 12:20 – 12:45 Discussion
- 12:45 – 14:30 **Lunch (sponsored by Tissue Regeneration Technologies, LLC)**
- 14:30 – 16:00 **Session 10: ESWT for Skin Lesions**
Chairmen: Vinzenz Auersperg / Ana Cláudia Souza
- 14:30 – 14:38 Paulo Roberto Pires Rockett, Mara Bernardete Lui (Brazil)
Treatment of shock wave therapy in traumatic skin lesion – A case report [66]
- 14:38 – 14:46 Paulo Roberto Santos, Marco Guedes, Lindomar Guimarães, Claudia Arantes, Judith Mesquita, Paulo Rockett, Ana C Souza, Mara Guimarães (Brazil)
Extracorporeal shockwave therapy for chronic skin ulcers in diabetic patients [67]
- 14:46 – 14:54 Keith Andrews, Anna M. Larking (Great Britain)
Non-focussed ESWT & skin ulceration in complex neurological disabilities [68]
- 14:54 – 15:02 Ching-Jen Wang, Feng-Sheng Wang (Taiwan)
Shockwaves induce cellular responses in diabetic skin ulcers [69]
- 15:02 – 15:10 Richard Thiele, Christian Ottomann, Bernd Hartmann (Germany)
Accelerated wound recovery in the treatment of burns using defocused shockwave therapy (ESWT) [70]
- 15:10 – 15:18 Michael Pusch, C. Köpl, A. Valentin, W. Schaden (Austria)
Extracorporeal shockwave therapy for chronic skin lesions [71]
- 15:18 – 15:26 Margit Vögele-Kadletz, Julia Dumfarth, Daniel Zimpfer, Johannes Holfeld, Florian Sihorsch, Wolfgang Schaden, Ernst Wolner, Michael Grimm, (Austria)
Shock wave therapy to improve wound healing after vein harvesting for CABG [72]

15:26 – 15:34 Eric A. Elster, Thomas A. Davis, Alexander Stojadinovic (USA)
Combat wound initiative summary [73]

15:34 – 16:00 Discussion

16:00 – 16:30 **Closing Ceremony**

Closing Addresses:

Robert Gordon (Past-President of the ISMST)

**Invitation to the 11th Congress of the ISMST
June 5th – 8th, 2008 in Antibes (France)**

Roland Hamisultane (Incoming ISMST President)

Leal Carlos	[25] + Chairmen Session 7
Lee Tao-Chen	[5] + [6]
Lyon Roger	[7]
Marx Sergej	[64]
Matula Tom	[2]
McClure Scott	[14] + Chairmen Session 3
Messina Sara	[63]
Mittermayr Rainer	[46]
Morrall Antonio	[12]
Murad, MD, Ph.D Prof. Ferid.	Special Lecture
Neuland Helmut Garrelt	[8] + [40]
Ninck Jutta	[9]
Novak John	[32]
Ogden John A.	[49] + [52] + [55]
Ottone Maria Cristina	[15]
Peled Eli	[19]
Pires Rockett Paulo Roberto	[16] + [48] + [50] + [66]
Pusch Michael	[71]
Russo Sergio	[57] + Chairmen Session 3
Paulo Roberto Santos	[67]
Sathishkumar Sabapathi	[35]
Schaden Wolfgang	Chairmen Session 7
Schmidt Annette	[10] + [38]
Schultheiss Reiner	Chairmen Session 1
Seals Kevin Frederick	[31]
Souza Ana Cláudia	[17] + [20] + [22] + Chairmen Session 10
Tedeschi Claudio	[53]
Thiele Richad	[70] + Chairmen Session 4 + 9
Titov Viktor Vyacheslavovich	[58]
Valentin Andrea	[29]
Vasconez Henry	[45]
Vögele-Kadletz Margit	[72]
Volpe Davide	[18]
Wang Ching-Jen	[23] + [24] + [26] + [30] + [42] + [69] + Chairmen Session 6
Wess Othmar	Chairmen Session 1
Wise Morgan Mackenzie	[65]
Yang Kuender D	[39]

Names	Abstract Numbers
Andrews Keith	[68]
Atanelov Zila	[59]
Auersperg Vinzenz	Chairmen Session 5 + 10
Brañes Manuel R.	[27]
Buselli Paolo	[62]
Chang Michael	[1] + [3]
Cleveland Robin O.	[4]
Coombs Richard	[33] + Chairmen Session 4
Cortés Michelle	[13]
d'Agostino M. Cristina	[37] + Chairmen Session 2
Davis Thomas A.	[47]
Duchstein Hans-Juergen	[41]
Eickmeier Kimberly	Chairmen Session 8
Elster Eric A.	[73]
Gerdesmeyer Ludger	[54] + Chairmen Session 6
Gleitz Markus	[60] + Trigger point hands on
Gordon Robert	Chairmen Session 5 + 8
Guiloff Leonardo J	[28]
Hafez Moustafa	[34]
Halat Gabriel	[44]
Hamisultane Roland	Chairmen Session 9
Hofmann Martina	[43]
Kapoor Anil	[56]
Kertzman Paulo	[51]
Ko Yong-Gon	[61]
Krokowicz Lukasz	[36]
Kuderna Heinz	Chairmen Session 2
Lai Jui-Pin	[11]
Lang Andreas	[21]