

ERGONOMICS AND FUNCTIONALITY IN CONTEMPORARY JEWELRY DESIGN

ERGONOMIE ȘI FUNCȚIONALITATE ÎN DESIGNUL BIJUTERIEI CONTEMPORANE

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The study examines how contemporary wearable jewelry has moved beyond its traditional decorative role, evolving into an object that actively interacts with the body and the user's context. Ergonomics ensures physical comfort and adaptation, while functionality supports practical usability and integration into everyday life. Any discomfort or difficulty in handling immediately diminishes the relevance of the piece, regardless of its aesthetic value.

Examples from international practice demonstrate that carefully considered details can introduce emotional, narrative, and inclusive dimensions. Modularity and adaptive design enable the reconfiguration of wearable jewelry, providing flexibility and multiple functions within a single object. In this context, the wearer becomes a co-author of the artifact.

The integrated interaction of ergonomics, functionality, and flexibility shapes a holistic wearable experience framework, opening perspectives for fluid, interactive, and configurable jewelry adapted to diverse needs and contexts.

Keywords: contemporary jewelry, wearable adornment design, ergonomics, functionality, innovation

Studiul evidențiază modul în care bijuteria contemporană purtabilă depășește rolul tradițional decorativ, devenind un element care interacționează activ cu corpul și cu contextul utilizatorului. Ergonomia asigură confortul și adaptarea fizică, în timp ce funcționalitatea susține utilizarea practică și integrarea în viața cotidiană. Disconfortul sau dificultățile de manipulare reduc imediat relevanța obiectului, indiferent de valoarea sa estetică.

Exemplele din practica internațională demonstrează că detaliile atent concepute pot introduce dimensiuni emoționale, narative și incluzive. Modularitatea și designul adaptiv permit reconfigurarea bijuteriilor purtabile, oferind flexibilitate și funcții multiple în cadrul aceleiași piese. În acest sens, purtătorul devine coautor al obiectului.

Interacțiunea integrată dintre ergonomie, funcționalitate și flexibilitate configurează un cadru holistic al experienței purtabile, deschizând perspective pentru bijuterii fluide, interactive și configurabile, adaptate unor nevoi și contexte diverse.

Cuvinte-cheie: bijuterie contemporană, design de podoabe purtabile, ergonomie, funcționalitate, inovație

Introduction

Contemporary jewelry increasingly occupies the intersection between aesthetics and usability. Whereas in the past the emphasis was predominantly on formal expression, today there is a clear shift toward user-centered design, in which the adornment is evaluated in relation to the wearer's experience [1].

There is a significant distinction between the designed object and the experienced object. In practice, subtle tensions arise, such as localized pressure, uncontrolled movements, or handling difficulties, which become essential in the actual assessment of the object.

Ergonomics functions as a mechanism for adapting the object to the body, without attempting to correct it, being closely related to physical interaction. Functionality, on the other hand, shifts the

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focus from aesthetics to effective use [2]. At the same time, recent approaches in the field, including those oriented toward smart jewelry, emphasize the necessity of balancing aesthetics and utility [3].

This orientation is not purely theoretical but is also supported by recent curatorial discourse. Exhibitions such as *Matter and Shape 2026* focus on small-scale objects and their direct relationship with the body, where ergonomics becomes implicit, integrated into the formal and material details [4].

Similarly, events such as *Munich Jewellery Week 2025* and *Collect London 2025* highlight a focus on wearability, interaction, and bodily experience. In parallel, platforms such as *Dutch Design Week 2025* explore the convergence between jewelry and technology, reinforcing the smart jewelry direction and the necessity of balancing formal expression, ergonomics, and functionality.

Results and discussion

Ergonomics as the foundation of body - object interaction in contemporary jewelry design

In contemporary jewelry design, ergonomics can no longer be reduced to physical parameters such as weight or size; understanding it as a complex system of relationships between body, material, and use is essential. It operates at the intersection of physiological comfort, sensory perception, and movement dynamics, establishing an approach where an object is not merely worn but functions in harmony with the body.

This perspective implies a clear orientation toward user-centered design, supported by observation and testing in real contexts. Ergonomics may not always be formally visible, but immediate perception occurs during actual use. Rigid objects can generate discomfort due to concentrated pressure, while flexible structures and lightweight materials support a balanced distribution of weight [5] (*Figure 1*).

The interface between jewelry and skin plays a crucial role. Material properties - such as texture, thermal behavior, flexibility, or reactivity - directly influence the quality of wear. Proper management of these factors allows for the prevention of irritation and the optimization of comfort.

Movement dimension redefines jewelry status, which tends to become an extension of the body. Adequate design requires correlation of shape, positioning, and movement amplitude so that an object accompanies gestures without restriction. Reduced weight, correct proportioning, and freedom of movement become essential criteria [6].

At a structural level, construction details - edge finishing, fastening systems, and mass distribution - decisively affect wearability. These elements simultaneously contribute to safety and perceived comfort, creating an integrated experience [7].

Functionality, accessibility, and modularity in contemporary jewelry

Building on the ergonomic dimension, functionality introduces a shift in focus from form to actual use. Jewelry is no longer evaluated solely for aesthetics but for its ability to meet real needs.

For certain user groups, especially those with limited mobility or dexterity, ergonomics becomes a baseline requirement, while functionality is an operational necessity. Simplified closure systems and adapted sizes allow for independent use, highlighting the interdependence between physical adaptation and intuitive use [8, 9].

Functionality does not necessarily require technological integration. Sometimes it is found in simple yet thoughtfully designed solutions. A relevant example includes pendants with micro-compartments for personal items and multifunctional jewelry, which extend the role of the jewelry beyond aesthetics, introducing practical and emotional dimensions (*Figure 2*) [9, 10].

This orientation is also evident in exhibition contexts. Exhibitions such as *MAD About Jewelry* and projects dedicated to designer Douriean Fletcher highlight jewelry as an active object, used and interpreted in interaction, becoming a medium for identity and narrative [11, 12].

For visually impaired individuals, functionality acquires a concrete dimension. Textures and re-

liefs become a tactile language, facilitating identification and use of the object (**Figure 3**). In this way, tactility becomes a function, not merely a formal expression.

Simplified fastening systems reduce the complexity of required gestures and facilitate independent use, reinforcing the inclusive dimension of design [5].

Modularity introduces a significant change: the object is no longer fixed but configurable. Projects such as *Proto Flakes* propose reconfigurable systems in which components allow simultaneous exploration of form and function (**Figure 4**) [13].

In practice, this flexibility translates into objects with multiple functions and increased adaptability. Platforms such as *Artistar Jewels* and events within *Milano Design Week* and *Slovenian Jewelry Week 2026* highlight the trend toward transformable and reconfigurable jewelry. The object thus becomes fluid, positioned between form, function, and context.

Figure 1. Bracelet, Hemmerle, made of brass, peridot, and tourmaline, 2021 **Figure 2.** Zipper necklace by Van Cleef & Arpels. Gold, diamonds, 2013 **Figure 3.** Bracelet with Braille inscription, gold. *Family First* collection, Liv Thurlwell, 2021 **Figure 4.** Modular tool set *ProtoFlakes*, 2024



Source: <https://nationaljeweller.com/articles/10282-contemporary-jewelry-designers-to-collect-now>



Source: <https://eu.cinco-store.com/blogs/editorial/meet-the-multitaskers-jewels-that-work-hard-than-you?shpxid=89b92109-ebce-4233-9ccc-a03fd347c84a>



Source: <https://www.sightsavers.org/news/2021/02/braille-bracelets-raise-money-for-sightsavers/>



Source: <https://canadianjeweller.com/innovative-jewellery-techniques-2024/>

Modularity allows adaptation across varied contexts and brings design closer to the principles of adaptive design. Users become active participants in configuring the object, increasing both usage frequency and attachment to it [8].

Applied synthesis

Analysis of studies and design practices reveals a clear convergence between ergonomics, functionality, and modularity. Ergonomics regulates the physical relationship between object and body, functionality defines actual use, and modularity expands adaptive capacity.

These dimensions operate not independently but in an integrated manner, shaping a coherent framework for the wearable experience, as illustrated in (**Table 1**).

Table 1. Ergonomic and functional dimension

Dimension	Problem	Solution	Dimension	Problem	Solution
Weight [1]	Discomfort	Lightweight materials	Handling [1, 6]	Difficulty	Simple systems
Pressure [5]	Tension	Even distribution	Accessability [6]	Identification	Tactile textures [9]
Sensitivity [5, 2]	Irritation	Hipoallergenic materials	Modularity [3, 13]	Rigidity	Reconfiguration

Source: Table developed by the author

Viewed together, these elements clearly indicate that the wearable experience does not depend on a single factor, but on how all aspects balance and work together. Wearable experience emerges from the interaction of ergonomics (physical adaptation) → functionality (use) → modularity (adaptive flexibility).

Conclusions

Relevance of contemporary jewelry depends on its performance in actual use. Objects that are uncomfortable or difficult to use lose value, regardless of aesthetic qualities. Modularity and user-centered design increase usage frequency and attachment to the object, turning the wearer into a co-author of the experience. Ergonomics and functionality, integrated with adaptability, form the foundation of a relevant experience across diverse social and cultural contexts.

Future directions focus on the development of inclusive design, technology integration without compromising comfort, expansion of modularity, and deeper exploration of the relationship between object, body, and digital environment. These trends point toward an evolution of fluid, interactive, and configurable jewelry, where value is determined by the experience of use.

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