

# Mohammad Taghi Karimi

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## **PERSONAL**

**Date of Birth:** March, 3, 1977

**Place of Birth:** Abadeh, Fars, Iran

**Citizenship:** Iranian

## **EDUCATION**

### **University of Strathclyde, Glasgow, UK**

PhD in Bioengineering

*July 2010*

Thesis: Design and evaluation a new type of Reciprocal Gait Orthosis for paraplegic walking

### **University of Social Welfare and Rehabilitation Sciences, Tehran, Iran**

MSc in orthotics and Prosthetics

*October 2001*

Thesis: Evaluation the performance of the upper limb amputees with various prostheses

### **Isfahan University of Medical Sciences, Isfahan, Iran**

BSc in Orthotics and Prosthetics

*September 1999*

Thesis: Low back pain orthoses

## **EMPLOYMENT**

### **May 2013 to now**

Head of Orthotics and Prosthetics Department, Rehabilitation Faculty, Isfahan University of Medical sciences

### **September 2013 to now**

Visiting Fellow, Metropolitan Manchester University, Manchester, UK

### **September 2010 to now**

Assistant professor of Department of Orthotics and Prosthetics, Faculty of Rehabilitation, Isfahan University of Medical sciences, Isfahan, Iran

### **September 2006 to June 2010**

Research student of Bioengineering Unit, University of Strathclyde, Glasgow, UK

### **October 2001 to March 2006**

Lecturer of Department of Orthotics and Prosthetics, Faculty of Rehabilitation, Isfahan University of Medical Sciences, Isfahan, Iran

### **Awards**

- Top Researcher of Isfahan University of Medical sciences, 2014
- Top Researcher of Rehabilitation Faculty of Isfahan University of Medical Sciences, 2013
- Member of Talent graduated PhD students of Iran
- First position in the Entrance exam of Master degree of Orthotics and Prosthetics, Iran (1999)
- First position in the Entrance exam of PhD in Isfahan University of Medical Sciences (2004)
- Research Day's award from the chancellor, University of Strathclyde (2009)

### **Research Interests**

- Designing orthosis and prosthesis components for handicapped people
- Evaluating the performance of the subjects with various musculoskeletal disorders
- Gait, stability and energy consumption analysis
- Modeling of musculoskeletal systems

### **Teaching Experiences**

- Lower limb biomechanics
- Upper limb biomechanics
- Spine Biomechanics
- Advanced orthoses

## Journal Publications

1. Eshraghi, A, Abu Osman, A, Karimi, M, Gait biomechanics of individuals with transtibial amputation: Effect of suspension system, PLoS ONE, vol. 9, no. 5, 2014.
2. Maryam Zahraee, Mohammad Taghi Karimi, Javid Mostamand, and Francis Fatoye, Analysis of Asymmetry of the Forces Applied on the Lower Limb in Subjects with Nonspecific Chronic Low Back Pain, BioMed Research International, Volume 2014 (2014), Article ID 289491.
3. Karimi M, Omar AH, Fatoye F (2014) Spinal cord injury rehabilitation: Which way forward? NeuroRehabilitation, 2014. In Press.
4. Karimi, M. and F. Fatoye, *Evaluation of the performance of paraplegic subjects during walking with a new design of Reciprocal Gait Orthosis*. Disability and Rehabilitation: Assistive Technology, 2014. **In Press**.
5. Kamali, M., J. Mostamand, and F. Fatoye, *THE USE OF MOTION ANALYSIS SYSTEM AND ORTHOSIS IN PATIENTS WITH NEURO-MUSCULOSKELETAL DISORDERS*. Journal of Mechanics in Medicine and Biology, 2014. **14**(2): p. **In Press**, DOI: 10.1142/S0219519414500286.
6. Karimi, M.T., *Sensitivity analysis and comparison of two methods of using heart rate to represent energy expenditure during walking*. WORK: A Journal of Prevention, Assessment, & Rehabilitation, 2014. **In Press**.
7. Kamali, M., *Evaluation of the Association between Physical Health and Religion: A Literature Review* J Fasting Health, **2014**. **2**(1): p. 22-30.
8. Karimi, M., M. Kamali, and J. Mostamand, *Evaluation of Gait Performance of a Hemipelvectomy Amputation Walking with a Canadian Prosthesis*. Case Reports in Orthopedics, 2014. **In Press**, doi: /10.1155/2014/962980.
9. Taheri, A., M. Karimi, and R. Tahmasebi, *DEVELOPING A NEW PARAMETER TO REPRESENT THE FOOT ALIGNMENT IN SUBJECTS WITH FLAT ARCH*. Journal of Mechanics in Medicine and Biology, 2013. **13**(3): p. 21-6.
10. Taghi Karimi, M., N. Jamshidi, H. Bahreinizad, M.S. Bani, et al., *A new approach to measure stability during quiet standing*. Work, 2013.
11. Karimi, M. and A. Esrafilian, *Should External Powered Orthoses be Used by Paraplegic Subjects or Not*. Iranian Red Crescent Medical Journal, 2011. **15**(9): p. 539.
12. Karimi, M., F. Fatoye, S.M. Mirbod, H. Omar, et al., *Gait analysis of anterior cruciate ligament reconstructed subjects with a combined tendon obtained from hamstring and peroneus longus*. Knee, 2013. **20**(6): p. 526-31.
13. Eshraghi, A., N.A. Abu Osman, M.T. Karimi, H. Gholizadeh, et al., *Quantitative and qualitative comparison of a new prosthetic suspension system with two existing suspension systems for lower limb amputees*. Am J Phys Med Rehabil, 2012. **91**(12): p. 1028-38.
14. Karimi, M., F. Fatoye, S.M. Mirbod, H. Omar, et al., *Gait analysis of anterior cruciate ligament reconstructed subjects with a combined tendon obtained from hamstring and peroneus longus*. Knee, 2013. **20**(6): p. 526-31.
15. Karimi, M., N. Jamshidi, M. Samlimi, and H. Omar, *A new approach to measure stability during quiet standing*. Journal of Work, 2013, In Press.
16. Esrafilian, A., M.T. Karimi, P. Amiri, and F. Fatoye, *Performance of subjects with knee osteoarthritis during walking: differential parameters*. RheumatolInt, 2013.
17. Karimi, M. and A. Esrafilian, *Evaluation of the stability of normal subjects and patients with Perthes*

- and spinal cord injury disorders during short and long periods of time.* ProsthetOrthotInt, 2013. **37**(1): p. 22-9
18. Karimi MT, Amiri P, Esrafilian A, Sedigh J, Fatoye F., *Performance of spinal cord injury individuals while standing with the Mohammad Taghi Karimi reciprocal gait orthosis (MTK-RGO).* AustralasPhysEngSci Med, 2013. **36**(1): p. 35-42
  19. Karimi, M.T., *Robotic rehabilitation of spinal cord injury individual.* OrtopTraumatolRehabil, 2013. **15**(1): p. 1-7.
  20. Taheri, A., M. Karimi, and R. Tahmasebi, *DEVELOPING A NEW PARAMETER TO REPRESENT THE FOOT ALIGNMENT IN SUBJECTS WITH FLAT ARCH.* Journal of Mechanics in Medicine and Biology, 2013. **13**(3): p. 21-6.
  21. Karimi, M.T., *Functional walking ability of paraplegic patients: comparison of functional electrical stimulation versus mechanical orthoses.* Eur J OrthopSurgTraumatol, 2012.
  22. Karimi, M.T., O. Esrafilian, A. Esrafilian, M.J. Sadigh, et al., *Determination of the influence of walking with orthosis on bone osteoporosis in paraplegic subjects based on the loads transmitted through the body.* ClinBiomech (Bristol, Avon), 2013. **28**(3): p. 325-9.
  23. Karimi, M.T., P. Amiri, A. Esrafilian, J. Sedigh, F. Fatoyeh, *Evaluation of gait performance of a participant with Perthes disease while walking with and without a Scottish-Rite orthosis.* ProsthetOrthotInt, 2013. **38**(1): p. 12-16.
  24. Karimi, M.T. and N. Jamshidi, *The magnitude of errors associated in measuring the loads applied on an assistive device while walking.* J Med Signals Sens, 2012. **2**(4): p. 225-30.
  25. Karimi, M.T. and A. Esrafilian, *External Powered Orthoses for Paraplegic Subjects: A Meta Analysis Review.* ISRN Rehabilitation, 2012.
  26. Karimi, M.T., N. Fereshtehnejad, and F. Pool, *The impact of foot insole on the energy consumption of flat-footed individuals during walking.* Foot Ankle Spec, 2013. **6**(1): p. 21-6.
  27. Eshraghi, A., N.A. Osman, H. Gholizadeh, M. Karimi, et al., *Pistoning assessment in lower limb prosthetic sockets.* ProsthetOrthotInt, 2012. **36**(1): p. 15-24.
  28. Karimi MT, Stephan S. The relationship between parameters of static and dynamic stability tests. Journal of Research in Medical Sciences. 2011;16(4):530-5.
  29. Karimi MT, Heshmatipour M. Angular profile of the knee in Iranian children: A clinical evaluation. Journal of Research in Medical Sciences. 2011;16(11):125-32.
  30. Karimi MT. Tropical pressure wound therapy. Journal of Research in Medical Sciences. 2011;16(8):1092-4.
  31. Karimi M. Can walking with orthosis reduce bone mineral density? Australasian Physical & Engineering Sciences in Medicine. 2012; 5:250-5.
  32. Karimi MT, Abtahi FS. Evaluation the magnitude of pistoning motion of the below knee prostheses. Journal of Mechanics in Medicine and Biology. 2012;36(1) 15–24.
  33. Eshraghi A, Abu Osman NA, Karimi MT, et al. Pistoning assessment in lower limb prosthetic sockets. Prosthetics and Orthotics International. 2012: 36(1):15-24.
  34. Karimi MT, Taheri AR. Evaluation the gait performance of above knee amputees while walking with 3R20 and 3R15 knee joints. Journal of Research in Medical Sciences. 2012: 3: 1-11.
  35. Karimi M. Determination of the Loads Applied on the Anatomy and Orthosis During Ambulation With a New Reciprocal Gait Orthosis. Journal of Medical Device 2011;5(4):45-50.
  36. Esrafilian A, Karimi MT, Eshraghi A. Design and Evaluation of a New Type of Knee Orthosis to Align the Mediolateral Angle of the Knee Joint with Osteoarthritis. Advances in Orthopedics. 2012;1:6.
  37. Karimi MT. What are the next steps in designing an orthosis for paraplegic subjects? International

Journal of Preventive Medicine 2012;3:145-59.

38. Mirbod, SM, Karimi MT, Eshraghi A. The effects of dress shoe on stability during quiet standing and energy. Journal of Mechanics in Medicine and Biology. In press.
39. Karimi MT, Esrafilian A. Evaluation of the stability of normal subjects and patients with Perthes and SCI disorders during short and long periods of time. Prosthetics and Orthotics International 2012. DOI: 10.1177/0309364612446649.
40. Karimi M. Can walking with orthosis reduce bone mineral density? Australasian Physical & Engineering Sciences in Medicine 2012;5:250-5.
41. Karimi MT, Spence WD, Solomonidis SE Nicol AC. How can the performance of paraplegic patients be improved? Orthopaedic Technique 2010;4:1-8.
42. Karimi MT. Influences of joint motion restriction on the performance of normal subjects and their implications on development of orthosis for spinal cord injured individuals. Journal of Physical Medicine and Rehabilitation Sciences 2011;13:122-31.
43. Karimi MT. The Suitability of the Force plate to Evaluation the Stability During Quiet Standing and Analyzing the Effects of Shoes, Gender and Age on the Standing Stability. Nigerian Journal of Medical Rehabilitation 2010;15:25-33.
44. Karimi MT. Evidence-Based Evaluation of Physiological Effects of Standing and Walking in Individuals with Spinal Cord Injury. Iran J Med Sci 2011;36(4):242-253.
45. Karimi MT. Evaluation of validity of time and COP sway parameters to evaluate standing stability while performing various hand tasks. Russian Journal of Biomechanics 2010; 5:120-128.

### **Other publications:**

1. م. ی. احمدی، م. م. کریمی، ج. مستمند، M. Mirahmadi, et al. بررسی تعادل ایستایی در بهاران مبتلا به اختلالات عصبی و اسکلتی عضلانی با استفاده از رویکردهای خطی و غیرخطی. مجله پژوهش در علوم توانبخشی. 2014. 9(6).
2. Satvati, B., M.T. Karimi, R. Tahmasebi Boldaji, F. Pool, et al. مجله پژوهش در علوم توانبخشی. 2013. 1277-1284: p.
3. Karimi, M.T., A. Nadi and آ. نادای، مروری بر شاخص‌های کنینتیک در افراد مبتلا به اسکولوز. مجله پژوهش در علوم توانبخشی. 2013. 1363-1370: p.
4. Karimi, M.T., A. Jafari Sarveolia and ع. جعفری سروعلی، مروری بر متغیرهای کنینتیک در افراد مبتلا به اسکولوز. مجله پژوهش در علوم توانبخشی. 2013. 1394-1402: p.
5. Kheyri, F., M.T. Karimi and م. ت. کریمی، مروری بر توانایی عملکردی افراد مبتلا به قطع عضو بالا ی زانو در راه رفتن با مفصل دارای رین پردازنده C-Leg و سایر مفاصل پروتزی زانو. مجله پژوهش در علوم توانبخشی. 2013. 9(5).
6. Karimi, M.T., M. Kamali Ardakani and م. کمالی اردکانی، ارزیابی مزایا و معایب کواچ و واگر: مروری بر مقالات. مجله پژوهش در علوم توانبخشی. 2013. 1342-1351: p.
7. Kaviani Brojeni, M., M.T. Karimi, T. Tahmasebi and م. کاوایی بروجنی، بررسی الگوی راه رفتن و تعادل بهاران مبتلا به اسکولوز بر اساس بررسی متون. مجله پژوهش در علوم توانبخشی. 2013. 1379-1393: p.
8. Kaviani Brojeni, M., M.T. Karimi, A. Ebrahimi and م. کاوایی بروجنی، بررسی عملکرد یک فرد مبتلا به اسکولوز در راه رفتن با و بدون ارتز. مجله پژوهش در علوم توانبخشی. 2013. 1403-1412: p.
9. S. Forghani, N. Jamshidi, et al, Mousavi Nodoshan, S.M., M.T. Karimi. طراحی و ساخت یک سیستم تعلق مکتبی سوکت جدید برای پروتز زیبایی سطح کونی انگشت. مجله پژوهش در علوم توانبخشی. 2013. 1024-1031: (1)1: p.
10. Karimi, M.T., N. Fereshtenejad, F. Pol and م. کریمی، تأثیر استفاده از کفی‌های طبی در مینان مصرف انرژی افراد دچار صافی کف پا طی راه رفتن. مجله پژوهش در علوم توانبخشی. 2012. 1(1): p.
11. Karimi, M.T., P. Amiri, A. Esrafilian, M.J. Seddigh, et al. مقایسه عملکرد ارتز MTK-RGO با ارتزهای

- رایج برای استنادن افراد آسیب نخاعی. مجله پژوهش در علوم توانبخشی. 2012. 7(4).
12. Karimi, M.T., F. Pol, A. Pol, N. Fereshtehnejad, et al. 2012. 1(1).  
مجله پژوهش در علوم توانبخشی.
13. Karimi, M.T. and م.ت. کریمی. میزان پذیرش پروتز در آمپوته های اندام فوقانی و ارتباط آن با نوع پروتز و سطح قطع عضو. مجله پژوهش در علوم توانبخشی. 2011. 7(1).
14. کریمی. م.ت. and M.T. Karimi, بررسی میزان کارایی پروتزهای اندام فوقانی در انجام فعالیت های مختلف در افراد آمپوته اندام فوقانی. مجله پژوهش در علوم توانبخشی. 2011. 6(2).
15. Esrafilian, A., M.T. Karimi, P. Amiri, M.J. Sadigh, et al. 2011. 30(185).  
ارتز جدید *MTK-Reciprocal Gait Orthosis*. مجله دانشکده پزشکی اصفهان.

## List of Conference Presentations

1. KARIMI, M. T. 1998. Designing a new knee joint and foot complex with different degrees of motion. Second Iranian O&P Conference. Tehran, Iran.
2. KARIMI, M. T. 1999. Low back pain orthoses. Bachelor Esfahan University of the medical sciences.
3. KARIMI, M. T. 2001. Evaluation the performance of upper limb prosthesis during daily activities. Master, University of Rehabilitation and Welfare Sciences.
4. KARIMI, M. T. 2001. The new orthoses for Spinal Cord Injury (SCI) patients. Spinal Cord Injuries. Tehran, Iran.
5. KARIMI, M. T. 2001. The suitable orthoses for parkinson patients. New Orthoses. Isfahan.
6. KARIMI, M. T. 2002. Evaluation the functional performance of below knee prosthesis suspension during walking. Fourth Iranian O&P Conference. Tehran, Iran.
7. KARIMI, M. T. 2002. Evaluation the efficiency of the below knee prosthesis suspension on the mediolateral stability of the knee joint. Fourth Iranian O&P Conference. Tehran, Iran.
8. KARIMI, M. T. 2002. The functional Performance of the upper limb prosthesis during daily activities. Fourth Iranian O&P Conference. Tehran, Iran.
9. KARIMI, M. T. 2002. Thermoplastic sheet with different degrees of flexibility. Fourth Iranian O&P Conference. Tehran, Iran.
10. KARIMI, M. T. 2004. The new orthosis for low back pain treatment. Low back pain. Esfahan, Iran.
11. KARIMI, M. T. 2009. Designing a New Orthosis For The Patients With Knee Osteoarthritis Disorder. The 5th ASEAN Rehabilitation Medicine Association Congress Queen's Park Hotel, Bangkok, THAILAND.
12. KARIMI, M. T., SPENCE, W. & NICOL, A. 2007. The impact of the new Reciprocal Gait Orthosis on the functional performance of the normal subjects during walking. Research day, University of Strathclyde, Engineering Faculty. Glasgow, Scotland.
13. KARIMI, M. T., SPENCE, W. & NICOL, A. 2008. The impact of the new Reciprocal Gait Orthosis on the functional performance of the normal subjects during walking. University of Strathclyde, Research day. University of Strathclyde, Glasgow, UK.
14. KARIMI, M. T., SPENCE, W. & NICOL, A. 2009. Comparison between the functional performance of the normal subjects during walking and standing with HGO and a new RGO orthoses. WACBE World Congress on Bioengineering 2009.
15. KARIMI, M. T., SPENCE, W. & NICOL, A. 2009. Comparison between the functional performance of the normal subjects during walking and standing with HGO and a new RGO orthoses. XXII Congress of the International Society of Biomechanics. 2009. Kramer Building, Middle Campus, University of Cape Town.

16. KARIMI, M. T., SPENCE, W. & NICOL, A. 2009. Evaluation the amount of the loads applied on the hip joint complex during walking the normal subjects with a new Reciprocal Gait Orthosis. XXII Congress of the International Society of Biomechanics 2009. Kramer Building, Middle Campus, University of Cape Town.
17. KARIMI, M. T., SPENCE, W. & NICOL, A. 2009. Evaluation the amount of the loads applied on the hip joint complex during walking the normal subjects with a new Reciprocal Gait Orthosis. WACBE World Congress on Bioengineering 2009.
18. KARIMI, M. T., SPENCE, W. & NICOL, A. 2009. What are the key steps in designing an orthosis for SCI subjects? Second national SCI conference Tehran, Iran.
19. KARIMI, M. T., SPENCE, W. & NICOL, A. 2009. What would be the best performance of paraplegic subjects during walking with a RGO orthosis? WACBE World Congress on Bioengineering 2009.
20. KARIMI, M. T., SPENCE, W. & NICOL, A. 2009. What would be the best performance of paraplegic subjects during walking with a RGO orthosis? XXII Congress of the International Society of Biomechanics 2009. Kramer Building, Middle Campus, University of Cape Town.
21. KARIMI, M. T., SPENCE, W., NICOL, A. & SOLOMONIDIS, S. 2010. What would be the best function of paraplegic subjects in using an orthosis? 13th ISPO World Congress. Frankfurt, Germany.
22. Karimi, M. T. Designing a New Orthosis For The Patients With Knee Osteoarthritis Disorder The 4th International Congress of Chinese Orthopaedic Association. 2010; Xiamen, China
23. KARIMI, M. T., SPENCE, W., NICOL, A. & SOLOMONIDIS, S. 2010. Is There Any DifferencBetween New Designed and Traditional Orthoses While Standing and Walking?
24. KARIMI, M. T., The Suitability of the Force Plate to Evaluate the Stability During Quiet Standing and Analyzing the Effects of Shoes, Gender and Age on the Standing Stability. 2010 3rd International Conference on BioMedical Engineering and Informatics. 2010; Yantai, China
25. Karimi, M. T., Spence, W. What are the next steps in designing orthoses for SCI patients? Dubai International Rehabilitation Forum-REHAB 2010. 2010; Dubai.
26. Karimi, MT. What are the benefits of walking with orthoses for paraplegic subjects, Second International conference of Spinal Cord Injury, 2011, Tehran, Iran
27. Karimi, MT. A new Reciprocal Gait Orthosis for walking of paraplegic subjects, Second International conference of Spinal Cord Injury, 2011, Tehran, Iran.
28. Karimi, MT. reliability and validity of parameters used to evaluate standing stability, First international conference of musculoskeletal disorders, 2011, Isfahan. Iran
29. Karimi MT. Esrafilian, A. Amiri, P. Evaluation the stability of paraplegic subjects during standing with MTK orthosis. 8<sup>th</sup> conference of Occupational Therapy, 2012, Tehran, Iran.
30. Karimi MT.Esrafilian, A. Amiri, P. Can walking with orthosis reduce bone mineral density? International conference of Sport Medicine, 2012, Isfahan, Iran.