

# Evaluation Of Information About Orthopedic Diseases In Youtube Turkish Content: What Do Turkish-Speaking Patients Learn From Youtube About Rotator Cuff Surgery?

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## ABSTRACT

**Purpose:** Our study aims to evaluate the quality and reliability of video sources about rotator cuff rupture treatment from Turkish YouTube sources.

**Methods:** On October 5, 2020, searches for “rotator cuff ameliyatı” (“rotator cuff surgery” in Turkish) and “rotator cuff onarımı” (“rotator cuff repair” in Turkish) were conducted on YouTube® (<http://www.youtube.com>). The first 100 videos for both were collected. The quality and reliability of the videos were evaluated by using the DISCERN score, JAMA benchmark criteria, and YouTube Rotator Cuff Specific Score (RCSS).

**Results:** Among 200 videos, 94 videos were included. The video source was a physician or hospital in 62 (66.6%) cases, allied health professionals in 16 (16.65%) cases, and patients in 16 (16.65%) cases. DISCERN, JAMA, and RCSS scores were significantly higher for physician videos compared to the others. There was no significant correlation between the time since the upload of the video and the DISCERN and RCSS scores.

**Conclusion:** The Turkish videos on rotator cuff surgery that we accessed using the YouTube search engine were insufficient to properly inform patients.

**Keywords:** Health information, Internet, Accuracy, Rotator cuff surgery

## Türkçe YouTube İçeriklerindeki Ortopedik Bilgilerin Değerlendirilmesi: Türkçe Konuşan Hastalar Rotator Kaf Ameliyatı Hakkında Neler Öğreniyor?

### ÖZET

**Amaç:** Çalışmamızın amacı rotator cuff cerrahisi ile ilgili Türkçe YouTube kaynaklarının kalitesini ve güvenilirliğini incelemektir.

**Yöntem:** 5 Ekim 2020 tarihinde YouTube arama motorunda “rotator cuff ameliyatı” ve “rotator cuff onarımı” aramaları yapıldı. İki aramadan da ilk 100 video toplandı. Kalite ve güvenilirlik DISCERN, JAMA ve YouTube rotator cuff spesifik skorları kullanılarak değerlendirildi.

**Bulgular:** 200 video incelendi ve dahil etme kriterlerine uyan 94 video dahil edildi. Videoların 62 (%66.6) tanesi hekim kaynaklı, 16 (%16,65) tanesi diğer sağlık personeli kaynaklı, 16 (%16,65) tanesi ise hasta kaynaklı olduğu gözlemlendi. DISCERN, JAMA ve rotator cuff spesifik skorları hekim kaynaklı videolarda daha yüksek bulundu. Yükleme tarihine göre DISCERN ve rotator cuff spesifik skorlarının anlamlı fark göstermediği görüldü.

**Sonuç:** YouTube arama motorunu kullanarak erişilen rotator cuff ameliyatı ile ilgili Türkçe videolar hastaları gerektiği gibi bilgilendirmek için yetersiz bulunmuştur.

**Anahtar kelimeler:** Sağlık bilgileri, İnternet, Doğruluk, Rotator cuff ameliyatı

**A**s the knowledge of and desire to learn about diseases increase, the practice of medicine enters a new era (1). Access to the internet is growing worldwide, and Internet users frequently conduct health-related research (2). However, the internet contains incomplete and inaccurate information and this poses a public health problem since there are no auditing institutions that regulate online health information (3). YouTube is the most used source for visual information about medical topics (4). Patients often refer to YouTube for medical and surgical information.

Rotator cuff repair is one of the most common orthopedic surgical procedures (5). YouTube is an essential resource for patients who are currently researching this treatment (6). In order to better understand the concerns, preferences, and questions of patients, it is necessary to examine the sources of their knowledge. Patients' obtaining information about their diseases from inadequate and inappropriate sources delays their application to treat and affects the expectations of patients about treatment.

There are studies in the literature investigating the reliability of the information in English videos on orthopedic diseases (6,7). These studies were conducted with English sources. However, Internet resources in different languages have different features. Our study aims to evaluate the reliability of video sources about rotator cuff rupture treatment from YouTube sources. We hypothesize that the videos do not provide sufficient quality and reliability for patients.

## MATERIAL and METHODS

On October 5, 2020, searches for "rotator cuff ameliyatı" ("rotator cuff surgery" in Turkish) and "rotator cuff onarımı" ("rotator cuff repair" in Turkish) were conducted on YouTube® (<http://www.youtube.com>). The first 100 videos for both were collected, assuming that users would not look beyond the fifth page of results (6,8). Recurring videos, non-audio videos, videos not related to surgery, irrelevant videos, videos of less than a minute in length, and videos with fewer than 1000 views were excluded (Figure 1). This study was conducted according to the principles of the Declaration of Helsinki.

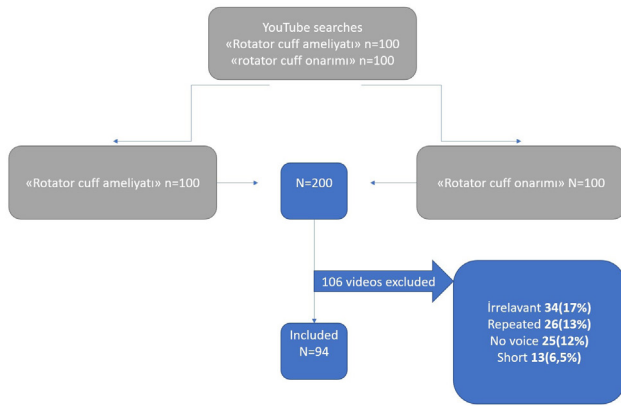
The number of videos included, the length and viewing records of the videos, and their likes, dislikes, and upload times were recorded. According to the providers, videos were classified as originating from physicians or hospitals,

from allied professionals (medical professionals such as physical therapists), and patients.

The quality and suitability of videos were assessed using the DISCERN score. DISCERN evaluates the quality of a publication with 16 questions. The first eight questions evaluate the reliability of the publication, the following questions address specific details about treatment options, and the last question evaluates the average quality. Each question is scored from 1 to 5 points from "no" to "yes." If the answer is "absolutely yes," 5 points are given, while 1 point represents "absolutely no." Scores of 63–75 points are classified as excellent, 51–62 as good, 39–50 as medium, 27–38 as insufficient, and 16–26 as very insufficient (9). JAMA benchmark criteria were used to measure the reliability, suitability, and usefulness of the videos (10). This evaluation includes whether there are authorship, source, date, last update, and related explanations (sponsorship, conflicts of interest, for-profit organization partnerships). Each criterion is scored with 1 point. The transparency and reliability of information are evaluated. The specific quality of diagnostic and surgical information of rotator cuff videos was assessed using the YouTube Rotator Cuff Specific Score (RCSS) that showed excellent ICC scores and a positive correlation with the DISCERN prepared in a similar study (6). One point is assigned for each criterion, resulting in a maximum possible score of 25 points. Video quality was categorized as excellent (21–25), good (16–20), fair (11–15), poor (6–10), or very poor (0–5). The criteria evaluated in the scoring are given in Table 1. The video power index (VPI) was calculated to assess the popularity of the videos using [like ratio × view ratio/100] (8). The view ratio was calculated as [number of views/time since upload]. No institutional review board approval was required for the study.

### Statistical Analysis

Statistical analysis was performed using SPSS version 22 (IBM Corp., Armonk, NY, USA). Descriptive statistics for numerical variables are expressed as mean, standard deviation, median, and min–max values. In the normality analysis, nonparametric test procedures were run for the duration, VPI, DISCERN, and RCSS values, which did not show normal distribution in the Shapiro–Wilk test. In order to determine the relationships between parameters, the nonparametric alternatives of variance analysis, the Kruskal–Wallis test, and Spearman's rho correlation analysis were used. Correlation was classified as poor (0.00–0.20), fair (0.21–0.40), moderate (0.41–0.60), good (0.61–0.80), or excellent (0.81–1.00). The results were evaluated at 95% confidence intervals, and a value of 0.05



**Figure 1.** Flowchart of study

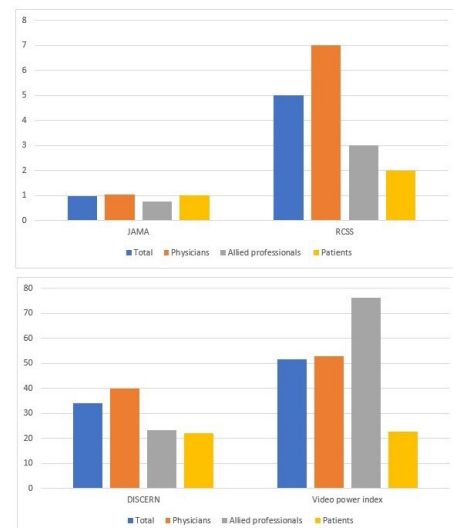
Table 1 Rotator Cuff Surgery YouTube Score (RCSS).	
	Points
<b>Presurgery</b>	
Anatomy of the rotator cuff timing	Max 1 point
Age	Max 1 point
Gender	Max 1 point
Characteristics of pain	Max 1 point
Clinical Tests	Max 1 point
Imaging	Max 1 point
Differential diagnosis	Max 1 point
Initial management	Max 1 point
Surgical contraindications	Max 1 point
Associated injuries	Max 1 point
Functional disability	Max 1 point
Surgical indications	Max 1 point
Functional disability	Max 1 point
<b>During surgery and postsurgery</b>	
Position	Max 1 point
Approach	Max 1 point
Technique	Max 1 point
Implant type and description	Max 1 point
Biologic preparation	Max 1 point
Presentation of the repair	Max 1 point
Additional procedures	Max 1 point
Description of the immobilization	Max 1 point
Description of the rehabilitation	Max 1 point
Description of the complications (Re-rupture, Stiffness, Infection, Implant related problems, Anesthesia related problems, Chronic shoulder pain)	Max 2 points (0,5 point for each 3 complications)

## RESULTS

A total of 200 websites resulting from the searches were analyzed, but 106 videos did not meet the inclusion criteria (irrelevant: 34 (17%), repeated: 26 (13%), no voice: 25 (12%), short: 13 (6.5%)) and, therefore, 94 videos evaluated. The baseline characteristics of the videos are shown in table 2.

The video source was a physician or a hospital in 62 (66.6%) cases, allied health professionals in 16 (16.65%) cases, and patients in 16 (16.65%) cases. According to the DISCERN score, 20 (21%) videos were good, 10 (11%) were fair, 24 (26%) were poor, and 40 (42%) were very poor. The RCSS showed that four (4%) videos were good, eight (8%) were fair, 22 (23%) were poor, and 60 (65%) were very poor. The DISCERN, JAMA, and RCSS scores were significantly higher for physician videos compared to the others ( $p < 0.01$ ,  $p = 0.008$ ,  $p < 0.01$ ). There was no statistical difference between the groups in terms of VPI ( $p > 0.05$ ). (Figure 2)

The average time from the upload of the video to the review was 1045 days. There was a significant negative correlation between the duration of the video and the VPI ( $r = -0.477$ ). There was no significant correlation between the time since the upload of the video and the DISCERN and RCSS scores. The mean VPI of the videos was 51.7. There was no significant correlation between VPI and DISCERN and RCSS scores. There was a significant and positive high level of correlation between DISCERN and RCSS. (Table 3)



**Figure 2.** JAMA, RCSS, DISCERN scores and video power index of videos.

**Table 2: Features of searched videos associated with rotator cuff \***

	Mean	Median	Maximum	Minimum	Standart deviation
DISCERN	34,02	32,00	56,00	18,00	13,91
JAMA	0,98	1,00	2,00	0,00	0,33
RCSS	5,6	4,00	18,00	1,00	4,2
Duration	272,5	133,00	2138	60	433,02
Likes	48,9	35,00	554,0	1,00	84,42
Dislikes	6,25	1,00	80,00	0,00	14,28
Time since upload	1045,5	1213,00	2868,00	17,00	671,99
Views	27354,1	10244,00	219230,00	1000	50646,90
Video power index	51,71	23,55	357,33	1,06	77,70

\*: words used in search : "rotator cuff onarımı, rotator cuff ameliyatı"

**Table 3: Correlation Coefficient values between video features and scores**

			Video power index	DISCERN	RCSS
Spearman's rho	Time since upload (days)	Correlation Coefficient	-0,477	-0,071	-0,103
		Sig. (2-tailed)	0,000	0,494	0,324
	Video power index	Correlation Coefficient		-0,157	-0,092
		Sig. (2-tailed)		0,132	0,375
	DISCERN	Correlation Coefficient			0,702
		Sig. (2-tailed)			0,000

## DISCUSSION

The main finding of this study is that YouTube videos on rotator cuff surgery are insufficient. None of the videos were excellent according to the DISCERN and RCSS scores, and 64% of the videos were poor or very poor according to DISCERN while 88% were poor or very poor according to the RCSS. Our findings support the studies in the literature on English videos. In the study by Celik et al. (6) examining videos about rotator cuff surgery in English, DISCERN and RCSS scores were reported as poor and very poor at rates of 76% and 84%, respectively. Cassidy et al. (7) evaluated videos on anterior cruciate ligament

reconstruction on YouTube and reported that most of the videos were of low quality. In the study by Kunze et al. (11), they evaluated meniscus videos on YouTube and reported that the videos were of low quality. In a study by Ceyhan et al. (12) examining Turkish orthopedic sites accessed through search engines, it was reported that the sites were inadequate and of poor quality and the scores were even lower than the scores reported for English sites. The scores achieved in the current study are similar to those in studies in which English videos were evaluated.

It was observed that physicians provided 66% of the videos. In other studies in the literature, it was likewise reported that the primary providers of videos were physicians (6,7,11). It has been observed that the quality of the videos provided by physicians is higher than that of other providers (6,7,11,13). However, the average DISCERN score for the physician videos, representing the best group, was only considered fair, while the average RCSS score was poor. When the data are reviewed, it is observed that our hypothesis is verified and these video sources are far from providing sufficient information to patients.

The VPI, defined by Erdem et al. (8), was calculated in order to evaluate individuals' interest in the videos. There was no correlation between DISCERN scores or the RCSS and VPI, which shows that individuals' interest in the videos is independent of the quality and adequacy of the videos. Ferhatoglu et al. (14) reported a negative correlation between video quality scores and video popularity. Celik et al. (6) reported that individuals were interested in insufficient information. We think that studies on the determinants of individuals' interest in medical videos are needed. It can be seen that attracting the attention of individuals is as important as providing accurate and complete information nowadays.

No correlation was found between the time from uploading the videos to their evaluation and the DISCERN and RCSS scores. When the videos were evaluated chronologically, no change in quality was seen. Considering the increasing interest in YouTube, we health professionals need to produce higher quality content.

This study has several limitations. First and foremost, only two search terms were used. Patients may be searching for different words, which may affect the results. As a non-Turkish phrase (like rotator kaf etc.), it is automatically corrected as "Rotator cuff" by the YouTube search engine, although it may be spelled differently by different

individuals. Additionally, the search results and videos included are specific to the date of the search. Data on the Internet are continually changing and being updated. Finally, we are aware that searches using different IPs at different times may yield different results, depending on the daily changing trends and the algorithm used by the YouTube search engine. With today's techniques, data on the Internet in general and YouTube in, particular, cannot be evaluated in a holistic and precise manner with a single study.

## CONCLUSION

With the current study, it was concluded that the Turkish videos on rotator cuff surgery accessed via the YouTube search engine were insufficient for informing patients. Orthopedic associations, physicians, and healthcare institutions should establish guidelines for the creation of informative documents and videos to be published for patients on the Internet and should check their quality and accuracy for the benefit of public health.

## DECLARATIONS

### *Ethics Committee Approval*

This study was exempt from ethical approval of the study institution because it involved the use of public access data only.

### *Conflict of Interests*

The authors declare no conflict of interest.

### *Funding*

No financial support was received.

### *Informed Consent*

Not needed.

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