Devil's Claw Root (Harpagophytum procumbens): Scientific Perspectives on Mobility, Wellness, and Equine Competition Considerations

Introduction

Devil's Claw Root (*Harpagophytum procumbens*) is a botanical ingredient native to Southern Africa that has been used traditionally for generations and has become the subject of extensive scientific investigation. Modern research has focused primarily on its phytochemical composition, its interaction with biological pathways involved in musculoskeletal function, and its potential role in supporting mobility, physical activity, and overall wellness (Mahomed & Ojewole, 2004; Mncwangi et al., 2022).

The root contains a range of naturally occurring compounds, including iridoid glycosides such as harpagoside, harpagide, and procumbide, as well as phenolic compounds including acteoside (verbascoside), which are considered major contributors to its biological activity (Mncwangi et al., 2022).

Botanical Composition and Biological Activity

Harpagoside is widely regarded as the principal phytochemical marker of Devil's Claw Root and has been extensively studied for its interaction with pathways involved in the body's normal inflammatory response (Mahomed & Ojewole, 2004; Haseeb et al., 2017).

Laboratory and mechanistic studies have reported that Devil's Claw constituents may interact with:

- Nuclear factor-kappa B (NF-κB) signaling pathways
- Cyclooxygenase-related pathways
- Cytokine signaling networks
- Oxidative stress response mechanisms

Research has also demonstrated effects on inflammatory mediators including interleukin-6 (IL-6), tumor necrosis factor-alpha (TNF-α), and related signaling molecules under experimental conditions (Haseeb et al., 2017; Menghini et al., 2022).

These findings have contributed to ongoing scientific interest in Devil's Claw Root as a botanical ingredient used to support mobility and musculoskeletal wellness.

Research on Mobility and Musculoskeletal Wellness

The strongest body of clinical evidence relating to Devil's Claw Root concerns mobility, musculoskeletal comfort, and physical function.

A systematic review by Gagnier and colleagues evaluated 12 clinical studies and reported moderate evidence supporting the use of Devil's Claw preparations in individuals with osteoarthritis and chronic low-back pain, while noting variability in study design, product standardization, and outcome measures (Gagnier et al., 2004).

Similarly, an evidence-based systematic review conducted by Ulbricht and colleagues concluded that Devil's Claw Root possesses the most substantial clinical evidence among botanical ingredients investigated for musculoskeletal support, particularly in relation to physical function and mobility outcomes (Ulbricht et al., 2007).

While researchers have reported improvements in measures related to physical function, mobility, and quality of life, current evidence does not establish Devil's Claw Root as a disease-modifying intervention. Instead, the scientific literature generally supports its role

as a nutritional ingredient that may contribute to musculoskeletal wellness and healthy movement (Gagnier et al., 2004; Ulbricht et al., 2007).

Healthy Aging and General Wellness

Researchers have also explored Devil's Claw Root within the broader context of healthy aging and wellness.

Several reviews have proposed that ingredients capable of supporting mobility, maintaining physical activity, and influencing oxidative stress pathways may contribute positively to quality of life during aging (Mncwangi et al., 2022).

Experimental studies have demonstrated antioxidant properties and interactions with pathways associated with cellular stress responses (Mncwangi et al., 2022; Menghini et al., 2022). These observations have generated scientific hypotheses regarding the potential role of Devil's Claw Root in supporting healthy aging.

However, it is important to note that no human clinical studies have demonstrated that Devil's Claw Root extends lifespan or directly promotes longevity. Current evidence supports healthy-aging hypotheses through mobility and wellness-related mechanisms rather than through direct longevity outcomes (Mncwangi et al., 2022).

Traditional Uses and Tissue Health Research

Traditional Southern African uses of Devil's Claw Root have included applications relating to skin health, minor injuries, digestive wellness, and general restorative practices (Mncwangi et al., 2022; Alternative Medicine Review Monograph, 2008).

Modern scientific investigations have explored several biological mechanisms that may be relevant to tissue health, including:

- Antioxidant activity
- Cellular protection under oxidative stress
- Support for normal inflammatory balance

Although these findings provide biological plausibility for broader wellness applications, direct clinical evidence supporting wound-healing outcomes remains limited. Most evidence in this area is derived from traditional use, laboratory investigations, and animal studies rather than large-scale human clinical trials (Mncwangi et al., 2022).

Use in Companion Animals and Horses

Devil's Claw Root is frequently incorporated into nutritional formulations intended to support mobility and physical activity in companion animals and horses.

Within the ActivPower product portfolio, Devil's Claw Root powder is included as an ingredient in:

- **ActivPower ATLAS®** for dogs
- **IRx-ZEUS®** for humans
- **ActivPower PEGASUS®** for horses

Its inclusion reflects ongoing scientific interest in botanical ingredients that may support mobility, physical function, and musculoskeletal wellness as part of comprehensive nutritional programs.

Equine Competition Considerations

Individuals involved in equine competition should be aware that Devil's Claw Root occupies a unique regulatory position within international equestrian sport.

The Fédération Equestre Internationale (FEI) classifies **harpagoside**, a naturally occurring constituent of Devil's Claw Root, as a **Controlled Medication Substance** under the FEI Equine Anti-Doping and Controlled Medication Regulations.

This classification reflects concerns that substances capable of influencing comfort, performance-related parameters, or musculoskeletal function may affect competitive fairness and horse welfare if present during competition.

Importantly, Devil's Claw Root is not prohibited for general use. Rather, the presence of harpagoside in a competing horse may constitute a violation of competition regulations if detected during competition.

The FEI classification is based on the recognized biological activity of harpagoside and related constituents rather than on any safety concern associated with routine nutritional use.

Withdrawal Prior to Competition

At present, no universally accepted withdrawal interval exists because clearance rates may vary according to:

- Product formulation
- Dosage
- Duration of administration
- Individual horse metabolism
- Testing sensitivity
- Governing-body regulations

As a conservative industry practice, many equine nutritionists and veterinarians recommend discontinuing Devil's Claw-containing supplements at least **7 days before competition**, with some recommending **10–14 days or longer** depending on the circumstances and regulatory environment.

Owners, trainers, and competitors should consult their veterinarian and governing organization for current guidance and compliance requirements.

Safety Considerations

Published reviews generally report Devil's Claw Root preparations to be well tolerated when used appropriately (Ulbricht et al., 2007).

Reported adverse effects may include:

- Gastrointestinal discomfort
- Dyspepsia
- Loose stools
- Nausea

Individuals with underlying medical conditions, those taking medications, pregnant individuals, and animal owners managing veterinary conditions should seek guidance from appropriately qualified healthcare professionals or veterinarians before introducing new supplements.

Conclusion

Devil's Claw Root remains one of the most extensively studied botanical ingredients used in mobility and musculoskeletal wellness products. Scientific investigations support ongoing interest in its phytochemical composition, biological activity, and potential role in supporting mobility, physical function, and overall wellness.

Current evidence is strongest in areas relating to musculoskeletal wellness and mobility support. Research concerning tissue health, healthy aging, and broader wellness applications remains promising but continues to evolve. For competitive equine athletes, awareness of FEI regulations regarding harpagoside and appropriate withdrawal practices is essential.

Selected References

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Educational Literature Disclaimer

This article is provided solely for educational and informational purposes and summarizes selected scientific literature concerning Devil's Claw Root (*Harpagophytum procumbens*) and its traditional and contemporary uses in humans and animals. References to scientific

studies, biological mechanisms, traditional uses, or regulatory classifications are presented for educational discussion only.

Nothing in this article is intended to diagnose, treat, cure, mitigate, or prevent any disease, injury, or medical condition in humans or animals. Statements regarding mobility, musculoskeletal wellness, healthy aging, physical function, tissue health, inflammatory processes, or quality of life reflect published scientific literature and should not be interpreted as evidence of therapeutic efficacy.

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