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Review Article

Neuroarts in Neurological Care: A Narrative Review and Translational Framework for Music, Visual Arts, Dance, Drama, and Creative Writing

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ABSTRACT

Background: Neurological disorders affect movement, language, cognition, emotion, identity, social participation, and the embodied sense of self. This multidimensional burden has stimulated growing interest in complementary, person-centred strategies that can support neurological rehabilitation and symptom management without replacing evidence-based medical care.

Objective: This narrative review and translational commentary examines the emerging field of neuroarts - the intentional use of artistic and aesthetic experiences to support nervous system function, rehabilitation engagement, emotional regulation, quality of life, and meaning-making in neurological care.

Method: The manuscript synthesizes selected systematic reviews, meta-analyses, Cochrane reviews, clinical rehabilitation literature, and neurobiological research on music, rhythm, visual art, dance, drama, and creative writing. It is not a systematic review; rather, it offers a clinically oriented framework designed to translate current evidence into safer implementation and more rigorous future research.

Results: Evidence is most mature for music-based interventions, particularly rhythmic auditory stimulation in movement disorders and music-based therapeutic approaches in dementia, stroke, cancer-related symptom burden, and acquired brain injury, although certainty varies by outcome and population. Dance appears promising for Parkinson disease and other rehabilitation contexts through combined motor, cognitive, affective, and social mechanisms. Visual art therapy and creative activities may support emotional expression, stress regulation, fine motor participation, and adaptation after neurological illness, but evidence remains heterogeneous. Drama, theatre-based approaches, and creative writing have particular value for communication, identity, perspective-taking, caregiver connection, and narrative reconstruction, yet require stronger clinical trials and standardized reporting.

Conclusions: Neuroarts should be understood as a complementary, ethically bounded, interdisciplinary and measurable component of neurological care. A mature research agenda must clarify mechanisms, dosage, patient selection, safety, culturally sensitive personalization, and patient-centred outcomes.

KEYWORDS

Neuroarts, Neurological rehabilitation, Music therapy, Rhythmic auditory stimulation, Visual art therapy, Dance, Dementia, Parkinson Disease, Stroke; Chronic pain, Patient-centred care.

Key points for clinicians and researchers

1. Neuroarts is complementary, not alternative: it must be integrated with standard neurological assessment, treatment, rehabilitation, psychology, nursing, and palliative care.
2. The strongest neurological evidence currently concerns music-based interventions, especially rhythmic cueing and structured therapeutic music approaches; evidence for visual arts, dance, drama, and writing is promising but more heterogeneous.
3. Safe implementation requires screening, personalization, trained facilitation, measurable goals, adverse-event monitoring, and respect for dignity, culture, privacy, and consent.
4. The field needs pragmatic trials, mechanistic studies, standardized reporting, and outcomes that include both neurological function and lived experience.

Introduction

From neurological lesion to human disruption

Neurological illness is often described through anatomical location, pathological mechanism, imaging findings, biomarkers, and functional scales. These descriptors are indispensable. Yet the lived experience of a neurological disorder is wider than the lesion and often wider than the measurable impairment. A stroke can interrupt language, but also continuity of self. Parkinson disease can disturb gait, but also confidence, spontaneity, and social presence. Dementia can erode memory, but also family roles, emotional recognition, and dignity. Chronic pain can become not only a sensory disorder but a reorganization of attention, fear, movement, sleep, identity, and hope.

This broader view does not weaken neurology; it strengthens it. The brain is not only an organ of movement and cognition; it is also the biological condition of emotion, anticipation, aesthetic experience, affiliation, imagination, and meaning. Contemporary neurological care therefore benefits from approaches that respect both neural mechanisms and human experience.

Arts-based interventions have become increasingly relevant within this landscape. The World Health Organization scoping review on arts and health synthesized more than 3,000 studies and identified a substantial role for the arts in health promotion, prevention, and the management and treatment of illness across the lifespan [1]. More recently, the NeuroArts Blueprint has argued for a coordinated research and implementation agenda to understand how artistic and aesthetic experiences affect health and wellbeing [2].

The present article proposes a translational framework for neuroarts in neurological care. It is written for neurologists, rehabilitation professionals, psychologists, nurses, therapists, hospital leaders, researchers, patient associations, and trained artists working in clinical settings. Its central thesis is deliberately cautious: artistic practices can support neurological care when they are clinically purposeful, ethically bounded, professionally facilitated, and measured with appropriate outcomes. They should not be promoted as cures, replacements for medical care, or universal prescriptions.

Review method and scope

This article is a narrative review and translational commentary. It does not claim to be a systematic review and does not provide pooled effect sizes. The aim is to integrate current evidence into a clinically usable framework and to identify research priorities for a field that is still methodologically uneven.

Priority was given to systematic reviews, meta-analyses, Cochrane reviews, peer-reviewed rehabilitation literature, and neurobiological studies that help explain plausible mechanisms. The review focuses on music and rhythm, visual arts, dance and movement, drama and theatre-based work, and creative writing or guided narrative approaches. The primary clinical contexts considered are stroke, Parkinson disease and other movement disorders, dementia and cognitive impairment, acquired brain injury, chronic pain, neuro-oncology, and long-term neurological disability.

The manuscript uses the term neuroarts pragmatically. In this paper, neuroarts refers to the intentional use of artistic, creative, and aesthetic experiences to support neurological functioning, rehabilitation participation, emotional adaptation, quality of life, communication, social connection, and meaning-making in people affected by neurological conditions.

What Neuroarts is - and what it is not

Neuroarts includes receptive practices such as listening to music, viewing images, or attending performance; active practices such as singing, drawing, painting, dancing, acting, or writing; and relational practices such as group improvisation, museum-based engagement, co-created storytelling, or community performance. In clinical neurology, however, the decisive issue is not whether an activity is artistic. The decisive issue is whether it is purposeful, safe, personalized, and aligned with a clinical or human outcome.

Three distinctions are essential. First, neuroarts is complementary, not alternative. It is integrated with standard care, not positioned against it. Second, neuroarts must be personalized. The same song, movement, image, or story can calm one patient and distress another. Cultural background, personal history, trauma exposure, cognitive status, sensory sensitivity, disease stage, fatigue, pain, and preference matter. Third, neuroarts requires professional boundaries. Some practices may be facilitated by trained artists in community settings, but higher-risk neurological populations require clinical supervision and clear referral pathways.

The theoretical value of neuroarts lies in its capacity to translate brain mechanisms into lived experience. Rhythm can become gait support. Melody can become motivation. Image can become emotional externalization. Dance can become balance training

plus social belonging. Theatre can become perspective-taking and identity rehearsal. Writing can become cognitive organization and existential repair.

Music and rhythm are especially relevant because auditory-motor coupling can synchronize perception and movement. Rhythmic auditory stimulation has been examined in Parkinson disease, where external cueing may support step timing, cadence, stride length, and quality of life [3]. Music also engages reward systems: neuroimaging research has linked intense musical pleasure with activity in dopaminergic striatal pathways, supporting the biological plausibility of music as a motivational resource [4,5].

Visual art, drama, and writing may act through somewhat different pathways. They can support symbolic externalization, attentional absorption, cognitive reappraisal, emotional labeling, self-efficacy, fine motor participation, and social communication. Art-making has been associated with physiological stress reduction in experimental contexts [6], although clinical interpretation must remain cautious because neurological populations vary widely and many studies are small or heterogeneous.

Dance and movement-based artistic practice combine rhythmic cueing, balance challenge, aerobic activity, postural control, memory, social synchrony, affective engagement, and identity. This multimodal nature is a strength clinically but a challenge methodologically, because it is often difficult to separate the effects of music, movement, learning, social interaction, and attention.

The evidence base is uneven. Music-based interventions have the most developed neurological literature, including work on rhythmic entrainment, acquired brain injury, stroke, dementia, and cancer-related symptom burden. Dance research has expanded in Parkinson disease and rehabilitation. Visual art therapy has a broader medical and mental health evidence base, but neurological specificity remains less developed. Drama and writing are clinically meaningful for communication, identity, and psychosocial recovery, but they require more rigorous neurological trials.

Biological plausibility: mechanisms linking art and the nervous system

Mechanism	Plausible neural/psychophysiological basis	Clinical expression	Possible outcomes
Sensory-motor entrainment	Auditory rhythm, tempo, visual cues, proprioception, vestibular input	Gait cueing, upper-limb timing, balance, motor sequencing	Gait speed, cadence, stride length, falls, motor scales
Reward and motivation	Mesolimbic and striatal reward networks, dopaminergic modulation, pleasure and anticipation	Greater rehabilitation engagement, adherence, energy and hope	Attendance, home practice, perceived effort, depression, fatigue
Autonomic and stress regulation	Arousal modulation, breathing, parasympathetic tone, cortisol-related stress response	Reduced distress, improved calm, better tolerance of procedures or pain	Anxiety, sleep, pain intensity, heart-rate variability, cortisol in research settings
Emotional expression and reappraisal	Limbic-cortical integration, narrative processing, symbolic representation	Naming fear, grief, frustration, dependency, shame or identity loss without forcing verbal disclosure	Mood scales, quality of life, qualitative accounts, therapeutic alliance
Neuroplasticity through meaningful repetition	Practice-dependent learning, attention, salience, multisensory integration	Repetitive motor or cognitive practice that feels less mechanical and more personally meaningful	Functional scales, cognitive tests, therapy dose, generalization to daily life
Social cognition and belonging	Synchrony, joint attention, empathy, role exchange, group affiliation	Reduced isolation, improved caregiver connection, communication and participation	Social participation, caregiver burden, loneliness, communication outcomes

Evidence maturity by artistic modality

Modality	Evidence maturity	Most relevant neurological uses	Main caveats
Music and rhythm	Relatively strongest	Neurological rehabilitation, Parkinson gait cueing, dementia-related mood/social outcomes, cancer-related symptom burden, acquired brain injury	Effects vary by diagnosis, intervention type, therapist training, comparator, dose and outcome; not all dementia outcomes improve.
Dance and movement	Moderate and growing	Parkinson disease, balance, gait, quality of life, non-motor symptoms, community rehabilitation	Complex multimodal intervention; fall risk, cardiovascular tolerance and disease stage must be screened.
Visual arts and creative activities	Promising but heterogeneous	Stroke adaptation, chronic illness distress, emotional expression, fine motor engagement, neuro-oncology support	Evidence quality varies; avoid performance pressure and adapt for visual deficits, tremor, hemiparesis and fatigue.
Drama and theatre-based approaches	Emerging	Communication confidence, aphasia groups, traumatic brain injury, caregiver empathy, identity rehearsal	Requires strong boundaries; role play may evoke vulnerability, trauma or emotional flooding.
Creative writing and narrative work	Emerging and clinically plausible	Chronic neurological illness, palliative neurology, pain coping, caregiver support, identity continuity	Adapt to aphasia, fatigue, cognitive impairment and literacy; outcome measurement often needs qualitative methods.

A key message for neurological journals is that neuroarts should not be evaluated only as pleasant activities. They should be studied as structured interventions with definable components: target population, mechanism, dose, facilitator qualifications, clinical goal, comparator, safety monitoring, and outcome hierarchy.

Music-based interventions: the most developed neurological pathway

Among the arts, music is uniquely positioned for neurology because it is temporal, rhythmic, emotional, embodied, social, and memorable. It can function as an auditory cue, motivational stimulus, memory trigger, language scaffold, arousal regulator, or social connector.

In motor rehabilitation, rhythm can provide an external temporal structure that supports movement timing. Rhythmic auditory stimulation has been evaluated in Parkinson disease and other gait disorders, with evidence suggesting benefits for gait parameters, although effects depend on protocol, comparator, and patient phenotype [3,7]. Wearable rhythmic cueing technologies may extend this approach, but they require further study on personalization, adherence, safety, and long-term outcomes.

In stroke, music-supported therapy and structured listening interventions have been explored for motor recovery, mood, cognition, and aphasia-related domains. Evidence supports plausibility, but clinical protocols vary and the field needs stronger trials that distinguish active therapeutic ingredients from attention, social contact, and general engagement [8-10].

In dementia, the 2025 Cochrane review emphasizes both promise and caution. Music-based therapeutic interventions may have benefits for depressive symptoms and social behavior in some contexts, but evidence is uncertain for several outcomes and long-term effects are not clearly established [11]. This should not be interpreted as failure. In dementia care, even temporary improvements in affect, connection, or distress can be meaningful for patients and caregivers; however, claims must be proportionate to evidence.

In oncology and neuro-oncology-adjacent symptom care, music interventions have shown benefits for anxiety, pain, fatigue, hope, and mood in adult cancer populations [12]. These findings cannot be transferred automatically to brain tumour populations, but they support music as a low-risk adjunct when integrated with clinical supervision and patient preference.

Dance and movement: embodied rehabilitation and social synchrony

Dance is not merely exercise with music. It is structured movement with rhythm, memory, attention, balance, emotion, expression, and often social synchrony. For neurological rehabilitation, this multidimensionality is clinically attractive because many disorders are multidimensional: they affect movement, confidence, cognition, fatigue, mood and participation.

In Parkinson disease, dance interventions have been associated with improvements in mental health and quality of life in meta-analytic work [13]. Dance may support mobility not only through physical practice but also through cueing, anticipation, postural control, improvisation, affective engagement, and group belonging. The social dimension is not secondary: isolation and reduced participation are clinically relevant burdens in Parkinson disease and many long-term neurological disorders.

Dance must be implemented with safety criteria. Patients require screening for fall risk, orthostatic symptoms, freezing of gait, cognitive impairment, medication timing, cardiovascular tolerance, fatigue, and pain. Chairs, rail support, smaller groups, seated dance, adapted tempo, caregiver participation, and physiotherapy collaboration may improve safety.

Visual arts and creative activities: externalizing experience and supporting adaptation

Visual arts can support neurological care through emotional expression, visuospatial engagement, fine motor practice, sensory exploration, attentional absorption, and symbolic communication. Drawing, painting, collage, clay, photography, museum-based looking, and guided image discussion can all be adapted to neurological populations.

For stroke survivors, creative activities have been studied within rehabilitation and psychosocial recovery. A recent scoping review found initial support for the use of creative activities in stroke rehabilitation while emphasizing the need for more robust evidence and better tailoring to patient needs, preferences and cultural background [14]. Earlier qualitative synthesis also suggested that creative arts-based therapies may address psychosocial needs after stroke [15].

For broader health outcomes, a 2024 systematic review and meta-analysis of active visual art therapy found therapeutic benefits for some outcomes but highlighted heterogeneity and generally low study quality [16]. This is precisely why neurology should neither dismiss nor exaggerate visual art therapy. The appropriate conclusion is that visual arts are promising, clinically meaningful, and in need of neurological specificity: clearer populations, mechanisms, dosing, comparators, and outcome measures.

Practical adaptations matter. Patients with hemiparesis, tremor, apraxia, visual field deficits, neglect, fatigue, or cognitive impairment may need larger materials, non-dominant-hand options, assisted tools, tactile media, shorter sessions, and nonjudgmental instructions. The goal is not artistic performance; it is participation, expression, adaptation and agency.

Drama, theatre, and role-based methods: communication, agency and empathy

Drama and theatre-based approaches are less established in neurological trials but have strong translational potential.

Neurological illness often changes how people speak, move, relate, and are perceived. Role-based work can allow patients to rehearse agency, explore identity, practice communication, and experience being seen as more than a diagnosis.

In aphasia groups, drama may support gesture, prosody, turn-taking, confidence, and social belonging. In traumatic brain injury, carefully structured role work may support perspective-taking, inhibition, social cognition and executive functioning. For caregivers and professionals, dramatized scenarios may improve empathy, communication and awareness of lived experience.

The ethical threshold is high. Improvisation, performance, and role play can expose vulnerability. Facilitators must avoid coercion, public humiliation, forced disclosure, trauma reactivation, and emotionally unsafe group dynamics. In neurological settings, drama should be conducted with informed consent, opt-out options, psychological sensitivity and clinical referral pathways.

Creative writing and narrative reconstruction

Creative writing, guided storytelling, life review, poetic fragments, letters, audio narratives and co-authored stories have particular relevance for chronic and degenerative neurological conditions. They may not directly improve a motor score, but they can help patients organize experience, name fears, communicate preferences, preserve identity and transform passive suffering into authored meaning.

Narrative work is especially relevant when illness interrupts biography. A person with multiple sclerosis, chronic pain, dementia, acquired brain injury, brain tumour, epilepsy or Parkinson disease may experience a rupture between the previous self and the current self. Writing and storytelling can help build continuity: not by denying loss, but by placing loss inside a wider human story.

Writing interventions must be adapted. Conventional journaling may be inappropriate for patients with aphasia, tremor, fatigue, low literacy or cognitive impairment. Oral storytelling, shared dictation, audio recording, image prompts, sentence completion, caregiver-assisted writing, and very short forms may be more accessible. Again, literary quality is not the goal; narrative agency is.

Practical implementation framework

Neuroarts should be implemented with the same seriousness applied to other complementary clinical strategies. The following framework is proposed for hospitals, rehabilitation units, memory clinics, neuro-oncology services, chronic pain programmes, community neurology settings, and patient associations.

Ethics: humility, evidence and dignity

The greatest risk of neuroarts is not that art is weak; it is that art is exaggerated. Patients with neurological disorders may be vulnerable to promises. Clinicians and authors should avoid language implying cure, reversal, guaranteed recovery or replacement of evidence-based treatment. Aesthetic experience can support care, but it cannot substitute diagnosis, medication, surgery, rehabilitation, psychotherapy or palliative care where these are indicated.

Dignity is central. Artistic interventions must never infantilize adult patients, force emotional disclosure, impose cultural preferences, or use patient creations without consent. Artworks, songs, writings and performances produced in clinical contexts may contain intimate material. Ownership, privacy, publication rights, image rights, and consent for display must be clear.

Equity also matters. Neuroarts should not become a luxury available only in elite institutions. Many interventions are low-cost and scalable, but they still require training, coordination and respect. Community partnerships with museums, theatres, music schools, universities, patient associations and social services may expand access while maintaining ethical standards.

Condition-specific clinical mapping

Condition/context	Potential neuroarts strategies	Primary aims	Suggested outcomes
Stroke	Music-supported therapy, rhythm, visual arts, creative activities, drama for aphasia, adapted writing	Motor practice, mood, aphasia confidence, self-efficacy, identity adaptation	Fugl-Meyer items, gait/balance, aphasia measures, depression/anxiety, participation, qualitative recovery narrative
Parkinson disease	Rhythmic auditory stimulation, dance, singing, group music	Gait cueing, balance, freezing support, mood, social participation	Gait speed, stride length, cadence, UPDRS, falls, PDQ-39, depression/anxiety
Dementia and cognitive impairment	Personalized music, singing, reminiscence through images, caregiver co-creation	Mood, social behavior, connection, agitation management, dignity	Depression, agitation, quality of life, caregiver burden, social engagement, adverse distress
Acquired brain injury	Music therapy, drama, art therapy, structured narrative	Attention, emotional regulation, social cognition, identity, family communication	Cognitive scales, emotional distress, participation, caregiver outcomes, goal attainment
Chronic pain and neuro-oncology	Music, visual arts, writing, guided imagery, supportive storytelling	Pain coping, anxiety, fatigue, meaning, procedural tolerance, palliative dignity	Pain intensity/interference, anxiety, fatigue, sleep, hope, quality of life
Long-term neurological disability	Community arts, adapted dance, museum programmes, group singing, creative writing	Participation, belonging, confidence, self-expression, resilience	Social participation, loneliness, quality of life, adherence, patient-reported goals

The field needs methodological ambition without losing its human purpose. Trials should define the intervention clearly, specify therapist qualifications, report adherence, describe adverse events, and distinguish primary and secondary outcomes. Patient-reported outcomes, caregiver outcomes and qualitative accounts should not be treated as ornamental; in neurological illness, they often capture dimensions of recovery that conventional scales miss.

At the same time, neuroarts research must avoid methodological romanticism. The fact that an intervention is meaningful does not exempt it from evaluation. The fact that an outcome is difficult to measure does not justify vague claims. A scientifically mature field will combine randomized evidence, mechanistic studies, pragmatic implementation research and narrative evidence of lived experience.

Limitations of the present review

This article has limitations. It is a narrative review and translational commentary, not a systematic review. It does not include formal risk-of-bias assessment, meta-analysis or exhaustive database coverage. The field itself is heterogeneous: interventions differ in modality, dose, facilitator training, population, comparator and outcomes. Therefore, the proposed framework should be understood as a clinical and research orientation rather than a definitive guideline.

A further limitation is that evidence from one population cannot be automatically transferred to another. Findings from general oncology, mental health, dementia or community arts settings may inform neurological thinking, but disease-specific trials remain necessary. Finally, neuroarts interventions may be shaped by cultural meaning, personal history and context; these variables are difficult to standardize but essential to clinical reality.

Discussion

toward a more human and measurable neurology

Neurology has made extraordinary progress in imaging, biomarkers, genetics, pharmacology, devices and surgical intervention. This progress must continue. Yet neurological care also faces a human challenge: many patients live longer with conditions that alter identity, function, emotion and social participation. In this context, neuroarts may help medicine address what medicine alone may not fully reach: the rhythm of a body that hesitates, the silence after aphasia, the loneliness of dementia, the fear inside pain, and the

Step	Minimum requirement	Rationale
1. Clinical screening	Diagnosis, stage, cognition, sensory deficits, seizure history, psychiatric risk, fatigue, pain, fall risk, cardiovascular tolerance	Prevents inappropriate use and protects vulnerable patients
2. Goal definition	Gait, mood, communication, pain coping, social participation, caregiver connection, cognitive stimulation, meaning	Transforms art from general activity into clinical intervention
3. Modality matching	Match goal with patient preference, cultural background, risk level and available professionals	Improves relevance and reduces distress
4. Professional facilitation	Use neurologists, rehabilitation professionals, psychologists, nurses, certified therapists, occupational therapists, physiotherapists and trained artists according to risk	Maintains boundaries and clinical responsibility
5. Dose and structure	Frequency, duration, group size, materials, environment, home practice and intensity	Improves reproducibility and research reporting
6. Outcome measurement	Combine functional scales, symptom outcomes, patient-reported outcomes and qualitative accounts	Captures both neurological change and lived experience
7. Safety monitoring	Distress, overstimulation, fatigue, pain exacerbation, falls, privacy, consent, emotional flooding	Avoids harm and overclaiming
8. Iteration	Adapt according to response, disease progression, patient feedback and caregiver input	Keeps the intervention person-centred and clinically realistic

Research agenda for a mature neuroarts neurology

Research domain	Key question	Recommended design
Mechanisms	Which neural, autonomic, cognitive, affective and social mechanisms mediate outcomes?	Neuroimaging, psychophysiology, motor analysis, mixed-methods process evaluation
Dose and personalization	What frequency, duration, tempo, intensity, group size and modality fit each condition and disease stage?	Dose-response trials, adaptive designs, patient preference stratification
Clinical efficacy	Which outcomes improve beyond attention, social contact or expectation effects?	Randomized controlled trials with active controls and pre-registered outcomes
Implementation	Can neuroarts be integrated into routine neurology, rehabilitation and community care?	Pragmatic trials, cost-effectiveness studies, implementation science
Safety and ethics	Which patients may be harmed by overstimulation, role exposure, fatigue or emotional flooding?	Adverse-event reporting, risk stratification, ethics frameworks
Equity and culture	How do culture, age, disability, socioeconomic status and access shape acceptability and effects?	Participatory research, community co-design, culturally sensitive outcome selection

need to remain a person beyond diagnosis.

The strongest argument for neuroarts is not romantic. It is integrative. Art engages distributed neural networks while also engaging the person. It can make rehabilitation less mechanical, symptom management less passive, and care less fragmented. It can give clinicians a language for the embodied, emotional, relational and existential dimensions of neurological illness.

A mature neuroarts agenda should be neither reductionist nor mystical. It should be evidence-informed, mechanism-aware, patient-centred, culturally humble and clinically measurable. It should accept uncertainty without abandoning ambition. It should place art beside medicine, not above it; within care, not outside it.

Conclusion

Neuroarts offers a promising complementary pathway for neurological care by integrating rhythm, image, movement, narrative and meaning into rehabilitation and symptom support. Evidence is strongest for music-based interventions, especially in neurological rehabilitation and dementia-related care, while dance, visual arts, drama and writing require further rigorous study but show clinically meaningful potential.

The central challenge is translation. To be credible in neurology, neuroarts must move beyond inspirational language and become clinically structured: screened, personalized, facilitated by competent professionals, measured with appropriate outcomes, and ethically governed. When implemented with humility and rigor, neuroarts can help neurological care become not only more effective, but more humane.

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