

# ANTERIOR ABDOMINAL WALL BLOCKS AS A SOURCE OF INFORMATION IN A SOCIAL MEDIA NETWORK

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## ABSTRACT

**Objectives:** Although YouTube is widely used as a source of information, there is no regulation used to analyze the quality of videos. The aim of our study is to evaluate the quality and content of videos about Anterior Abdominal Wall Blocks on YouTube.

**Methods:** On YouTube, a website, a search was made between May 01-31, 2020 using the keywords "anterior abdominal wall blocks", "rectus sheath block", "ilioinguinal/iliohipogastric nerve block", and "transversus abdominis plan (TAP) block". An evaluation of understandability was performed using the Suitability Assessment of Materials (SAM) test for the first 100 video materials. Educational content in each video was assessed by the presence/absence of 11 factors. These factors were determined based on the reference book on the subject by Clinical Anesthesia (18). User engagement metrics were recorded for each video as follows: 1) number of video views, 2) likes, 3) dislikes, and 4) comments.

**Results:** When the videos were evaluated by the Suitability Assessment of Materials (SAM) score, 58 (58%) videos were in the 'insufficient' group, 25 (25%) videos were in the 'sufficient' group and 17 (17%) videos were in the 'superior' group. There was a weak positive correlation between the SAM score and the number of views, likes, dislikes, and comments. There was a strong positive correlation between the Suitability Assessment of Materials (SAM) score of the videos and the video duration. When the medical contents of the videos were examined, it was found that sufficient information was given in terms of the type of approach, and demonstration of dermatomes and anatomical landmarks, but highly insufficient information was given in terms of monitoring, sterilization and needle/catheter use.

**Conclusion:** We think that an institutional assessment system that provides content and quality assurance of medical information for both patients and healthcare personnel should be established on Youtube.

**Keywords:** Social media, Education, Anesthesia

## INTRODUCTION

Social media and video sharing websites such as YouTube are becoming a part of daily life and the number of health-related videos is increasing day by day. Considering its popularity and ease of access, YouTube is an important audiovisual education

platform in terms of sharing healthcare information. However, the quality of medical information on the internet is quite heterogeneous and it may contain content with misleading information. Videos can be sorted by relevance, upload date, number of views

and rating. YouTube content is dynamic, and standard *feeds* are updated every few minutes (1, 2). Practical medical procedures can be best learned under the guidance of an experienced instructor. Multimedia materials can improve learning outcomes among medical students (3). Therefore, there is need for videos that meet the requirements of students and instructors, which are freely accessible, containing high quality and correct information.

YouTube is an open access website created by three people working in the *PayPal* company for video sharing videos in 2005. Its head office is in *San Bruno, California, USA* (4). Freely available video streaming sites like YouTube are popular sources of information with more than 100 million viewers daily (5, 6).

YouTube is a video sharing site that allows unregistered users to watch videos and registered users to upload unlimited number of videos ([www.youtube.com](http://www.youtube.com)). Viewers can express their thoughts by clicking 'like' or 'dislike' in each video or by writing comments. The number of likes/dislikes, number of comments and views are displayed under the title of each video (7).

Quantity does not express the quality by nature. While many high quality videos have been posted on YouTube, a healthy skepticism should be maintained. Also, YouTube is a commercial entity and the search terms used substantially affect the quality of information (8). Most social media sites do not have a screening process to evaluate the quality of videos, so "the user should be careful" (9).

Social media is frequently used by healthcare professionals to follow innovations and developments in their fields, to evaluate comments, and to comment on video owners (10-15).

Anterior Abdominal Wall Blocks contribute significantly to intraoperative and postoperative analgesia, when used as part of multimodal analgesia. Its effects on hemodynamic parameters are minimal. These blocks include ilioinguinal, iliohipogastric, rectus sheath and transversus abdominis plane (TAP) blocks. When used for proper surgical procedures, these simple but often overlooked blocks can provide excellent analgesia after surgery, reduce opioid requirements, allow patients to mobilize early, breathe and cough more easily (16).

In our literature review, we did not encounter any study analyzing the quality of videos about "anterior abdominal wall blocks" on YouTube up to date.

In this study, the aim is to analyze the quality and content of videos about "anterior abdominal wall blocks" on Youtube.

## METHODS

This study was initiated after obtaining approval from the non-clinical research ethical committee (Protocol No: 1602-GOA, Date: 24.07.2014) of the Medical Faculty Hospital at Dokuz Eylul University.

The study was conducted as a cross-sectional analysis. Since our study did not include any patient, obtaining informed consent form was not required.

On YouTube (*YouTube* ©, [www.youtube.com](http://www.youtube.com), *YouTube, LLC, San Bruno, USA*), a website, a search was made between May 01-31, 2020 using the keywords "anterior abdominal wall blocks", "rectus sheath block", "ilioinguinal/iliohipogastric nerve block", and "TAP block". No filtering was used.

The first 100 videos were analyzed, assuming the viewer would not proceed beyond the first five pages of search results (17). Videos in English about anterior abdominal wall blocks were included in the study.

Uniform Resource locators (URLs) were recorded. The potential audience viewing medical videos uploaded to YouTube is mostly healthcare staff or individuals looking for medical information. For this reason, in our study, an analysis was carried out in terms of both educational content and understandability.

Since there is no verified scoring system available for videos, educational content in each video was assessed by the presence/absence of 11 factors. These factors were determined based on the reference book on the subject by Clinical Anesthesia (18).

- 1) Are the indications for block explained?
- 2) Is the type of approach chosen to carry out the procedure specified?
- 3) Is there a clear description of the targeted skin dermatomes?
- 4) Is information about anatomical landmarks provided?
- 5) Are possible complications explained?
- 6) Is information given about the needle/catheter used?
- 7) Is appropriate monitoring performed?
- 8) Is enough information given about sterilization?
- 9) Is enough information given about local anesthetic (volume, name of drug)?

10) Is nerve stimulator used in this block?

11) Is ultrasonography used in this block?

The presence or absence of the above-mentioned 11 factors in a particular video was assessed by the four authors (N.B., V.H., S.K. and S.O.).

In our study, this quantitative method was adopted for data collection and analysis. For this purpose, a research based on behavioral likes and view rates was developed.

To assess the suitability of videos, we evaluated the extent to which non-professional individuals can understand each video. In previous studies, Suitability Assessment of Materials (SAM), a verified scoring system was used for evaluating printed, audio and video format patient educational materials (19, 20). Each video was evaluated for understandability using the Suitability Assessment of Materials (SAM). We calculated the combined SAM score by evaluating 6 factors 1) content 2) instructiveness 3) graphics 4) layout and typography 5) learning stimulation 6) cultural suitability variables (20).

The higher the SAM score (maximum 42 points for print material, 38 points for video), the easier it will be for the public to understand the material. The videos were classified as 'superior' (70-100% of the maximum possible SAM score), as 'sufficient' (40-69%), or 'insufficient' (0-39%) according to cumulative raw score.

### To assess user engagement

User engagement metrics were recorded for each video as follows:

- 1) Number of video views, 2) likes, 3) dislikes, and 4) comments. These data were collected between May 01-31, 2020.

### Exclusion criteria

Videos not related to anterior abdominal wall blocks, videos not in English, and repetitive videos were excluded from the study. Videos with content such as hospital commercials were excluded.

### Evaluation team

The data evaluation was carried out independently by four scientists (N.B., V.H., S.K., S.O.) with more than 7 years of experience. If the researchers' evaluations were not the same, each video was reevaluated by the combined assessment of all four scientists. The name, author, URL address, duration, upload date, HD (High Definition) of the videos were recorded.

### Statistical Analysis

We considered number of views, duration and all user engagement for videos. The statistical analysis of the data obtained in the research was performed using the SPSS (*Statistical Package For Social Sciences, Chicago, IL, USA*) 20.0 software. In comparison of groups, the *Kruskal-Wallis* test and *Mann-Whitney U* test were used. A p value below 0.05 was considered as a significant difference.

### RESULTS

The top 100 videos listed in our study were evaluated using the keywords 'anterior abdominal wall blocks', 'Rectus sheath block', 'ilioinguinal/iliohipogastric nerve block', and 'TAP block' on the YouTube search engine between May 01-31, 2020. The mean video duration was 261 seconds. The longest video was 1724 seconds, while the shortest was 27 seconds.

While the most liked video received 755 likes, the least liked video did not receive any likes. In addition, the most watched video was watched 226,734 times, and the least watched video was watched 33 times. The number of comments for the videos was between 0 and 13.

The mean number of video views was  $14480.02 \pm 33633.61$ , the number number of "likes" was  $47.61 \pm 100.63$ , the mean number of "dislikes" was  $3.87 \pm 8.28$ , and the mean video duration was  $261.02 \pm 298.26$  seconds. Video content distribution was summarized in Table 1.

Video contents according to suitability assessment of materials groups was summarized in Table 2. When the videos were evaluated by SAM score, 58 (58%) videos were in 'insufficient' group, 25 (25%) videos were in 'sufficient' group and 17 (17%) videos were in 'superior' group (Table 3). The highest SAM score was calculated as 38 (100%) and the lowest was calculated as 2 (5%).

Video characteristics according to suitability assessment of materials groups was summarized in Table 3. The correlations between the number of video views, likes, dislikes, comments, duration and the SAM score was summarized in Table 4. When analyzing the correlations between the number of video views, likes, dislikes, comments, duration and the SAM score, there was a strong positive correlation between the SAM score and the video duration ( $r = +0.553$ ;  $p < 0.01$ ). A weak positive correlation was found between the SAM score and the number of video views ( $r = +0.375$ ;  $p < 0.01$ ) (Table 4).

**Table 2.** Video contents according to suitability assessment of materials groups (% , n)

Video Content	SAM Group			p
	Insufficient	Sufficient	Superior	
Type of approach	63.8% (n=37)	100% (n=25)	100% (n=17)	<0.001
Anatomical landmarks	36.8% (n=21)	92% (n=23)	100% (n=17)	<0.001
Endication	29.3% (n=17)	64.0% (n=16)	88.2% (n=15)	<0.001
Complication	5.2% (n=3)	52.0% (n=13)	76.5% (n=13)	<0.001
Needle/catheter	6.9% (n=4)	24.0 (n=6)	52.9% (n=9)	<0.001
Monitoring	1.7% (n=1)	0.0% (n=0)	17.6% (n=3)	0.007
Sterilization	8.6% (n=5)	23.1% (n=3)	29.4% (n=5)	>0.05
Local anesthetics	6.9% (n=4)	68.0% (n=17)	82.4% (n=14)	<0.001

**SAM:** Suitability assessment of material

**Table 1.** Video content distribution

Video content	+	-	Total
Type of approach	79	21	100
Dermatomes	54	46	100
Anatomical landmarks	61	39	100
Endication	48	52	100
Complication	29	71	100
Needle/catheter	19	81	100
Monitoring	4	96	100
Sterilization	13	87	100
Local anesthetics	35	65	100
Nerve stimulatory	6	94	100
LOR	10	90	100
USG	85	15	100
HD	45	55	100

**LOR:** Lost fo Resistance, **USG:** Ultrasonography, **HD:** High-Definition

There was a weak positive correlation between the SAM score and the number of views, likes, dislikes, and comments. A strong positive correlation was found between the number of views and likes ( $p < 0.001$ ;  $r = +0.689$ ), dislikes ( $p < 0.001$ ;  $r = +0.663$ ) and comments ( $p < 0.01$ ;  $r = +0.645$ ) (Table 4) .

When the videos were analyzed by the years of upload to Youtube, 3% were uploaded between 2010 and before, 25% between 2010-2015, and 72% were uploaded between 2015-2020. This result can be interpreted as the use of YouTube as follows: The use of Youtube as a Source of Information on “Anterior Abdominal Wall Blocks” is gradually increasing.

**DISCUSSION**

In our study, videos related to "Anterior abdominal wall blocks" on YouTube were analyzed in terms of their suitability to textbook information, adequacy as a source of information for patients and user engagement.

There was a significant increase in the number of videos about “Anterior Abdominal Wall Blocks” uploaded to YouTube after 2015.

When the medical contents of the videos were examined, it was found that sufficient information was given in terms of the type of approach, and demonstration of dermatomes and anatomical landmarks, but highly insufficient information was given in terms of monitoring, sterilization and

needle/catheter use. According to the SAM score, 17% of the videos were in the superior group and 25% were in the sufficient group. Even in the videos in the superior group, there was insufficient information about sterilization and monitoring.

They reported that the videos they examined in their study lacked a systematic approach and that professional organizations and universities should publish more videos on social media platforms such as Youtube.

**Table 3.** Video characteristics according to suitability assessment of materials groups (mean ± standard deviation)

SAM group	The number of view Mean ± SD	Like Mean ± SD	Dislike Mean ± SD	Comment Mean ± SD	Video duration Mean ± SD
Insufficient (n=58)	6119.10±13546.60	15.72±31.25	1.72±3.19	0.68±1.45	148.36±147.29
Sufficient (n=25)	13911.80±29849.53	45.08±53.34	3.28±6.64	1.68±1.86	328.60±370.53
Superior (n=17)	43841.11±61962.20	160.11±194.33	12.05±15.29	3.88±4.62	546.00±357.44
p	0.001	<0.001	0.004	0.001	<0.001

**SAM:** Suitability assessment of material, SD: Standard deviation. Values are presented as mean±standard deviation. Kruskal Wallis Test, Grouping Variable: samgroup

**Table 4.** The correlations between the number of video views, likes, dislikes, comments, duration and the SAM score

	The number of views	Like	Dislike	Comment	Video duration
The number of views	-----	0.904(*)	0.934(*)	0.708(*)	0.168
Video duration	0.168	0.292(*)	0.204	0.231	-----
SAM score	0.375(*)	0.483(*)	0.382(*)	0.439(*)	0.553(*)

\*p<0.01

**SAM:** Suitability assessment of material

Numerous studies evaluating the quality of medical information on YouTube have been published (13, 21,22). Unfortunately, these studies have shown that many medical videos are not accurate and reliable in terms of medical information. For this reason, many studies have been conducted on the reliability of internet-related information about health (17, 23-29). In our study, there was a significant difference in terms of the number of views, likes, dislikes, comments, and duration among the 3 groups, 'insufficient', 'sufficient' and 'superior', which were determined by SAM score. As the SAM score increased, there was a significant increase in the number of video views, likes, dislikes, and comments. There was a strong positive correlation between the SAM score and the video duration. We found that longer videos are more educational in content. Selvi et al. (30) evaluated 86 videos about brachial plexus block in terms of content and instructiveness.

Lee et al. (25) analyzed the educational quality of laparoscopic cholecystectomy (LC) videos on YouTube. They found no correlation between video content quality and number of views, likes/dislikes, and comments, but in our study, a weak positive correlation was found between the SAM score and the number of views, likes, dislikes and comments. We think that this may be due to the use of different analysis methods for the evaluation of videos. Similar to our study, Lee et al. reported that there was a positive correlation between the number of views and the number of likes/dislikes and comments. In other words, users often expressed their opinions on the videos they viewed. Tulgar et al. (31) evaluated videos about spinal, epidural and combined spinal epidural anesthesia on Youtube in terms of their suitability to textbook information and adequacy as source of information for patients. They showed that more than half of these

videos were of poor quality regarding the procedural technique and were almost entirely insufficient for patient information purposes. Similar to the study of Tulgar et al., we found in our study that the videos were highly insufficient in terms of medical content, and that the SAM score of the videos was 42% in total in terms of patient information. In the study of Tulgar et al., proper sterilization techniques were described in 45% of the videos, whereas, in our study, a much lower rate (8%) was found.

Tulgar et al. reported that they did not find a correlation between the number of views and the quality of the videos, and that there were only a few quality videos, especially for educational purposes. In their study evaluating the quality of lumbar puncture (LP) and spinal anesthesia (SA) videos on YouTube, Rössler et al. (26) found that the quality of LP and SA videos was generally low. Similar to Tulgar et al., Rössler et al. also reported that there was no correlation between the number of views and the quality of videos.

The integration of new technologies has caused a significant impact on education, from primary education to higher education (32-35). Duncan et al. reported that the use of YouTube provided a new approach, facilitates the link between theory and practice, and encouraged discussion and critical thinking (34).

Web-based learning has emerged as an increasingly important tool not only to help obtain the necessary theoretical basis, but also to acquire or reinforce practical procedural skills (13).

However, a potential disadvantage of education with online videos is the uncertainty about the accuracy of information and the reliability of authors (35).

It is inconvenient for a person who is subjected to misinformation about a certain subject to access correct information later. On the other hand, minor amounts of misinformation can cause major problems for healthcare workers.

In their study evaluating the quality of the videos on YouTube about knee arthrocentesis, Fischer et al. (13) selected 13 videos uploaded by professional health institutions. Unfortunately, they reported that YouTube content had poor educational quality even when uploaded by healthcare professionals.

A standard analysis method has not yet been established in the assessment of videos on Youtube; therefore, analysis methods differ greatly from author to author.

There have been efforts to create guidelines for analyzing YouTube video content, which has yielded limited results (36). A standard guideline is required for studies to be conducted in the future to evaluate the content and quality of the videos published on Youtube.

### Limitations of this study

We only included videos in English. We preferred to evaluate the top 100 videos according to search terms. This was a decision not based on any statistical calculation but on a logical number for videos that a YouTube user would browse. Although this can be considered as a limitation, this approach has previously been used in similar studies (17). This study only provides a snapshot of the information available on YouTube, as YouTube content changes over time. In addition, the videos were scanned as unfiltered on the YouTube website. Results may vary when videos are sorted in a different order.

Medical videos uploaded to Youtube should be prepared in accordance with basic medical information, considering patient safety and frequently asked questions, and in accordance with current guidelines. We think that an institutional assessment system that provides content and quality assurance of medical information for both patients and healthcare staff should be established on Youtube.

### Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee. Our study was based on a web research, and ethical approval was obtained from the Non-Clinical Research Ethics Board of Dokuz Eylul University, Medical Faculty (approval number-2019/12-07, date: 08.05.2019).

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**Author Contributions:** The contribution of both authors was equal in designing the study, reviewing the literature, being prepared for the ethics committee, collecting, analyzing and reporting the data.

**Peer-review:** Externally peer-reviewed.

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