

## COMPLETE CURRICULUM VITAE

**1. NAME:** RIMESH PAL

**2. PRESENT DESIGNATION:** Assistant Professor, Department Of Endocrinology,  
Postgraduate Institute Of Medical Education And Research (PGIMER), Chandigarh,  
India

**3. QUALIFICATION/EDUCATION/TRAINING/RESEARCH EXPERIENCE:**

| Institution  | Degree/<br>Designation  | Duration                    | Field of Study/<br>Research                                 |
|--|---|-----------------------------|---|
| Medical College,<br>Kolkata  | <b>MBBS</b>   | August 2007 –<br>March 2013 | Medicine, Surgery,<br>Pediatrics,<br>Gynecology/ Obstetrics |
| Postgraduate Institute<br>of Medical Education<br>and Research<br>(PGIMER),<br>Chandigarh, India | <b>MD</b>   | July 2013 – June<br>2016    | Internal Medicine   |
| Postgraduate Institute<br>of Medical Education<br>and Research<br>(PGIMER),<br>Chandigarh, India | <b>DM</b>   | July 2016 – June<br>2019    | Endocrinology   |
| Postgraduate Institute<br>of Medical Education<br>and Research<br>(PGIMER),<br>Chandigarh, India | Study<br>coordinator in<br>multicenter<br>project between<br>Emory<br>University, USA<br>and PGIMER | April 2020 – June<br>2021   | Endocrinology and<br>Bioinformatics                         |
| Postgraduate Institute<br>of Medical Education<br>and Research<br>(PGIMER),<br>Chandigarh, India | <b>Assistant<br/>Professor</b>  | June 2021 – Till<br>date    | Endocrinology   |

#### **4. ADDITIONAL QUALIFICATION:**

- **Associate Fellow, National Academy of Medical Sciences (NAMS)**

#### **5. PERSONAL STATEMENT:**

I am presently working as an Assistant Professor in the Department of Endocrinology at the prestigious Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, India. I am an astute clinician and a keen clinical researcher. My research areas of interest include bone and mineral metabolism, sarcopenia, osteoporosis, type 2 diabetes, diabetic bone disease and endocrine aspects of COVID-19. Hitherto, in my short career, I have more than 120 peer-reviewed indexed publications with an ***h-index of 27*** and i10-index of 42 (source Google Scholar). Of note, my publications include manuscripts in reputed journals like The Lancet Diabetes and Endocrinology, Nature Reviews Endocrinology, European Heart Journal, Osteoporosis International, and Diabetes Research and Clinical Practice, amongst others.

Working with my team, I have conducted an epidemiological survey in Chandigarh (Chandigarh Urban Bone Epidemiological Study, Acronym: CUBES) wherein we have conducted a door-to-door survey in four sectors of the Union Territory. After having recruited nearly 900 ostensibly healthy subjects, we have used the database to generate the long-awaited normative data on metabolic bone profile (calcium, phosphate, alkaline phosphatase), bone mineral density, bone turnover markers and muscle mass/muscle strength in ostensibly healthy community-dwelling North Indian adults. For the first time ever, we have derived indigenous cut-offs of low muscle mass and low muscle strength for defining sarcopenia and using these cut-offs, we

have found out the prevalence of sarcopenia and sarcopenic obesity in the apparently healthy adult Indian population.

The majority of my publications are a result of collaborative work with researchers from PGIMER as well as from other parts of India and across the globe. I have been one of the members of the task force of the Indian Society for Bone and Mineral Research (ISBMR) that had drafted the position statement on the diagnosis and treatment of osteoporosis in adults. Apart from being a researcher myself, I am a regular reviewer at multiple reputed national and international journals. Besides, I am Editorial board member/Associate Editor/Academic Editor of multiple international journals. At present, as a principal investigator, I am working on the treatment of diabetic bone disease (funded by ISBMR and the Endocrine Society of India) and changes in specific circulating miRNAs with the use of SGLT2i use (funded by SERB, Government of India).

## 6. AWARDS AND HONOURS:

| Year                   | Award/Honour   |
|------------------------|--|
| <b><i>National</i></b> |  |
| 2007-2012              | <b>Gold Medals</b> in Physiology, Pathology, Microbiology, ENT, Pediatrics, Gynecology and Obstetrics while pursuing MBBS  |
| 2012                   | <b>Mamraj Agarwal Rashtriya Puraskar</b> for obtaining <b>first</b> position in final MBBS examination held under the aegis of The West Bengal University of Health Sciences (WBUHS) |
| 2014                   | <b>Winner of National Hematology Quiz</b> at HEMATOCON held at Hyderabad   |
| 2016                   | <b>Silver medal winner</b> for securing <b>first</b> position in Doctor of Medicine (MD) from PGIMER, Chandigarh   |
| 2018                   | <b>Winner of Endocrine Hawk Eye Quiz</b> held at the Endocrine Enrichment Programme, Kolkata   |

|                             |   |
|-----------------------------|---|
| 2019                        | <b>Best oral paper presentation</b> at the Mid-term Endocrine Society of India Conference   |
| 2019                        | <b>Recipient of travel grants</b> by The Indian Council of Medical Research (ICMR) and Science and Engineering Research Board (SERB) for poster presentation at the International Conference on Frailty and Sarcopenia Research (ICFSR), Miami, USA |
| 2021                        | <b>Second best research paper</b> under "COVID-19" category at the 8th Annual Research Day held at PGIMER   |
| 2022                        | <b>RSSDI-USV Award for Innovations in Diabetes Care in Challenging Situations</b> awarded by the Research Society for the Study of Diabetes in India (RSSDI)  |
| 2022                        | <b>Best research paper</b> under Assistant Professor-Medical Specialties category at the 9th Annual Research Day held at PGIMER   |
| 2022                        | <b>Organizing Secretary</b> , 18 <sup>th</sup> National Annual Conference of the Indian Society for Bone and Mineral Research (ISBMR) held at PGIMER, Chandigarh  |
| 2023                        | <b>Chellaram Foundation Diabetes Research Award (second)</b> in Clinical Sciences category awarded in 2023  |
| 2023                        | <b>Recipient of travel grant</b> by The Science and Engineering Research Board (SERB) for attending ENDO 2023, Chicago, USA   |
| <b><i>International</i></b> |   |
| 2021                        | Recognition in the list of <b>world's top 2% scientists published by the Stanford University</b>  |
| 2022                        | <b>C. Wayne Bardin International Travel Award</b> awarded by the Endocrine Society at ENDO 2022, Atlanta, USA<br><b>(first Indian to have received this international award)</b>  |
| 2023                        | <b>Outstanding Abstract Award</b> awarded by the Endocrine Society at ENDO 2023, Chicago, USA   |
| 2023                        | <b>Presidential Poster Competition Winner</b> awarded by the Endocrine Society at ENDO 2023, Chicago, USA   |

## 7. MEMBERSHIP OF SCIENTIFIC BODIES/COMMITTEES

- Endocrine Society of India (ESI)

- Endocrine Society (USA)
- Indian Society for Bone and Mineral research (ISBMR)
- Research Society for the Study of Diabetes in India (RSSDI)
- Menopause Society Region Chandigarh (CRMS)
- World NCD Federation
- Indian Society for Pediatric and Adolescent Endocrinology (ISPAE)
- Geriatric Society of India (GSI)
- Indian Medical Association (IMA), Chandigarh Chapter
- Endocrine Society of Bengal (ESB)
- European Society of Endocrinology (ESE)
- Young Active Research in Endocrinology (YARE)
- RSSDI, Chandigarh Chapter

## **8. EDITORIAL BOARD**

- Academic Editor of Journal of Osteoporosis (Hindawi)
- Academic Editor of PLOS One
- Academic Editor of Frontiers in Endocrinology: Bone Research
- Editorial board member of Therapeutic Advances in Endocrinology and Metabolism (SAGE)
- Editorial board member of Endocrine and Metabolic Science (Elsevier)

## **9. INVITED LECTURES**

| <b>Title</b>   | <b>Conference/Year</b>   |
|--|--|
| Approach to a 60 year old man with incidentally detected hypercalcemia   | Endocrine Society of India (ESI) Satellite Symposium, Ludhiana, 2019 |
| Sarcopenia   | GSICON, Kolkata, 2022  |
| Treating chronic hypoparathyroidism in children: has the time arrived for routine physiological PTH replacement? | ISPAE-ISPAD Midterm meeting 2022, PGIMER, Chandigarh                 |
| MEN 2: Paradigm of Precision Medicine  | ESICON, Jaipur, 2022   |
| Strengthening Diabetes Care  | 8th International Course on Public Health                            |

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|--|--|
|  | Approaches to Noncommunicable Diseases, 2023, PGIMER, Chandigarh |
| Diabetic bone disease  | RSSDI WB Chapter Annual Conference, Kolkata, 2023                |
| Case scenario: 76 year old woman on osteoporosis treatment- inj zoledronic acid for 3 years, inj Teriparatide for 2 years presents with fragility fracture | DECON, Coimbatore, 2023  |

## 10. EXTRAMURAL GRANTS

| Project title   | Funding agency  | Sanctioned amount |
|---|---|-------------------|
| Alterations in specific circulating microRNAs levels with sodium-glucose co-transporter-2 (SGLT2) inhibitors in patients with type 2 diabetes mellitus and albuminuria                              | SERB, India   | Rs. 2500240.00    |
| Randomized controlled trial comparing the efficacy of teriparatide, zoledronate, denosumab in postmenopausal women with type 2 diabetes mellitus at high risk of fragility fractures: A pilot study | Jointly funded by the Endocrine Society of India (ESI) and the Indian Society for Bone and Mineral Research (ISBMR) | Rs. 450000.00     |
| Risk of sarcopenia and change in related biomarkers with sodium-glucose cotransporter-2 inhibitor use in older adults with type 2 diabetes mellitus: A randomized controlled pilot trial            | Endocrine Society of India (ESI)  | Rs. 400000.00     |

## 11. NOVELTY IN RESEARCH

- Deriving indigenous cut-offs to define sarcopenia and sarcopenic obesity amongst Indian adults
- Use of combined systemic and intralesional zoledronic acid to treat fibrous dysplasia of bone
- Documentation of high prevalence of hypocalcemia in non-severe COVID-19 patients

## 12. PUBLICATIONS

**Indexed publications: n=120**

### **Complete List of Published Work in Google Scholar:**

<https://scholar.google.com/citations?user=D1kHW9sAAAAJ&hl=en>

*List of few noteworthy publications:*

- **Pal R**, Aggarwal A, Singh T, Sharma S, Khandelwal N, Garg A, et al. Diagnostic cut-offs, prevalence, and biochemical predictors of sarcopenia in healthy Indian adults: The Sarcopenia-Chandigarh Urban Bone Epidemiological Study (Sarco-CUBES). *Eur Geriatr Med*. 2020;11:725-736.
- **Pal R**, Bhadada SK, Aggarwal A, Singh T. The prevalence of sarcopenic obesity in community-dwelling healthy Indian adults - The Sarcopenic Obesity-Chandigarh Urban Bone Epidemiological Study (SO-CUBES). *Osteoporos Sarcopenia*. 2021;7:24–9.
- **Pal R**, Aggarwal A, Sachdeva N, Ram S, Garg A, Bhansali A, et al. Age- and sex-specific concentrations of bone remodeling markers in healthy Indian adults with and without vitamin D deficiency. *Arch Osteoporos*. 2021;16:10.
- Aggarwal A, **Pal R**, Bhadada SK, Ram S, Garg A, Bhansali A, et al. Bone mineral density in healthy adult Indian population: the Chandigarh Urban Bone Epidemiological Study (CUBES). *Arch Osteoporos*. 2021;16:17.
- Aggarwal A, Ram S, Garg A, **Pal R**, Bhansali A, Singh P, et al. Metabolic Bone Profile of Healthy Adult North Indian Population from Chandigarh

Urban Bone Epidemiological Study (CUBES). *Indian J Clin Biochem.* 2021;36:67-73.

- **Pal R**, Bhadada SK, Singhare A, Bhansali A, Kamalanathan S, Chadha M, et al. Tumor-induced osteomalacia: experience from three tertiary care centers in India. *Endocr Connect.* 2019;8:266–76.
- **Pal R**, Mukherjee S, Bhadada SK, Bhansali A, Puravoor J, Behera A. Persistence of “non-dipping” pattern in blood pressure after curative parathyroidectomy in apparently normotensive patients with symptomatic primary hyperparathyroidism. *Minerva Endocrinol.* 2020;45:181-188.
- **Pal R**, Arya AK, Aggarwal A, Singh P, Dahiya D, Sood A, et al. Weight gain after curative parathyroidectomy predicts increase in bone mineral density in patients with symptomatic primary hyperparathyroidism. *Clin Endocrinol (Oxf).* 2020;93:28–35.
- **Pal R**, Bhadada SK, Gupta N, Behera A, Aggarwal N, Aggarwal A, et al. Primary hyperparathyroidism in pregnancy: observations from the Indian PHPT registry. *J Endocrinol Invest.* 2021;44:1425-1435.
- Mukherjee S, Arya AK, Bhadada SK, **Pal R**, Lohani S, Gupta A, et al. Characterization of primary hyperparathyroidism based on target organ involvement: An analysis from the Indian PHPT registry. *Clin Endocrinol (Oxf).* 2023;cen.14915.
- Kumari P, Arya AK, **Pal R**, Sood A, Dahiya D, Mukherjee S, et al. Comparison of Profile of Primary Hyperparathyroidism With and Without Type 2 Diabetes Mellitus: Retrospective Analysis From the Indian Primary Hyperparathyroidism Registry. *Endocr Pract.* 2021;S1530891X2101243X.
- **Pal R**, Bhadada SK, Mukherjee S, Banerjee M, Kumar A. Fracture risk in hypoparathyroidism: a systematic review and meta-analysis. *Osteoporos Int.* 2021. Available from: <https://link.springer.com/10.1007/s00198-021-05966-8>
- Bhadada SK, **Pal R**, Sood A, Dhiman V, Saini UC. Co-administration of Systemic and Intralesional Zoledronic Acid in a Case of Fibrous Dysplasia: A Potentially Novel Therapy. *Front Endocrinol.* 2019;10:803.
- Chatterjee D, Bardia A, **Pal R**, Saikia UN, Bhadada SK, Radotra BD. Clinical, morphological and immunohistochemical analysis of 13 cases of phosphaturic



mesenchymal tumor - A holistic diagnostic approach. *Ann Diagn Pathol*. 2021;54:151783.

- Bhadada SK, Chadha M, Sriram U, **Pal R**, Paul TV, Khadgawat R, et al. The Indian Society for Bone and Mineral Research (ISBMR) position statement for the diagnosis and treatment of osteoporosis in adults. *Arch Osteoporos*. 2021;16:102.
- Aleti S, **Pal R**, Dutta P, Dhibar DP, Prakash M, Khandelwal N, et al. Prevalence and predictors of osteopenia and osteoporosis in patients with type 2 diabetes mellitus: a cross-sectional study from a tertiary care institute in North India. *Int J Diabetes Dev Ctries*. 2020;40:262–8.
- **Pal R**, Bhadada SK. Bone health in diabetes: Indian perspective. *Curr Opin Endocrinol Diabetes Obes*. 2021;28:383-389.
- **Pal R**, Prasad TN, Bhadada SK. Bone fragility in type 2 diabetes mellitus: a lot left to explore. *Nat Rev Endocrinol*. 2022;18:651–651.
- Mukherjee S, **Pal R**, Bhadada SK, Kaur A, Rastogi A. Bone mineral density and its predictors in a cohort of adults with type 1 diabetes attending a tertiary care institute in North India. *Int J Diabetes Dev Ctries*. 2023.
- Sihota P, **Pal R**, Yadav RN, Neradi D, Karn S, Goni VG, et al. Can fingernail quality predict bone damage in Type 2 diabetes mellitus? A pilot study. *PLOS ONE*. 2021;16:e0257955.
- **Pal R**, Ram S, Zohmangaihi D, Biswas I, Suri V, Yaddanapudi LN, et al. High Prevalence of Hypocalcemia in Non-severe COVID-19 Patients: A Retrospective Case-Control Study. *Front Med*. 2021;7:590805.
- **Pal R**, Yadav U, Grover S, Saboo B, Verma A, Bhadada SK. Knowledge, attitudes and practices towards COVID-19 among young adults with Type 1 Diabetes Mellitus amid the nationwide lockdown in India: A cross-sectional survey. *Diabetes Res Clin Pract*. 2020;166:108344.
- **Pal R**, Yadav U, Verma A, Bhadada SK. Awareness regarding COVID-19 and problems being faced by young adults with type 1 diabetes mellitus amid nationwide lockdown in India: A qualitative interview study. *Prim Care Diabetes*. 2021;15:10-15.
- **Pal R**, et al. Impaired anti-SARS-CoV-2 antibody response in non-severe COVID-19 patients with diabetes mellitus: A preliminary report. *Diabetes*

Metab Syndr. 2021

- **Pal R**, Banerjee M, Yadav U, Bhattacharjee S. Statin use and clinical outcomes in patients with COVID-19: An updated systematic review and meta-analysis. *Postgrad Med J*. 2021;postgradmedj-2020-139172.
- **Pal R**, Banerjee M, Mukherjee S, Bhogal RS, Kaur A, Bhadada SK. Dipeptidyl peptidase-4 inhibitor use and mortality in COVID-19 patients with diabetes mellitus: an updated systematic review and meta-analysis. *Ther Adv Endocrinol Metab*. 2021;12:204201882199648.
- **Pal R**, Banerjee M, Bhadada SK, Shetty AJ, Singh B, Vyas A. Vitamin D supplementation and clinical outcomes in COVID-19: a systematic review and meta-analysis. *J Endocrinol Invest*. 2021
- **Pal R**, Banerjee M, Bhadada SK. Cortisol concentrations and mortality from COVID-19. **Lancet Diabetes Endocrinol**. 2020;8:809.
- **Pal R**, Joshi A, Bhadada SK, Banerjee M, Vaikkakara S, Mukhopadhyay S. Endocrine Follow-up During Post- Acute COVID-19: Practical Recommendations Based on Available Clinical Evidence. *Endocr Pract*. 2022.
- Banerjee M, Maisnam I, **Pal R**, Mukhopadhyay S. Mineralocorticoid receptor antagonists with sodium-glucose co-transporter-2 inhibitors in heart failure: a meta-analysis. *Eur Heart J*. 2023;ehad522.
- Banerjee M, **Pal R**, Maisnam I, Chowdhury S, Mukhopadhyay S. Serum uric acid lowering and effects of sodium-glucose cotransporter-2 inhibitors on gout: A meta-analysis and meta-regression of randomized controlled trials. *Diabetes Obes Metab*. 2023;25:2697–703.
- **Pal R**, Banerjee M, Bhadada SK. Glycaemic efficacy and safety of mealtime faster-acting insulin aspart administered by injection as compared to insulin aspart in people with diabetes mellitus: A meta-analysis of randomized controlled trials. *Diabet Med*. 2021;38.
- Banerjee M, **Pal R**, Mukhopadhyay S, Nair K. GLP-1 Receptor Agonists and Risk of Adverse Cerebrovascular Outcomes in Type 2 Diabetes: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *J Clin Endocrinol Metab*. 2023;108:1806–12.
- Banerjee M, **Pal R**, Nair K, Mukhopadhyay S. SGLT2 inhibitors and

cardiovascular outcomes in heart failure with mildly reduced and preserved ejection fraction: A systematic review and meta-analysis. *Indian Heart J.* 2023;75:122–7.

- **Pal R**, Sachdeva N, Bhansali A, Sharma A, Walia R. Prevalence of Depression and Psychological Distress and Perturbations of Cortisol Dynamics in Attendants of Hospitalized Patients: An Observational Pilot Study. *Cureus.* 2020.
- **Pal R**, Bhadada S, Dhiman V. Prevention of vertebral fractures in primary osteoporosis with once-weekly teriparatide: A systematic review and meta-analysis of randomized controlled trials. *Int J Noncommunicable Dis.* 2021;6:84.