



## PROJECT COMPLETION REPORT

1. Project Number : P 7444
2. Title of the Project : DIABETIC FOOT ULCER OFFLOADER
3. Funding Agency Name : Industry funded project by M/s. Tynor Orthotics Pvt Ltd
4. Project Reference Number provided by the Funding Agency:  
P 7444
5. Principal Investigator (Name & Address):

Sl. No	Name	Role	Address
1	Subhash N. N.	Principal Investigator	Engineer C Division of Artificial Internal Organs, DMDE, BMT Wing, SCTIMST
2	Muraleedharan C. V.	Co-Principal Investigator	Scientist G (Sr. Grade) Division of Artificial Internal Organs, DMDE, BMT Wing, SCTIMST

6. Co-Investigators (Name & Address):

Industry experts involved in the joint development are

- Inderjeet Singh, DM-Product D&D, Tynor Orthotics Pvt Ltd
- Harsh Chauhan, Manager, Tynor Orthotics Pvt Ltd
- Ravina Taragi, Product manager, Tynor Orthotics Pvt Ltd

Clinical experts involved from SCTIMST

- Dr. Nitha J, Physical Medicine and Rehabilitation (PMR), SCTIMST
- Dr. Subin Sukesan, SCTIMST

7. Implementing Institution : Jointly by SCTIMST and TYNOR Orthotics Pvt Ltd
8. Collaborating Institutions : Nil
9. Date of Commencement : 21/10/2020
10. Duration : 1 year
11. Date of Completion : 20/10/2021
12. Objectives as approved:

Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, Kerala (SCTIMST), an Institute of National Importance under the Department of Science and Technology, Government of India, has signed an MoU with Tynor Orthotics Private Limited (Tynor), Mohali, to set up an Orthotics and Rehabilitation R&D vertical at SCTIMST to promote indigenous device development in this sector towards the goal of 'Aatmanirbhar Bharat', a high priority target of the Govt of India.

Tynor, a manufacturer and exporter of high quality and affordable orthopedic appliances and fracture aids in India, will collaborate with SCTIMST for the co-development of Orthotic devices and to promote joint research programs in Orthotics and Rehab. Tynor has funded SCTIMST for Research and Development of two off-loading devices in patients with diabetic foot ulcers and osteoarthritis.

The main objective of this Institute-Industry collaboration is to develop a cluster of orthoses for catering to clinical conditions such as osteoarthritis and diabetic foot ulcer. Asia Pacific is anticipated to witness a lucrative growth in global diabetic foot ulcer therapeutics market owing to the increasing geriatric population, which is more prone to diabetes. Global Diabetic Foot ulcers and Pressure ulcer Market is expected to reach 5265 Million Dollars by 2025 with a compound annual growth rate(CAGR) of 6.6% from 2019-2025, which is quite alarming. Similarly, the global knee braces market is growing due to the rising prevalence of osteoarthritis, increasing number of orthopedic knee surgeries, and growing number of sports injuries in athletics. The global knee braces market size was estimated at USD 1.5 billion in 2018 and is expected to witness a CAGR of 4.3%. The growing burden of osteoarthritis, the increase in target population, and the technology of cost-effective and easy to wear braces are the major growth propellers for the market.

For more details, please refer the website below:

- <https://pib.gov.in/PressReleasePage.aspx?PRID=1655190> , Last accessed on 3 Dec 2023.
- <https://www.tynorstore.com/blog/sctimst-inks-mou-with-tynor-orthotic-to-boost-orthotic-devices/> , Last accessed on 3 Dec 2023.
- [https://www.sctimst.ac.in/resources/SCTIMST-%20TYNOR%20INK%20PACT%20FOR%20JOINT%20R&D%20IN%20ORTHOTICS%20AND%20REHABILITATION%20DEVICES\\_17.09.2020.pdf](https://www.sctimst.ac.in/resources/SCTIMST-%20TYNOR%20INK%20PACT%20FOR%20JOINT%20R&D%20IN%20ORTHOTICS%20AND%20REHABILITATION%20DEVICES_17.09.2020.pdf) , Last accessed on 3 Dec 2023.

13. **Deviation made from original objectives if any, while implementing the project and reasons thereof :**  
Nil

14. **Field/Experimental work giving full details of summary of methods adopted, data collected supported by necessary tables, charts, diagrams and photographs:**

The project is funded by Industry partner, and detailed reports and figures are not made available in public domain.

15. **Detailed analysis of results:**

The project is funded by Industry partner, and detailed reports and figures are not made available in public domain.

16. **Summary sheet of not more than 2 pages under following heads:  
(Title, Introduction, Rationale, Objectives, Methodology, Results, Translational Potential)**

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- <https://www.sctimst.ac.in/resources/SCTIMST-%20TYNOR%20INK%20PACT%20FOR%20JOINT%20R&D%20IN%20ORTHOTICS%20AND%20REHABILATION%20DEVICES%2017.09.2020.pdf> , Last accessed on 3 Dec 2023.

**17. Contributions made towards increasing the state of knowledge in the subject :**

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**18. Conclusions summarising the achievements and indication of scope for future work :**

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**19. Science and Technology benefits accrued :**

**a. List of research publications with complete details :**

- Nil

**b. Manpower trained on the project :**

- i. **Research Scientists or Research Fellows** : Nil
- ii. **No. of PhD's produced** : Nil
- iii. **Other Technical Personnel trained** : Vaseem Mehran, Project Assistant

- c. Patents taken, if any : Nil
- d. Products developed, if any : Nil

20. Abstract: (In 300 words for possible publication in ..... Bulletin)

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21. Procurement/Usage of Equipment:

a. Details of Equipment: Nil

Sl. No.	Name of Equipment	Make/ Model	Cost (Rs.)	Date of Installation	Utilisation	Remarks regarding maintenance breakdown

b. Suggestions for disposal of equipment(s):

Not applicable



Subhash N. N.  
3 Dec 2023

(Name and Signature of Pls with date)

**Routing:** Signed copy of "Project completion Report" by PI → [root@sctimst.ac.in](mailto:root@sctimst.ac.in), [rpc@sctimst.ac.in](mailto:rpc@sctimst.ac.in)