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International Physical Medicine & Rehabilitation Journal

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GLP-1 receptor agonist uptake and impact on prostheses in amputees

Volume 11 Issue 2 - 2026

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Received: July 15, 2026 | **Published:** July 22, 2026

Opinion

Summary: As GLP-1 receptor agonists become more widely used for weight loss and cardiometabolic risk reduction, clinicians should recognise prosthesis use as a relevant safety consideration. Rapid weight and body-composition change can alter residual limb volume, socket fit, skin loading, gait stability and muscle function. Amputees starting these treatments should therefore have proactive links between prescribing teams and prosthetic rehabilitation services, with early monitoring for socket instability, skin complications and mobility decline.[1–5]

Introduction

Glucagon-like peptide-1 receptor agonists (GLP-1RAs), and newer dual GLP-1/GIP receptor agonists, are rapidly reshaping obesity and cardiometabolic care. Their benefits for weight reduction, glycaemic control and cardiovascular risk are clinically important. However, as prescribing expands beyond specialist diabetes and obesity services, rehabilitation teams must address a neglected consequence: rapid body-composition change can destabilise prosthetic fit in people with limb loss.[1,2] Recent population data from Great Britain suggest that these medicines are no longer niche therapies. In a nationally representative survey, 2.9% of adults—approximately 1.6 million people—reported using GLP-1 or GLP-1/GIP medication for weight loss in the previous year, and a further 6.5%—around 3.3 million adults—expressed interest in using them. This expansion is highly relevant to amputee rehabilitation, where a prosthetic socket depends on a stable residual limb volume, soft-tissue envelope and load-bearing interface.[1,3]

Why prosthetic fit matters

For prosthesis users, weight loss is not simply a metabolic outcome. It is expressed through the residual limb, socket interface and gait system. A socket must distribute pressure, maintain suspension, control rotation, protect the skin and permit efficient walking. Even modest residual limb volume change can alter these relationships. Day-to-day fluctuation is often managed through sock ply, liners and socket adjustments; larger or faster change may require recasting or a new socket.[3,4] GLP-1RA-associated weight loss may compress a gradual prosthetic adaptation process into a few months. A weight reduction of 10–15% may be desirable from a cardiometabolic perspective, but it can produce rapid residual limb volume loss, altered contour, reduced soft-tissue padding and changing muscle bulk. A socket that was safe at prescription may become loose, unstable or painful before routine review.[2–4] This is not an argument against GLP-1RA treatment in amputees. Many people with limb loss have diabetes, vascular disease, obesity, renal impairment or cardiovascular risk factors that may make such therapy appropriate. The concern is that prescribing pathways commonly monitor weight, HbA1c and adverse effects, while prosthetic consequences remain invisible until pain, skin breakdown, falls or reduced mobility occur.[1,2]

A preventable rehabilitation complication

The informal phrase “Ozempic limb” risks oversimplification, but it captures a real clinical issue. Pharmacologically induced weight loss may create a new category of prosthetic fit instability. Patients may experience progressive socket looseness, pistoning, rotational movement, liner mismatch, distal end pressure, suspension failure and compensatory gait changes. These problems can increase energy expenditure, reduce walking confidence and contribute to falls risk.[2–4] Skin integrity is particularly important. A loose socket increases movement and shear; excessive sock ply may create uneven pressure. In dysvascular or diabetic amputees, neuropathy and impaired sensation can delay recognition of injury. By the time the patient reports discomfort, tissue damage may already be established.[3,4] Lean mass change adds further concern. GLP-1RA-associated weight reduction may include reductions in lean body mass. For prosthesis users, muscle bulk and strength influence residual limb shape, pelvic control, balance, transfers and gait symmetry. Loss of muscle mass may therefore interact with socket fit and functional mobility in ways that standard obesity follow-up does not routinely measure.[2,3]

What should change?

Prescribers should ask whether a patient uses a prosthesis before starting GLP-1RA therapy. If they do, baseline documentation should include current socket fit, sock ply use, residual limb skin condition, falls history, weight trajectory and mobility level. Patients should be warned that fit may change during treatment and should be encouraged to report increasing sock use, pistoning, new pain, liner slippage, suspension failure, skin marking or reduced confidence.[1–4] Prosthetic services should be linked into prescribing pathways, especially during the period of most rapid weight loss. Early review may prevent skin injury, loss of mobility and avoidable falls. Services may need capacity for interim socket adjustments, replacement liners, recasting, gait review and patient education. Adjustable or auto-adjusting socket technologies may help some patients, but access and evidence remain variable.[3–5]

Research and service implications

National and local pathways should recognise prosthesis use as a relevant clinical flag when weight-loss medication is prescribed. Obesity, diabetes, vascular and primary care services should have clear referral routes back to prosthetic rehabilitation. Prosthetic centres should also develop patient information resources on weight-loss medication, residual limb volume and socket safety.[1–5] Prospective studies should measure residual limb volume, body composition, socket fit, skin complications, prosthetic use, gait outcomes and quality of life in amputees treated with GLP-1RAs. Registries and trials should capture prosthesis use and mobility outcomes where relevant, particularly in dysvascular, diabetic and older populations.[1–5]

Conclusion

GLP-1RAs are changing cardiometabolic care, but in amputees successful weight loss can unintentionally destabilise the prosthetic interface on which independence depends. The question is not whether amputees should receive these medicines, but how they should receive them safely. Prosthetic fit, residual limb volume, skin integrity and muscle health should be part of GLP-1RA prescribing. If rehabilitation planning is built into treatment pathways, metabolic benefit need not come at the cost of pain, skin breakdown or loss of mobility.[1–5]

Acknowledgments

None.

Conflicts of interest

The author declared that there are no conflicts of interest.

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Citation: Abdulfattah II. GLP-1 receptor agonist uptake and impact on prostheses in amputees. *Int Phys Med Rehab J*. 2026;11(2):40–41.
DOI: 10.15406/ipmrj.2026.11.00415