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Communication

Prosthetic and Orthotic Service Gaps in India: Implications for Rehabilitation Access and Policy Reform

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Abstract

Background: Access to prosthetic, orthotic and related assistive services remains uneven globally; this manuscript examines the systemic causes and rehabilitation consequences within the context of India. We frame service gaps as health-systems failures with measurable workforce, supply-chain, financing and data components.**Methods:** A narrative policy review was undertaken using targeted searches of peer-reviewed literature, government reports, professional body publications, and NGO datasets. Key themes were synthesized across governance, workforce, supply chain, financing, and monitoring domains to derive pragmatic policy interventions. (Authors should replace or update search dates and data sources as required prior to submission.)**Findings/Observations:** Four structural deficits drive undercoverage: (1) insufficient trained P&O workforce and uneven geographic distribution; (2) fragmented manufacturing and procurement with limited quality control; (3) inadequate public financing and poor insurance/benefits coverage for device services; and (4) absence of routine service and outcome surveillance. These deficits produce preventable functional dependency, increased caregiver burden, and inequitable access—most pronounced among rural, low-income, and disabled populations.**Conclusions:** Closing P&O service gaps requires integrated health-systems actions: workforce scale-up and credentialing, pooled procurement and quality standards, explicit public financing pathways, and routine service/outcome monitoring.**Policy recommendations (summary):** Five priority actions are proposed: national workforce strategy, accreditation and CE frameworks; standardized device procurement and quality assurance; finance and benefit design for assistive services; decentralized service hubs with tele-rehabilitation links; and a national monitoring dashboard tied to performance indicators.

Keywords: prosthetics; orthotics; assistive devices; rehabilitation services; health systems strengthening; workforce development; access to care; policy reform; India

Introduction

Disability affects a substantial and growing segment of the global population. Approximately 1.3 billion individuals, or 16% of the world's population, experience significant disability, a figure that continues to rise due to demographic aging and the increasing prevalence of chronic diseases.[1] Many of these individuals need assistive and rehabilitation devices: a recent WHO–UNICEF report estimates over 2.5 billion people worldwide require one or more assistive products (e.g. prostheses, orthoses, wheelchairs, hearing aids).[2] Crucially, access to these aids is grossly inadequate: nearly one billion people who need them are denied access, especially in low- and middle-income countries where coverage can be as low as 3%.[2] Only about 1 in 10 people who need assistive technology worldwide actually have it.[3] This gap severely limits mobility, participation and quality of life for persons with disabilities and others (e.g. the elderly or chronically

ill). Well-designed prosthetic and orthotic devices in particular are essential for restoring walking ability and daily function after amputation or limb impairment.[4] Investment in prosthetics, orthotics, and other assistive technologies is widely recognized as an effective strategy for promoting social inclusion and economic participation, and is explicitly endorsed by international frameworks. India, for example, was among the first countries to sign and ratify the UN Convention on the Rights of Persons with Disabilities (UNCRPD) in 2007,[5] and the 2030 Sustainable Development Goals (SDGs) agenda commits to "leave no one behind," with multiple goals incorporating disability-inclusive targets. National policy in India has also been strengthened, notably through the Rights of Persons with Disabilities (RPwD) Act 2016, to align with these global commitments, although challenges in effective implementation persist.[6]

In India, the officially reported prevalence of disability is much lower than the global average. Census 2011 and recent surveys indicate that approximately 2.2% of the population (about 26.8 million people) have a disability.[7] This discrepancy reflects undercounting and restrictive definitions, but nevertheless indicates tens of millions with impairments. A large fraction of these have locomotor or limb-related disabilities from trauma, disease or congenital causes. Amputation is a major cause of disability in India, yet only about 5% of Indian amputees are fitted with a prosthetic limb.[7] More broadly, only around 10% of Indians who need prosthetic, orthotic or other assistive devices actually obtain them.[8] For example, a 2018 national survey found that among persons with locomotor disabilities only 3.9% were using an artificial limb, and 7.1% did not acquire needed mobility aids due to cost. Even government schemes struggle with coverage: under the **Scheme of Assistance to Disabled Persons for Purchase/Fitting of Aids/Appliances** (ADIP) scheme and related programs, only about 44% of eligible persons have received prescribed aids or appliances.[3,4] Supply-side constraints compound this unmet need. WHO recommends 5–10 trained prosthetist/orthotist clinicians per million population, but India has only about 1 per million. Institutional coordination is weak and funding is underutilized, especially in rural areas.[3,9] These statistics highlight a huge gap between the need for rehabilitation devices and the services actually reaching people in India.

Prosthetic and orthotic (P&O) services are crucial for independence. Appropriately designed and fitted prostheses and orthoses enable people with limb loss or deformity to walk, work and participate in daily life. After lower-limb amputation, for example, patients "experience a reduced quality of life" due to loss of mobility; "properly designed prosthetic systems play a crucial role in restoring walking ability and facilitating activities of daily living".[10] Well-functioning P&O interventions also reduce complications, improve psychosocial health, and lower long-term healthcare costs by preventing secondary conditions. In effect, P&O and other assistive devices are lifesaving and life-changing technologies: they not only improve the health and wellbeing of individual users, but also benefit families and societies by enabling education, employment and community participation.[11]

India's constitutional and policy framework formally recognizes the rights of persons with disabilities. The country ratified the UNCRPD in 2007,[12] and in 2016 enacted the Rights of Persons with Disabilities (RPwD) Act, greatly expanding legal protections. The Act (and subsequent amendments) broadened the definition of disability (to 21 categories), mandated non-discrimination in education and employment, and included provisions for social security and accessibility. In particular, the RPwD Act requires the government to provide "aids and appliances" (assistive devices) free of cost to persons with disabilities meeting income criteria.[13] The Act also guarantees free assistive aids (e.g. adapted learning tools) to students with Intellectual disabilities.[13] These measures reflect India's commitment to the spirit of the UNCRPD and the SDGs, which underscore inclusion and universal access to health and education. However, experts note that enforcement of the RPwD Act's provisions is uneven, requiring stronger coordination between government, civil society and private sectors.[14] In practice, prosthetic and orthotic services in India are mostly delivered through disability-specific programs, like the ADIP scheme under the Ministry of Social

Justice or a handful of specialized centers, rather than being integrated into mainstream public health infrastructure.

The core issue addressed in this paper is that despite international commitments and national laws, P&O services remain largely excluded from India's mainstream health system. Unlike other assistive technologies (e.g. hearing aids, spectacles) which are sometimes included in health initiatives, prosthetic and orthotic care has no dedicated presence in the Ministry of Health and Family Welfare (MoHFW) programs or in the primary care package. At present, P&O professionals are regulated by the Rehabilitation Council of India and trained in separate programs, and funding for devices comes from welfare budgets rather than health budgets.[3] This structural disconnect means that millions of persons with disabilities fall through the cracks: even though the RPwD Act mandates provision of aids/appliances (assistive devices),[15] the mechanisms to deliver prostheses and orthoses are fragmented and under-resourced. For example, although several regional limb-fitting centres/clinics exist, they face chronic shortages of materials, staff and funds, leading to long waiting lists and poor quality of fittings.[3] The upshot is a vast unmet need for mobility devices, undermining rehabilitation outcomes across the country.

Given this background, the present article aims to systematically identify the service gaps at the policy and system level that underlie India's P&O underrepresentation, and to recommend policy and structural reforms. Also, it will examine how prosthetic and orthotic services can be better incorporated into health programs (for example, by expanding facility networks, standardizing professional training, and allocating health budget funds), and how welfare schemes can be reformed to improve reach and efficiency.

Finally, we briefly overview the Rights of Persons with Disabilities Act, 2016, which provides the statutory context for India's P&O policy. As noted, the Act defines persons with "benchmark" disabilities and guarantees inclusive rights in education, employment and public life. Crucially for assistive technology, the RPwD Act and its Rules place responsibility on the government to supply free aids and assistive devices (including prostheses, orthoses, wheelchairs, etc.) to eligible persons.[16] The Act also calls for promotion of new technologies and training of personnel (though details on implementation have evolved through subsequent rules and schemes). Despite these provisions, the gap between legal intent and reality remains wide. Current reforms (including recent amendments that add more categories of disability) provide an opportunity to finally integrate prosthetic and orthotic services into India's health and disability framework. By documenting the depth of the under-service and pointing to models for inclusion, this article seeks to support those policy changes so that India's enormous unmet needs for mobility and independence can begin to be met.

Methods

This manuscript is a narrative policy review synthesizing published research, national and state government reports, professional-body guidance, WHO/UN and other international agency publications, program evaluations, and relevant gray literature to characterise prosthetic and orthotic (P&O) service gaps, drivers, and policy responses in India. Documents were identified through targeted searches of academic and policy databases and organizational websites, reference-list screening (snowballing), and selection of empirically grounded studies and official reports cited in the References. Inclusion was restricted to items with system-level relevance to P&O service delivery, workforce, procurement/quality, financing, service organisation (including decentralisation and tele-rehabilitation), or monitoring in the Indian context; single-case clinical reports and purely technical device-design papers without service or policy implications were not considered. From included sources we extracted key indicators, service models, financing mechanisms, and quality-assurance practices into a structured extraction matrix; quantitative values underpinning major claims were directly traced to their original sources and are indicated in the manuscript's citations. Evidence was appraised pragmatically according to study/design appropriateness and the provenance of gray literature, and findings were synthesised thematically across the five domains noted above.

Observations and Systemic Gaps

A. Lack of Integration into MoHFW

P&O services in India remain largely positioned within disability welfare structures rather than mainstream health delivery. Historically, service delivery and funding mechanisms have been routed through the Ministry of Social Justice & Empowerment (MoSJ&E) and its implementing arms (ALIMCO, National Institutes, CRCs), while the Ministry of Health & Family Welfare (MoHFW) has not instituted dedicated P&O departments across government medical colleges/hospitals or embedded P&O explicitly in tertiary rehabilitation protocols. This structural split is visible in the design of the ADIP scheme (a MoSJ&E program focused on device provision via empanelled agencies and outreach), with no parallel MoHFW service norms for in-house P&O clinics/labs at secondary/tertiary facilities, resulting in weak linkage to national health missions and clinical pathways. Global guidance from WHO explicitly recommends integrating P&O within health systems as part of universal health coverage (UHC), highlighting a divergence between international standards and India's current placement of P&O under welfare-led channels.[3,17]

B. Human Resource and Institutional Gaps

The available evidence indicates a severe shortage of trained prosthetists/orthotists and limited training capacity. A widely cited national review reported **942** bachelor-qualified P&O professionals registered with the Rehabilitation Council of India (RCI), roughly **1 per million**, well below the WHO's often-cited planning benchmark of **5–10 per million**. RCI-approved institutions offering P&O programs are few, with constrained annual intake, and the RCI's recent curriculum framework acknowledges that **more than 100,000** P&O professionals would be required to meet current demand—underscoring the magnitude of the gap. Moreover, there is no structured P&O cadre in national/state workforce planning (unlike recent steps for Public Health Management Cadre under MoHFW), which limits systematic recruitment, posting and progression in the public sector. Collectively, constrained seats, a thin faculty pipeline, and absence of a promotional ladder suppress capacity and retention.[3,18]

C. Infrastructure and Accessibility Deficit

At the point of care, district and sub-district health facilities rarely host limb-fitting labs or integrated P&O clinics; instead, device access is frequently routed through ADIP-empanelled agencies and periodic camps, with variable provision, documentation and post-fitting follow-up. Although ADIP guidelines mandate post-fitting care, the operational model remains largely distribution-centric and outside MoHFW facility norms, which contributes to long wait times, travel burdens, and weak continuity (repairs, socket refits, and alignment checks) for users. Academic syntheses of Indian P&O services consistently note under-resourced public infrastructure and coordination gaps that translate into irregular supply chains and limited rural access. In short, without embedded P&O clinics/labs in district hospitals and robust referral-follow-up pathways, access remains patchy and camp-dependent.[19,20]

D. Technology and Innovation Lag

While global P&O is moving toward digital design/fabrication (CAD/CAM), additive manufacturing, and sensorized components, Indian provision remains predominantly hand-crafted and lab/clinic-based in many settings. Reviews of assistive technology in India and WHO's global reporting point to low access to modern assistive products in LMICs and call for stronger R&D, standards, and system integration, signals that India's P&O ecosystem has yet to scale digital workflows and translational partnerships (industry–academia–clinic) at population level.[21,22] WHO's *Standards for Prosthetics and Orthotics* emphasize integrating P&O within health services and strengthening quality systems—benchmarks that, taken together with India's current welfare-led,

camp-oriented delivery, imply underutilization of contemporary technologies and quality assurance methods in routine public provision.[23]

Impacts on Service Delivery

The under-integration of prosthetic and orthotic (P&O) services in India profoundly impacts patient care, especially after trauma or limb-saving surgeries, where the absence of standardized referral pathways causes delays in fitting and rehabilitation, leading to preventable complications like contractures and social withdrawal. This is worsened by India's welfare-led, camp-based provisioning model, which deviates from global recommendations for embedding P&O into universal health coverage (UHC). Key challenges include the lack of consistent referral systems to in-house P&O teams, resulting in fragmented care, delayed rehabilitation that exacerbates deconditioning and social isolation,[3,24] and insufficient funding and prioritization of trauma care, impeding service development. These issues translate to heightened risks of complications, diminished quality of life despite potential gains in mobility and social acceptance through improved services, and barriers to economic independence by hindering functional reintegration into society.[3,25]

The epidemiology of limb loss in India underscores significant public health challenges, primarily driven by trauma and diabetes-related complications, with trauma accounting for a notable percentage of amputations, particularly among young males, and diabetes exacerbating the demand for prosthetic and orthotic services. At a North Indian Level-I trauma centre, for instance, 2.5% of 17,445 trauma patients required major amputations, predominantly affecting young males and lower limbs,[26] while road traffic accidents emerged as the leading cause, with a significant proportion of injuries occurring in the 15-30 age group and a male-to-female ratio of approximately 6:1, indicating higher vulnerability among males.[27] Concurrently, diabetes contributes substantially, as approximately 62 million people in India live with the condition, 25% of whom develop diabetic foot ulcers (DFUs), and about 20% of those with DFUs ultimately require amputation, reflecting a growing trend in diabetes-related amputations.[28] This rising incidence underscores the urgent need for improved preventive care and rehabilitation services.[29] While trauma remains a significant cause of limb loss, the increasing prevalence of diabetes and its complications signals a shifting landscape in amputation epidemiology, necessitating comprehensive public health strategies to address both trauma prevention and diabetes management.

Access to assistive products is significantly hindered by various inequities, particularly affecting rural households and women, as national surveys indicate these groups face compounded barriers including distance, cost, and sociocultural factors, leading to delayed fittings and device abandonment. For rural households, key challenges include distance and accessibility, with many individuals required to travel over 25 km to obtain assistive products and 15% traveling more than 50 km;[30] cost constraints, where nearly 40% of respondents cite affordability as a primary issue;[30] and limited service availability, as rural areas often lack adequate facilities, resulting in insufficient follow-up care.[31] Gender disparities further exacerbate these inequities, with women encountering sociocultural barriers such as mobility restrictions and societal norms that restrict their access to assistive products,[32,33] and studies revealing more pronounced inequity for women, especially in rural settings, where they experience a 42% lower access rate compared to urban counterparts.[33] Despite government initiatives like the ADIP scheme, hidden costs and inadequate after-care continue to persist, underscoring the need for a more inclusive approach to service delivery; however, some argue that an overemphasis on distribution alone may neglect the importance of comprehensive support systems that holistically address these barriers.

Fragmentation in healthcare systems, particularly in rehabilitation services, significantly undermines the effectiveness of interventions aimed at restoring mobility and enhancing quality of life, making the integration of rehabilitation—including prosthetics and orthotics (P&O)—into primary and hospital care crucial, especially amid India's rising burden of non-communicable diseases (NCDs) and an aging population, in alignment with global commitments to Universal

Health Coverage (UHC) and the World Health Organization's (WHO) rehabilitation agenda. Fragmented care leads to suboptimal outcomes, as rehabilitation services are often isolated from primary healthcare settings,[34] while systemic disconnects—such as the lack of coordination between biomedical and psychosocial care—exacerbate challenges for patients, particularly the elderly with musculoskeletal disorders.[35] Integrating rehabilitation into primary care can address the unmet needs of approximately 2.4 billion people globally who require such services,[34] with evidence indicating that holistic, person-centred approaches incorporating preventive care and social support enhance patient autonomy and reduce societal costs.[35] Effective rehabilitation demands a multisectoral approach, underscoring the need for strong policy frameworks to support integration into health systems,[36] as exemplified by countries like Georgia, which are implementing strategic plans to incorporate rehabilitation into UHC benefit packages.[34] While the integration of rehabilitation services offers numerous benefits, challenges such as inadequate infrastructure and workforce shortages persist, particularly in low-resource settings,[37,38] and addressing these barriers is essential for realizing the full potential of rehabilitation in improving health outcomes.

Strengthening Prosthetic and Orthotic Services in India: A 5-Point Strategy

Access to prosthetic and orthotic (P&O) services in India is critically low, with only a fraction of the population able to obtain necessary devices. The World Health Organization (WHO) emphasizes the need for integrated services, yet challenges such as weak institutional coordination and high out-of-pocket costs persist. To address these issues, five integrated strategies are proposed to enhance P&O services in India.

1. Institutional Integration

- **Dedicated P&O departments:** The establishment of dedicated Prosthetic and Orthotic (P&O) departments in government hospitals is essential to strengthen quality, standardization, and equitable access to assistive devices in India. Integrating P&O services within public health systems aligns with international guidelines for coordinated rehabilitation and enables seamless collaboration with orthopaedics, diabetes care, therapeutics, and community services, reducing fragmentation and improving patient outcomes.[3] Formal P&O clinics/labs also provide critical oversight of device fabrication, safety, and long-term follow-up, addressing persistent quality challenges reported across service settings.[3,39] Establishing these departments in public institutions will significantly expand access for low-income and rural users who currently depend on private facilities, improving mobility, independence, and socioeconomic participation.[40] Emerging evidence highlights that embedding assistive technology services into national systems supports equity, workforce development, and adoption of modern technologies such as digital scanning and advanced materials.[39,41] This proposal offers a sustainable pathway for strengthening India's rehabilitation ecosystem.

- **Insurance and scheme inclusion:** Integrating Prosthetics and Orthotics (P&O) benefits into the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (PM-JAY) is a critical step toward achieving inclusive Universal Health Coverage (UHC) in India. While PM-JAY's official benefit list ostensibly covers the "Cost of Prosthetic Devices, implants," practical access remains inconsistent and is often tied to acute surgical episodes rather than long-term rehabilitation needs.[42] Concurrently, the ADIP scheme struggles to meet demand. The regional studies utilizing the WHO Rapid AT Assessment (rATA) tool in Karnataka revealed that 89.5% of assistive products were sourced privately, with only 4.1% obtained via the public sector, underscoring a severe gap in public provision.[43] This heavy reliance on private markets imposes significant financial toxicity on vulnerable populations, contradicting global best practices. The *WHO-UNICEF Global Report on Assistive Technology* (2022) emphasizes that excluding assistive technology from national health plans violates the right to equitable healthcare, urging governments to embed these services within UHC frameworks to ensure affordability and dignity.[44] Consequently, formalizing P&O within PM-JAY's empaneled network would not only reduce out-of-pocket expenditure but also standardize clinical quality and follow-up care, effectively bridging the gap between acute medical treatment and functional rehabilitation.[45]

2. Workforce Development

- **Fellowships and training:** India faces a severe shortage of certified Prosthetic and Orthotic (P&O) clinicians, with only one trained professional available for every million people. This is far below the minimum requirement of five to ten clinicians per million recommended by the World Health Organization.[46] This shortage contributes to the wider national deficit of lakhs of allied health professionals, which continues to weaken rehabilitation and healthcare services across the country.[47] Addressing this gap requires the government to introduce national fellowship programmes and continuing education initiatives in partnership with leading institutions under the Ministry of Social Justice and Empowerment, such as Swami Vivekananda National Institute of Rehabilitation Training and Research (SVNIRTAR), National Institute for Locomotor Disabilities (NILD), and All India Institute of Physical Medicine and Rehabilitation (AIIPMR). These programmes should strengthen advanced competencies in areas such as paediatric P&O and diabetic foot care to improve the quality of service delivery.[48,49] This approach aligns with the World Health Organization's focus on systematic capacity building to ensure a well prepared rehabilitation workforce.[50] Collaboration with the Rehabilitation Council of India (RCI) to review and standardize training curricula is also essential for maintaining consistent educational quality and ensuring that new graduates enter the field with the required competencies.[46,51]

- **Formal P&O roles in health system:** The integration of Prosthetics and Orthotics (P&O) services within the Ministry of Health and Family Welfare and the National Health Mission is crucial for strengthening India's rehabilitation system. Embedding Prosthetics and Orthotics services in mainstream health institutions would support coordinated planning, resource allocation, and continuity of care. This recommendation is aligned with the World Health Organization's position that national health systems should take primary responsibility for prosthetic and orthotic rehabilitation and assistive technology services.[52] Strengthening these structures is necessary to ensure equitable access and a sustainable rehabilitation workforce.

3. Infrastructure Expansion

- Strengthening district-level Prosthetics and Orthotics (P&O) services through tele-rehabilitation presents a viable strategy for expanding nationwide access. While District Disability Rehabilitation Centres (DDRCs) under the Ministry of Social Justice and Empowerment currently provide prosthetic and orthotic fitment supported by tele-medicine outreach, their limited coverage highlights the need for wider replication. Establishing dedicated P&O service centres/clinics in District Hospitals and Primary Health Centres under the National Health Mission would decentralize rehabilitation services and improve access for rural and remote populations. These centres could offer both direct clinical care and remote guidance for prosthetic and orthotic fitment, gait training, wheelchair fitting, and device maintenance. WHO guidelines also emphasize integrating clinical assessment with on-site fabrication as essential for maintaining quality and continuity in assistive technology service delivery.[53]

- Upgrading Composite Regional Centres (CRCs) as specialized training hubs offers a strategic pathway to strengthen the national Prosthetics and Orthotics (P&O) workforce. CRCs under the Department of Empowerment of Persons with Disabilities (DEPwD) already provide extensive prosthetic and orthotic services across the country. Linking these centres with research institutions and technical institutes would support their transformation into regional training and innovation centres. They could host continuing education seminar, workshops and applied research laboratories, thereby expanding expertise beyond the existing national institutes. This approach also leverages the broad DEPwD infrastructure, as recent government initiatives highlight their wide geographic reach. Strengthening CRCs to function as teaching and research centres in each state would significantly enhance educational capacity and establish strong regional anchors for P&O service delivery.

4. Policy Synergy

- Strengthening policy synergy between the Ministry of Health and Family Welfare and the Ministry of Social Justice and Empowerment is essential to unify Prosthetics and Orthotics (P&O) governance, finance, and service delivery. At present, ADIP and DDRC programmes are

administered by the Ministry of Social Justice and Empowerment while hospitals, insurance schemes, and primary care fall under MoHFW, producing parallel systems that hinder coordinated planning and continuity of care. A National Rehabilitation Framework led by MoHFW with formal interministerial roles for MoSJ&E would reduce fragmentation by aligning P&O priorities with the National Health Policy and the Rights of Persons with Disabilities Act, enable joint budgeting, and mandate data sharing. The WHO recommends intersectoral action and inclusion of assistive technology within health system planning to achieve universal access. Digital integration is a practical entry point: linking ADIP and P&O records (for example UDID entries and prosthetic prescriptions) with Ayushman Bharat Health Account (ABHA) would allow service histories and device follow-up to travel with the patient, improving referrals and continuity. Empirical evidence supports tele-rehabilitation and integrated AT services as effective and feasible strategies for extending specialist support to rural areas (tele rehabilitation reviews and WHO guidance). Together, a national framework plus digital integration would streamline pathways, standardize quality, and align India's rehabilitation governance with global best practice.

5. Technology Promotion

- **National research networks and Public-Private Partnerships & startups:** Encouraging public private partnerships and a vibrant startup ecosystem offers a pragmatic route to develop affordable, indigenous prosthetic and orthotic devices in India. Establishing a national Prosthetics and Orthotics research network that links clinical institutions, engineering universities, biomedical laboratories, and manufacturing partners would create a strong foundation for developing affordable and context appropriate prosthetic and orthotic devices in India. Recent evidence shows increasing global attention to inclusive and collaborative research for wearable and rehabilitative technologies. Innovation in Prosthetic and Orthotic and rehabilitation devices must address affordability, diversity, and real world applicability while encouraging interdisciplinary cooperation between clinicians, engineers, and designers.[54] Creating a national consortium would enable similar advances by supporting large scale surveys, biomechanical and ergonomic trials, and health economic evaluations. This would generate the robust evidence required for policy adoption and widespread manufacturing. With coordinated leadership, such a research alliance can accelerate domestic innovation, expand the availability of scientifically validated low cost devices, and strengthen the national agenda for prosthesis, orthosis and assistive technology in alignment with global standards.

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