Journal of Applied Cosmetology

ISSN 2974-6140 (online) ISSN 0392-8543 (print)

Comparative Study

Perceptual qualities of Physiorelax® CBD cream compared to three other topical cannabidiol creams for musculoskeletal health care: an organoleptic approach by an expert panel

Jordi Bertrán Novella[1], Pere Guiró Coll[2], David Asensio Torres[3], Nora Dieguez-Martínez[3] and Mónica Giménez[4*]

[1]Sports Specialist Physiotherapist, Badalona, Barcelona, Spain; [2]Almirall R&D, Sant Feliu De Llobregat, Barcelona, Spain; [3]Almirall HQ MCI, Barcelona, Spain; [4]Medical Writing Department TFS HealthScience, Barcelona, Spain

[*]*Corresponding author:*
Mónica Giménez
TFS Trial Form Support S.L.
Rambla Catalunya, 19 – Planta 8
08008 Barcelona, Spain
tel: +34 674649812
email: monica.gimenez@tfscro.com

Keywords: *cannabidiol (CBD), musculoskeletal health, natural product, organoleptic properties, topical cream*

Received: 19 December 2025
Accepted: 11 March 2026

Copyright:
Journal of Applied Cosmetology ©2026
www.journalofappliedcosmetology.com
Copyright © by Journal of Applied Cosmetology

ISSN 2974-6140 (online) ISSN 0392-8543 (print).

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder. Unauthorised reproduction may result in financial and other penalties
DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

ABSTRACT

Products with CBD are gaining ground in the cosmetic and massage cream market. However, the growing trend towards natural and effective pain relief and CBD-containing creams underscores the importance of making a well-informed product choice. By examining the organoleptic properties of these creams, we can obtain valuable insights into their performance and acceptance, contributing to a more informed market. To investigate the sensory profile of Physiorelax® CBD compared to three other CBD-infused topical massage creams, all aimed at providing natural relief for muscle and joint pain. An initial group of 20 panellists trained in sensory panel methodology since 2018 was convened to evaluate the four products. The presentation of the creams was randomised and blinded. Organoleptic characteristics were assessed using quantitative scores. The four creams exhibited a comparable sensory profile overall, with Physiorelax® CBD standing out in certain aspects related to appearance and pick-up characteristics. Physiorelax® CBD showed higher scores compared to Fisiocrem® Cannabis in integrity of shape (*P=0.006; *P=0.003 after 10 seconds), firmness (*P=0.006), and stickiness (*P=0.033). It also differs in initial glossiness (in terms of visible shine observed in the cream before application) compared to Cannaben® (*P=0.005), Alivium® CBD (*P<0.005), and Fisiocrem® Cannabis (*P=0.02), with a median of 70 (Alivium® CBD median of 50; Cannaben® and Fisiocrem® Cannabis median of 75). Physiorelax® CBD excels in some sensory characteristics of application compared to the other topical products tested. With a 1% CBD concentration and a blend of anti-inflammatory and analgesic natural ingredients, Physiorelax® CBD stands out as a strong option from a sensory and formulation perspective, showing properties that may be of interest for topical musculoskeletal products. However, no conclusions on clinical effectiveness can be inferred from this study.

INTRODUCTION

In recent years, interest in cannabidiol (CBD) has grown exponentially, driven by an increasing amount of research demonstrating its efficacy in treating a wide range of conditions, including inflammation and chronic pain (1–6). Unlike tetrahydrocannabinol (THC), the CBD component of marijuana does not activate cannabinoid receptors and therefore does not possess any psychoactive properties (7). This finding, along with the potential therapeutic benefits described for CBD, makes it an attractive alternative for individuals seeking the medicinal properties of cannabis without the associated euphoric effects (8).

As the quest for natural and effective pain relief solutions increases, CBD-infused massage creams have come into the spotlight as a potential revolution in musculoskeletal care. The use of CBD in topical products is promoted as an effective approach for relieving muscle pain, reducing inflammation, supporting post-exercise muscle recovery, and improving the quality of life for individuals with various physical conditions. Topical application of CBD offers a direct non-systemic route for localised pain and musculoskeletal relief, avoiding oral ingestion and subsequent hepatic metabolism, potentially translating into greater efficiency with fewer systemic side effects (9).

Choosing a CBD-based cream from the countless options available can be overwhelming. Firstly, it is essential to find a cream with the optimal CBD concentration (balancing the maximum CBD percentage threshold beyond which there is no additional benefit, and the minimum one, below which there is no effectiveness). This consideration is particularly important for people with skin sensitivity or for elderly users, who may experience irritation with higher initial CBD concentrations. Secondly, the rheological and textural

properties of creams are crucial for both their performance and user experience (10). A detailed analysis of physical and sensory attributes (such as texture, scent, absorption, and skin feel) is necessary to understand how the cream behaves upon application and the benefits that its physical qualities bring to the product. These characteristics are fundamental not only for the product's effectiveness but also for consumer satisfaction and professional acceptance, especially among those who apply the cream during massage therapy. This becomes particularly relevant when the cream is applied repeatedly.

Physiorelax® CBD entered the market to meet growing demand for natural pain relief, aligning with innovation trends driven by CBD's non-psychoactive benefits. Its formulation supports recovery, enhances mobility, and provides soothing, moisturising effects with high safety and skin tolerance. These characteristics make Physiorelax® CBD suitable for a wide range of users, including elderly individuals with chronic musculoskeletal needs and heightened sensitivity to medications and age-related skin conditions. Furthermore, the product is a valuable option for athletes and individuals with active lifestyles seeking natural remedies for pain management. Physiorelax® CBD was developed to offer a balanced formulation ensuring effective application (with an accurate CBD concentration to optimise effectiveness without exceeding the functional dose), absorption, and therapeutic benefits, making it suitable for both everyday use and professional massage settings. However, no studies have evaluated its organoleptic characteristics, which may influence user acceptance and perceived effectiveness.

In this paper, we present the comparative sensory experience conducted by a panel of experts between Physiorelax® CBD and three other CBD-containing topical massage creams. By comparing Physiorelax® CBD with other cannabidiol creams, valuable insights into its performance and acceptance can be gained, contributing to a more informed, quality-oriented market. Given the growing interest in natural and less invasive alternatives for pain management, this comparison is timely and relevant for physicians, therapists, and consumers interested in CBD-based treatment options.

MATERIALS AND METHODS

Panel selection and training

The present descriptive organoleptic study began with the selection of an initial panel of 20 independent experts in sensory analysis of topical products, from company units located in Barcelona (Spain). The panel was convened to evaluate the application characteristics of Physiorelax® CBD, compared to three other CBD-containing muscle massage creams. Of the 20 panellists initially invited, 18 ultimately participated (ratio of women to men: 1/3; aged 30-60 years).

Panellist selection followed the American Society for Testing and Materials (ASTM) guidelines (11). Candidates were recruited via inter-office memorandum, email, company newsletters, and notices posted on regular and electronic bulletin boards. Before the pre-screening questionnaire, all candidates were informed of the training time, the estimated panel duration, the purpose of the panel, and the expectations for each panellist. Candidates participated in two separate testing sessions. Initially, 500 candidates from across the company applied, of which 170 advanced to the second phase. The expert panellists were chosen through a blind selection process. The final panel included professionals from diverse backgrounds (chemists, pharmacists, biologists, information technology specialists, and analysts, among others) who had participated in the annual dermatology training program for the past 6 years.

The study followed a within-panellist (intra-subject) comparative design: the same group of expert assessors was scheduled to evaluate all products under standardised conditions, using identical procedures and rating scales, so no randomisation of panellists was needed, thereby avoiding inter-group variability. All 18 panellists

assessed Physiorelax® CBD; due to minor scheduling constraints unrelated to product performance, 15 to 18 panellists completed the assessments for each comparator product. These minimal, product-specific missing assessments do not alter the within-panel comparative nature of the design and were handled by analysing the available within-assessor contrasts (i.e., comparing product ratings provided by the same assessor whenever applicable).

Ethical and regulatory compliance

The sensory panel study was conducted internally and is considered an organoleptic or product characteristic evaluation, not biomedical research. In such cases, it is not considered a clinical study. In accordance with current Spanish regulatory frameworks (Royal Decree 85/2018 and Royal Decree 1090/2015), research involving cosmetic products does not require evaluation by an Institutional Review Board or an informed consent form, as such studies are not classified as clinical investigations of medicinal products and are instead governed by specific quality-control and oversight mechanisms under the authority of the Spanish Agency of Medicines and Medical Devices (AEMPS).

Products for the sensory evaluation

This study compares Physiorelax® CBD with three other commercially available natural topical creams containing CBD, all suitable for muscle and joint massage. As these are cosmetic products, manufacturers are not obliged to disclose CBD concentration data on the packaging. Therefore, the CBD concentration reported here is based on information provided by the promotional material.

Phsyiorelax® CBD 75 mL (https://www.physiorelaxcbd.com): 1% CBD concentration. Its ingredients include menthol, *helianthus annuus* (sunflower) seed oil, hemp oil, *Eugenia caryophyllus* (clove) leaf oil, C*innamomum cassia* leaf oil, cinnamal, and helenalin2 (formula composed of arnica, *Harpagophytum*, calendula, *Hypericum,* and helenalin).

Cannaben® Forte 60 mL (*Cannaben®: Cremas Cannabicas para el alivio de la piel)*: 0.5% CBD concentration. Its ingredients include menthol, limonene, linalool, citronellol, rosemary essential oil, and arnica extract, and it is formulated with Neossance® Squalane1 oil.

Alivium® CBD Forte 75 mL (*THE BEEMINE LAB™ | CBD, Aceite de CBD, Miel CBD, Cremas CBD*): 1.6% CBD concentration. Its ingredients include honey, hemp seed oil, rosehip, peppermint, camphor, eucalyptus, arnica, clove essential oil, and lemongrass.

Fisiocrem® Cannabis 60 mL (*Productos para preparar Músculos | Fisiocrem*): 0.039% CBD concentration. Its ingredients include arnica, *Hypericum*, hemp oil, and vanilla extract.

Methodology for sensorial testing

The sensory testing methodology was based on ASTM E1490-11 guidelines (11), not only for selecting panellists but also for determining the presentation characteristics of the samples.

Briefly, the sensory evaluation methodology for creams and lotions, as described in ASTM E1490-11 (11), involves standardised preconditioning of both the samples and the panellists' skin under controlled environmental conditions (temperature, humidity, and lighting). Application areas are precisely marked on the forearm using templates (see Bertrán Novella et al. 2025 (12) for an illustration of the same methodology), and the skin is thoroughly cleansed and dried before testing. A uniform amount of product is dispensed onto each marked area and spread in a consistent circular motion, often guided by a metronome to ensure uniformity among panellists. Skin temperature and environmental parameters are recorded throughout the process. Sensory attributes are then rated using specific scales, and orientation sessions may be conducted to familiarise

panellists with the procedures and reference samples. This approach minimises variability and ensures reproducibility in the sensory assessment of topical formulations.

All product samples were coded and presented to each assessor in a fully randomised order. The study was conducted under blinded conditions: assessors were unaware of the product identity at all times, and the coding was managed by an independent researcher not involved in the evaluations. This ensured that brand, formulation expectations, or prior knowledge did not influence sensory ratings.

Organoleptic test for the perceptual qualities of the products

The evaluation of the perceptual characteristics of the application of the products was assessed using a questionnaire including 20 items grouped into four dimensions: a) Afterfeel: physical and kinaesthetic attributes of the skin surface after product application, used to measure the residues left by the product. This dimension included 8 items: amount of residue, amount of residue after 10 minutes, slipperiness, slipperiness after 10 minutes, stickiness, stickiness after 10 minutes, glossiness and glossiness after 10 minutes; b) Appearance: attributes of a product measured based on sight, which may include, but are not limited to, rheological and optical attributes of a product measured when handled between the fingers. This dimension included 3 items: integrity of shape, integrity of shape after 10 seconds, and glossiness; c) Pick-up: rheological attributes of a product measured when handled between the fingers. This dimension included 4 items: firmness, stickiness, cohesiveness, and amount of peaking, and d) Rub-out: physical and rheological attributes of the product on the skin, measured while the product is spread on the skin until absorbed, including any kinaesthetic sensations that may occur. This dimension included 5 items: absorbency, greasiness, thickness, spreadability, and wetness. All items were rated on a scale of 0 to 100, where 0 indicated the absence of the property and 100 its maximum presence.

The term glossiness in the ‘Appearance’ dimension refers to the visual shine of the product itself, as observed directly in the cream before application. In contrast, in the ‘Afterfeel’ dimension, it refers to the residual shine perceived on the skin after application and partial or complete absorption of the product.

STATISTICAL ANALYSIS

Descriptive statistics were used to present the main results. Student's t-test was used to compare the evaluation of the physical properties related to the topical application of the four products among the panellists. A $P<0.05$ was considered a statistically significant difference. A radial graph was generated to visually compare quantitative values (0-100) for the different aspects of the application across the assessed products.

Statistical handling of missing assessments

Because the design relies on within-assessor comparisons, occasional missing ratings for a given product (when an assessor could not attend a session) were treated as missing at random and excluded pairwise from the specific within-assessor contrasts. As a result, the number of paired observations may vary slightly across product comparisons. Still, the comparative, within-panel nature of the analysis is maintained, thereby reducing between-assessor variability and mitigating bias relative to a purely between-groups design.

RESULTS

Table I and Figure 1 present the sensory evaluation results of the four topical CBD creams based on the panellists' ratings, across four perceptual dimensions: afterfeel, appearance, pick-up, and rubbing, using a 0-to-100 scale.

Overall, the creams present comparable sensory profiles; however, the Physiorelax® CBD product showed significantly higher scores in specific attributes related to appearance and pick-up characteristics. Compared to Fisiocrem® Cannabis, Physiorelax® CBD demonstrated a greater integrity of shape both initially (P=0.006) and after 10 seconds (P=0.003), as well as higher firmness (P=0.006) and stickiness (P=0.033). In terms of glossiness related to the visible shine of the cream before application (appearance dimension), Physiorelax® CBD also differed significantly from other products: it showed a median score of 79 compared to 50 for Alivium® CBD (P<0.005), and 75 for both Cannaben® (P=0.005) and Fisiocrem® Cannabis (P=0.02).

Table I. *Physical application properties (organoleptic evaluation) of Physiorelax® CBD versus Cannaben®, Alivium® CBD, and Fisiocream® Cannabis.*

Items	Physiorelax® CBD	Cannaben®	Alivium®	Fisiocream® Cannabis
Afterfeel				
Glossiness£	50 (40, 60)	40 (35, 50) P=0.253	36 (30, 49) P=0.051	49 (40, 52) P=0.943
Glossiness after 10 min	28.5 (20, 40)	25.5 (19, 30) P=0.348	25 (16, 33) P=0.226	27.5 (25, 30) P=0.413
Stickiness	44 (30, 50)	40 (30, 42) P=0.224	44 (30, 50) P=0.295	37 (30, 40) P=0.208
Stickiness after 10 min	25 (15, 32)	22 (15, 25) P=0.307	24 (15, 26) P=0.501	24 (15, 30) P=0.511
Slipperiness	47 (40, 60)	50 (47, 55) P=0.710	50 (46, 55) P=0.809	50 (42, 54) P=0.823
Slipperiness after 10 min	44 (20, 51)	46 (40, 51) P=0.675	45 (43, 48) P=0.611	45 (40, 50) P=0.683
Amount of residue	35 (20, 45)	32 (30, 40) P=0.650	35 (25, 40) P=0.689	33 (30, 40) P=0.770
Amount of residue after 10 min	23.50 (10, 40)	23 (15, 26) P=0.599	25 (16, 30) P=0.755	22 (19, 26) P=0.411
Appearance				
Integrity of shape	86 (73, 90)	80 (75, 80) P=0.279	82 (80, 85) P=0.512	70 (60, 75) P=0.006*
Integrity of shape after 10 sec	81 (71, 86)	78 (73, 78) P=0.432	80 (78, 84) P=0.361	63 (55, 70) P=0.003*
Glossiness£	70 (60, 77)	75 (75, 80) P=0.005*	50 (45, 60) P<0.005*	75 (68, 79) P=0.02*
Pick-up				
Firmness	67.5 (55, 75)	60 (55, 70) P=0.122	75 (70, 80) P=0.083	50 (45, 60) P=0.006*
Stickiness	61 (50, 70)	52 (50, 62)	64 (60, 70)	45 (40, 54)

		P=0.329	P=0.407	P=0.033*
Cohesiveness	60 (40, 70)	50 (42, 50) P=0.583	57 (50, 60) P=0.509	45 (38, 52) P=0.340
Amount of peaking	64.5 (60, 75)	60 (52, 63) P=0.199	65 (60, 70) P=0.955	55 (45, 62) P=0.075
Rubbing				
Absorbency	46 (25, 55)	38 (30, 52) P=0.442	41.5 (29, 60) P=0.828	33.5 (30, 43) P=0.188
Greasiness	48.5 (30, 65)	45 (30, 49) P=0.292	48 (35, 55) P=0.521	45 (35, 55) P=0.357
Thickness	50 (30, 55)	40 (35, 45) P=0.233	46 (35, 50) P=0.786	40 (30, 45) P=0.332
Spreadability	59.5 (48, 70)	65 (62, 70) P=0.179	55 (50, 60) P=0.493	70 (65, 70) P=0.059
Wetness	56 (40, 70)	58 (50, 64) P=0.361	50 (40, 58) P=0.272	65 (56, 70) P=0.100

*Data shown as median (Quartile 1, Quartile 3). P values reported against Physiorelax® CBD. *: P statistically different between groups.* ***£****: In the 'Appearance' dimension, glossiness refers to the visible shine of the product as seen in the cream before application. In the 'Afterfeel' dimension, it describes the residual shine perceived on the skin after application and partial or complete absorption.* ***Min****: minutes;* ***Sec****: seconds.*

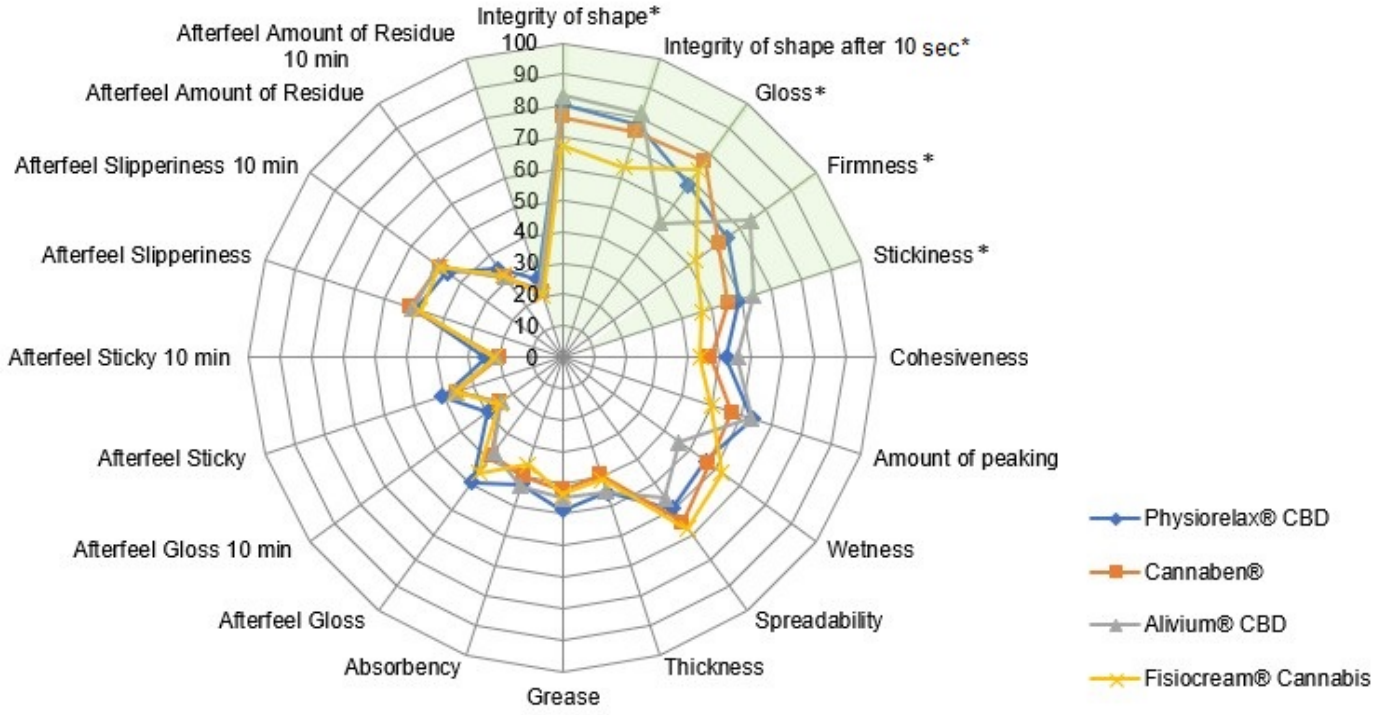

Figure 1. *Radial graph comparing the physical application properties (organoleptic evaluation) of Physiorelax® CBD versus Cannaben®, Alivium® CBD, and Fisiocream® Cannabis. Scale of values between 0 and 100. In green: variables that show significant differences between groups. Dimensions assessed: afterfeel (8 variables), appearance (3 variables), pick-up (4 variables), and rubbing (5 variables). P values reported against Physiorelax® CBD.*: P values statistically different between groups. Min: minutes; Sec: seconds.*

DISCUSSION

In the market for CBD-containing creams, different products have unique properties that affect the absorption of CBD through the skin. A formulation with an optimal texture and efficient absorption profile can facilitate effective delivery of CBD to targeted muscle and joint tissues. The combination of oils in Physiorelax® CBD (including clove and hemp oils, among others) contributes to this effect, providing a texture that is easily absorbed into the skin and deeply penetrates. As a result, the skin remains moisturised and soft after a brief application. Similarly, the scent and tactile sensation on the skin play a significant role in the user's experience, determining their willingness to use the product regularly. A comparative analysis of CBD-based creams can help identify their strengths and weaknesses, providing valuable insights for both consumers and musculoskeletal healthcare professionals. This is in line with recent approaches in which the organoleptic attributes of natural creams, especially those in the Physiorelax® range, have been assessed by a sensory panel of experts (12), attesting to the importance of this type of approach to build solid knowledge of the sensorial and dermatological skin-related properties, and facilitate the decision on use. Findings from expert evaluations provide essential guidance for healthcare professionals and end users on the appropriate use of these creams for muscle and ligament massage. This is the first sensory study conducted with a panel of experts to evaluate the organoleptic attributes of Physiorelax® CBD compared with other commercially available CBD massage creams.

Physiorelax® CBD demonstrates a well-balanced profile across all evaluated features, emphasising some key aspects related to appearance and pick-up, which are essential for effective massage for muscles, ligaments, and joints. These variables appear to be critical to the user experience, influencing how the cream is presented, handled, and applied, which ultimately affects overall user satisfaction and perceived effectiveness.

In the present comparative analysis, Physiorelax® CBD exhibited several distinctive rheological characteristics. The flow and textural properties of cosmetic products, including form integrity, are interrelated and play a critical role in sensory evaluation and consumer product acceptance (10). Firstly, Physiorelax® CBD demonstrated superior shape integrity (the ability of the cream to maintain its shape once applied), enabling broader coverage and more precise application. This property ensures controlled applicability, preventing the cream from crumbling or spilling easily, and enabling even distribution on the skin, which is essential for a cream intended for musculoskeletal massage. Secondly, in terms of firmness or consistency, Physiorelax® CBD occupies a favourable middle ground between Alivium® CBD (which was found to be overly solid) and Fisiocrem® Cannabis (which was excessively liquid). This balance, combined with integrity, facilitates application and prevents undesirable runoff. Thirdly, the moderate stickiness of Physiorelax® CBD, slightly lower than that of Alivium® CBD but still comparable, is consistent with its higher CBD concentration.

Maintaining contact with the skin ensures that the active ingredients, such as CBD, remain in place for an extended period, providing sustained relief from pain and inflammation. The high shape integrity and firmness of Physiorelax® CBD contribute to its prolonged retention on the skin, which is crucial for delivering the therapeutic benefits of CBD. This allows better absorption into deeper skin layers, where CBD can exert its anti-inflammatory and analgesic effects (13). Regarding the moderate stickiness observed with Physiorelax® CBD, the formulation's physicochemical properties play a key role in its effects on the skin, including skin-feeling properties such as tackiness and adhesivity (14). The firmer, slightly sticky properties of the product enhance the massage experience by providing the practitioner with better grip and control. This allows more precise and effective manipulation of the muscles and connective tissues, potentially improving the relief of

deep muscle tension and pain (15, 16). Excessive slippage is undesirable for a muscle massage, where controlled pressure and friction are necessary for therapeutic efficacy.

When considering massage creams with CBD, gloss level is another factor that can influence user appeal, experience, and perceived effectiveness. Physiorelax® CBD exhibits lower initial gloss before absorption, a positive characteristic attributed to its unique composition. A cream with a high initial gloss may indicate a higher oil content or a more occlusive product. Physiorelax® CBD exhibits a medium initial gloss before absorption, providing a balanced perspective on its unique composition.

Many users prefer creams with less initial shine, as they are perceived as less greasy and better absorbed. This can be particularly important for those with oily or combination skin types. In a study assessing consumer preferences for the most popular body moisturisers (without CBD) in the United States, the most common claims for selecting a product over other available options included ‘nongreasy’ texture and ‘natural’ composition. In this case, since it is a massage product that must penetrate the skin for optimal benefit, it must maintain a balanced absorption rate and not be absorbed too quickly, so the massage cannot be carried out correctly (17). Medium gloss (70) provided by Physiorelax® CBD, even with its oil content, offers an optimal balance between aesthetics and functionality. The cream is likely to be well-received, offering a moderate shine that enhances the skin's appearance, making it look well-nourished and hydrated without overwhelming it. A controlled glide offers a balance between glide and grip, which also helps in targeting deeper muscle layers effectively (18).

Other textural parameters, although not significant, suggest a very favourable profile for Physiorelax® CBD. Among the evaluated characteristics, the amount of peaking stands out. Although it showed no significant differences, Physiorelax® CBD displayed the highest mean value. The "peaking" is associated with cohesiveness, i.e., the ability of the cream to maintain its shape without spreading. Additionally, both Physiorelax® CBD and Alivium® CBD scored 45 in thickness, but Physiorelax® CBD showed a wider range. This indicates that a thicker layer of product remains on the skin, making it easier to spread and allowing it to cover a larger area, thereby improving the cream’s effectiveness. Regarding its greasiness, Physiorelax® CBD absorbs quickly and evenly. The product has sufficient body and absorbs well, allowing professionals or users to spread it out effectively during the massage without reapplication, supporting optimal CBD delivery.

The parameters analysed can influence the effectiveness of the product, especially its interaction with endocannabinoid receptors located at the skin surface level and in joints. This can help obtain better results and optimise the product formulation, so it is important to associate many of the variables evaluated with the amount of CBD in the product. CBD absorption through the skin is limited (19, 20) and depends on formulation composition (20, 21). The bioavailability of products administered via dermal or transdermal routes is generally low, ranging from 1% to 10% (22, 23). Moreover, numerous studies have indicated that CBD tends to accumulate in the outermost layers of the skin, without reaching the deeper tissue layers (24, 25). However, for certain medical conditions, dermatologists continue to prefer topical formulations of medical cannabis, with most (75%) willing to recommend them (26). Thus, selecting a topical product that contains an adequate amount of CBD is essential. In this regard, Physiorelax® CBD offers a highly acceptable level of CBD compared to the other products, only lower than Alivium® CBD (1% versus 1.6%). Compared to the other two, it doubles the CBD concentration. Considering that CBD efficacy may also depend on individual factors, such as cutaneous sensitivity, especially in older people or those with chronic skin problems, selecting a CBD cream with a not-too-high concentration, or a cautious one, seems relevant. Several authors have proposed 1% as the optimal CBD concentration for cosmetic products. In this vein, some articles have demonstrated that topical formulations containing 1% CBD offer optimal delivery efficiency and skin tolerability, supporting the

widespread recommendation of this concentration in cosmetic products (27), while preserving skin barrier integrity and hydration (28), which suggests that this concentration is effective and well-tolerated for cosmetic applications. Other authors report that a CBD accumulation of approximately 1.2% in the epidermis and dermis (29) appears to be a target concentration for cosmetic use (21). Thus, CBD concentration is an important factor to consider when choosing musculoskeletal creams that also provide the best results on the skin.

This study is not without limitations. One of them is that we do not have data on overall personal satisfaction with the products. However, as these are products with CBD content, it would be interesting to carry out a future complementary analysis on people who consume the product and wish to benefit directly from CBD to obtain more data on effectiveness and personal satisfaction (e.g. athletes, active people, who wish to recover the optimal levels of their muscles, or to reduce a specific musculoskeletal pain). In any case, as this is an organoleptic study evaluating multidimensional physical aspects of the creams, an expert panel is essential.

In summary, the features that set Physiorelax® CBD apart have an impact on both the practicality and the pleasure of using the product. This topical cream has a structure that allows it to cover a wider area and better control application, which is very positive for treating specific areas such as joints. This makes it easy to apply and ensures that it stays in place without spreading. The intermediate stickiness is favourable, as it is not overly sticky, which improves comfort during and after application. The relatively rapid absorption of CBD ensures efficient product seepage into the skin, which is crucial for fast relief. Physiorelax® CBD has little shine and is matte even after 10 minutes, which is aesthetically pleasing and comfortable for the user. Although it is greasy, it absorbs well, which is beneficial for CBD because it ensures good product distribution and efficacy. The Scientific Committee on Consumer Safety (SCCS) considers CBD safe when used at concentrations up to 0.19% in dermal cosmetic products and oral cosmetic products (30). The product seems a robust option, with a formulation containing 1% cannabidiol, a concentration within the range reported in other topical CBD investigations, which have shown promising results without relevant side effects (31-35), and a blend of anti-inflammatory and analgesic ingredients, including helenalin2.

CONCLUSIONS

Physiorelax® CBD shows higher integrity of shape, firmness, and stickiness, which may offer some advantages from an organoleptic perspective. With a CBD concentration of about 1%, these properties may facilitate better application, absorption, and distribution on the skin. Its structure provides wider coverage and better control during application, making it suitable for targeting specific areas, such as joints. The cream's intermediate stickiness enhances comfort without being overly sticky, and its absorption profile appears appropriate for topical cosmetic use. Aesthetically, it remains matte with minimal shine even after 10 minutes. Despite being greasy, it absorbs well, which may enhance the overall sensory experience. Physiorelax® CBD seems to offer an optimal balance of sensory attributes, convenience, and ease of use. These organoleptic findings suggest potential practical benefits, although their impact on CBD delivery or clinical outcomes cannot be directly inferred from this study. Future studies involving consumer and musculoskeletal healthcare professional samples could provide a more holistic product description.

Contribution statement

All authors attest to meeting the four criteria recommended by the International Committee of Medical Journal Editors (ICMJE) for authorship of this manuscript. Each author has made substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data; has participated in drafting the manuscript or revising it critically for important intellectual content; has approved the final version

to be published; and agrees to be personally accountable for the author's own contributions and for ensuring that questions related to the accuracy or integrity of any part of the work, even those in which the author was not personally involved, are appropriately investigated, resolved, and documented in the literature.

Acknowledgements

We would especially like to express our most sincere gratitude to Paula Anglada Ribé and Júlia Ventura Castellote for their outstanding contribution to the development and follow-up of the entire research project. Their dedication and commitment to excellence, along with their tireless support, have left a significant mark on this work. We also appreciate the participation of all the experts who have been part of the sensory panel: Jose Manuel Gimenez Lopez, Virginia Diaz Sanchez, Judit Cabedo Robles, Carles Perera Limiñana, Laia Soler Feu, Felix Baldan Torres, Laura Estrella Cruz, Francesc Carrera Carrera, Carmen Moyano Ortega, Maria Del Carmen Pidevall Baye, Olga Saubi Antolin, Marta Mir Cepeda, Sonia Espinosa Garcia, Rosa Gimenez Busquets, Susana Bonjoch Del Rio, Pere Macia Sabate, Mar Lombardia Perez, and Alba Platero Latorre.

Conflicts of interest statement

PG, DA, and ND are employers of Almirall S.A. JB has made a presentation on Physiorelax® in a national convention organised by Almirall. MG has no conflicts of interest. The funder (Almirall) had no role in the design of the study, in the collection, analysis, or interpretation of data, in the writing of the manuscript, or in the decision to publish the results.

REFERENCES

1. Atalay S, Jarocka-Karpowicz I, Skrzydlewska E. Antioxidative and anti-inflammatory properties of cannabidiol. Antioxidants (Basel). 2019;9:21.
2. Baswan SM, Klosner AE, Glynn KA, Rajgopal A, Malik K, Yim S, Stern N. Therapeutic potential of cannabidiol (CBD) for skin health and disorders. Clin Cosmet Investig Dermatol. 2020;13:927-942.
3. Hammell DC, Zhang LP, Ma F, Abshire SM, McIlwrath SL, Stinchcomb AL, Westlund KN. Transdermal cannabidiol reduces inflammation and pain-related behaviours in a rat model of arthritis. Eur J Pain. 2016;20:936-948.
4. Leinen ZJ, Mohan R, Premadasa LS, Acharya A, Mohan M, Byrareddy SN. Therapeutic potential of cannabis: A comprehensive review of current and future applications. Biomedicines. 2023;11:2630.
5. Sunda F, Arowolo A. A molecular basis for the anti-inflammatory and anti-fibrosis properties of cannabidiol. FASEB J. 2020;34:14083-14092.
6. Villanueva MRB, Joshaghani N, Villa N, et al. Efficacy, safety, and regulation of cannabidiol on chronic pain: A systematic review. Cureus. 2022;14:e26913.
7. Hall A, Brunmerg R. CBD statistics, data, and use in 2025. Forbes Health [Internet]. 2025 [cited 2025 Nov 20]. Available from: https://www.forbes.com/health/cbd/cbd-statistics/
8. Peng J, Fan M, An C, Ni F, Huang W, Luo J. A narrative review of molecular mechanism and therapeutic effect of cannabidiol (CBD). Basic Clin Pharmacol Toxicol. 2022;130:439-456.
9. Leppert W, Malec-Milewska M, Zajaczkowska R, Wordliczek J. Transdermal and topical drug administration in the treatment of pain. Molecules. 2018;23:681.
10. Morávková T, Stern P. Rheological and textural properties of cosmetic emulsions. Appl Rheol. 2019;21.
11. ASTM International. Standard guide for two sensory descriptive analysis approaches for skin creams and lotions [Internet]. 2011 [cited 2025 Nov 12]. Available from: https://store.astm.org/e1490-11.html

12. Bertrán Novella J, Garcia Gonzalez N, Guiró Coll P, Asensio Torres D, Palenzuela Larrarte S, Giménez M. Cosmetic and application qualities of the cream Physiorelax compared to another topical cream for musculoskeletal health care: An organoleptic expert panel approach. J Cosmet Dermatol. 2025;24:e70368.
13. Nagelreiter C, Kratochvilova E, Valenta C. Dilution of semi-solid creams: Influence of various production parameters on rheological properties and skin penetration. Int J Pharm. 2015;478:429-438.
14. Bikerman JJ. The fundamentals of tackiness and adhesion. J Colloid Sci. 1947;2:163-175.
15. Jones L. The 10 best massage creams for professionals. Massage & Fitness Magazine [Internet]. 2022 [cited 2025 Nov 10]. Available from: https://massagefitnessmag.com/massage/best-massage-creams/
16. Massage Warehouse. Should I use massage oils, creams, lotions or waxes? [Internet]. 2016 [cited 2025 Nov 10]. Available from: https://www.massagewarehouse.co.uk/blogs/blog/should-i-use-massage-oils-creams-lotions-or-waxes
17. Xu S, Kwa M, Lohman ME, Evers-Meltzer R, Silverberg JI. Consumer preferences, product characteristics, and potentially allergenic ingredients in best-selling moisturizers. JAMA Dermatol. 2017;153:1099-1105.
18. García Delgado R, Escario Travesedo E, Sánchez Romero A. Uso racional de la medicación tópica en dermatología. Med Cutan Iber Lat Am. 2004;32:39-44.
19. Junaid MSA, Tijani AO, Puri A, Banga AK. In vitro percutaneous absorption studies of cannabidiol using human skin: Exploring the effect of drug concentration, chemical enhancers, and essential oils. Int J Pharm. 2022;616:121540.
20. Kirk RD, Akanji T, Li H, et al. Evaluations of skin permeability of cannabidiol and its topical formulations by skin membrane-based parallel artificial membrane permeability assay and Franz cell diffusion assay. Med Cannabis Cannabinoids. 2022;5:129-137.
21. Casiraghi A, Musazzi UM, Centin G, Franzè S, Minghetti P. Topical administration of cannabidiol: Influence of vehicle-related aspects on skin permeation process. Pharmaceuticals (Basel). 2020;13:337.
22. Rabgay K, Waranuch N, Chaiyakunapruk N, Sawangjit R, Ingkaninan K, Dilokthornsakul P. The effects of cannabis, cannabinoids, and their administration routes on pain control efficacy and safety: A systematic review and network meta-analysis. J Am Pharm Assoc (2003). 2020;60:225-234.e6.
23. Tijani AO, Thakur D, Mishra D, Frempong D, Chukwunyere UI, Puri A. Delivering therapeutic cannabinoids via skin: Current state and future perspectives. J Control Release. 2021;334:427-451.
24. Millar SA, Maguire RF, Yates AS, O'Sullivan SE. Towards better delivery of cannabidiol (CBD). Pharmaceuticals (Basel). 2020;13:219.
25. Palrasu M, Wright L, Patel M, Leech L, Branch S, Harrelson S, Khan S. Perspectives on challenges in cannabis drug delivery systems: Where are we? Med Cannabis Cannabinoids. 2022;5:102-119.
26. Yeroushalmi S, Nelson K, Sparks A, Friedman A. Perceptions and recommendation behaviors of dermatologists for medical cannabis: A pilot survey. Complement Ther Med. 2020;55:102552.
27. Lapteva M, Faro Barros J, Kalia YN. Cutaneous delivery and biodistribution of cannabidiol in human skin after topical application of colloidal formulations. Pharmaceutics. 2024;16:202.
28. Ferreira BP. Skin applications of cannabidiol: Sources, effects, delivery systems, marketed formulations and safety. Phytochem Rev. 2023;22:781-828.
29. Sharkawy A, Barreiro F, Rodrigues A. Pickering emulsions stabilized with chitosan/gum Arabic particles: Effect of chitosan degree of deacetylation on the physicochemical properties and cannabidiol (CBD) topical delivery. J Mol Liq. 2022;355:118993.
30. Scientific Committee on Consumer Safety (SCCS). Scientific opinion on cannabidiol (CBD) used in cosmetic products. SCCS/1685/25. 2025.
31. Bunman S, Muengtaweepongsa S, Piyayotai D, et al. Analgesic and anti-inflammatory effects of 1% topical cannabidiol gel in animal models. Cannabis Cannabinoid Res. 2024;9:740-750.
32. Umpreecha C, Bhalang K, Charnvanich D, Luckanagul J. Efficacy and safety of topical 0.1% cannabidiol for recurrent aphthous ulcers: A randomized controlled trial. BMC Complement Med Ther. 2023;23:57.

33. Zamarripa CA, Titton HE, Lin S, et al. Pharmacokinetics and pharmacodynamics of five commercially available hemp-derived topical CBD products. J Anal Toxicol. 2024;48:81-98.
34. Scholfield CN, Waranuch N, Kongkaew C. Systematic review on transdermal/topical cannabidiol trials. Cannabis Cannabinoid Res. 2023;8:589-602.
35. Rusu A, Farcas AM, Oancea OL, Tanase C. Cannabidiol in skin health: A comprehensive review of topical applications in dermatology and cosmetic science. Biomolecules. 2025;15:1219.