

## FIFTY YEARS AFTER ZAMOSKY'S ARTICLE "SHOE MODIFICATIONS IN LOWER-EXTREMITY ORTHOTICS"

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**T**he art and science of correcting foot deformities is still a mixture of tradition, artisan skill, clinical experience, and the prescribing doctor's professional convictions [1]. Zamosky's 1964 article on various shoe modifications in lower-extremity orthotics starts with this observation [1]. Reflecting on 50 years of development in this field, we ask ourselves, Have the ingredients of this mixture changed?

Computer-aided design and computer aided manufacturing [2] have changed the elements of the ingredient "artisan skill." However, creating a last from which shoe modifications are fabricated remains an artisan skill, as reflected by the ongoing debate over the relatively low intra- and intercaster reliability [3–4]. The implicit knowledge of the artisan skill still seems to be too complicated to translate into an explicit computer-aided skill. Other technological advancements involve new objective measurement systems. In-shoe pressure measurement systems show promise for analyzing the effect of shoe modifications on plantar pressure distribution [5]. Advanced gait analysis systems provide the option to analyze gait performance before and after shoe modifications [6]. "Objective measurement" is a new ingredient in the mixture.

"Patient perspective" is another ingredient that can be added to Zamosky's mixture. Even when a shoe is "perfectly" modified, it is only effective if worn. As such, patients have an increased role in their own care compared with 50 years ago. This is reflected in studies with patient-reported outcomes as a primary outcome measure [7–8], together with a shift in clinical practice from a product-oriented toward a patient-

oriented method of prescribing and providing shoes.

The remaining ingredients—"tradition," "clinical experience," and "prescribing doctor's professional convictions"—are preferably balanced by reference to evidence-based guidelines. Although national protocols [9] or disorder-specific algorithms [10] can be found, an international guideline for prescribing and providing shoe modifications is an important gap in the literature. To progress from tradition and clinical experience, evidence-based guidelines need to be developed.

Fifty years after Zamosky's article, the ingredients of his mixture for prescribing and providing shoe modifications have changed in-line with advancing technology and changes in patients' role in their own care. The evidence base in this field will continue to profit from the addition of objective measurements and patient-reported outcomes, yet the lack of international guidelines is a reason for concern.

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