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## YouTube as a source of information on orbital blow-out fractures: a quality assessment using standardized scoring tools

YouTube and orbital fracture content quality

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### Abstract

**Aim:** To conduct the first systematic evaluation of YouTube videos on orbital blow-out fractures, using validated tools to assess their educational quality and reliability.

**Methods:** A structured YouTube search was conducted using relevant keywords to identify videos on orbital blow-out fractures. A total of 100 English-language videos were included based on predefined inclusion criteria. Each video was independently evaluated by two ophthalmologists using three validated tools: the DISCERN instrument, Global Quality Score (GQS), and JAMA Benchmark Criteria. Video characteristics, including source, content type, and narration format, were also recorded and analyzed.

**Results:** GQS scores indicated that 51% of videos were high quality, 27% were low quality, and 22% were moderate quality. Videos from healthcare professionals and academic sources achieved significantly higher scores. Educational and surgical demonstration videos outperformed patient testimonials ( $P < .001$ ). No correlation was found between viewership metrics and quality.

**Conclusion:** This is the first study to systematically assess YouTube content on orbital blow-out fractures. Despite its accessibility, YouTube hosts highly variable content quality, underscoring the need for expert-driven, evidence-based educational materials.

### Keywords

orbital blow-out fracture, YouTube, health information quality, Global Quality Score (GQS), patient education

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Introduction

Orbital blow-out fractures are among the most frequently encountered types of orbital trauma and typically result from blunt-force impact to the periorbital region. These fractures

primarily affect the orbital floor and medial wall, where the thin bony structure makes the area particularly susceptible to injury.<sup>1</sup> Clinically, blow-out fractures may lead to a variety of ocular and orbital complications, including enophthalmos, diplopia, restricted ocular motility, hypoglobus, and infraorbital nerve hypoesthesia.<sup>2</sup> Early and accurate diagnosis—most reliably achieved via non-contrast computed tomography (CT)—is critical for identifying soft tissue entrapment or herniation and guiding timely surgical intervention.<sup>3</sup> Treatment modalities range from conservative management to surgical reconstruction, depending on the extent of the defect and the presence of functional disturbances such as persistent diplopia or significant enophthalmos.<sup>4</sup> Despite advancements in surgical techniques, including transconjunctival approaches and biocompatible implants, many patients continue to seek additional information about their diagnosis and treatment options online.<sup>5</sup> In this digital age, YouTube has become one of the most frequently accessed platforms for medical information by patients and healthcare professionals alike. Its ease of access, global reach, and audiovisual format make it especially appealing for topics involving anatomy, trauma, and surgical procedures.<sup>6</sup> However, the absence of peer review or quality-control mechanisms raises significant concerns about the reliability and educational value of the content shared on the platform.<sup>7</sup> Previous studies assessing YouTube videos in ophthalmology and surgical specialties have consistently reported poor overall video quality, limited referencing of scientific sources, and low scores on standardized evaluation tools.<sup>8-10</sup> These findings underscore the need for systematic evaluation of video content, especially in conditions that require precise anatomical understanding and timely surgical decision-making, such as orbital fractures. To the best of our knowledge, this is the first study to provide a structured, systematic evaluation of YouTube videos on orbital blow-out fractures, focusing on their quality, reliability, accuracy, and educational value, using validated scoring systems.

The aim of this study was to systematically evaluate the quality, reliability, and educational value of YouTube videos on orbital blow-out fractures using validated assessment tools (DISCERN, Global Quality Score, and JAMA Benchmark Criteria) and to examine the association between video characteristics and educational quality.

Materials and Methods

Search Strategy and Video Selection

A systematic search was performed on YouTube ([https:// www.youtube.com](https://www.youtube.com)) on April 5, 2025, using the following keywords: “blow-out fracture,” “orbital floor fracture,” “orbital wall fracture,” and “orbital fracture surgery”. Searches were conducted in an incognito browser window after clearing cookies and search history to minimize algorithmic and location- based personalization bias. The default sorting filter, “sort by relevance,” was used, consistent with previous analyses of YouTube-based medical content.<sup>11</sup> For each keyword, the first 50 videos were screened, yielding an initial pool of 200. After applying exclusion criteria and removing duplicates, 100 unique videos were included for final evaluation.

Inclusion Criteria:

- Videos in English
- Duration of 60 seconds or longer
- Relevant to orbital blow-out fractures in terms of diagnosis,

clinical explanation, or surgical management

- Contain audio narration and/or subtitles
- Freely accessible without login or subscription

Exclusion Criteria:

- Non-medical or unrelated content (e.g., general trauma, plastic surgery, humor videos)
- Purely promotional or commercial advertisements
- Duplicate videos appearing under multiple keywords
- Videos with no narration, subtitles, or intelligible educational content
- Videos in languages other than English
- Videos shorter than 60 seconds were excluded, as such brief clips typically lack sufficient content for reliable assessment with standardized tools such as DISCERN, JAMA, and GQS.<sup>12</sup>

Video Characteristics

For each video, the following descriptive data were recorded: title and URL, duration (in seconds), number of views, likes, dislikes, and comments, upload date and time since upload (in days), source category (health professional, academic institution, commercial, patient, or other), content type (educational, surgical demonstration, testimonial, or animation), and narration type (verbal, subtitles, or both).

Scoring Tools: Each Video Was Evaluated Independently by Two Ophthalmologists Using the Following Validated Tools:

- Global Quality Score (GQS): A five-point Likert scale assessing overall educational quality, flow, and usefulness of the video. Scores range from 1 (poor) to 5 (excellent).<sup>11</sup>
- JAMA Benchmark Criteria: This tool includes four criteria—authorship, attribution, disclosure, and currency- each scored as 0 or 1, for a total maximum of 4 points.<sup>13</sup>
- DISCERN Instrument: A validated 15-item tool developed at Oxford University to evaluate the quality and reliability of consumer health information about treatment options, with each item rated from 1 (low) to 5 (high), total score range 15–75.<sup>12</sup>

Two independent ophthalmologists reviewed all videos using the DISCERN, JAMA, and GQS scoring systems. Cohen’s kappa coefficient was calculated to assess inter-rater reliability, revealing high agreement across all domains ( $\kappa > 0.80$ ). Discrepant scores were reconciled through joint review and consensus.

Ethical Approval

Not required

Statistical Analysis

Quantitative variables were presented as mean  $\pm$  standard deviation (SD). The Fisher’s exact test (used when sample sizes were small) and the Chi-square test were employed to evaluate differences in proportions and relationships between categorical variables. To compare group means, the Kruskal-Wallis H test was used when the assumptions of normality and homogeneity of variance were not satisfied. For multiple comparisons among groups, the Bonferroni post hoc correction method was applied. A *P* value of  $< 0.05$  was considered statistically significant. All statistical analyses were performed using IBM SPSS Statistics for Windows, Version 21.0 (IBM Corp., Armonk, NY, USA).

Reporting Guidelines

This study was reported in accordance with the STROBE guideline.

**Table 1.** Baseline Characteristics of the Included YouTube Videos Categorized by Source Category, Content Type, Narration Type, Search Term, and GQS-Based Quality Classification

| Parameter         | Group                    | n (%)      |
|-------------------|--------------------------|------------|
| Source_category   | Health professional      | 21 ( 21.0) |
|                   | Other                    | 21 ( 21.0) |
|                   | Commercial               | 20 ( 20.0) |
|                   | Patient                  | 20 ( 20.0) |
|                   | Academic institution     | 18 ( 18.0) |
| Content_type      | Educational              | 36 ( 36.0) |
|                   | Animation                | 30 ( 30.0) |
|                   | Surgical demonstration   | 24 ( 24.0) |
|                   | Patient                  | 10 ( 10.0) |
| Narration_type    | Both                     | 30 ( 30.0) |
|                   | Subtitles                | 27 ( 27.0) |
|                   | None                     | 22 ( 22.0) |
| Search_term       | Verbal                   | 21 ( 21.0) |
|                   | Orbital floor fracture   | 27 ( 27.0) |
|                   | Orbital fracture surgery | 26 ( 26.0) |
|                   | Orbital wall fracture    | 25 ( 25.0) |
| GQS_based_quality | blow-out fracture        | 22 ( 22.0) |
|                   | High quality             | 51 ( 51.0) |
|                   | Low quality              | 27 ( 27.0) |
|                   | Moderate quality         | 22 ( 22.0) |

**Abbreviations:** GQS, Global Quality Score

**Results**

Baseline characteristics related to source category, content type, narration type, search terms, and GQS-based quality classification are summarized in Table 1. Health professionals (21%) and other sources (21%) were the most common uploaders, followed by commercial sources (20%) and patient uploads (20%). Academic institutions accounted for 18% of the videos. Educational content constituted the largest group (36%), followed by animation videos (30%), surgical demonstrations (24%), and patient testimonial videos (10%). Regarding narration type, videos with both verbal narration and subtitles were the most frequent (30%), followed by videos with only subtitles (27%), no narration (22%), and only verbal narration (21%). In terms of search terms, videos retrieved using “orbital floor fracture” (27%) and “orbital fracture surgery” (26%) were the most prevalent. According to the GQS-based quality classification, 51% of the videos were classified as high quality, 27% as low quality, and 22% as moderate quality. The distribution of upload years among the included videos showed that most were uploaded between 2015 and 2025. The most frequent upload year was 2018 (14%), followed by 2023 (13%), 2017 (12%), and 2019 (12%). Videos uploaded in 2016 (11%) and 2020 (10%) also accounted for notable proportions, while relatively fewer were uploaded in 2022 (7%), 2015 (6%), and 2021 (6%). Only a small number of videos were uploaded in 2024 (5%) and 2025 (4%). The mean number of comments was 50.94±29.34, with a median of 51.5 (range, 1–98). The mean DISCERN score was 48.38±17.81, and the median was 53.5 (range, 15–75). The mean video duration was 923.99±487.74 seconds, with a median of 934.5 seconds (range, 74–1751). The mean GQS score was 3.32±1.31, and the median was 4 (range, 1–5). The mean JAMA

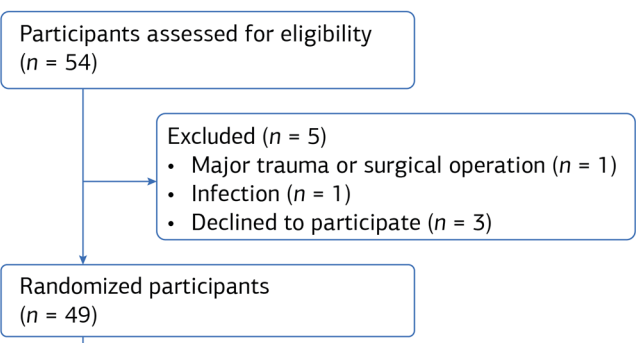


**Figure 1.** (a) Distribution of included YouTube videos according to content type. Educational videos constituted the largest proportion, followed by animations, surgical demonstrations, and patient testimonials.

(b) Distribution of included YouTube videos according to search terms. The most common search term was “orbital floor fracture,” followed closely by “orbital fracture surgery,” “orbital wall fracture,” and “blow-out fracture.”

score was 2.33±1.29, with a median of 3 (range, 0–4). The mean number of likes was 1187.33±1129.53, and the mean number of views was 48,188.31±28,992.96.

The distribution of the included YouTube videos by content type and search terms is shown in Figure 1.

Educational videos accounted for the largest share of content types, followed by animations, surgical demonstrations, and patient testimonial videos. Regarding search terms, “orbital floor fracture” and “orbital fracture surgery” were the most frequently used keywords, followed by “orbital wall fracture” and “blow-out fracture.” When the characteristics of the videos were compared based on search terms, no statistically significant differences were observed in the number of comments ( $P = .255$ ), DISCERN scores ( $P = .902$ ), video duration ( $P = .850$ ), GQS scores ( $P = .451$ ), JAMA scores ( $P = .795$ ), number of likes ( $P = .160$ ), or number of views ( $P = .501$ ). Similarly, no significant differences were found between search-term groups for source category ( $P = .494$ ), content type ( $P = .445$ ), narration type ( $P = .546$ ), or GQS-based quality classification ( $P = .261$ ). In contrast, significant differences were observed in video characteristics when analyzed by content type (Table 2).

DISCERN scores were significantly higher for surgical demonstration videos than for animation and educational videos, with patient testimonial videos exhibiting the lowest scores ( $P < .001$ ). GQS scores also significantly differed across content types, with surgical demonstrations and animations achieving higher scores than patient testimonials ( $P < .001$ ). Similarly, JAMA scores were significantly higher for surgical demonstration and educational videos than for patient testimonial videos ( $P < .001$ ). No significant differences were observed between content types in terms of the number of comments ( $P = .234$ ), video duration ( $P = .480$ ), number of likes ( $P = .075$ ), or number of views ( $P = .222$ ). Regarding the association between content type and GQS-based quality classification (Table 3), a statistically significant difference was identified ( $P < .001$ ). To further contextualize these findings, among the 100 evaluated YouTube videos on orbital blow-out fractures, just over half (51%) met high-quality standards, while more than one-quarter (27%) were rated as low quality. Notably, all patient-uploaded testimonial videos were classified as low quality. In contrast, surgical demonstration videos achieved the highest proportion of high-quality ratings (75%). Videos uploaded by healthcare professionals and academic institutions consistently scored higher across DISCERN, GQS, and JAMA criteria, underscoring their importance in delivering reliable content. These

**Table 2.** Comparison of Video Quality Scores and Characteristics Across Different Content Types

| Content type | Animation (n = 30)         | Educational (n = 36)          | Patient (n = 10)             | Surgical demonstration (n = 24) | P value  |
|--------------|----------------------------|-------------------------------|------------------------------|---------------------------------|----------|
| Comments     | 50.67 ± 28.41              | 45.53 ± 29.63                 | 66.4 ± 26.55                 | 52.96 ± 30.35                   | .234(k)  |
|              | 53.5 (31.5 - 75.75)        | 43 (22 - 69.5)                | 74 (55.75 - 80.75)           | 53.5 (27.75 - 75)               |          |
| Discern      | 48.9 ± 18.22               | 49.14 ± 16.49                 | 24.3 ± 5.66                  | 56.63 ± 14.03                   | <.001(k) |
|              | 55 (37 - 65)               | 47.5 (40.75 - 61.25)          | 23.5 (20.5 - 28.75)          | 58.5 (54.25 - 67.5)             |          |
| Duration_sec | 1030.4 ± 479.08            | 914.94 ± 514.79               | 853.5 ± 454.16               | 833.92 ± 474.42                 | .48(k)   |
|              | 1135 (650.25 - 1392)       | 902.5 (467.75 - 1392)         | 959.5 (445.5 - 1183.25)      | 745 (468.25 - 1265.75)          |          |
| Gqs          | 3.2 ± 1.32                 | 3.5 ± 1.16                    | 1.4 ± 0.52                   | 4.0 ± 0.93                      | <.001(k) |
|              | 3 (2.25 - 4)               | 4 (3 - 4)                     | 1 (1 - 2)                    | 4 (3.75 - 5)                    |          |
| Jama         | 2.43 ± 1.3                 | 2.56 ± 1.11                   | 0.4 ± 0.52                   | 2.67 ± 1.09                     | <.001(k) |
|              | 3 (1.25 - 3)               | 3 (2 - 3)                     | 0 (0 - 1)                    | 3 (2 - 3)                       |          |
| Likes        | 1023.87 ± 1034.53          | 1020.69 ± 1111.93             | 1062.6 ± 991.29              | 1693.58 ± 1234.39               | .075(k)  |
|              | 804 (288.75 - 1332)        | 481 (197.5 - 1642)            | 903.5 (218.5 - 1541.25)      | 1184.5 (940.5 - 2239.25)        |          |
| Views        | 44293.73 ± 29528.19        | 44192.22 ± 30534.49           | 49473.3 ± 27307.2            | 58515.25 ± 25523.72             | .222(k)  |
|              | 42061.5 (19792 - 71320.25) | 46567.5 (17024.75 - 65474.25) | 48752.5 (40453.25 - 65914.5) | 57352.5 (44125.75 - 79479.5)    |          |

Abbreviations: SD, Standard deviation; GQS, Global Quality Score; JAMA, Journal of the American Medical Association Benchmark Criteria. Stats, Mean ± SD/Median (IQR), (k) Kruskal Wallis Test

**Table 3.** Comparison of Source Category, Narration Type, and GQS-Based Quality Classification Across Different Content Types

| Content_type      |                      | Animation | Educational | Patient       | Surgical demonstration | P value  |
|-------------------|----------------------|-----------|-------------|---------------|------------------------|----------|
| Source_category   | Academic institution | 5 (16.7)  | 8 (22.2)    | 1 (10.0)      | 4 (16.7)               | .683**   |
|                   | Commercial           | 8 (26.7)  | 8 (22.2)    | 2 (20.0)      | 2 (8.3)                |          |
|                   | Health professional  | 6 (20.0)  | 9 (25.0)    | 3 (30.0)      | 3 (12.5)               |          |
|                   | Other                | 5 (16.7)  | 5 (13.9)    | 2 (20.0)      | 9 (37.5)               |          |
|                   | Patient              | 6 (20.0)  | 6 (16.7)    | 2 (20.0)      | 6 (25.0)               |          |
| Narration_type    | Both                 | 8 (26.7)  | 10 (27.8)   | 3 (30.0)      | 9 (37.5)               | .898**   |
|                   | None                 | 8 (26.7)  | 6 (16.7)    | 2 (20.0)      | 6 (25.0)               |          |
|                   | Subtitles            | 6 (20.0)  | 13 (36.1)   | 3 (30.0)      | 5 (20.8)               |          |
|                   | Verbal               | 8 (26.7)  | 7 (19.4)    | 2 (20.0)      | 4 (16.7)               |          |
|                   | High quality         | 14 (46.7) | 19 (52.8)   | 0 (0.0)**     | 18 (75.0)              |          |
| Gqs_based_quality | Low quality          | 8 (26.7)  | 7 (19.4)    | 10 (100.0)*** | 2 (8.3)                | < .001** |
|                   | Moderate quality     | 8 (26.7)  | 10 (27.8)   | 0 (0.0)       | 4 (16.7)               |          |

Stats, n (%); Abbreviations: GQS, Global Quality Score.  
\*Pearson Chi-Squared Test; \*\*, No high-quality videos were identified in the patient group; \*\*\*, All videos in the patient group were categorized as low quality.

findings highlight the variability of online medical information and the need for professional content creation in ophthalmology.

Discussion

To our knowledge, this is the first study to systematically evaluate the quality and reliability of YouTube videos specifically focused on orbital blow-out fractures, a critical yet underrepresented topic in online health education. Using validated assessment tools (DISCERN, GQS, and JAMA benchmarks), we found that only half of the reviewed videos met high-quality standards, while a significant proportion lacked essential educational value. Videos produced by patients or commercial sources were particularly unreliable, underscoring the need for professional oversight of digital medical

content. YouTube is a major video-sharing platform where users can upload content, engage with videos through comments and votes, and subscribe to various channels. As of early 2025, YouTube boasts over 2.5 billion monthly active users—approximately one-third of the global population—who collectively watch more than 1 billion hours of video each day. The platform is accessible in over 100 countries and supports more than 80 different languages. Increasingly, YouTube has become a significant source of health-related information and medical guidance for patients and the general public. Reports suggest that approximately 80% of Internet users search for health information online, with YouTube being the second-most-visited website globally. Notably, patients with chronic illnesses often rely heavily on YouTube and other internet-based resources for health information.<sup>14</sup>

Our findings demonstrated that while a subset of videos displayed acceptable quality, the overall educational value and reliability were moderate to low. These results are consistent with previous analyses of YouTube medical content across various specialties, where substantial heterogeneity and overall suboptimal quality have been repeatedly observed.<sup>15-21</sup>

A systematic review by Madathil et al. similarly reported that health-related videos on YouTube often present anecdotal, non-scientific, and unreliable information, posing potential risks to patient education.<sup>22</sup> Moreover, Gabarron et al. emphasized the absence of standardized evaluation criteria for YouTube health content, highlighting that popularity metrics such as view counts and likes do not necessarily reflect educational quality.<sup>23</sup> Building upon these observations, a recent systematic review by Osman et al. further corroborates the finding that the majority of health-related YouTube videos are of average or below-average quality, regardless of their popularity metrics such as views and likes.<sup>24</sup>

Prior investigations have shown that YouTube videos covering orthopedic and ophthalmologic topics frequently suffer from incomplete, outdated, or inaccurate information. Kunze et al. found that ACL rehabilitation videos on YouTube lacked scientific accuracy and educational depth, while Sasse et al. demonstrated similar concerns for videos on autoimmune diseases.<sup>15,16</sup> Studies on orthopedic trauma topics, including distal radius fractures and ankle fractures, similarly emphasized major shortcomings in video quality. Additionally, Garip et al. and Schrenk et al. reported inconsistent quality and reliability among ophthalmology-related YouTube content.<sup>17,18</sup>

In our study, videos classified as educational or surgical demonstrations achieved significantly higher DISCERN, GQS, and JAMA scores than patient testimonial videos, underscoring the importance of professional involvement in creating high-quality educational material. Moreover, consistent with observations by Osman et al., we found that the number of views or likes did not reliably indicate higher educational quality.<sup>24</sup>

Nevertheless, even professionally produced videos exhibited substantial variability, further corroborating previous findings.<sup>15-22</sup>

To the best of our knowledge, this is the first study in the literature to systematically assess the quality and reliability of YouTube videos that specifically address orbital blow-out fractures. Although prior studies have explored the quality of YouTube content on orthopedic, ophthalmologic, and dermatologic conditions, none have focused on this specific subset of facial trauma.<sup>14,17-20</sup> By addressing this critical gap, our study provides novel insights into the current state of educational material available online for orbital blow-out fractures.

Several strengths support the robustness of our findings. We employed a comprehensive and systematic search strategy using multiple related search terms, applied validated quality assessment tools (DISCERN, GQS, and JAMA criteria), and analyzed a relatively large sample of videos. However, some limitations should also be acknowledged. YouTube's search results are dynamic and may change over time due to platform algorithm updates. Additionally, the exclusion of non-English videos limits the generalizability of our results to multilingual or non-English-speaking populations.

Limitations

This study has several limitations. First, YouTube content is highly dynamic; videos can be deleted, updated, or newly uploaded at any time. Therefore, the results of this analysis reflect only the

platform's status at the time of data collection. Second, the evaluation was limited to English- language videos, which may not reflect the quality of videos in other languages. Third, although validated tools such as the DISCERN, JAMA, and GQS scores were used, the assessment process still involves a degree of subjective interpretation.

Conclusion

YouTube is a widely accessible platform for health-related content; however, the quality and reliability of videos on orbital blow-out fractures remain inconsistent. Greater involvement of healthcare professionals, academic institutions, and ophthalmologic societies is essential to improve the accuracy of online information. Creating and promoting peer- reviewed educational content, along with patient education on recognizing credible sources, can enhance the safe and effective use of online medical resources.

Declarations

Animal and Human Rights Statement

This study did not involve human participants, animals, or identifiable personal data.

Informed Consent

Not applicable, as this study did not involve human participants or identifiable personal data.

Data Availability

All data analyzed during this study were obtained from publicly available YouTube videos.

Conflict of Interest

The authors declare no conflict of interest.

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Author Contributions (CRediT Taxonomy)

Conceptualization: Ş.B.K., N.A.  
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Writing – Review & Editing: N.A., A.N.Ç.  
Supervision: A.N.Ç.

AI Usage Disclosure

The authors declare that no AI-assisted technologies were used.

Abbreviations

CT: Computed tomography  
DISCERN: Quality criteria for consumer health information on treatment choices  
GQS: Global quality score  
JAMA: Journal of the american medical association  
SD: Standard deviation

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