

BIO-DATA

1. **Name in full (in capital letters)** : DR MADHUSUDAN PAL

2. **Date of birth** : 18.10.1971

3. **Educational Qualifications:**

Degree	Year of Passing	University/Institute	Subject	Div/Class/Grade
B.Sc.	1994	Burdwan University W.B.	Physiology (Hons) Zoology, Chemistry	II
M.Sc.	1996	Vidyasagar University W.B.	Human Physiology	I
Diploma in Ergonomics	2007	NITIE, Mumbai	Ergonomics	I
Ph. D	June 2012	Vidyasagar University W.B	Human Physiology	

Title of thesis- Physiological Responses of Load Carriage in Indian Army Personnel with Respect to Changes in Walking Speed and Gradient.

4. **Details of Service:**

Grade/Post	From	To	Estt/Lab/Institution
JRF	1997	1998	Sports Authority of India, Patiala, Punjab.
Scientist-‘B’	1July 1998	30 June 2002	DIPAS, DRDO, Delhi
Scientist- ‘C’	1 July 2002	30 June 2007	DIPAS, DRDO, Delhi
Scientist- ‘D’	1 July 2007	30 June 2012	DIPAS, DRDO, Delhi
Scientist- ‘E’	1July 2012	30 June 2016	DIPAS, DRDO, Delhi
Scientist- ‘F’	1July 2016	19 July 2023	DIPAS, DRDO, Delhi
Scientist -‘G’	20 July 2023	Till Date	
Director	11 Aug 2023	Till Date	CoEs , FDDI, Noida

5. Workshop/Training Courses (including CEP) attended:

Course Title	From	To	Institution
Indo-French Workshop on Robotics for Rehabilitation	26-28 Feb 2019	CSIO-CSIR Chandigarh	
Workshop on Financial management in DRDO projects	28-31 Oct 2014	ITM, Mussourie	
Workshop on Innovation Action Plan	30 th July, 2013	RAC, DRDO, Delhi.	
Workshop on Material Management Procedures	6 th Feb, 2013	DIPAS, Delhi.	
User interactive workshop on Fighting Fit in the Himalayan heights	23-24 Feb, 2012,	33 Corps, Gangtok, Sikkim	
Calibration Techniques	24 Feb 2010	25 Feb 2010	DIPAS, Delhi
Understanding ISO Audit: Auditee & Auditor Perspective	15 Dec 2009	16 Dec 2009	DIPAS, Delhi
International Workshop On Gait Analysis	6 Feb 2009	8 Feb 2009	ITSPMC Muradnagar
Fire Prevention & Fire Protection For R & D Labs	16 June 2008	20 June 2008	CFEES, Delhi
Managerial Skills for Scientists Unit Based Program conducted by NITIE	6 Feb 2008	8 Feb 2008	DIPAS, Delhi
Int. Conference & Exhibition: on Fire Safety Mumbai	21 Nov 2007	23 Nov 2007	Bandra Kurla Complex,
Dynamic Decision-making Techniques	6 Aug 2007	10 Aug 2007	DIPR, Delhi
Prevention and Management Chemical Accidents	11 Dec 2003	12 Dec 2005	FICCI, New Delhi

Application of Ergonomics in Military Environment	22 Aug 2005	26 Aug 2005	DIPAS, Delhi
Internal Auditing of QMS as Per ISO 9001: 2000	25 April 2005	26 April 2005	DIPAS, Delhi
Man – Machine – Environment And Optimum Performance	13 Nov.2000	17 Nov.2000	DIPAS, Delhi
Man in Occupational Environment	14 Sept.1998	18 Sept.1998	DIPAS, Delhi
Appreciation in Computer	16 Nov.1998	20 Nov.1998	TBRL, Chandigarh

Publications (Full Papers):

1. Risk of Injury Prediction during landing from 33 cm height: Biomechanics Approach for sports application, 2024 Rajib Jana, Karan Singh ,Nitish Bhanot, Ayan Maity, Sugata Das Kumar , Madhusudan Pal, (Under Review).
2. Rajib Jana, Ayan Maity, Sugata Das Kumar, Madhusudan Pal, 2024, Assessment of Foot Type and Comparison of Anthropometric Foot Dimension between Foot Types of Indian Population: A Pilot Study, Al Ameen Journal of Medical Sciences, (Under Review).
3. Ayan Maity , Rajib Jana , Rizwan Ahmad , Sugata Das Kumar and Madhusudan Pal, 2024, Effect foot types on Anthropometric foot dimensions of Indian school going children “A Pilot Study . (Under Review).
4. Rizwan Ahmed, Kamalpreet Sandhu, Ayan Maity, Madhusudan Pal, Identification of different types of foot in the Indian school-going children: a pilot study, BLDE University Journal of Health Sciences (Under Review).
5. Sugata Das Kumar, Karan Singh, Bawa Resume Chauhan, Ayan Maity, Mohit Kumar, Madhusudan Pal, Kinetics Assessment of Foot Injury Risk During Vertical Jump with Varying Heights at Barefoot Condition, Journal of the Foot & Ankle (**Accepted**).
6. Ayan Maity, Rajib Jana, Sugata Das Kumar, Rizwan Ahmad and Madhusudan pal, 2024, Comparative analysis of foot anthropometric parameters among Indian

- adults: A Pilot Study. Al Ameen Journal of Medical Sciences, Al Ameen J Med Sci, 2024; 17(4): 284-293.
7. Ayan Maity, Bawa Resume Chauhan, Hardik Juneja , Mohit Kumar, Madhusudan Pal, 2024, Comparative Analysis of Kinetic Responses and Injury Risk During Landing from 45 cm Height: A Study of Barefoot vs Sports Shoes Conditions, Int Journal of Physical Education, Fitness and Sports, 13(3), 64-76. DOI: 10.54392/ijpefs2437
 8. Rajib Jana, Ayan Maity Rizwan Ahmad, Sugata Das Kumar and Madhusudan Pal, 2024. Foot Dimension among Indian Population: A Pilot Study. Int Journal of Physical Education, Fitness and Sports , 13 (3), 10-21.
DOI: <https://doi.org/10.54392/ijpefs2432>.
 9. Sanyam Phutela , Mahshida Hamid , Rounak Bhattacharyya , Manish Gupta , Bhavuk Garg , Rajesh Malhotra, Madhusudan Pal, Anoop Chawla, Sudipto Mukherjee , Kaushik Mukherjee, 2024, Gait analysis of patients with spinal cord injury: Influence of postoperative rehabilitation. VPH Conference, 323, 4-6 September, Stuttgart, Germany
 10. Gupta M, Garg, B, Malhotra R, **Pal Madhusudan**, Chawla A, Mukherjee S, Mukherjee K; 2024, Role of 3D Gait Analysis in targeted Rehabilitation for enhancing outcomes in patients with spinal cord injury, Gait and Posture, vol 113, Supplement 1, 80-81. <https://doi.org/10.1016/j.gaitpost.2024.07.094>
(European Society for Movement Analysis in Adults and Children, 9-14 Sept, 2024, Oslo, Norway)
 11. Sakshi Sadhu, Ramesh Chandra Patra and **Pal, Madhusudan**, 2024, Evaluation of prevalence, location and pattern of Musculoskeletal pain and discomfort among dancers, Sport Mont 2024, 22(2), 93-99 | DOI: [10.26773/smj.240713](https://doi.org/10.26773/smj.240713)
 12. Das (Kumar), Sugata, Sandhu, Kamalpreet and **Pal, Madhusudan**, 2024 “Effect of Wearing High Heel and Flat Footwear on Balance and Stability Dynamics: A Kinetic Study”, Indian Journal of Physiology and Pharmacology, 68(2);157-163, doi:10.25259/IJPP_578_2023
 13. Vishal, S. Das (Kumar) and **Pal, Madhusudan** 2024 “Biomechanical responses on specific load carriage and positive gradient walking”, Indian Journal of Physiology and Pharmacology, Vo1-68, (1), 25-32, doi:10.25259/IJPP_393_2023
 14. Sandhu, K., Chatterjee, M. S., Srivastava, V., & **Pal, Madhusudan**. 2023. Effect of different combat boots on peak ground reaction forces during walking. *International Journal of Human Factors and Ergonomics*, 10(3), 283-294.
 15. Das (Kumar), Sugata; Singh (Kaharwar), Vishal and **Pal, Madhusudan**, 2023, Biomechanical changes during wearing of functional 3 layers clothing: A pilot study “*Ergonomics in Design*”, (June), <https://doi.org/10.1177/10648046231185478>. **Corresponding Author.**

16. Arya, K., Yadav, A., Bhattacharya, D., Chatterjee, S. and **Pal, Madhusudan**. 2022. Effect of long distance load marching on physiological responses at desert environment. *BLDE University Journal of Health Sciences* 7(2), 204. DOI:10.4103/bjhs.bjhs_73_22. **Corresponding Author**
17. Trithankar Chatterjee, Debojyoti Bhattacharya, Angad Yadav and Madhusudan Pal, 2022, Evaluation of autonomic and subjective responses during distance during a long distance military ski exercises, *Indian Journal of Physiology and Pharmacology*, 66(3), 196-202. DOI: 10.25259/IJPP_101_2022
18. Chatterjee, T., Bhattacharya, D., Yadav, A. and **Pal, Madhusudan** , 2022, Quantification of physiological and mental workload of faster and slower finishers of a long distance military training activity, *BMJ Military Health*. 2022 Oct 25;e002154 DOI: [10.1136/military-2022-002154](https://doi.org/10.1136/military-2022-002154).
19. Yadav, A., Arya, K., Malhari, A., Meena, R., Chatterjee, T., Bhattacharyya, D., ... & Pal, M. (2022). Effect of intense military exercise on physical proficiency and hormonal responses of soldiers: A pilot study. *BLDE University Journal of Health Sciences*, 7(1), 35. **Corresponding Author**
20. Chatterjee, T., Bhattacharya, D., Yadav, A., Arya, K., Meena, R. and **Pal Madhusudan**, 2022. Quantification of mental and physiological workload associated with two specialised military running events on different terrains. *Defence Life Science Journal*, 7 (3), 169-178. DOI. 10.14429/dlsj.7.17841
21. Sett, M., **Pal, Madhusudan.**, Majumdar, Deepti., Bhattacharyya, D. and Sahu, S. 2022, Application of predictive biomechanics approach in assessing work related musculoskeletal discomfort among female brickfield workers in West Bengal India. *Work*, 72 (1), 149-155, DOI: 10.3233/WOR-205067.
22. Mondal, K., Bhattacharyya, D., Majumdar., Meena, R., & Pal, M. (2021). Visual Performance under Varying Illumination Conditions while using an Indigenously Developed Wrist Wearable Computer. *Defence Life Science Journal*, 6(3), 242-250. <https://doi.org/10.14429/dlsj.6.17170>
23. Mondal K, Majumdar Deepti, Sahrawat T R, **Pal Madhusudan**, 2021, Assessment of manual lifting tasks in terms of Biomechanical and metabolic responses in young Indian adults: A pilot study. *Journal of Biogeneric Science and Research*, 9(1) 1-13.
24. Yadav, A., Chatterjee, T., Bhattacharyya, D., Singh Som Nath & Pal, M. (2021), Cardio-respiratory and biochemical responses of military training events at jungle environment. *Asian Journal of Medical Sciences*, 12 (4), 15-23

25. Bhattacharyya, D; **Pal, Madhusudan**; Chatterjee, T., and Varshney, R., Extreme Interaction among Human-Environment-Equipment: A Pilot Study on Ergonomic Design of Military Snow Boot. *Ergonomics in Design: The Quarterly of Human Factors Applications*, June 2021, 1-7. doi.org/10.1177/10648046211020851
26. Malhari, A., Bhattacharyya, D., Chatterjee, T., Mani, K V. and **Pal, Madhusudan**, 2021, Effect of combat vehicle operation on cognitive workload and performance. *Defence Life Science Journal*, Vol- 6(2), 177-186. DOI: <https://doi.org/10.14429/dlsj.6.16818>. **Corresponding Author**
27. Sinha, PK., **Pal, Madhusudan**. and Chandel, S. 2021, Ergonomics analysis of gunner station of Armoured Combat Vehicle (ACV)- Tank T 90S with special reference to seat, visual sighting system and musculoskeletal discomfort: A Pilot Study. *Asian Journal of Medical Sciences*, Vol 12 (No 1), 87-94. DOI: 3126/ajms.v12i.30419. **Corresponding Author**
28. Sen, S., Bhattacharyya, D., Chatterjee, S., Kumar, B. and **Pal, Madhusudan**, 2020, Effect of shod walking on plantar pressure with varying uphill gradients. *Asian Journal of Medical Sciences*, vol 11 (No 6), 38-45. DOI: 10.3126/ajms.v11i6.29902. Web of Science indexed. **Corresponding Author**
29. Sandhu, K., Srivastava, V. and **Pal, Madhusudan**, 2020, Effect of shod walking on plantar pressure with varying insole. *Defence Life Science Journal*, 5(4), 248-254, DOI : 10.14429/dlsj.5.15719. Web of Science indexed. **Corresponding Author**
30. **Pal, Madhusudan**., Yadav, A., Arya, K., Chatterjee, T., Bhattacharyya, D., Kumar, B, 2020, Optimization of load carriage at desert environment. *International Journal of Industrial Ergonomics* 79, 102986. <https://doi.org/10.1016/j.ergon.2020.102986>, Web of Science indexed. **Corresponding Author**
31. Sen, S., Sahrawat, TR., Singh, S B., Kumar, B. and **Pal Madhusudan**, 2020. Determination of most important predictor of Vertical Ground Reaction Force (VGRF) and threshold value of fracture among young adults. *Al Ameen J Med Science*, 13(3) : 162-171. Corpus ID: 220410217. Pubmed indexed. **Corresponding Author**
32. Mondal K, Majumdar D, **Pal Madhusudan**, Sahrawat TR, Kumar B, (2019). Association of Manual Weight Lifting Tasks with Low Back Pain: A Pilot Study. *Journal of Clinical and Diagnostic research*, 13(2): LC10-LC15.

33. Sen S, Chatterjee S , Sahrawat TR, Bala S, **Pal Madhusudan.**, 2019, Effect of Military Footwear on balance and stability: A Pilot Study. International journal of Research and Analytical and Reviews, 6(2), 464-469. **Corresponding Author**
34. Chatterjee T, Bhattacharyya D, Majumdar D, **Pal Madhusudan;** 2019, Ergonomic assessment of Multi Calibre Individual Weapon System in virtual reality platform. Defence Science Journal, 69 (3), 240-48 . Pubmed indexed. **Corresponding Author.**
35. Malhari A, Bhattacharyya D, Arya K, Chatterjee T, **Pal Madhusudan;** 2018, Physiological changes and the assessment of vibration exposure during infantry combat vehicle operation: A pilot study; Journal of The Royal Army Medical Corps, 1–7. doi:10.1136/jramc-2018-001022, Pubmed indexed. **Corresponding Author**
36. Chatterjee S, Chatterjee T, Bhattacharyya D, Sen S, **Pal M.S.;** 2018, Effect of heavy load carriage on cardio respiratory responses with varying gradients and mode of carriage, Military Medical Research, 5,26. Pubmed indexed. **Corresponding Author.**
37. Malhotra, S., Preet, K., Tomar, A., Rawat, S., Singh, S., Singh, I., Varte, R.L., Chatterjee, T., **Pal M.S.**, Singh, S.B. and Sarkar, S., 2017, Polygenic study of endurance associated genetic markers *ACE I/D*, *ACTN3*, *Arg(R)577Ter(X)*, *CKMM A/G NCoI* and *eNOS Glu(G)298Asp(T)* in Gorkhas, Sports Medicine, 3, 17. Pubmed indexed.
38. Bhattacharayya D., **Pal M.S.**, Chatterjee T, 2017, Effect of load carriage and natural terrain conditions on cognitive performance in desert environments. Physiology and Behaviour: Physiology and Behaviour, 179, 253-261. Pubmed indexed.
39. Thukral, H., Chatterjee, T., Bhattacharyya, D., Chatterjee, S., Sen, S. and **Pal, M S.**, 2017. Evaluation and Assessment of Leg Muscle Activity and Fatigue Across two Popular Step Test Exercises, Journal Biology of Exercise, 13, 77-79. Web of Science indexed.
40. Bhattacharayya D., Sen S., Chatterjee S., Chatterjee T., **Pal Madhusudan,** 2017, Effect of Queen’s College Step test on cognitive performance among young adults, Journal of Biology of Exercise, 13(1), 59-75, 2017. Web of Science indexed. **Corresponding Author**

41. Chatterjee T., Bhattacharyya D., Pramanik A., **Pal Madhusudan**, Majumdar D., Majumdar D., 2017, Soldiers' load carriage performance in high mountains: A physiological study, *Military Medical Research*, 4(6), 1-9. Pubmed indexed.
42. Chatterjee T., Bhattacharyya D., Pramanik A., **Pal Madhusudan**, Majumdar D., 2017, Electromyographic and Cardiorespiratory responses of load carriage at different High Altitudes with varying Gradients. *Journal of Achieves in Military Medicine*, 5(1), 1-11.
43. Chatterjee T., Paul S., Pramanik A., **Pal Madhusudan**, Majumdar D., 2017, Assessment of muscular fatigue with electromyography on lower back and leg muscles during continuous uphill and downhill load carriage task. *Defence Life Science Journal*, 2(1), 21-29. Web of Science indexed.
44. **Pal Madhusudan**, Chatterjee T., Bhattacharyya D., Metabolic cost of Soldiers during load carriage at self-selected walking speed in different gradient. *Asian Journal of Biomedical Research*, 2(4), 1-5, 2017. **Corresponding Author**
45. Varte, L. R and **Pal Madhusudan**, 2016, Predictive equation for Basal Metabolic Rate of young Indian soldiers, *Asian Journal of Medical Science* 7, 26-31. Pubmed indexed.
46. Debray, P., Susanta B, Biswas, P., Saha, T. and **Pal Madhusudan**, 2015, Effect of step up exercise on cognitive attention with stroop test in Bengali male college students, *Asian J of Medical Sciences*, 6, 66-69. Pubmed indexed.
47. Paul S, Bhattacharyya D, Chatterjee T, **Pal Madhusudan**, Majumdar Deepti, Singh S N and Majumdar D., 2015 Physiological and biochemical responses during incremental uphill load carriage, *International Journal of Industrial Ergonomics*, 50,26-33. Pubmed indexed.
48. Bhattacharyya, D., Chowdhury, B., Chatterjee, T., **Pal Madhusudan** and Majumdar, D., 2014, Selection of characters as background colour combinations for onscreen searching tasks: An eye movement, subjective and performance approach; *Displays*, 35, 101-109. Pubmed indexed.
49. Majumdar, Deepti., **Pal Madhusudan** and Majumdar, D., 2014, Work-related musculoskeletal disorders in Indian nurses : A Cross-sectional Study, *Int. J. Novel Physiotherapies*, 2014, 4 : 3,1-7. Pubmed indexed.

50. **Pal Madhusudan**, Majumdar Deepti, Pramanik, A., Chowdhury, B. and Majumdar, D., 2014, Optimum load for carriage by Indian soldiers on different uphill gradients at specified walking speed, *International Journal of Industrial Ergonomics*, 44, 60-65. Pubmed indexed.
51. Majumdar Deepti, Pramanik A, Pal M S and Majumdar D., Kinetic changes in gait during low magnitude military load carriage, *Ergonomics* , 2013., 56 (12), 1917-1927.
52. Chatterjee T, Pramanik A, Chowdhury B, Pal M S and Majumdar D, 2013, Cardio-Respiratory and Metabolic Changes during Continuous Uphill-Downhill Load Carriage Task, *Int Conf : Proc. Humanizing Work and Work Environment (HWWE), Ergonomics for Rural Development*, 2013, 3-10.
53. Majumdar Deepti, Pramanik A, Pal M S and Majumdar D, 2013, Relation between Forward Lean and Ground Reaction Forces during Carrying Heavier Loads on Level Ground, *Int Conf : Proc. Humanizing Work and Work Environment (HWWE), Ergonomics for Rural Development*, 2013, 11-18.
54. Majumdar, Deepti., **Pal Madhusudan**, Pramanik, A. and Majumdar, D. 2013, Effects of military load carriage on kinetics of gait, *Ergonomics*, 56, 1917-1927. Pubmed indexed.
55. Varte, L. R., Rawat, S., Singh, I., **Pal Madhusudan** and Majumdar, D., 2013, Diet preference with regional variation of body mass index and hand grip strength of Indian females. *Asian Journal of Medical Science*, 4, 43-51. Pubmed indexed.
56. Chatterjee, T., **Pal Madhusudan**, Bhattacharyya, D., Majumdar, Deepti., Shalini, S. and Majumdar, D., 2013, Effect of Step Height on Cardiorespiratory Responses during Aerobic Step Test in Young Indian Women. *Al Ameen Journal Medical Sciences*, 6 (1), 7-11. Pubmed indexed
57. Pramanik A, **Pal Madhusudan**, Majumdar Deepti and Majumdar D, 2012. Effect of military load on postural stability. In : *Proc. Humanizing Work and Work Environment (HWWE)* , 90-95.
58. Chatterjee, T., Bhattacharyya, D., **Pal Madhusudan** and Majumdar, D., 2012, Cardiorespiratory changes with compact backpack system and distributed mode of load carriage. *Indian Journal of Physiology and Pharmacology*, 56 (2), 128-134. Pubmed indexed.

59. Karmakar, S., **Pal Madhusudan**, Majumdar, Deepti. and Majumdar, D., 2012, Application of digital human modeling and simulation for vision analysis of pilots in a jet aircraft: a case study. *Work*, 41, 3412-3418. Pubmed indexed.
60. Karmakar, S., Majumdar, Deepti., **Pal Madhusudan** and Majumdar, D. 2011, Ergonomic study of ingress- egress of an Army vehicle in simulated environment. *Int. Conference on Trends in Product – Lifecycle, Modeling, Simulation and Synthesis*. 69-74. (Conference Proceedings).
61. Banerjee, J., Majumdar, Deepti., **Pal Madhusudan** and Majumdar, D., 2011. Readability, Subjective preference and mental workload studies on young Indian adults for selection of optimum font type size during onscreen reading. *Al Ameen Journal Medical Sciences*, 4 (2):131-143. Pubmed indexed
62. Majumdar, Deepti., **Pal Madhusudan** and Majumdar, D., 2010. Effects of military load carriage on kinematics of gait. *Ergonomics*, 53, (6), 782–791. . Pubmed indexed.
63. Banerjee, J., Majumdar, D., Majumdar, Deepti and **Pal Madhusudan**, 2010. An eye movement study for indentification of suitable font characters for presentation on a computer screen. *Journal of Human Ergology*, 39, 15-21. Pubmed indexed.
64. **Pal Madhusudan**, Majumdar, Deepti., M. Bhattacharyya., Kumar, R. and Majumdar, D., 2009. Optimum load for carriage by soldiers at two walking speeds on level ground. *International Journal of Industrial Ergonomics*, 39, 68-72. Pubmed indexed.
65. M. Bhattacharyya., **Pal Madhusudan**, Sharma, Y. K. and Majumdar, D., 2008, Changes in sleep pattern of Indian Antarctic sojourners. *International Journal of Biometeorology*, 52, 869-879. Pubmed indexed.
66. Banerjee, J., Karmakar, S., **Pal Madhusudan**, Majumdar, Deepti. and Majumdar, D., 2008, Effect of arithmetic mental task on short term measurement of heart rate and heart rate variability. *Archives of The International Journal of Medicine*, 1, (1), 26-30. Pubmed indexed.
67. **Pal Madhusudan**, Majumdar Deepti, Dhara. P.C and Majumdar. D., 2007, Cardiorespiratory responses of military load carriage with varying walking speeds and gradients. *Indian Journal of Biological Sciences*, 13, 1-9.
68. Majumdar, D., Banerjee, P. K., Majumdar, Deepti., **Pal Madhusudan**, Kumar, R. and Selvamurthy, W., 2006. Temporal spatial parameters of gait with barefoot, bathroom slippers and military boot. *Indian J. of Physiol Pharmacol.*, 50 (1), 33-40.

69. Majumdar, D., **Pal Madhusudan**, Majumdar, Deepti., Kumar, R., and Banerjee P. K., Metabolic responses on Indian soldiers during simulated marching with varying slopes and load, 15th Triennial Congress of the Int. Ergo. Association, Aug 24-29, 2003, Seoul, Korea.
70. Majumdar, D., **Pal Madhusudan**, Majumdar, Deepti, Kumar, R., Banerjee, P.K. and Selvamurthy, W., 2000, Musculoskeletal disorders in relation to age in nurses in India, Proc. 5th International Conference on Injury Prevention, Delhi.

Scientific Reports: 21

Presented in Symposia/ Conferences (Abstracts):

1. **Pal Madhusudan**, Solutions to Physiological problems through Technological intervention, Prof S C Mahalanobis **Oration lecture**, PHYSICON 2024, 15-17 Nov 2024, Tripura University, Agartala
2. **Pal Madhusudan**, Ergonomics Approach of Product Development and Translational Research, 11 Nov 2024, Vel Tech University, Chennai (**Resource Person**)
3. **Pal Madhusudan**, Human Factors Issues and Footwear Design/Development, School of Allied health Sciences, Galgotias University, Noida, UP, 23 Oct 2024 (**Resource Person**).
4. **Pal Madhusudan**, Ergonomics, Innovative Product Design and Commercialization, School of Design, Woxsen University, Hyderabad, 18 Oct 2024 (**Resource Person**).
5. **Pal Madhusudan**, “Scientific Mindset through the Prism of Vikshit Bharat” during 18 SpARC National Conference, Mount Abu, Rajasthan, 12-16 Sept 2024, **Plenary Lecture**.
6. **Pal Madhusudan**, ‘ Translational Research : Ergonomics and Product design’ during International Conference on “Fashion as a Tool to Social Change”, Woxsen University, Hyderabad from 5-6 Aug 2024. **Keynote Lecture**.
7. **Pal Madhusudan**, ‘Application of Technology and Sciences –Physiology, Ergonomics and Biomechanics in Product Design special reference to Footwear Design’, **National Technology Day Celebration**, Rajalakshmi Institute of Technology, Chennai, Tamil Nadu, 11 May 2024. **Keynote Lecture**

8. **Pal Madhusudan**, Design and Development of Footwear: Translational Research” Annual Conference of PHYSICON Rajathan 2024, Jawaharlal Nehru Medical College, Ajmer, 16 March 2024. **Plenary Lecture**
9. **Pal Madhusudan**, “Scope for Military Physiology Research in AIIMs: Synergizing with DRDO’ during National Workshop, Department of Physiology, AIIMS, Bhubaneshwar, 9th and 10th February 2024, **Session Chaired**.
10. **Pal Madhusudan**, Special lecture on “Product Design and Ergonomics Practices: Special Reference to Footwear” during CONSCIOUSNESS an International Seminar, Organised by ART of BLISS, Odisha, Central Sanskrit University, Puri, Odisha on January, 2024 (**Resource Person**)
11. **Pal Madhusudan**, Expert Lecture on “Role of Ergonomics in Footwear Design and Development”, during 44th Annual Conference of IABMS, 8-10 January 2024, Mannargudi Tamilnadu. (**Invited Talk**)
12. **Pal Madhusudan**, “Military Ergonomics”, 4th Asian Conference on Ergonomics & Design (ACED-2023) at Indian Institute of Management (IIM), Mumbai, 13-15th December 2023 (**Chaired a scientific session**).
13. **Pal Madhusudan**, “Footwear Design and Development Ergonomics/ Biomechanics”, 4th Asian Conference on Ergonomics & Design (ACED-2023) at Indian Institute of Management (IIM), Mumbai, 13 to 15th December 2023 (**Special Expert Lecture**).
14. **Pal Madhusudan**, “Product Development Ergonomics approaches special reference to footwear”, Annual Conference of Association of Physiologist of Odisa, Shri Jagannath Medical College, Puri, 9th to 10th December 2023, (**Keynote Lecture**).
15. **Pal Madhusudan**, Brainware University, Kolkata: on “Impact of Footwear on Biomechanical Responses”, 7th to 9th December 2023 during International Conference (**Keynote Lecture**).
16. **Pal Madhusudan**, A popular Lecture on Health and Safety : An Ergonomics Approach- Under Azadi ka Amrit Mahotsav, 6 April 2023, Bankura Chrishtan College, WB(**Resource Person**)
17. **Pal Madhusudan**, Ergonomics and Health, State Level Symposium on Orientation Training of Teachers of Primary School, 5-6 April, Rabindra Bhawan, Bankura, WB (**Resource Person**)
18. **Pal Madhusudan**, Human Machine Teaming : Neuroergonomics Approaches, 3 Feb 2023, Dept of Reliability and Safety, IIT, Kharagpur (**Invited Talk**)
19. **Pal Madhusudan**, Integration of Human Factors Engineering in Product Design, IEEE Seminar, 2 Feb 2023, IIT, Kharagpur (**Invited Talk**).
20. **Pal Madhusudan**, Human Factors Integration – Military Environments, Expert lecture for POINTS-23 Batch, 25 Jan 2023, DIAT, Pune (**Guest Faculty**).

21. **Pal Madhusudan**, Neuroergonomics in Human Machine Teaming: Scope and Limitations, **Indo-US JTG Workshop on Human Machine Teaming**, 13-15 Dec, 2022, VPCI, Delhi, **(Invited Talk)**.
22. **Pal Madhusudan**, Human Factors Integration – Military Environments, Expert lecture for PG Students, 18 Nov 2022 Dept of technology Management, DIAT, Pune **(Guest Faculty)**.
23. **Pal Madhusudan**, Human Factors Integration – Military Environments, Expert lecture for POINTS-23 Batch, 17 Nov 2022, DIAT, Pune **(Guest Faculty)**.
24. **Pal Madhusudan**, Human Factors Integration – Military Environments, Expert lecture for POINTS (Post Induction Training School)-22 Batch, 13 Aug 2022, DIAT, Pune **(Guest Faculty)**
25. **Pal Madhusudan** lecture on Human Factors Integration/Ergonomics: Product Design, International Conference on Future Learning Aspects of Mechanical Engineering 2022 (FLAME 2022), 3-5 Aug 2022, Department of Mechanical Engineering, Amity School of Engineering & Technology, UP **(Keynote Speaker)**.
26. **Pal Madhusudan**, lecture on “Footwear Science and Ergonomics” 1st Indian Footwear Conclave, 9 July 2022, Delhi **(Resource Person)**.
27. **Pal Madhusudan**, lecture on “Human Factors Engineering and Ergonomics approaches for sustainable Soldier health”, 29 April 2022, KD College of Commerce and General Studies, Midnapore, WB, **(Resource Person, under “Azadi Ka Amrit Mahotsav”)**.
28. **Pal Madhusudan**, lecture on “Human Factors Engineering and Ergonomics approaches for sustainable Soldier health” 29 April 2022, Midnapore College, Mindnapore,WB, **(Resource Person, under “Azadi Ka Amrit Mahotsav”)**.
29. **Pal Madhusudan**, lecture on “Human Factors Engineering and Ergonomic Approaches for Sustainable Soldier Health”, National Conference on Sustainable Health Science for Future Generations (ISCA Kolkata Chapter), 28-29 April, 2022, University of Kalyani, West Bengal, **(Plenary Lecturer)**.
30. **Pal Madhusudan**, lecture on “Integration of Human Factors in Product design, Dept of Mechanical Engineering, Amity School of Engineering & Technology, Amity University, Uttar Pradesh, 21 April 2022 **(Resource Person, under “Azadi Ka Amrit Mahotsav”)**.

31. **Pal Madhusudan**, Incorporation of Personalised, Flexible Ergonomic Parameters for effecting Training Platforms, **Indo-US JTG Workshop on Human Machine Teaming, 2021**
32. **Pal Madhusudan**, Design and Development of Combat Boot: An ergonomic approach to mitigate risk of foot injuries, 19th Int. Conference on Humanizing Work and Working Environment (HWWE, 2021), IIT Guwahati, 1-3 December 2021 (**Plenary Lecturer**).
33. **Pal Madhusudan**, Design and Development of Footwear's: Ergonomics and Biomechanics Approaches, 25 Nov 2021, FDDI, Noida (**Resource Person**).
34. **Pal Madhusudan**, Ergonomics Principles and Products Design, BBDNITM, Lucknow, 7 Oct 2021 (**Resource Person**)
35. **Pal, Madhusudan**, Design and Development of Footwear: Ergonomics and Biomechanics Approaches, 4th International Conference on Clinical Spine& Orthopedic Biomechanics: Virtual, April 16-18, 2021(**Invited Lecture**).
36. **Pal, Madhusudan**, Application of Ergonomics: Product Design, Raja Lakshmi Engineering College (Affi. Anna University), Chennai, 28 Feb 2021 (**National Science Day Oration Lecture**)
37. Yadav, A., Arya, K., Chatterjee, T., Bhattacharyya, D., Singh, SN and **Pal Madhusudan** . Quantification of biochemical variables during strenuous military training activity: an observational study, ICONICA-2020 A Global Summit on Next Gen Paradigms in Health Care, Punjab University, Chandigarh, India, 12-14 February 2020 (**Selected for Best paper award**).
38. Chatterjee,S., Sehrawat, TR, Chatterjee, T., Bhattacharyya, D. and **Pal, Madhsudan**. Cardiorespiratory responses of Indian soldiers during load carriage tasks of different magnitudes at high altitude (12000 feet). ICONICA-2020 A Global Summit on Next Gen Paradigms in Health Care, Punjab University, Chandigarh, India, 12-14 February 2020.
39. Sen, S., Sehrawat, TR and **Pal, Madhsudan**. Effect of combat boots on vertical ground reaction force (VGRF). ICONICA-2020 A Global Summit on Next Gen Paradigms in Health Care, Punjab University, Chandigarh, India, 12-14 February 2020.
40. **Pal Madhusudan**, Ergonomics in Design and Development of Products of Defence Relevance, Dept of Design, IIT, Guwahati, 11 Jan 2020 (**Resource Person**).

41. **Pal Madhusudan**, Role of Ergonomics in Product Design, Int. Symposium on Product Design, Lovely Professional University, 8-9 November 2019 (**Keynote Speaker**).
42. **Chatterjee T**, Bhattacharyya D, Yadav A, Meena R, Arya K, **Pal Madhusudan**. 'Comparison of Mental and Physical Work Load of Two Military Running Devices', 17th Int. Conference on Humanizing Work and Working Environment (HWWE, 2019) at NIT Jalandhar, 10 November 2019 (**Symposium Speaker**).
43. Majumdar D, Bhattacharyya D, Mondal K, Meena R, **Pal Madhusudan**. 'Changes in Visual Performance with Varying Illumination and Viewing Distance in Indian Soldiers while Using Night Sighting Devices', 17th Int. Conference on Humanizing Work and Working Environment (HWWE, 2019) at NIT Jalandhar on 10 November 2019 (**Symposium Speaker**).
44. Malhari A, Yadav A, Bhattacharyya D, Chatterjee T, Kapoor N, **Pal Madhusudan**. 'Effect of Infantry Combat Vehicle (ICV) Operation on Visuo-Spatial Attentional Demand: A Pilot study', VIIIth Congress of (FIPS-2019), ESIC Medical College & Hospital, Faridabad, 27-29 Sep 2019 (**Poster Presentation**).
Selected for award
45. Sen S, Bhattacharyya D, Majumdar D, **Pal Madhusudan**, 'Effect of Dominance on Plantar Pressure' at VIIIth Congress of (FIPS-2019), ESIC Medical College & Hospital, Faridabad, 27-29 Sep 2019 (**Poster Presentation**).
46. **Pal Madhusudan**, 'Designed Backpack with Two Similar backpacks: An Ergonomics Assessment: Symposium on "Ergonomics and Occupational health: Military Environment" under VIIIth Congress of Federation of Indian Physiological Societies (FIPS-2019) at ESIC Medical College & Hospital, Faridabad, 27-29 Sep, 2019 (**Symposium Speaker**).
47. Suranjana Sen, S Chatterjee, D Bhattacharyya, B Kumar, **Pal Madhusudan**, "Changes in plantar pressure during shod walking at uphill gradient" at HWWE, 2018 Conference 14-16th Dec, 2018.
48. **Pal Madhusudan**, Perspective of Military Load Carriage, XXXth Annual Conference of the Physiological Society of India (PHYSICON 2018), Serampore College, Kolkata, WB, 22-24th Nov, 2018 (PLENARY LECTURE).
49. **Pal Madhusudan**, Concepts of Ergonomics & Human factors, International Conference on NICHE 2018 LPU, 1-17th Nov 2018 (KEYNOTE SPEAKER).

50. A Malhari, K V Mani, D Bhattacharyya, **Pal Madhusudan**, and Bhuvnesh Kumar. Cardiorespiratory Responses: Infantry Combat Vehicle Operation. ASSOPICON 2018, Pramukh Swami Medical College, Karamsad, Anand, Gujrat, 26-29th Sept, 2018 (**INVITED LECTURE**).
51. K Arya, S Chatterjee, T Chatterjee and **Pal Madhusudan**, Load Carriage at High Altitude: Attention and Cardiorespiratory responses. National Conf. On The current and future prospects of animal physiology and Biotechnology in diseases control in the Era of Interdisciplinary Ethnopharmacology (APBDCE 2018)S V University, Tirupati, 29-30th Aug 2018 (**INVITED LECTURE**).
52. S Chatterjee, K Arya, T Chatterjee, D Bhattacharyya and **Pal Madhusudan**, Cardiorespiratory Responses of Load Carriage at High Altitudes, 105th Indian Science Congress, Manipur University, Manipur, 16-20 March, 2018 (**Invited lecture**).
53. **Pal Madhusudan**, Effect of short duration exercise on cognition 104th Indian Science Congress, SV University, Tirupati, 3-7 Jan, 2017 (**Invited lecture**).
54. **Pal Madhusudan**, Metabolic cost of prolonged load carriage at sea level, FIPSPHYCIOCON, Delhi, 5th -7th Nov 2017 (**Oration Lecture**).
55. Dipti Majumdar, Kiran Mondal and **Pal Madhusudan**, Assessment of Gait Stability with Orthosis Intervention: A case study for Ankle Fracture, FIPSPHYCIOCON, Delhi, 5th -7th Nov 2017.
56. Tirthankar Chatterjee, Debojyoti Bhattacharyya, Angad Yadav and **Pal Madhusudan**, Effect of Extreme military training on heart rate and body composition parameters, FIPSPHYCIOCON, Delhi, 5th -7th Nov 2017.
57. Suranjana Sen, Subhojit Chatterjee, KiranMondal , Debojyoti Bhattacharyya **Pal Madhusudan**, Effect of shock absorbing in socks on balance and stability during quiet standing, FIPSPHYCIOCON, Delhi, 5th -7th Nov 2017.
58. Deepti Majumdar, Kiran Mondal, D. Bhattacharya and **Pal Madhusudan**, Effect of a background illumination on saccade responses while operating a wrist wearable computer, 15th International Conference on Ergonomics for Improved Productivity HWWE, AMU, Aligarh, 2017.
59. Archana AM, Kavita Arya, Roshani Meena, Debojoti Bhattacharyya, Tirthankar Chatterjee and **Pal Madhusudan**, Cardio respiratory responses of the crew

- members during combat exercises in a command and control vehicle, FIPSPHYSIOCON, Delhi, 5th -7th Nov 2017.
60. Kamalpreet Sandhu, Vineet Srivastava, **Pal Madhusudan**, A review of force measurement methodologies used in smart insole system during gait analysis, FIPSPHYSIOCON, Delhi, 5th -7th Nov 2017.
 61. KiranMondal, Deepti Majumdar, Subhojit Chatterjee, Suranjana Sen, **Pal Madhusudan**, Kinematics and Kinetics of Manual Weight Lifting Tasks: A 2D Photogrammatic analysis., FIPSPHYSIOCON, Delhi, 5th -7th Nov 2017.
 62. Kavita Arya,Tirthankar Chatterjee, Debojyoti Bhattacharyya, **Pal Madhusudan**, Effect of Heavy load carriage at extreme environment in attention level of soldiers: A Pilot Study, FIPSPHYSIOCON, Delhi, 5th -7th Nov 2017.
 63. Subhojit Chatterjee, Tirthankar Chatterjee, Debojyoti Bhattacharyya, **Pal Madhusudan**, Effect of continuous downhill and uphill walking on metabolic responses during heavy load carriage: a laboratory study, FIPSPHYSIOCON, Delhi, 5th -7th Nov 2017.
 64. **Pal Madhusudan**, Cognition and short duration Exercise, National Workshop on ‘Yoga, Exercise and Health, Andaman and Nicobar Island Institute of Medical Sciences, Port Blair, 23rd Sept. 2016, **Plenary Lecture**.
 65. **Pal Madhusudan**, Metabolic cost of Load Carriage at Sea level by Indian Soldiers, 3rd Annual Conference of Association of Physiologists of India, BLDE University, Bijapur, 14-17 Sept 2016, **Plenary Lecture**.
 66. **Pal Madhusudan**, Optimizing Cognitive Performance at Stressful Environment: Ergonomic Approach, 5th Annual Meeting of Indian Academy of Biomedical Sciences, Dept of Biochemistry, Medanta-The Medicity, Gurgaon, 26-28 Feb 2016, **Invited, Symposium Lecture**.
 67. **Pal Madhusudan**, Metabolic Cost of Soldiers During Heavy Load Carriage at Different uphill and downhill gradients, The 27th annual conference of the PSI and 6th Congress of the FIPS , University of Calcutta, Kolkata, 18-20 December, 2015, **Invited Lecture**
 68. Metabolic Cost of Soldiers During Heavy Load Carriage at Different uphill and downhill gradients, The 27th annual conference of the PSI and 6th Congress of the FIPS , University of Calcutta, Kolkata, 18-20 December, 2015, **Invited Lecture**

69. **Pal Madhusudan**, Protective Clothing for Military Applications: Ergonomic Issues, INDO-UK Workshop on Sustainable Polymer Application, **Thapar** University, Patiala, 8-9 December, 2015. **Invited Lecture**
70. **Pal Madhusudan**, Cardio-respiratory Responses of Military Load Carriage at Extreme Jungle Terrain, APPICON **2015**, AIIMS, Jodhpur, 26-28 Nov, 2015, **Symposium Speaker**
71. **Pal Madhusudan**, **Application** of Ergonomics in Military environment, Faculty knowledge Enrichment Program, Baba Farid Institute of Science & Technology (BFIT), Dehradun. 19 Sept 2015, **(Resource Person)**.
72. **Pal Madhusudan**, Ethnicity and aerobic capacity of Indian soldiers, National Seminar on Physiology, BLED University, Bijapur, 25 July 2014. **Guest Speaker**
73. **Pal Madhusudan**, Cardiorespiratory responses of load carriage at sea level by Indian soldiers, 35th Annual Conference of Indian Association of Biomedical Scientists, Himachal Pradesh Agricultural University, Palampur, 14-16 Nov 2014, **Invited Lecture**.
74. Chowdhury B, Bhattacharyya D, **Pal Madhusudan**, Majumdar D; “Effect of south Indian native languages against non-vernaculars in time bound reading: an eye movement study”. International Conference on Humanizing Work and Work Environment (HWWE), 4-6 December, 2013; Vidyasagar University, Midnapore, West Bengal.
75. Paul S, Bhattacharyya D, Chatterjee T, **Pal Madhusudan**, Majumdar D; “The electromyographic responses to varying load, speed and grade combinations during uphill walking”. International Conference on HWWE, 4-6 December, 2013; Vidyasagar University, Midnapore, West Bengal.
76. Bhattacharyya D, Chatterjee T, Pramanik A, **Pal Madhusudan**, Majumdar D; “Cognitive performance at high altitude: An eye movement study”. International Conference on HWWE, 4-6 December, 2013; Vidyasagar University, Midnapore, West Bengal.
77. Chatterjee T, Paul S, Pramanik A, Chowdhury B, **Pal Madhusudan**, Majumdar D; “Physiological changes during continuous uphill-downhill load carriage task”. International Conference on HWWE, 4-6 December, 2013; Vidyasagar University, Midnapore, West Bengal.
78. Chowdhury B, Bhattacharyya D, **Pal Madhusudan**, Majumdar D; “Effect of time constrain in first and second language reading among Malayalam polyglots”.

PHYSICON (PSI) 9 – 11 December, 2013 at Kamineni Institute of Medical Sciences, Narketpally, A. P., India.

79. **Pal Madhusudan**, 2013, Metabolic cost of load carriage at high altitude by Indian soldiers at Suvarna JNMC National Seminar on Current Issues in Environmental Health and Lifestyle Diseases, 6 Sept, Jawaharlal Nehru Medical College, Belgaum. (**Resource Person**).
80. **Pal Madhusudan**, 2013, Military load carriage and Cardiorespiratory Responses at National Conference on Emerging Trends in Biosciences and Bio industry, 22 March, Brindavan College, Bangalore. (**Guest Speaker**).
81. **Pal Madhusudan**, Load carriage at high altitude by Indian soldiers, XXIV Annual Conference of PSI (PHYSICON 2012), 12-14 December 2012 at Andhra Medical College, Visakhapatnam (**Invited lecture**).
82. Paul S, Chatterjee T, D. Bhattacharyya, **Pal Madhusudan**, Majumdar Deepti, Singh S.N. and Majumdar D, Biochemical changes due to load carriage during uphill walking at International Conference on Humanizing Work and Work Environment (HWWE), 6-8 December, 2012, GB Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India.
83. Pramanik A, **Pal Madhusudan**, Majumdar Deepti, and Majumdar D, Effect of Military Load on Postural Stability, at International Conference on Humanizing Work and Work Environment (HWWE), 6-8 December, 2012, GB Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India. **Selected for Best Paper Award.**
84. Bhattacharyya D, Chowdhury B, **Pal Madhusudan**, and Majumdar D, Visual searching strategy: Vertical versus Horizontal, at International Conference on Humanizing Work and Work Environment (HWWE), 6-8 December, 2012, GB Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India.
85. Chatterjee T, Bhattacharyya D, Pramanik A, **Pal Madhusudan**, Majumdar Deepti and Majumdar D, Effect of High Altitude on Physiological Responses during Load Carriage at International Conference on Humanizing Work and Work Environment (HWWE), 6-8 December, 2012, GB Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India. **Selected for Young Scientist Award.**

86. Majumdar Deepti, **Pal Madhusudan** and Majumdar D, Work-related Musculoskeletal Disorders in Indian Nurses at International Conference on Humanizing Work and Work Environment (HWWE), 6-8 December, 2012, GB Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India.
87. **Pal Madhusudan**, Majumdar Deepti and Majumdar D, Metabolic Cost of Soldiers during Load Carriage at Self Selected Walking Speed in Different Gradient at International Conference on Humanizing Work and Work Environment (HWWE), 6-8 December, 2012, GB Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India.
88. **Pal Madhusudan**, 2011. Cardiorespiratory changes during compact and distributed mode of load carriage. XXIII Annual National Conference of Physiological Society of India. 21-23 Dec, NRI Medical College, Guntur, AP **(Invited lecture)**
89. Chatterjee, T., Bhattacharyya, D., **Pal Madhusudan**, Majumdar, D., 2011, Effect of steps height on physiological responses during step test: A pilot study"; International Conference on Humanising work and Work Environment,, 15-17 Dec, 2011, IIT Madras, Chennai.
90. Paul, S., **Pal Madhusudan**, Chatterjee, T., Bhattacharyya, D. and Majumdar, D., 2011, Cardiorespiratory responses of load carriage with existing and newly designed load carriage ensembles in Indian military personnel, International Conference on Humanising work and Work Environment,, 15-17 Dec, 2011, IIT Madras, Chennai.
91. **Pal Madhusudan**, Majumdar, Deepti., Majumdar, D., Effect of gradient and load on cardiorespiratory responses in Indian soldiers during carrying load at two walking speeds. 22nd annual conference of the Physiological Society of India, 15-17th Dec., 2010.
92. Majumdar, Deepti, **Pal Madhusudan** and Majumdar, D. Effects of military load carriage in two walking speeds on spatio-temporal and trunk angular changes. 97th Indian Science Congress. Tiruvananthapuram, Kerala, 3-7 Jan. 2010.
93. Majumdar, Deepti., **Pal Madhusudan** and Majumdar, D., 2009, "Effects of Load carriage in hand, shoulder and back on Kinematic parameters of gait", International Conference on Humanising work and Work Environment, 17-19 Dec, University of Calcutta, Kolkata, West Bengal.

94. Chatterjee, T., **Pal Madhusudan**, Bhattacharyya, D. and Majumdar, D., 2009, "Cardiorespiratory changes with new compact backpack system and existing distributed mode of load carriage." International Conference on Humanising work and Work Environment, 17-19 Dec, University of Calcutta, Kolkata, West Bengal.
95. **Pal Madhusudan**, Majumdar, Deepti., Chatterjee, T., Kumar, R. and Majumdar, D., 2009, Optimal loads to be carried by Indian soldiers at two walking speeds on different gradients. International Conference on Integrative Physiology: Modern Perspective. 12-14 November, Science City Convention Centre, Kolkata, India.
96. Karmakar, S., **Pal Madhusudan** and Majumdar, D., 2009, Ergonomic evaluation of mobile chemical analysis station in virtual environment. International Conference on Integrative Physiology: Modern Perspective. 12-14 November, Science City Convention Centre, Kolkata, India.
97. Majumdar, Deepti., **Pal Madhusudan** and Majumdar, D., 2009, "Ground Reaction Forces and Kinematic Changes during Load Carriage Operations". 96th Indian Science Congress, 3-7 January, North-Eastern Hill University, Shillong.
98. Majumdar, Deepti., **Pal Madhusudan**, Kumar, R. and Majumdar, D., 2008, "Kinematic changes in military load carriage on level ground" . First Congress of Asia Pacific Society for Mountain Medicine. 28- 30 November, ICAR, Pusa New Delhi.
99. **Pal Madhusudan**, Majumdar, Deepti., Kumar R. and Majumdar, D., 2008, Military load carriage at two walking speeds on different gradients". First Congress of Asia Pacific Society for Mountain Medicine, 28- 30 November, ICAR, Pusa New Delhi.
100. Majumdar, Deepti., **Pal Madhusudan** and Majumdar, D., 2007, Kinematic changes of gait during load carriage at two walking speeds. International Conference on Humanizing Work and Work Environment (HWWE), 10-12 December, Bhopal, India.
101. Karmakar, S., **Pal Madhusudan**, Majumdar, Deepti. and Majumdar, D., 2007, Digital human modeling and simulation for ergonomic analysis of Indian army vehicle. International Conference on HWWE, 10-12 December, Bhopal, India.
102. **Pal Madhusudan**, Majumdar, Deepti. and Majumdar, D., 2007, Cardiorespiratory changes during compact and distributed load carriage with varying walking speed and gradient. XIXth Annual Conference of The Physiological Society of India, 6-8 December, Faridabad, India.

103. Banerjee, J., Karmakar, S., Majumdar, Deepti., **Pal Madhusudan**, Majumdar, D. and Banerjee, P. K., 2007, Effect of mental task on postural stability during quiet stance. 4th Congress of Federation of Indian Physiological Societies. 11-13 Jan, Delhi.
104. Majumdar, Deepti, Majumdar, D. **Pal Madhusudan** and Banerjee, P. K., 2007, Effect of walking speed and load on temporal and spatial parameters of gait during load carriage. 4th Congress of Federation of Indian Physiological Societies. 11-13 Jan, Delhi.
105. Karmakar, S., Banerjee, J., **Pal Madhusudan**, Majumdar, Deepti., Majumdar, D. and Banerjee, P. K., 2007, Effect of cognitive task on heart rate and heart rate variability. 4th Congress of Federation of Indian Physiological Societies. 11-13 Jan, Delhi.
106. Majumdar, D., Bhattacharyya, M., **Pal Madhusudan**, Majumdar, Deepti, and Banerjee, P. K., 2007, Health and Human profile in Antarctica 94th Indian Science Congress, 3-7 January, Annamalainagar, India.
107. **Pal Madhusudan**, Majumdar, D., Majumdar, Deepti, Bhattacharyya, M., Kumar, R. and Banerjee, P. K., 2006, Physiological responses of load carriage during prolonged treadmill walking. XVIIIth Annual Conferences of Physiological Society of India, 8-10 Dec, Kolkata, India.
108. Majumdar, D., Majumdar, Deepti, **Pal Madhusudan**, and Banerjee, P. K., 2006, Digital human models and biomechanics for product and workstation design. National Conference on Biomechanics, 15-17 Dec, Bengal Engineering and Science University, Shibpur, W. Bengal.
109. Bhattacharyya, M., **Pal Madhusudan**, Majumdar, Deepti, Majumdar, D. and Banerjee, P. K., 2006, Changes in sleep pattern of Indian Antarctic sojourners. Third NBRC International Conference, 13-15 December, New Delhi, India.
110. Majumdar, Deepti., Majumdar, D., **Pal Madhusudan**, Banerjee, J., Karmakar, S. and Kumar. R., 2006, Certain kinematics parameters of gait as affected by speed and load during load carriage operations, Proceedings of Medical Sciences (Including Physiology), 93rd Indian Science Congress, 3-7 January, Hyderabad, India.
111. **Pal Madhusudan**, Majumdar, Deepti, Bhattacharya, M., Karmakar, S., Banerjee, J., Kumar, R. and Majumdar, D., 2005, Maximum permissible load to be carried by Indian soldiers at two walking speed on level ground. XVIIth Annual Conferences of PSI, 1- 3 Dec, M. R. Medical College, Gulbarga, India.
112. Majumdar, D., Bhattacharyya, M., **Pal Madhusudan**, Majumdar, Deepti, and Banerjee, P. K., 2006, Melatonin rhythmicity and sleep pattern of Indian

- wintering members in Antarctica. Seminar on: Antarctic Science: Indian Contributions in Global Perspectives May, NCAOR, Goa, India.
113. Majumdar, D., **Pal Madhusudan** and Majumdar, Deepti, 2005. Kinetic changes with military load carriage, 3rd International Conference on Humanizing Work and Work Environment, 10-12 December 2005, Guwahati.
 114. Majumdar, Deepti, **Pal Madhusudan**, Kumar, R. and Majumdar, D., 2005, Effect of load magnitudes on biomechanical determinants of gait. Proceedings, 3rd International Conference on Humanizing Work and Work Environment, 10-12 December, Guwahati, India.
 115. Majumdar, D., Banerjee, J., Majumdar, Deepti., **Pal Madhusudan**, and Karmakar, S. and Kumar. R., 2005, Changes in temporal and spatial parameters during load carriage operations in Indian Armed Forces. 3rd International Conference on Humanizing Work and Work Environment, 10-12 December, Guwahati, India.
 116. Bharadwaj, A., Majumdar, D., Majumdar, Deepti., **Pal Madhusudan**, **Bhattacharyya**, M. and Kumar, R. ,2005, Effect of various magnitudes and modes of load carriage on kinetic parameters, 92rd Indian Science Congress, 3-7 January, Ahmedabad, India.
 117. **Pal Madhusudan**, Majumdar, D., Majumdar, Deepti, Bhattacharyya, M., Bharadwaj, A., Kumar, R. and P. K. Banerjee., 2004, Military load carriage at two walking speeds on level ground. Annual Con. Physiological Society of India. 16-18 Dec. West Bengal, India.
 118. Majumdar, D., Majumdar, Deepti, **Pal Madhusudan**, Bharadwaj, A., Bhattacharyya, M., Kumar, R. and P. K. Banerjee., 2004, Changes in kinetic parameters during load carriage. National Conference on Biomechanics, 19-21 Nov, IIT, Delhi, India.
 119. Majumdar, D., Majumdar, Deepti., **Pal Madhusudan**, Bhattacharyya, M., Kumar, R. and Banerjee P. K., 2004, Effects of different modes of load carrying on kinematics and temporal spatial parameters of gait. National Conference on HWWE, 22-24, April, NITIE, Mumbai, India.
 120. **Pal Madhusudan**, Majumdar, D., Majumdar, Deepti., Kumar, R. and Banerjee P.K., 2004, Subjective determination of comfortable walking speed for carrying 10 kg backpack load in different positive gradients: A psychophysical approach. National Conf. On HWWE, 22-24 April, NITIE, Mumbai, India.
 121. Majumdar, Deepti, Majumdar, D., **Pal Madhusudan**, Kumar, R. and Banerjee P. K., 2004, Physiological responses of carrying 10 kg backpack load in different speed-gradient combinations. National Conference on HWWE, 22-24, April, NITIE, Mumbai, India.

122. Majumdar, D., **Pal Madhusudan**, Majumdar, Deepti., Kumar, R. and Banerjee P. K., 2002, Age, aerobic fitness and metabolic cost of nursing activities, Annual Con. Physiological Society of India. 23-24 Feb. University of Calcutta, West Bengal, India.
123. Majumdar, D., **Pal Madhusudan**, Majumdar, Deepti, Kumar, Rakesh and Banerjee, P.K., 2002, Age, aerobic fitness and metabolic cost of nursing activities, Proc. XIII Annual Conf. of the Physiological Societies of India.
124. Majumdar, D., **Pal Madhusudan**, Majumdar, Deepti, Kumar, Rakesh and Banerjee, P.K., 2001, An ergonomic analysis of nurses' working posture, Proc. Int. Cong. on Humanizing Work and Work Environment, India.
125. Majumdar, D., **Pal Madhusudan**, Majumdar, Deepti, Kumar, Rakesh and Banerjee, P.K., 2001, Aerobic capacity and energy expenditure of work activities of Indian nurses, Proc. Int. Cong. on Humanizing Work and Work Environment, India.
126. Majumdar, D., **Pal Madhusudan**, Majumdar, Deepti, Kumar, Rakesh and Banerjee, P.K., 2000, Distribution pattern of activities and categorization of physical workload of the nurses, Proc. 3rd Federation of Indian Physiological Societies, Calcutta.
127. Majumdar, D., **Pal Madhusudan**, Majumdar, Deepti, Kumar, Rakesh, Banerjee, P.K. and Selvamurthy, W., 2000, Work related musculoskeletal disorders in relation to age and its prevention in nurses in India, Proc. 5th World Conf. on Injury Prevention and Control, Delhi.
128. **Pal Madhusudan**, Majumdar, Deepti, Kumar, Rakesh, Majumdar, D. and Banerjee, P. K., 1999, Musculoskeletal complaints in nurses in India, Proc. XI Annual Conference of the Physiological Society of India, Delhi.
129. Majumdar, Deepti, **Pal Madhusudan**, Kumar, Rakesh, Majumdar, D. and Banerjee, P. K., 1999, Physical workload in nursing duties in different shifts, Proc. XI Annual Conference of the Physiological Society of India, Delhi.

Membership of Professional Societies/Academies:

- i) Physiological Society of India (Life Member, L. M. No. 301)
- ii) Indian Society of Ergonomics (Life Member, L. M. No & Date L286-2-Feb-10)
- iii) Indian Association of Biomedical Scientist (Life Member, L. M. No. 1109/2013)

- iv) Association of Physiologists & Pharmacologists, Life Member (Receipt No 8639)
- v) Indian Science Congress Association, Life Member (L24300)
- vi) Association of Physiologists of India, Life Member, (L-ASSOPI/2018/264)
- vii) Indian Academic of Neurosciences, Life Member, (LP -102/2019)
- viii) Indian Society for Applied Mechanics, Life Member (LM00-190)

Awards/Honours/Recognition:

1. Prestigious Award of Prof S C Mahalanobis Memorial Oration Award 2024 Physiological Society of India (PSI).
2. Prestigious Award of M.K. Nambiar Memorial Oration Award 2023 from Indian Association of Biomedical Scientists (IABMS)
3. Technology Group Award, DRDO, Min of Defence, Delhi, 2022
4. **Scientist of the Year Award 2016, DRDO, Min of Defence, Govt. of India**
5. Dr B B Sarkar Memorial Oration Award 2017, Physiological Society of India (PSI).
6. Technology Group Award, DRDO, Min of Defence, Delhi, 2014
7. Dr Chitralekha Mukherjee Memorial Oration Award, 2013, Physiological Society of India
8. Scientist of the Year Award, DRDO, Min of Defence, Delhi, 2012
9. Surg. Rear Admiral M. S Malhotra Award for Best Paper 2010, DRDO, Delhi
10. Technology Group Award, DRDO, Min of Defence, Delhi, 2009
11. Technology Group Award, DRDO, Min of Defence, Delhi, 2003
12. National Sports Science Fellowship, Sports authority of India, Govt. of India, 1997
13. Research Advisory Council Member, Centre for Human Movement Analytics, VIT, Chennai for 2024 to 2027.
14. Recognized as Co supervisor role for Ph D Scholars at Woxsen University, Hyderabad.
15. Advisory Board Member for AI Research Centre, Woxsen University, Hyderabad, for 2024 to 2027.
16. Recognized as Co supervisor role for Ph D scholars at Galgotias University, Noida, UP.
17. Member of **Research Advisory Committee** at 3rd Biennial International Symposium on **'Fluids and Thermal Engineering'** of **Amity University, 2023.**
18. **External Advisory Committee Member** for **Academic Advisory Council** of the Institute of Babu Banarasi Das Institute of Technology and Management, Lucknow, 2023 onwards
19. **Technical Expert in Biomechanics** for Selection of Research Staff at "Sports Authority of India" 2022.

20. **Expert as Senate Nominee** for Selection of Faculties, Dept of Design, IIT, Guwahati
21. **Executive Board Member** of Indian Society of Ergonomics (ISE) for the duration of 2021-2023(**ELECTED**).
22. Advisory Committee Member of Institution's Innovation Council (MHRD), Babu Banarasi Das Institute of Technology and Management, Lucknow, 2021 onwards.
23. Executive Board Member of Association of Physiologist of India (ASSOPI) for the duration of 2021-2023, ASSOPI (**ELECTED**)
24. External Expert Member of Innovation Club (MHRD), Dr B R Ambedkar National Institute of Technology, Jalandhar, 2021 onwards.
25. Technical Expert Member of Occupational Safety and Health Committee (CHD 8): Ergonomics Principles in Design of Work systems, **Bureau of Indian Standards**.
26. Associate Editor, Ergonomics in Design: The Quarterly of Human Factors Applications (International).
27. **Technical Expert Member**, Footwear Design and Development Institute (FDDI), Min of Industry and Commerce, Noida, UP.
28. **Technical Expert Member** of Textile Protective Clothing Sectional Committee, TXD 32 (PGD 15 Ergonomics), **Bureau of Indian Standards**.
29. Technical Expert Member of Sectional Committee CHD 19: Revision of Sports Footwear, **Bureau of Indian Standards**.
30. Associate Editors, *International Journal of Physical Education, Fitness and Sports (IJPEFS)* 2019 onwards
31. Executive Board Member of Association of Physiologist of India (ASSOPI)I for the duration of 2018-20 (**ELECTED**).
32. Editorial adviser, BLDE University Journal of Health Sciences
33. **Chief Guest** for Inauguration of 'Atal Tinkering Laboratory at Apeejay School, Pitampura, Delhi, 2018.
34. Governing Council Member of Adventure Lab, Thapar University, Patiala, 2017
35. Editorial Director, Asian Journal of Medical Sciences, 2017 – 2023.
36. Editorial Member, Journal of Krishna Institute of Medical Sciences, 2017 onwards
37. Member of Sectional Committee, Section of Medical Sciences, Indian Science Congress Association (ISCA), 2015 (**Elected**)
38. Physiological Society of India (Asst. General Secretary, 2013- March 2016), (**Elected**)
39. Physiological Society of India, Asst. General Secretary, 2010-2013(**Elected**)
40. Physiological Society of India (PSI), Executive Member, 2006-09

Editorial Board Member / Reviewer of Peer Review Journals:

- Applied Ergonomics (<https://www.journals.elsevier.com/applied-ergonomics>; ISSN:0003-6870)
- Ergonomics (<https://www.tandfonline.com/action/journalInformation>; Print ISSN: 0014-0139 Online ISSN: 1366-5847)
- International Journal of Industrial Ergonomics (<https://www.sciencedirect.com/journal/international-journal-of-industrial-ergonomics>; ISSN: 0169-8141).
- Ergonomics in Design: The Quarterly of Human Factors Applications (<https://journals.sagepub.com/home/erg>;ISSN: 1064-8046).

- Journal of Krishna Institute of Medical Sciences (<https://www.jkimsu.com/>; ISSN:2231-4261)
- International Journal of Occupational Safety and Health (<https://www.nepjol.info/index.php/IJOSH>; ISSN: 2738-9707 eISSN2091-0878).
- International Journal of Health & Allied Sciences (<https://www.ijhas.in/>; ISSN - **Print:** 2278-4292, **Online:** 2278-344X)
- International Journal of Physical Education, Fitness and Sports (<https://ijpefs.org/index.php/ijpefs>; E-ISSN: **2457-0753** P-ISSN: **2277-5447**).
- National Journal of Basic Medical Sciences (<https://www.njbms.in/>;ISSN: 0976-6626[print], 2455-1740[online]).
- Asian Journal of Medical Sciences (<https://www.nepjol.info/index.php/AJMS>; ISSN 2467-9100 e-ISSN 2091-0576).
- Asian Journal of Biomedical Research
- American Journal of Biomedical Research (ISSN (Print): 2328-3947ISSN (Online): 2328-3955)
- Journal of Basic and Clinical Physiology and Pharmacology (ISSN: 2191-0286).
- Life Sciences Research Board, DRDO, Min. of Defence
- Dept of Science & Technology, Govt of India
- American Journal of Sports Science and Medicine (<http://www.sciepub.com/journal/ajssm>; ISSN: 2333-4592 eISSN: 2333-4606).
- Journal of Back and Musculoskeletal Rehabilitation (<https://www.iospress.com/catalog/journals/journal-of-back-and-musculoskeletal-rehabilitation> ; ISSN 1053-8127 eISSN 1878-6324).
- American Journal of Industrial Engineering (<http://www.sciepub.com/journal/ajie>; ISSN : 2377-4320 eISSN : 2377-4339)
- Defence Life Science Journal (<https://publications.drdo.gov.in/ojs/index.php/dlsj>; pISSN: 2456-379X eISSN: 2456-0537).
- Indian Journal of Biological Sciences (<http://inet.vidyasagar.ac.in:8080/jspui/handle/123456789/1126>; ISSN: 0972-8503)

- Journal of Clinical and Diagnostic Research (<https://www.jcdr.net/> ; eISSN - 0973-709X , pISSN : 2249-782X).

- Police Practice and Research : An International Journal (Taylor &Francis online; <https://www.tandfonline.com/toc/gppr20/curren>)

- Defence Science Journal(<https://publications.drdo.gov.in/ojs/index.php/dsj/index>; **pISSN: 0011-748X eISSN: 0976-464X**)
- Global Initiative for Academic Networks (GIAN), MHRD, Govt of India
- Frontiers in Public Health (Occupational Health and safety Section) [<https://www.frontiersin.org/journals/public-health> ;]
- Al-Ameen Journal of Medical Sciences (ISSN: 0974-1143 (print), <http://ajms.alameenmedical.org>)
- BLDE University Journal of Health Sciences, Editorial Adviser (<https://www.bldeujournalhs.in/> ; **ISSN - Print: 2468-838X, Online: 2456-1975**)

Intellectual Property Right (IPR) Protection through Design Registration, Patents & Copy Rights):

S. No.	Title	Patent No.	Granted
1	Shoe Sole	315321-001	Granted
2	An Ergonomic Boot	201811047736	Granted
3	Shell for Snow Boot	315322 -001	Granted
4	An Ergonomic Snow Boot	201811050092	Granted
5	School Bag	295633	Granted
6	School Bag	295632	Granted
7	Backpack for soldiers	298347	Granted
8	Ergonomic Backpack with Quick Release System	201711047317	Granted
9	An Ergonomically designed Backpack	201711003911	Granted
10	Flexible Water Bottle	323955-001	Granted
11	Ergonomically Designed Extreme Cold Weather Clothing for Military applications	202111048161	Granted

12	An Ergonomic Boot	529470	Granted
13	Ergonomic Backpack with Quick Release System	460776	Granted
14	Lightweight Ergonomic Snow Boot	312511	Granted
15	Ergonomically designed Backpack	298348	Granted
16	Combat Boot	312312	Granted
17	Under Process : 16		

Supervised PhD Thesis/Dissertation(M.Sc./M.Tech. B.Tech): 30

Technology Developed and Transfer to Industrial Partners for Production and Commercialization:

- ❖ Ergonomically Designed Backpack (90 Lt) – Technology transferred to three (3) industrial partners for commercialization and technology inducted in Forces.
- ❖ Ergonomically Designed Backpack (70 Lt)- Technology transferred to ten (10) industrial partners for commercialization and technology inducted in Forces
- ❖ Ergonomically designed Combat Boots- Technology transferred to four (4) industrial partners for commercialization and induction under process
- ❖ Multipurpose Load Carriage Ensemble- Technology transferred to one (1) industrial partners for commercialization and induction under process
- ❖ Ergonomically Designed Flexible Water Bottle - Technology transferred to five (5) industrial partners for commercialization and inducted in Forces.
- ❖ DRDO-Extreme Cold Weather Clothing system- Technology transferred to five (5) industrial partners for commercialization and inducted in Forces.

Techno-Managerial Experience

- i. **Director**, 7 Centre of Excellences, Footwear Design and development Institute, Min of Commerce and Industry, GoI, since Aug 2023
- ii. **Programme Director**, XII five-year Programme (DIP-266, Cost: Rs 24.7 Cr)
- iii. **Group Head**, Dept. Human Biology (2010-2012)
- iv. **Division Head**, Dept. Ergonomics (2015-till date)
- v. **HOD**, Ergonomics & Human Biology (Aug 2020- 2022 March)
- vi. **Member Secretary**, Specialists Panel of “Physiology of Extreme Environment and Behavioral Sciences, Life Science Research Board, DRDO (2014-18)
- vii. **Member** of Formulation of Technical Specifications Committee of Stores Procurement
- viii. **Member** of Library Committee
- ix. **Member** of Technical Evaluation Committee of Stores Procurement
- x. **Chairman**, Inspection Committee of Stores Procurement

Co-Chairperson/ Co-ordinator/Member/Advisory Committee Member for Organizing different National or International Conference / Workshop:

- i. User Interactive Workshop on “Human Factor Engineering in Military Platform” , 15-16 March 2023.
- ii. Human Factor Integration for Defense Equipment, 29th June, 2022, DIPAS, DRDO
- iii. Symposium on Military Ergonomics, 10 Nov, 2019, HWWE-2019, NIT Jaladhar, Coordinator
- iv. Symposium on Ergonomics and Occupational Health: Military Environment, ESIC Medical College and Hospital, 28 Sept 2019, Faridabad, Haryana, Coordinator
- v. Satellite Workshop on "Application of Ergonomics : Approaches to Improve Health and Safety" 26 September 2019, DIPAS, Delhi. Under aegis of VIIIth Congress of Federation of Indian Physiological Societies (FIPS), Coordinator
- vi. Workshop on “Powered Exoskeleton” at DIPAS, DRDO from 10th- 11th April 2019, Course Director
- vii. CEP course on Ergonomics and Military Environment, DIPAS 07th -09th March 2018, Course Director.
- viii. International Conference: FIPSPHYSIICON-2017, Delhi (Organizing Secretary).
- ix. National workshop on New Horizon in Exercise and Health, S V University, 4-5 Aug, Tirupati 2017.

- x. National Workshop on “Yoga, Exercise and Health” Organized by Department of Community Medicine, Andaman & Nicobar Islands, Institute of Medical Sciences, 23 Sept, Port Blair 2016.
- xi. Symposium on Autonomic and Vascular Function Assessment: Physiological applications, Annual Conference of the Physiological Society of India (PHYSIOCON-2016), Midnapore College, Midnapore, 2016
- xii. User interactive workshop on “Improving Health and Habitability on North Eastern Sector” DRL, Tezpur, 2016.
- xiii. National Workshop on Research Methodology of Ergonomics, Maitri Medical College & Dentistry Research Centre, Chattisgarh, 2014
- xiv. User interactive workshop on Fighting Fit in the Himalayan heights, 2012, 33 Corps, Gangtok, Sikkim
- xv. National Conference of Physiological Society of India, As Assit General Secretary
- xvi. Methodologies in Ergonomics” for the academicians and scientists of All India Coordinated Research Project (AICRP) - Home Science, 2009, DIPAS.
- xvii. First Congress of Asia Pacific Society for Mountain Medicine, Delhi, 2008
- xviii. National Conference on Seabuckthorn “Promoting health & protecting environment” 2010, Delhi.
- xix. International symposium on Recent Trends in Neuro-Sciences and XXIX Annual Conference of Indian Academy of Neuro- Sciences, 2011, Delhi

Ph D Thesis Examiner: Conducted Ph D Viva-voce as External Expert and Evaluation of Thesis as External Expert. More than 20 Ph D thesis evaluated for following Universities.

- University of Kalyani
- Anna University
- University of Calcutta
- Tripura University
- Jamia Millia Islamia University
- Indian Institute of Technology, Guwahati
- BLDE University, Bijapur
- Osmania University
- Vidyasagar University