

Analyzing the Factors Influencing the Discrimination of a Sports Product Brand

Received: 2024-04-29

Vol. 7, No.1.2026, 38-54

Accepted: 2025-12-21

Fatemeh Katebi Jahromi¹

Masoumeh Kalateh Seifari^{2*} 

Somayeh Namdar Tajari³

¹ Phd Student of Sports Management, University of Mazandaran, Babolsar, Iran

² Associate Professor of Sport Management University of Mazandaran, Iran

³ Assistant Professor of Motor Behavior, University of Mazandaran, Babolsar, Iran

*Correspondence:

Masoumeh Kalateh Seifari, Associate Professor of Sport Management University of Mazandaran, Iran

Email: mkalateh@umz.ac.ir

ORCID: [0000-0002-6115-3436](https://orcid.org/0000-0002-6115-3436)

DOI :

[10.22098/rsmm.2024.14984.1348](https://doi.org/10.22098/rsmm.2024.14984.1348)

Abstract

Purpose: The challenge that many sports brand managers face is the power of brand discrimination in sports products. A brand emerges victorious in the realm of brand competition when it possesses strong brand discrimination. In line with this, the objective of the research is to study the elements that influence the brand discrimination power of sports products.

Method: This research answers the question of whether brand elements such as logo, shape, color, slogan, and packaging enhance brand discrimination in consumers of sports supplements through the use of implicit methods and experimental block designs. The research population consists of consumers of sports products (creatine supplements) in Fars province, who were selected as a convenience sample of 384 individuals.

Results: degree of impact of logo, shape, packaging, and spatial design on the power of brand discrimination for sports supplements exceeds that of the color element, which should be taken into consideration.

Conclusion: The results of this study would be beneficial for domestic and international sports supplement manufacturers to gain better insights into consumer behavior and predict their actions. Furthermore, this research focuses solely on the case study of creatine supplements and examines the mentioned elements within this specific supplement.

Keywords: Image, brand discrimination, sports goods, behavior, consumer.

Copyright

©2026 by the authors. Published by the University of Mohaghegh Ardabili. This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution 4.0 International (CC BY 4.0) <https://creativecommons.org/licenses/by/4.0>



Introduction

The advancements in various sports sciences have led to remarkable growth in the sports supplement industry, and as a result, the motivation to use these supplements to improve health and enhance athletic performance has increased. Nowadays, the consumption of sports supplements has significantly risen, and numerous reports have been published regarding their usage, timing, muscle mass enhancement, and improvement in athletic performance (Shahbazi et al., 2019). A dietary supplement, also known as a sports supplement, refers to substances that are used by athletes to address nutritional deficiencies (e.g., iron deficiency) or enhance their athletic performance (e.g., creatine). In practice, dietary supplements can be considered as combinations of compounds that are typically obtained through the diet and do not possess doping properties (Molinero & Marques, 2009).

ShareWith the increasing expansion of the virtual space, particularly the recognition of prominent figures in the world of sports and bodybuilding, many people have compared their lifestyle and physique to foreign and national champions. To achieve ideal results in the shortest possible time, many athletes, including national and international competitors, employ different strategies. The use of dietary supplements is one of the fastest methods to access success (Brady, 2022). Sports nutrition, fundamentally, is a rapidly growing sector that meets the demand for evidence-based nutritional products to support competitive and healthy lifestyles (Kari et al., 2023). Consequently, the bodybuilding supplement industry is one of the most significant economic sectors in the realm of sports. In this regard, contemporary marketing aims to satisfy consumers' needs and desires, encourage repeat purchases, increase market share, and motivate them to engage in these practices (Mohsen & Hassouni, 2022).

In recent years, the business environment

worldwide has undergone significant transformations and changes. One of these changes is the shift in companies' perspective from tangible assets to intangible assets. Consequently, the process of valuing intangible assets holds great importance for companies (Azizimanesh, 2014). Brands are one of these intangible assets. In a highly competitive landscape among brands, successful organizations are able to satisfy their audience and create powerful brands for their products. The field of brand management and branding has attracted numerous followers in today's marketing world (Rezaei Sofi et al., 2021). In the extensive literature on marketing, brand management has been a focal point in the research agenda in recent decades (Manoli, 2022).

Essentially, a brand is a name, symbol, sign, design, or a combination of these elements that identifies and distinguishes the goods or services of a seller or a group of sellers from their competitors. One of the reasons for the value of a brand is its strategic function and its crucial role in achieving competitive advantages and strategic management objectives. Brands serve as valuable assets that enable companies to be authentic about their products and services, as well as to address and resolve any complaints that may arise (Sony & Swait, 2008). A brand is not merely a physical product; it possesses unique characteristics. Over time, a brand develops and progresses, acquiring tangible and intangible assets. Additionally, a brand helps differentiate similar products (Zaichkowsky et al, 2010).

Strong and well-known brands bring value to both organizations and consumers. Brands serve as useful and simple tools for consumers to streamline the decision-making process and facilitate the analysis of information and data, thereby creating value for consumers (Keller et al., 2008). In the highly competitive market space where brands have the most significant impact on product sales, the key to success lies

in creating a powerful, unique, and desirable brand image (Azadi et al., 2017). Discrimination in branding refers to the unique and distinct identity of a brand in relation to its competitors, serving as a simple means to develop brand recognition (Stockburger et al., 2012). Various elements have been considered for brands in different studies, including brand name, logos, symbols, personalities, slogans, signs, packaging, and more (Mohammad & Movasaghi, 2018). In this regard, a logo is one of the elements that has a rich history as a means of representing the purpose, ownership, and other manifestations of a brand. A logo encompasses a wide range of visual and graphic elements, from specific designs in company names or trademarks to abstract designs (Keller, 2000). The logo of a company is a term that establishes a relationship with customers beyond verbal communication (Elmia, 2016).

Logo's capability has increased compared to previous eras. In the modern age, people may not read words, but they can easily recall and quickly review their visual representations in their memory. Therefore, a logo serves as a means of instantly and directly memorizing and representing what a company stands for, capturing attention (Baran et al, 2012). Currently, color is also utilized as one of the prominent features of products. The use of color in product design is so valuable that it is unimaginable to have a colorless medium. As different manufacturers produce similar products, customers tend to purchase products that appear more appealing at first glance. Only in such cases is a product considered enduring. Essentially, color can have significant effects on purchasing decisions and viewers' perceptions of a product (Zarei et al., 2015). Furthermore, packaging, contrary to previous common perceptions, is not merely a tool for protecting the product inside, but it serves various functions such as encouraging customers to purchase the product and informing them about its features (Rahimnia et al., 2009). In this regard, slogans, logos, and

spatial design are also recognized as other important elements in differentiating a brand and its product. In this context, Hasanzadeh et al. (2022), in their research, stated that the elements of quality, price, appearance and packaging, fashion and diversity, advertising and easy access, and play an important role in purchasing from brands.

Intense competition among sports manufacturers and increasing production necessitate that markets compel their products to differentiate themselves from other competing companies and value them for their customers. However, innovation alone in goods and services will not lead to enduring and long-term competitive advantages, as these benefits are often quickly imitated and replicated, thus being short-term in nature. In markets where products and services continuously adapt and align with each other, a powerful brand may be the only characteristic that sets apart the offered goods or services from competitors (Rafiei & Hamkaran, 2012). Therefore, addressing the subject of sports brands and the strategies that need to be employed for their progress and development is highly important and vital. If the issues within the realm of sports brands are appropriately addressed and sufficient data exist to improve them, marketers not only fulfill the needs of their customers but also better understand and control the market by deriving insights from them. It is evident that by considering suitable and easier strategies, consumer buying behavior can be influenced. However, if this does not occur, it is highly likely that brands lose their competitive impact in the initial stages, subsequently lose their market share, and cease to exist due to the inability to sell their offered products (Almasi & Dadanesh, 2017).

Overall, the world of branding, especially in the sports sector, has become highly complex. A brand that stands out and attracts consumers is extremely valuable, as it can lead to increased market share, customer loyalty, and

profitability. The challenge that many sports brands' managers face is the power of brand discrimination in sports products. Brand discrimination refers to the ability of a brand to be clearly distinguished from its competitors in the minds of consumers. A brand emerges victorious in the realm of brand competition when it possesses strong brand discrimination. This allows the brand to be more easily recognized, remembered, and preferred by consumers. While there is a lack of specific research in the literature of sports management regarding the power of brand discrimination, significant attention has been given to understanding brand structures reflected in explicit measures such as attitudes, emotions, personality, and their mutual relationships. These studies have provided valuable insights into how consumers perceive and respond to sports brands. Considering the significant importance and utility of sports supplements in people's lives, this study aims to provide a more precise answer to the question through an implicit method and experimental design: Do brand elements such as logos, shapes, colors, slogans, and packaging enhance the brand discrimination of sports supplements in consumers? The results of this study would be beneficial for domestic and international sports supplement manufacturers to gain better insights into consumer behavior and predict their actions. Furthermore, this research focuses solely on the case study of creatine supplements and examines the mentioned brand elements within this specific supplement. Creatine is a widely used sports supplement that has been shown to enhance athletic performance and muscle growth. Understanding how brand elements impact the discrimination of creatine supplements could provide valuable insights for manufacturers and marketers in the sports nutrition industry. By exploring the influence of brand elements on the brand discrimination of creatine supplements, this study aims to contribute to the existing literature on sports branding and provide practical implications for

sports supplement companies. The findings could help these companies develop more effective branding strategies, leading to increased consumer engagement, loyalty, and ultimately, sales.

Materials and Methods

This research in a quantitative way and was a quantitative study that was applied in terms of its purpose and field-based in terms of its implementation method. The statistical population of this study consisted of all power sport athletes in Fars province who had at least won the first to third place in their respective sports at the national level. In the first stage, a visual questionnaire made in Porsline was used to identify two well-known and two unknown creatine brands, which was completed by 386 individuals. In the second stage, the measurement tools of the variables in this study included: a visual brand differentiation questionnaire constructed according to the standard protocol based on elements of color, slogan, logo, packaging, and environmental design, as well as a demographic characteristics questionnaire. The statistical sample in this part was a convenience sample selected from among athletes in the sports of weightlifting, wrestling, CrossFit, fitness, boxing, bodybuilding, and powerlifting in Fars province, and 80 individuals responded to the visual questionnaires of the study.

After developing the research instrument, to determine face and content validity, the questionnaire was provided to 10 sports management professors and doctoral students in sports management to obtain their expert opinions. In this study, Cronbach's alpha was used to determine reliability, and a reliability of 0.87 was established. The identification of famous and unknown brands was done through the Porsline visual questionnaire. Brand differentiation based on color, logo, slogan, packaging, and design elements was performed in the PsychoPy_2023.1.3 software. The description of the findings and data

categorization were conducted using descriptive statistics (SPSS 22 software).

Brand differentiation involved a series of tests that were presented via computer. In each trial, a target brand (a creatine sports supplement brand) was displayed at the top of the screen. After a specified time interval, a brand image was shown in the center of the computer screen for a set duration (response deadline). Participants indicated whether the brand image displayed in the center matched the target brand shown at the top of the screen or not. An inter-stimulus interval (ISI) occurred at the end of each trial (1700 milliseconds), which was defined either by the participant's response or the end of the response deadline, whichever occurred first. It is worth noting that during the ISI, the brand stimuli were removed from the screen.

Brand differentiation involved two types of trials. In trials with a target and match present, the brand name elements displayed on the screen were related to the target brand. In trials without a target and match, the brand name elements displayed on the screen belonged to a competitor brand. The number of trials in a

given activity was based on the number of brand stimuli in that activity. Each image related to a target brand (each selected brand name element) was shown multiple times in the target and match present trials. In the trials without a target and match, the non-target brand name stimuli were taken from competitor brands. For each target brand studied, the activity included an equal number of trials with and without the presence of a target and match, and the trial order was randomly determined for each participant. Therefore, although the ISI was fixed, meaning that participants could predict when a particular stimulus would appear (and thus show maximal attention); nonetheless, the randomized presentation of stimuli across trials ensured that participants could not predict which stimulus would appear in a given trial. Overall, there was no effective guessing strategy, as the overall probability of a target stimulus being displayed in a particular trial was exactly 50%.

Results

The descriptive indicators of individuals' age and their sports history are presented in Table 1.

Table 1. Demographic characteristics of research participants

Element / brand	Number	Average	Standard deviation	minimal	Maximum	crookedness	Elongation
Age	386	28.32	5.40	16	43	0.325	-0.391
Sports history	386	8.10	4.92	1	32	0.814	0.774

In Table 2, descriptive indices related to task outputs, namely the indices associated with the number of correct and incorrect responses and the average response time for logo, shape,

color, packaging, and spatial design elements related to well-known and unknown brands, are presented.

Table 2. Descriptive indices of task outputs based on element and brand, and the number of correct/incorrect responses

Element / brand	Average	Standard deviation	Elongation	crookedness	Maximum	Minimal
Package/unknown (number of	1.45625	.277805	20.527	-3.220	2.500	.000

correct answers)							
Package/unknown (number of wrong answers)	1.54375	.277805	20.527	3.220	3.000	.500	
space/unknown (number of correct answers)	1.45000	.204382	16.653	-4.174	1.500	.500	
Spacing/unknown (number of wrong answers)	1.55000	.204382	16.653	4.174	2.500	1.500	
color/unknown (number of correct answers)	1.43125	.294933	19.733	-4.520	1.500	.000	
color/unknown (number of wrong answers)	1.56875	.294933	19.733	4.520	3.000	1.500	
logo/unknown (number of correct answers)	1.51250	.428236	8.010	.695	3.000	.000	
logo/unknown (number of wrong answers)	1.48750	.428236	8.010	-.695	3.000	.000	
slogan/unknown (number of correct answers)	.70000	.543081	-.958	.294	2.000	.000	
slogan/unknown (number of wrong answers)	2.30000	.543081	-.958	-.294	3.000	1.000	
Packing/famous (number of correct answers)	1.36250	.263556	7.627	-2.325	1.500	.000	
Packaging/Famous (number of wrong answers)	.05625	.210391	28.794	4.908	1.500	.000	
Space/famous (number of correct answers)	1.01875	.542170	-.794	-.748	1.500	.000	
Space/Famous (number of wrong answers)	.37500	.518640	.007	1.152	1.500	.000	
color/famous (number of correct answers)	1.35625	.288972	6.171	-2.309	1.500	.000	
color/famous (number of wrong answers)	.05625	.238584	22.213	4.638	1.500	.000	
Slogan/ famous (number of correct answers)	1.35625	.227726	-1.112	-.957	1.500	1.000	
slogan/famous (number of wrong answers)	.06250	.166403	3.427	2.311	.500	.000	
Logo/ famous (number of correct answers)	1.33750	.261144	.725	-1.298	1.500	.500	
Logo/ famous (number of wrong answers)	.02500	.109660	16.117	4.209	.500	.000	

Packet/Unknown Response Time)	(Average	.80296	.057405	-.203	.490	.970	.702
Spacing/unknown reaction time)	(average	.82692	.070421	-.161	.308	.999	.700
color/unknown average reaction time)		.81149	.086427	2.951	1.172	1.144	.658
Logo/unknown (mean reaction time)		.81179	.083160	2.072	1.127	1.100	.683
slogan/unknown (average reaction time)		.97891	.103511	-.766	.247	1.192	.791
Packet/Popular (Average Response Time)		.83197	.074007	3.713	1.299	1.158	.691
Space/Famous (Average Reaction Time)		.93717	.100194	-.030	.570	1.181	.749
color/famous (average reaction time)		.81746	.071563	.288	.772	1.024	.709
Logo/ Famous (Average Reaction Time)		.84702	.063787	.455	.436	1.051	.720
slogan/famous (average reaction time)		.87464	.060456	-.589	-.057	1.010	.752

In this section, the results of a two-way repeated measures analysis of variance (ANOVA) with the factors of brand and elements are reported. This analysis aimed to examine the influence of different elements on brand distinctiveness in well-known and unknown sportswear brands. The brand factor consisted of two levels: well-known and unknown, while the elements factor consisted of five levels: logo, shape, color, packaging, and spatial design. The independent variables of brand and elements were considered, and the dependent variables of the number of correct responses, the number of incorrect responses, and the average response time of participants were taken into account. Based on the dependent variables, the corresponding results were reported in different sections.

Four response modes were considered in this section. In this section, the average number of

correct responses in the face of well-known brands such as BPI Sports and Iron Max was calculated. Additionally, the average number of correct responses for two unknown brands, Nutrimed and Magmom, was calculated. The results of the two-way repeated measures ANOVA with the factors of brand (well-known and unknown) and elements (logo, shape, color, packaging, and spatial design), considering the number of correct responses as the dependent variable, indicated a significant main effect of the elements factor, $F(4, 316) = 42.390$, $p < .001$, $\eta^2 = .349$. However, the main effect of the brand factor was not significant, $F(1, 79) = 0.533$, $p = .467$. The nonsignificance of the main effect of the brand factor suggests no significant difference in the correct responses when observing well-known and unknown brands, regardless of the elements. Additionally, the significant main effect of the elements factor indicates

a significant difference in the number of correct responses chosen by participants across different elements, irrespective of brand familiarity. To further examine the specific differences among different levels of brand elements and find which elements significantly differed in the number of correct responses, the results are presented in Table 3.

Moreover, there was a significant interaction effect between the brand and elements factors,

$F(4, 316) = 69.526, p < .001, \eta^2 = .468$, indicating that the number of correct responses by participants significantly differed when viewing elements related to well-known and unknown brands. In other words, while keeping one of the variables constant, the levels of the other variable may have a significant difference in the number of correct responses. To investigate this further, the post-hoc test results are presented in Table 4.

Table 3. The results of the follow-up test regarding the element agent, considering the dependent variable, are the number of correct answers

Element (1)	Element (2)	difference in averages	standard error	<i>p</i>	95% Confidence Interval	
					lower limit	upper bound
1	2	.175*	.038	.000	.066	.284
	3	.016	.021	1.000	-.046	.078
	4	-.016	.033	1.000	-.111	.080
	5	.381*	.040	.000	.266	.496
2	1	-.175*	.038	.000	-.284	-.066
	3	-.159*	.032	.000	-.253	-.066
	4	-.191*	.037	.000	-.298	-.084
	5	.206*	.046	.000	.073	.340
3	1	-.016	.021	1.000	-.078	.046
	2	.159*	.032	.000	.066	.253
	4	-.031	.032	1.000	-.124	.062
	5	.366*	.040	.000	.249	.482
4	1	.016	.033	1.000	-.080	.111
	2	.191*	.037	.000	.084	.298
	3	.031	.032	1.000	-.062	.124
	5	.397*	.042	.000	.276	.518
5	1	-.381*	.040	.000	-.496	-.266
	2	-.206*	.046	.000	-.340	-.073
	3	-.366*	.040	.000	-.482	-.249
	4	-.397*	.042	.000	-.518	-.276

Description: 1 = packaging, 2 = atmosphere, 3 = color, 4 = logo, 5 = slogan

Table 4. The results of the follow-up test related to brand factors and elements, considering the dependent variable of the number of correct responses

Elements	Brand (1)	Brand (2)	difference in averages	standard error	p	95% confidence interval	
						lower limit	upper bound
packaging	Unknown	famous	.094*	.040	.021	.014	.173
	famous	Unknown	-.094*	.040	.021	-.173	-.014
atmosphere	Unknown	famous	.431*	.064	.000	.304	.559
	famous	Unknown	-.431*	.064	.000	-.559	-.304
color	Unknown	famous	.075	.044	.090	-.012	.162
	famous	Unknown	-.075	.044	.090	-.162	.012
logo	Unknown	famous	.175*	.056	.002	.064	.286
	famous	Unknown	-.175*	.056	.002	-.286	-.064
slogan	Unknown	famous	-.656*	.064	.000	-.783	-.529
	famous	Unknown	.656*	.064	.000	.529	.783

As shown in Table 4, the participants have significantly different numbers of correct responses (all p s < 0.05) to the elements of logo, shape, packaging, and spatial design for both unknown and famous brands. However, the color element did not result in significantly different correct responses between the two unknown and famous brands ($p = 0.09$). Therefore, considering the recorded number of correct responses, it appears that the logo, shape, packaging, and spatial design elements have influenced brand discrimination in sports products, while the color element has not had a significant impact.

The output of the two-way repeated measures analysis of variance, considering the dependent variable of the number of incorrect responses, with the two brand factors (famous and unknown) and the elements (logo, shape, color, packaging, and spatial design), indicates the presence of the main effect of the brand factor, $F(1, 79) = 2350.457$, $p < .001$, $\eta^2 = .967$, along with the main effect of the element

factor, $F(4, 316) = 57.012$, $p < .001$, $\eta^2 = .419$. Thus, regardless of the brand elements, there is a significant difference in the number of incorrect responses recorded by individuals when responding to famous and unknown brands. Additionally, the number of incorrect responses recorded by the participants when observing different brand elements has significantly differed among the elements, regardless of the brand's level of fame. For further examination of these differences, the results of the follow-up test are presented in Table 5.

Furthermore, there was a significant interaction effect between brand factors and elements, $F(4, 316) = 79.478$, $p < .001$, $\eta^2 = .502$. This means that the number of incorrect responses recorded when encountering elements of famous and unknown brands varied among the different elements of famous and unknown brands. To further investigate these mentioned differences, the results of the follow-up test are summarized in Table 6.

Table 5. Results of the follow-up test related to the element factor, considering the dependent variable of the number of incorrect responses.

Element (1)	Element (2)	difference averages	in standard error	<i>p</i>	95% confidence interval	
					lower limit	upper bound
1	2	-.162*	.031	.000	-.252	-.073
	3	-.012	.017	1.000	-.060	.035
	4	.044	.025	.848	-.029	.116
	5	-.381*	.037	.000	-.487	-.275
2	1	.162*	.031	.000	.073	.252
	3	.150*	.028	.000	.070	.230
	4	.206*	.034	.000	.109	.303
	5	-.219*	.046	.000	-.351	-.086
3	1	.012	.017	1.000	-.035	.060
	2	-.150*	.028	.000	-.230	-.070
	4	.056	.026	.305	-.018	.130
	5	-.369*	.038	.000	-.478	-.259
4	1	-.044	.025	.848	-.116	.029
	2	-.206*	.034	.000	-.303	-.109
	3	-.056	.026	.305	-.130	.018
	5	-.425*	.037	.000	-.530	-.320
5	1	.381*	.037	.000	.275	.487
	2	.219*	.046	.000	.086	.351
	3	.369*	.038	.000	.259	.478
	4	.425*	.037	.000	.320	.530

Description: 1 = packaging, 2 = atmosphere, 3 = color, 4 = logo, 5 = slogan

Table 6. Follow-up Test Results Related to Brand Factors and Elements with Consideration of the Dependent Variable "Number of Wrong Answers"

Elements	Brand (1)	Brand (1)	difference averages	in standard error	<i>p</i>	95% confidence interval	
						lower limit	upper bound
packaging	1	2	1.488*	.042	.000	1.405	1.570
	2	1	-1.488*	.042	.000	-1.570	-1.405
atmosphere	1	2	1.175*	.062	.000	1.052	1.298

	2	1	-1.175*	.062	.000	-1.298	-1.052
color	1	2	1.513*	.038	.000	1.437	1.588
	2	1	-1.513*	.038	.000	-1.588	-1.437
logo	1	2	1.463*	.049	.000	1.364	1.561
	2	1	-1.463*	.049	.000	-1.561	-1.364
slogan	1	2	2.238*	.061	.000	2.116	2.359
	2	1	-2.238*	.061	.000	-2.359	-2.116

Description: 1 = Unknown, 2 = Famous

In Table 6, it can be observed that individuals have significantly different numbers of wrong answers (all p s < 0.001) for the elements of logo, shape, color, packaging, and spatial design of both unknown and famous brands. Thus, considering the number of wrong answers, the elements of logo, shape, color, packaging, and spatial design have had a significant impact on the brand discrimination power of sports products.

The findings of the two-way repeated measures analysis of variance, considering the repeated measurement of the dependent variable (average reaction time), with two brand factors (famous and unknown) and elements (logo, shape, color, packaging, and spatial design), revealed a significant difference between the levels of the brand factor, i.e., being famous or unknown, $F(1, 79) = 6.517$, $p < .05$, $\eta^2 = .076$. This indicates the presence of a difference

in average reaction times of participants when exposed to famous and unknown brands. Additionally, the main effect of the element factor was also significant, indicating a significant difference in average reaction times of participants to different brand elements, regardless of brand familiarity, $F(4, 316) = 80.120$, $p < .001$, $\eta^2 = .504$. The follow-up test results are shown in Table 7.

In addition to the above findings, there was also a significant interaction effect between the brand factors and elements, $F(4, 316) = 44.142$, $p < .001$, $\eta^2 = .358$. This significance indicates a significant difference in average reaction times of individuals when exposed to elements of both famous and unknown brands. To examine the details of the differences between different levels of brand factors and elements, Table 8, which presents the results of the follow-up test, is provided.

Table 7. Follow-up Test Results Related to the Element Factor with Consideration of the Dependent Variable "Average Reaction Time"

element (1)	element (2)	difference in averages	in standard error	p	95% confidence interval	
					lower limit	upper bound
	2	-.065*	.008	.000	-.042	-.087
1	3	.003	.007	1.000	.023	-.017
	4	-.012	.007	.979	.009	-.033
	5	-.109*	.008	.000	-.085	-.134

	1	.065*	.008	.000	.087	.042
2	3	.068*	.007	.000	.089	.046
	4	.053*	.007	.000	.072	.033
	5	-.045*	.009	.000	-.019	-.070
	1	-.003	.007	1.000	.017	-.023
3	2	-.068*	.007	.000	-.046	-.089
	4	-.015	.007	.281	.004	-.034
	5	-.112*	.009	.000	-.085	-.139
	1	.012	.007	.979	.033	-.009
4	2	-.053*	.007	.000	-.033	-.072
	3	.015	.007	.281	.034	-.004
	5	-.097*	.008	.000	-.075	-.120
	1	.109*	.008	.000	.134	.085
5	2	.045*	.009	.000	.070	.019
	3	.112*	.009	.000	.139	.085
	4	.097*	.008	.000	.120	.075

Description: 1 = packaging, 2 = atmosphere, 3 = color, 4 = logo, 5 = slogan

Table 8. Follow-up Test Results Related to Brand Factors and Elements with Consideration of the Dependent Variable "Average Reaction Time"

Elements	Brand (1)	Brand (2)	difference in averages	standard error	<i>p</i>	95% confidence interval	
						lower limit	upper bound
packaging	1	2	-.029*	.010	.007	-.050	-.008
	2	1	.029*	.010	.007	.008	.050
atmosphere	1	2	-.110*	.013	.000	-.137	-.083
	2	1	.110*	.013	.000	.083	.137
color	1	2	-.006	.011	.604	-.029	.017
	2	1	.006	.011	.604	-.017	.029
logo	1	2	-.035*	.011	.002	-.057	-.013
	2	1	.035*	.011	.002	.013	.057
slogan	1	2	.104*	.013	.000	.078	.131
	2	1	-.104*	.013	.000	-.131	-.078

Description: 1 = Unknown, 2 = Famous

As shown in Table 8, the average reaction time of participants to the elements of logo, shape, packaging, and spatial design of both unknown and famous brands has significantly differed (all p s < 0.01) between unknown and famous brands. However, the color element did not result in different reaction times or average response times between the two unknown and famous brands ($p = 0.60$). Therefore, the average reaction time or response of individuals indicated that the elements of logo, shape, packaging, and spatial design have had an influential impact on the brand discrimination power of sports products, while the color element did not have a significant effect.

Discussion

In general, in the bodybuilding supplement industry, brand discrimination of creatine supplements helps manufacturing companies to be perceived as a unique choice in the minds of customers. This brand discrimination directly impacts the company's financial performance positively because customers prefer brands that offer high value and quality, leading to increased trust and purchase intent. Additionally, brand discrimination in creatine supplements greatly assists manufacturers in attracting and retaining customers as customers seek unique experiences and products that only the desired brand provides. In line with this, the present study focused on brand discrimination of creatine sports supplements.

By analyzing the data and examining the impact of the logo on brand discrimination of creatine bodybuilding supplements, it was found that the logo plays a significant role in attracting attention and brand identification. Overall, a logo that is carefully designed selected, and executed in alignment with the brand's values and identity has the potential to differentiate the brand effectively. The logo, with its colors, shapes, font types, and other visual elements, can convey various messages

to the audience. A logo utilizing a harmonious combination of vibrant and appealing colors along with a unique shape can capture the audience's attention and remain a familiar and recognizable image in their minds.

Furthermore, a logo should effectively reflect the brand's personality and possess a lasting authenticity. Adaptability is also of great importance for a logo; it should be easily visible in various media and billboards, as well as displayed in different sizes and resolutions without losing quality. Colors and visual attractiveness are crucial in logo design; the colors used should be in harmony with the brand's distinctiveness and create a direct connection with the brand. Ultimately, the combination of symbol and brand name in a logo strengthens brand discrimination and aids in brand recognition.

Essentially, a logo acts as a key element in brand identification and discrimination from competitors. By using a suitable and recognizable logo, a creatine supplement brand establishes a special place in the minds of consumers and stands out from its counterparts. This discrimination is highly regarded as a strategic tool for attracting customers and building an emotional connection with them. Therefore, it is recommended that companies and creatine supplement brands make efforts in designing and utilizing a unique and recognizable logo. Additionally, attention to the selection of colors and visual elements that align with the brand's values and identity is crucial. In this regard, a logo plays a vital role in differentiating a creatine supplement brand. The significance of a logo in brand discrimination has also been emphasized in the current research. Creatine supplement brands should consider simplicity and readability in their logo design to ensure easy recognition and lasting impact on the minds of their audience.

Based on the research findings, slogans

also have a considerable impact on differentiating a creatine supplement brand and should be given attention. Essentially, slogans are powerful tools in marketing and brand discrimination. A slogan acts as a short and expressive sentence that offers unique value to customers. Slogans typically summarize and highlight the features, benefits, values, or characteristics of a brand. Well-crafted slogans can create competitive discrimination for a brand and play a key role in defining brand identity and discrimination, distinguishing the brand from competitors. Therefore, considering the importance and impact of slogans, designing and selecting a unique and compelling slogan for creatine supplement products is crucial. Slogans have a significant influence on customers' decision-making process when choosing a product and their lack of interest in other products. An attractive and relevant slogan captures customers' attention, builds trust, fosters a strong connection with customers, and ultimately helps in choosing the brand's product over competitors. Furthermore, if a brand's slogan accurately and conveys the features and benefits of creatine supplements and aligns with the product's performance and quality, it increases customer trust and shapes brand discrimination.

Choosing a unique and appealing slogan for creatine bodybuilding supplements can be somewhat challenging. First and foremost, it is important to thoroughly identify the market and target customers of the product. Through research, market analysis, and a comprehensive understanding of customers' needs, problems, and desires, one can gain a precise and comprehensive understanding. In general, creatine bodybuilding supplements have features and benefits that differentiate them from other similar products. By identifying these features and incorporating them into the selection of an appropriate slogan, the brand can ultimately stand out through its slogan. Additionally, the slogan should be aligned with

the product brand's identity and values. If the brand's focus is on supporting customers in achieving their fitness goals, the desired slogan should convey this message. Creativity and authenticity in selecting a slogan are also crucial, and generic and repetitive phrases should be avoided. After creating a slogan, it should be tested with the target audience and customers. Receiving feedback from customers and making possible adjustments provides the groundwork for selecting an appropriate slogan and differentiating the brand of the product. It is necessary to consider these findings in the selection of a slogan for creatine bodybuilding supplements, based on the research results.

Packaging also plays a crucial role in brand discrimination for creatine bodybuilding supplements. Elements such as sleek and unique design, the use of attractive and harmonious colors, strong symbols and logos, the selection of high-quality packaging materials, and clear and informative display of product information enhance the brand discrimination of creatine bodybuilding supplement packaging. The packaging of creatine bodybuilding supplements conveys the brand's value and concept to customers. The packaging design and the use of high-quality materials demonstrate that the brand places great importance on the details and quality of its products. Additionally, conveying brand values through packaging includes considerations for connection with the natural environment, importance placed on sustainability, and alignment with social and environmental standards. Such connections ultimately foster an emotional connection between customers and the brand. The research findings in this area align with Akar (2012), highlighting the importance of spatial design in brand discrimination.

Spatial design in branding is also a vital and significant element in marketing and brand building. This process involves the use of design elements such as colors, shapes,

symbols, and fonts to create a distinct and recognizable visual identity for the brand. Essentially, spatial design strengthens brand awareness, creates an emotional connection with customers, and has a greater impact on the customer's mindset. Through appropriate spatial design, a brand can create a unique and distinctive image in the minds of customers and differentiate itself significantly from competitors. The visual design elements used in spatial design require a harmonious combination to reflect the brand identity and establish a proper connection with customers. Given that the impact of spatial design on brand discrimination for creatine supplements was confirmed in the current research, it is essential to pay increased attention to this element in the creatine bodybuilding supplement industry.

The packaging should be in appropriate sizes and enhance user experience and convenience. Additionally, packaging plays a crucial role in conveying essential product information to consumers. This information generally includes the benefits, drawbacks, features, and standard instructions for using creatine supplements. Clear and concise labeling, stating nutritional facts, ingredients, and any certifications or endorsements on the packaging, increases the brand's credibility and helps consumers make informed decisions. Essentially, packaging plays a significant role in capturing the attention of the audience and standing out on the shelves of supplement providers. In a competitive market where similar and numerous products vie for attention, an eye-catching and well-designed packaging provides a platform for brand discrimination. The appropriate packaging should evoke a sense of energy, power, and physique alignment with the brand's position in the bodybuilding industry.

Color, as a visual element, is indeed crucial in brand recognition and discrimination, and it is utilized in marketing. Every brand strives to create its own identity and visual recognition

in the minds of customers by using unique and distinctive colors. However, despite the importance of this aspect, according to the findings of the current research, color does not have a significant impact on brand discrimination for creatine bodybuilding supplements. When choosing a creatine supplement, the brand's color is merely a secondary factor and does not have a significant influence on customers' decisions. Essentially, brand discrimination and credibility for creatine supplements rely more on factors such as product quality, packaging, slogans, logos, innovation, added value, spatial design, customer experience, and marketing strategies. Color may play a role as an effective visual element in brand recognition for creatine supplements, but ultimately, its impact rarely creates significant differences in brand discrimination.

Finally, it is recommended that creatine sports supplement manufacturing companies pay more attention to the attractive and unique packaging of their products. In this regard, the use of patterns and symbols that are consistent with the company's identity and mission is recommended. Additionally, the use of high-quality packaging materials that are suitable for the product is of utmost importance. It is also suggested that manufacturing companies create an appropriate and memorable slogan that generates positive feedback from customers. The slogan should clearly and concisely convey the brand's concept and elicit a sense of satisfaction in customers.

Conclusion

In general, considering the research results, it can be said that elements such as logo, shape, packaging, and spatial design have an impact on the power of brand discrimination for sports supplements. Regarding the influence of the color element on the power of brand discrimination for sports supplements, the results were inconclusive. The number of correct responses and average response time for

well-known and unknown brands indicated the insignificance of the color element, while the number of incorrect responses by individuals reflected the influence of color. Given the significant difference between the recorded incorrect responses to well-known and unknown brands, it seems that the number of incorrect responses best demonstrates the discrimination in responding to well-known and unknown brands. Therefore, the degree of impact of logo, shape, packaging, and spatial design on the power of brand discrimination for sports supplements exceeds that of the color element, which should be taken into consideration.

Acknowledgement

In the present study, there are no conflicts of interest, and all authors have contributed to the research.

References

- [1] Almasi, S., zamany dadaneh, K., Eydi, H., & Fern´andez, J. G. (2020). The mediator role of brand-awareness and brand image in the relationship between the advertisement-awareness and the brand equity. *Sports Marketing Studies*, 1(3), and 190-155.
- [2] Azadi, R., Yousefi, B., & Eydi, H. (2017). Evaluating Brand Equity and Its Determinants in Sportswear Industry (A Comparison of Iranian and Foreign Authentic Sport Brands). *Sport Management Journal*, 9(3), 515-529.
- [3] Azizi Manesh., A. (2014). Investigating the Effect of Special Brand Value on Customer Behavioral Responses in Case Study Services Case Study: Iranian Insurance Customers in Tehran, 2nd International Conference on Modern Research in Management, Economics and Accounting, Kuala Lumpur, Malaysia.
- [4] Baran, S. J., Davis, D. K., & Striby, K. (2012). Mass communication theory: Foundations, ferment, and future.
- [5] Brady, J. (2022). "The Most Wonderful Specimen of Man" Eugen Sandow, Science, and Selling the Muscular Body. *Journal of Sport History*, 49(3), 221-248.
- [6] Carey, C. C., Doyle, L., & Lucey, A. (2023). Nutritional priorities, practices and preferences of athletes and active individuals in the context of new product development in the sports nutrition sector. *Frontiers in sports and active living*, 5, 1088979.
- [7] Elmia, Rasa (2015). The effect of customer's attitude towards the logo on reputation with an emphasis on the role of the company's image, Master's Thesis of Business Administration, Al-Zahra University (S).
- [8] Hasanzadeh, S. J., Nobakhat, F., & Zare Abandansari, M. (2022). Customers' Buying Intention on Sports Products Domestic Brands. *Sports Business Journal*, 2(2), 217-227.
- [9] Hasibuan, Y. R., & Belgiawan, P. F. (2023). Analyzing Factors Influencing Purchase Intention for Crevolene Products from Evolene Company: A Study on Brand, Packaging, Promotion, Price, and Quality. 6(6), 3664-3672.
- [10] Keller, K. L. (2000). The brand report card. *Harvard business review*, 78(1), 147-147.
- [11] Lenzi, J. L., Teixeira, E. L., de Jesus, G., Schoenfeld, B. J., & de Salles Painelli, V. (2021). Dietary strategies of modern bodybuilders during different phases of the competitive cycle. *The Journal of Strength & Conditioning Research*, 35(9), 2546-2551.

- [12] Louvet, D. (2023). The effects of brand equity on millennials' purchase decision for sports nutrition products in Ireland. *DBS Business Review*, 5.
- [13] Manoli, A. E. (2022). Strategic brand management in and through sport. *Journal of Strategic Marketing*, 1-8.
- [14] Martini, K. R., & Rustiadi, S. (2024). Developing Marketing Strategy to Acquire Potential Customers Under 35 Years Old for Dietary Supplements Company: Case Study of 4Life Indonesia. *International Research Journal of Economics and Management Studies IRJEMS*, 3(1).
- [15] Muhammad, S. A., & Muath, L. S. (2018). Impact of brand elements on brand equity: An applied study on Jordanian corporations. *African Journal of Marketing Management*, 10(3), 17-27.
- [16] Molinero, O., & Márquez, S. (2009). Use of nutritional supplements in sports: risks, knowledge, and behavioural-related factors. *Nutricion hospitalaria*, 24(2), 128-134.
- [17] Mohsan, M. A. U. H., & Hassoni, A. A. A. (2022). The effect Demarketing strategy on repurchase intentions an analytical study of the opinions of a sample of nutritional supplement users who frequent bodybuilding centers in Al-Qadisiyah Governorate. *AL-Qadisiyah Journal for Administrative and Economic sciences*, 24(2).
- [18] Rafiei, S., haghghi nasab, M., & Yazdani, H. R. (2013). The effect of marketing-mix efforts and corporate image on brand equity in the IT software sector. *New Marketing Research Journal*, 2(4), 182-195.
- [19] Rahimnia, F. R., Mortazavi, S., & Alavi, S. M. (2009). Impact of Discrimination Strategy of Porter on Organizational Performance via Goods Packaging in Nutrition Companies of Astan Ghods Razavi. *Journal of Business Management*, 1(3).
- [20] Rezaei soufi, M., Khodsparast, S., & mohamadi, S. (2021). The Impact of Corporate Social Responsibility Measures on Brand Love for Sport Teams. *Sports Marketing Studies*, 2(3), 123-152.
- [21] SHAHBAZI, M., choobineh, S., & ezzati, R. (2020). Psychological Pathology and Prevalence Sports Supplements among Female Athletes. *Sport Psychology Studies*, 8(30), 57-76.
- [22] Stokburger-Sauer, N., Ratneshwar, S., & Sen, S. (2012). Drivers of consumer-brand identification. *International journal of research in marketing*, 29(4), 406-418.
- [23] Sweeney, J., & Swait, J. (2008). The effects of brand credibility on customer loyalty. *Journal of retailing and consumer services*, 15(3), 179-193.
- [24] Wahba, R. (2018). *Labelling Approaches for Supplemented Foods* (Doctoral dissertation, Université d'Ottawa/University of Ottawa).
- [25] Zaichkowsky, J. L., Parlee, M., & Hill, J. (2010). Managing industrial brand equity: Developing tangible benefits for intangible assets. *Industrial marketing management*, 39(5), 776-783.
- [26] Zarei, A., Maleki minbashi, M., & Rahmani, T. (2015). Investigation of the Effect of Color Preferences on Product Preferences with the Moderating Role Demographic Factors) Case Study: Sport Shoe Buyers). *Journal of Color Science and Technology*, 9(4), 321-332.