



TIKTOK'S TOXIC TRADE



How TikTok promotes dangerous and potentially illegal steroids and steroid-like drugs to teens





The Center for Countering Digital Hate works to stop the spread of online hate and disinformation through innovative research, public campaigns and policy advocacy.

Our mission is to protect human rights and civil liberties online.

Social media platforms have changed the way we communicate, build and maintain relationships, set social standards, and negotiate and assert our society's values. In the process, they have become safe spaces for the spread of hate, conspiracy theories and disinformation.

Social media companies erode basic human rights and civil liberties by enabling the spread of online hate and disinformation.

At CCDH, we have developed a deep understanding of the online harm landscape, showing how easily hate actors and disinformation spreaders exploit the digital platforms and search engines that promote and profit from their content.

We are fighting for better online spaces that promote truth, democracy, and are safe for all. Our goal is to increase the economic and reputational costs for the platforms that facilitate the spread of hate and disinformation.

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CONTENTS

1. Terminology used in this report	4
2. Introduction	5
3. Executive Summary	7
4. Steroid-like drugs promoted on TikTok are dangerous and potentially illegal	8
5. Abuse of SLDs encouraged under TikTok hashtags with up to 587 million views	13
6. Some sites selling potentially illegal SLDs reach 1.8m followers via TikTok influencers	17
7. Influencers are earning commission on the sale of SLDs that they promote on TikTok	20
8. Some sites selling SLDs skirt the law by presenting drugs as “research chemicals”	21
9. Recommendations: TikTok must enforce its rules on the promotion of drugs	24
10. Appendix I: Methodology	27
11. Appendix II: List of SLDs studied by this report	30
12. Appendix III: List of hashtags	32
13. References	33

1. TERMINOLOGY USED IN THIS REPORT

Steroids and other drugs used for purported aesthetic and athletic benefits are sometimes referred to as “performance enhancing drugs” or “performance and image enhancing drugs”.

These terms are deeply misleading. They mask the fact that steroids, and other similar drugs, can be detrimental to athletic performance, from kidney damage to heart attacks and strokes.¹ They also ignore the fact that these drugs can bring about changes in physical appearance that most users would find deeply unwelcome, including acne, breast growth and shrinking testes.²

For these reasons, we have chosen to refer to these drugs using the term **steroids and steroid-like drugs** or **SLDs** throughout this report. While some of the drugs this report focuses on work in different ways to steroids, our aim is to take advantage of the common knowledge around steroids in our culture in order to carry out a broader conversation about these drugs without falsely characterizing them as beneficial to health, performance or body image.

In particular, this report will use the term SLDs to refer to anabolic-androgenic steroids (AAS), peptide hormones, growth factors, related substances and mimetics (peptides) and Selective Androgen Receptor Modulators (SARMs).³

2. INTRODUCTION

Digital communities are now the places where many young people form their sense of self – where they learn and exchange norms, trends, and information that can shape their identities as they grow up.

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It's well documented that two thirds of American teens use TikTok – 1 in 6 say they watch it "almost constantly".⁴ It is thought children and teenagers spend an average of 90 minutes per day on the app – the equivalent of watching an intense, highly personalized movie.⁵

Last year, CCDH showed⁶ that girls as young as 13 were being bombarded with TikTok videos promoting self-harm, eating disorders and destructive norms about body image. But young women and girls aren't the only group of young people who are being exposed to potentially damaging and dangerous content online.

A growing – and chronically understudied – crisis is being fomented among young boys and men, wrapped in toxic ideas of masculinity, strength, and misogyny, and amplified by unaccountable algorithms.

Several young men in the bodybuilding community have already lost their lives in incidents that have been linked to abuse of SLDs and extreme training methods. Each tragic death leaves behind a trail of devastated families and loved ones.⁷ It will continue to poison a generation of young boys who seek to reach a toxically unattainable physique, powered by potentially illegal substances marketed online.

This report details how steroids and steroid-like drugs (SLDs) are promoted in TikTok videos which have gained up to 587 million views in the US alone, primarily from those under the age of 24. According to estimates, this represents 13 views for every 18–24 year old in the country.⁸

While TikTok's community guidelines⁹ prohibit the promotion and sale of SLDs, CCDH research shows that influencers who promote websites selling these potentially illegal drugs have amassed 1.8 million followers.¹⁰ TikTok is likely to be instrumental to the promotion of SLDs, as we estimate that websites selling SLDs reach 540 times as many followers through TikTok influencers.¹¹

This report examines three classes of steroids and steroid-like drugs (SLDs): anabolic-androgenic steroids (AAS), peptides and Selective Androgen Receptor Modulators (SARMs).¹² All carry significant health risks, with AAS and SARMs carrying the most significant, such as hypertension and heart attacks.¹³ Under US law,



AAS are illegal for sale without prescription, while peptides and SARMs are illegal to sell as unapproved drugs for human consumption.¹⁴

TikTok videos identified by CCDH appear to encourage teenagers to begin using these potentially illegal drugs in their teen years and “just tell your parents they’re [SLDs] vitamins”. Some videos display large amounts of steroids with the caption “Risk it”.¹⁵

We tracked down 13 websites that each attempt to skirt the law by referring to these drugs as “research chemicals” and warning that they are “not for human consumption” – despite promoting the drugs with videos featuring muscular physiques.¹⁶ As with many forms of online commerce, the websites selling these products don’t market directly to children. They’ve cottoned on to the fact that it’s far more effective to pay bodybuilding ‘influencers’ to promote their products for them – even if it means offering commissions of up to 30%.¹⁷

Increasingly, a chasm has opened between parents and their children about the content young people are exposed to online. Studies have shown that many young people have trouble distinguishing influencer marketing, affiliate schemes, and, on a fundamental level, how algorithms are impacting their understanding of themselves and the world.¹⁸

Ultimately, this is a story of TikTok’s stark failure to govern their own platform and enforce their rules. Urgent action is needed. TikTok must start enforcing its own rules prohibiting the promotion and sale of potentially dangerous drugs for profit – and it needs to be much more transparent about how many children and teenagers are routinely exposed to this content through the platform’s algorithms.

A good start would be for them to donate all of the advertising revenues they have garnered through this ugly trade to charities that provide on-the-ground support for young men suffering with body image and substance abuse issues.

Our legislators, who have sat on their hands for so long, also need to update the legal framework for social media companies in the US, which hasn’t been changed substantially since 1996. Our STAR Framework provides a solid foundation for the reform parents, young men and, frankly, all of us desperately need and want.

Imran Ahmed
CEO, Center for Countering Digital Hate ●

3. EXECUTIVE SUMMARY

STERIODS AND STEROID-LIKE DRUGS (SLDS) PROMOTED ON TIKTOK ARE DANGEROUS AND ILLEGAL:

- ▶ Research suggests 3.3% of school-age boys have taken unprescribed steroids.¹⁹
- ▶ This report examines three classes of steroids and steroid-like drugs (SLDs): anabolic-androgenic steroids (AAS), peptides and Selective Androgen Receptor Modulators (SARMs).²⁰
 1. All carry significant health risks, with AAS and SARMs carrying the most significant, such as hypertension and heart attacks²¹
 2. Under US law, AAS are illegal for sale without prescription, while peptides and SARMs are illegal to sell as unapproved drugs for human consumption²²
- ▶ TikTok's community guidelines prohibit the promotion and sale of SLDs.²³

ABUSE OF SLDS IS ENCOURAGED UNDER TIKTOK HASHTAGS WITH UP TO 587 MILLION US VIEWS:

- ▶ Videos with hashtags promoting SLDs were viewed by US users up to 587 million times in the last three years, including up to 420 million views from US users aged under 24.²⁴
- ▶ Popular videos downplay the risks of SLDs and even target teens. Examples videos:
 1. Encourage followers to "just tell your parents they're [SLDs] vitamins"
 2. Display large amounts of of steroids with the caption "Risk it"
 3. Advocate for viewers to start using SLDs in their teens

SOME WEBSITES SELLING SLDS REACH NEARLY 1.8 MILLION FOLLOWERS THROUGH TIKTOK INFLUENCERS:

- ▶ Researchers identified 35 TikTok influencers linked to 13 websites selling illegal SLDs.²⁵
 1. The identified influencers have a combined total of nearly 1.8 million followers²⁶
 2. Websites reach 540 times as many followers through TikTok influencers²⁷
 3. Website affiliate schemes provide an opportunity for influencers promoting SLDs to be paid commission²⁸
- ▶ One TikTok influencer identified by CCDH is partnering with an SLD website to market SLDs to teenagers by targeting teen hashtags such as #teenbodybuilding.²⁹

WEBSITES SELLING SLDS SKIRT THE LAW BY PRESENTING THE DRUGS AS "RESEARCH CHEMICALS":

- ▶ Websites selling SLDs try to skirt the law by referring to them as "research chemicals" and warning they are "not for human consumption", misrepresenting the fact that:³⁰
 1. Websites partner with influencers who promote their products for use as SLDs³¹
 2. Product reviews show customers are using the drugs as SLDs³²

TIKTOK MUST ENFORCE ITS EXISTING RULES ON THE PROMOTION OF DRUGS:

- ▶ TikTok must improve enforcement of its rules on the promotion of drugs.³³
- ▶ TikTok should provide transparency on how many users are exposed to SLD content.
- ▶ Lawmakers should investigate loopholes allowing sites selling SLDs to operate online.

4. STEROIDS AND STEROID-LIKE DRUGS PROMOTED ON TIKTOK ARE DANGEROUS AND POTENTIALLY ILLEGAL

This report reveals the scale of content on TikTok promoting dangerous and potentially illegal steroids and steroid-like drugs (SLDs) including steroids, peptides and SARMs.³⁴

It shows that TikTok has become a key marketing channel for vendors of dangerous and potentially illegal SLDs, who openly partner with influencers to promote their products.³⁵ We outline how TikTok is failing to uphold its own community standards, exposing millions of its users to content that glamorizes and encourages the use of potentially illegal drugs for purported aesthetic and athletic gain.³⁶

This content is misleading and dangerous. As well as posing severe health risks, these drugs can change the body in ways users never expected, causing testicular shrinkage, breast growth (gynecomastia) and erectile dysfunction.³⁷

While most SLDs are illegal in the US, research suggests that they are used widely by young people across the US, with 3.3% of school-age boys and 2.4% of girls estimated to have taken steroids at least once in their life without a doctor's prescription.³⁸ Other studies have shown steroid use is particularly prevalent amongst black communities.³⁹

SLDS HAVE BEEN LINKED TO EARLY DEATHS IN BOTH BODYBUILDERS AND AMATEURS

In recent years there have been dozens of sudden, early deaths in the bodybuilding community, sparking warnings about the risks of abusing SLDs.⁴⁰ One such example is the death of Daniel Alexander, a bodybuilder and gym manager who died at the age of 30 from steroid-induced cardiomyopathy in the run-up to a competition.⁴¹

Deaths linked to SLDs are not restricted to the bodybuilding community, as shown by the death of 18-year-old Luke O'Brien, a sporting amateur who took steroids while he was at school. The coroner on O'Brien's case said: "I want to highlight the dangers of taking anabolic steroids which are taken to increase muscle mass and help to compete and to train harder."⁴²

Similarly, the recent death of Cameron Rose at age 23, who took steroids "to make himself feel stronger, more in control and better about himself", was also suspected to be linked to his use of steroids.⁴³ Rose's post-mortem examination concluded his case was a "sudden cardiac death ... in the context of anabolic-androgenic steroid abuse".⁴⁴

Former professional bodybuilder Arnold Schwarzenegger has warned of the dangers of SLD use in modern bodybuilding, saying "bodybuilding always, always was considered a safe sport. But now it's not. Now people are dying ... I just want young people to know that I have seen people getting kidney transplants and suffering tremendously from it."⁴⁵

THE STEROIDS AND STEROID-LIKE DRUGS (SLDS) STUDIED BY THIS REPORT

Anabolic-androgenic steroids are perhaps the most well-known category of SLD, but they are just one of a number of drugs that are widely used with the belief that they change appearance and strength. The table below outlines the three broad categories of SLD studied by this report. A more detailed list of common or popular drugs in these categories used in the course of research for this report is available in Appendix II.

SLD Class	Definition used in report
Anabolic-androgenic steroids (AAS) <i>(Examples include: Trenbolone, Dianabol)</i>	Anabolic-androgenic steroids are synthetic hormones that imitate the sex hormone testosterone. ⁴⁶
Peptide hormones, growth factors, related substances and mimetics (peptides) <i>(Examples include: BPC-157, TB-500)</i>	Following the World Anti-Doping Agency (WADA), this report classes together peptides, which are strings of amino acids that can stimulate the production of hormones, typically human growth hormone, with other drugs that have similar chemical structure or biological effects. ⁴⁷ Throughout the report we refer to these drugs in short as “peptides”. More detail is available in Appendix II of this report.
SARMs <i>(Examples include: MK-2866, RAD-140)</i>	Drugs that mimic the effects of anabolic-androgenic steroids, increasing muscle mass and strength. ⁴⁸ This report follows the US Anti-Doping Agency in including in this category a small number of other drugs that are frequently marketed as SARMs. ⁴⁹ More detail is available in Appendix II of this report.

ANABOLIC-ANDROGENIC STEROIDS, PEPTIDES AND SARMS ALL CARRY HEALTH RISKS

All three of the classes of SLD studied by this report have been linked to health risks, ranging from physical changes, to psychiatric issues such as depression, to potentially fatal heart attacks. These risks are summarized in the following table.

SLD Class	Health risks
Anabolic-androgenic steroids (AAS) <i>(Examples include: Trenbolone, Dianabol)</i>	Use of anabolic-androgenic steroids can cause early heart attacks, strokes, and psychiatric issues. ⁵⁰ They can also induce physical changes such as acne, shrinkage of the testes and breast development (gynecomastia). ⁵¹ Teens on anabolic-androgenic steroids have an increased chance of developing cognitive problems and aggression. ⁵²
Peptide hormones, growth factors, related substances and mimetics (peptides) <i>(Examples include: BPC-157, TB-500)</i>	This category includes growth hormone and its analogues, which have been associated with higher rates of adverse events including swelling, fatigue, joint pain and carpal tunnel syndrome. ⁵³ Other experimental peptides such as BPC-157 have not undergone clinical trials and their health risks have not yet been quantified. ⁵⁴
SARMs <i>(Examples include: MK-2866, RAD-140)</i>	The US Food and Drug Administration (FDA) has warned SARMs are associated with life threatening reactions, including acute liver failure and increased risk of heart attacks and strokes. ⁵⁵ Other side effects include psychosis, sleep disturbances, sexual dysfunction, infertility and testicular shrinkage. ⁵⁶

ANABOLIC-ANDROGENIC STEROIDS, PEPTIDES AND SARMS ARE ALL ILLEGAL FOR SALE AS DRUGS

While specific rules vary by substance, anabolic-androgenic steroids, peptides and SARMS may not be freely sold as drugs for human use and consumption under US law.

Anabolic-androgenic steroids are subject to the strictest rules as they are regulated under the Controlled Substances Act, meaning it's a felony to sell or possess them without a valid prescription, punished by up to ten years in prison.⁵⁷

The US Food and Drug Administration (FDA) has not approved peptides or SARMS studied by this report for over-the-counter sale as drugs.⁵⁸ In addition,

the FDA has stated that SARMS cannot be legally marketed as supplements for human use and consumption.⁵⁹ Where it is determined that these rules have been broken, legal penalties can apply.

This report shows how some sellers of peptides and SARMS try to evade enforcement action by characterizing their products as research chemicals not for human consumption. However, authorities have warned that such disclaimers do not prevent sales from being illegal when it is clear that products are intended for human consumption.⁶⁰

On this basis, this report will refer to these categories of anabolic-androgenic steroids, peptides and SARMS as "potentially illegal SLDs". The following table summarizes the legal status of each category of drug in more detail.

SLD Class	Legal status
<p>Anabolic-androgenic steroids (AAS)</p> <p><i>(Examples include: Trenbolone, Dianabol)</i></p>	<p>Anabolic-androgenic steroids are regulated as Schedule III controlled substances under the US Controlled Substances Act.⁶¹ Federal regulations define "anabolic steroid" and list 86 specific drugs in this category.⁶²</p> <p>Anabolic-androgenic steroids falling under this definition can be prescribed to patients by a licensed practitioner.⁶³ Outside of this exemption, individuals trafficking anabolic-androgenic steroids can face up to ten years imprisonment and a fine of up to \$500,000.⁶⁴</p>
<p>Peptide hormones, growth factors, related substances and mimetics (peptides)</p> <p><i>(Examples include: BPC-157, TB-500)</i></p>	<p>Outside of exceptions for products such as peptide vaccines, peptides and related drugs are typically regulated as drugs under the US Food, Drug, and Cosmetic Act.⁶⁵ The FDA has not approved peptides and related drugs for over-the-counter sale as drugs, and individuals doing so can face up to a year imprisonment and a fine of up to \$1,000.⁶⁶</p> <p>The US Anti-Doping Agency (USADA) advises that peptide hormones, a subset of the peptide drugs examined by this report, are not approved by the FDA for sale in dietary supplements and can only be prescribed to patients by a licensed physician.⁶⁷</p>
<p>SARMS</p> <p><i>(Examples include: MK-2866, RAD-140)</i></p>	<p>SARMS are not approved by the FDA and cannot be "legally marketed in the US as a dietary supplement or drug".⁶⁸ As such it is prohibited to sell SARMS under the US Food, Drug, and Cosmetic Act, and individuals doing so can face up to a year imprisonment and a fine of up to \$1,000.⁶⁹</p>

TIKTOK'S COMMUNITY GUIDELINES PROHIBIT THE PROMOTION OR TRADE OF SLDs

Research in this report shows that, by allowing the promotion of SLDs, TikTok is failing to uphold its own community standards, which explicitly ban content “showing or promoting recreational drug use, or the trade of alcohol, tobacco products, and drugs.”⁷⁰ More specifically, TikTok prohibits content:

- ▶ “Showing or promoting young people possessing or consuming alcohol, tobacco products, drugs, or other regulated substances”
- ▶ “Showing or promoting adults consuming drugs or other regulated substances for a recreational purpose”
- ▶ “Facilitating the trade or purchase of alcohol, tobacco products, drugs, or other regulated substances”⁷¹

NOTE ON DIETARY SUPPLEMENTS

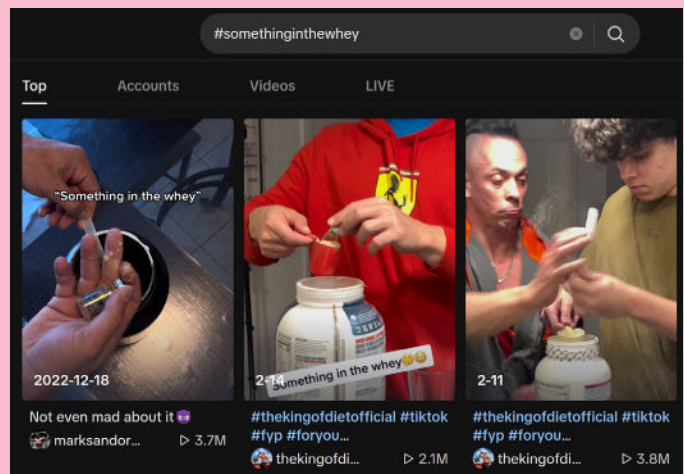
The three broad classes of SLD studied by this report have relatively well-defined names, health risks and legal status. This aids us in analyzing how these drugs are promoted and sold to TikTok users, and provides a clear basis for TikTok and others to act on this problem.

This leaves out a much broader class of products that are marketed as dietary supplements, which do not require FDA approval before being sold in the US.⁷² However, there is a growing body of evidence that many of these supplements, often sold as “pre-workout” or stimulant formulas, can pose severe health risks to users and in some cases contain legally prohibited drugs.⁷³ This can result in serious harm, with nearly 1,000 supplement-related adverse effects reported to the FDA between 2004 and 2015, 40% of which resulted in severe outcomes ranging from hospitalization to death.⁷⁴

Recent studies also show that adolescents who use protein powder supplements “may have a two- to five-fold higher risk of new use of steroids and other muscle-building products in emerging adulthood.”⁷⁵ One recent TikTok trend makes this

link between protein supplements and steroid use explicit. Using the song *Something in the Way* by Nirvana, a number of videos with millions of views show bodybuilders and young men discovering bottles of drugs in whey protein powder supplements, with the play on words “something in the whey”, suggesting that drug use is the real path to a muscular physique.⁷⁶

As such the real risks posed by the wider industry involved in selling both SLDs and supplements are likely to be much broader than those examined in this report.



TikTok videos linking use of whey protein supplements to drug use⁷⁷

5. ABUSE OF SLDs ENCOURAGED UNDER TIKTOK HASHTAGS WITH UP TO 587 MILLION VIEWS

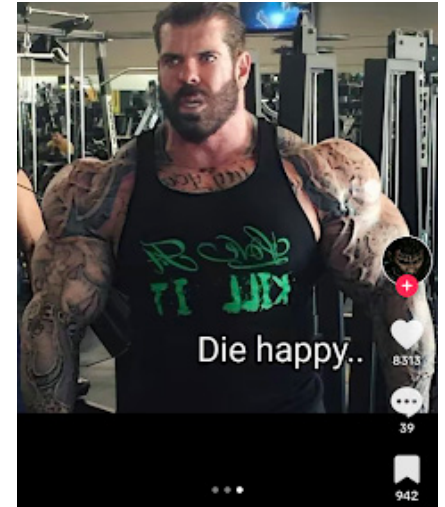
Videos posted to TikTok with hashtags that promote the abuse of steroids and steroid-like drugs (SLDs) have been viewed up to 587 million times by US users in the last three years.⁷⁸

Researchers identified 30 hashtags that feature videos relating to the abuse or sale of SLDs, contributing to a culture where abusing the drugs to alter body shape and size is normalized.

The hashtags were identified by searching TikTok for the names of popular SLDs including steroids, peptides and SARMS and examining further hashtags recommended by TikTok. Hashtags were included in this analysis if over half of the top 20 videos posted with that hashtag promote, sell, or normalize SLDs.⁷⁹ More detail on our methodology is included in Appendix I.

Examples include the hashtag #TrenSteroid, which refers to trenbolone, a popular steroid among bodybuilders, and #MK2866, which is a SARM that cannot be legally marketed for human consumption.⁸⁰

Content found under these hashtags typically saw TikTok posters encouraging one another to abuse SLDs by downplaying the health risks and promoting unrealistic body standards, often featuring people with extremely large muscles. In some cases, posters were aware of the potential side effects, including death, but claimed they would “die happy” for SLDs if it meant achieving their body ideals.⁸¹



US UNDER-24S VIEWED VIDEOS ON HASHTAGS PROMOTING SLDs ABUSE UP TO 420 MILLION TIMES

Analytics provided by TikTok show that US users aged 18–24 years old viewed videos posted to hashtags promoting SLD abuse up to 420 million times in the last three years, accounting for 72% of all US views for videos posted with these hashtags.⁸²

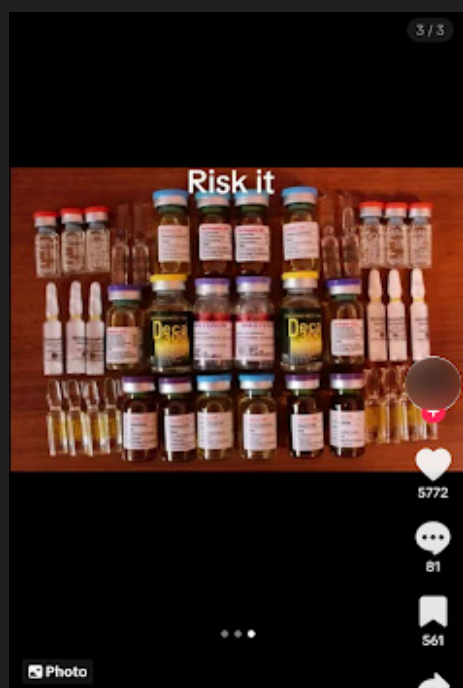
TikTok does not provide information on the number of views from under 18s, suggesting there could be an even younger audience for these videos that is not currently possible to measure.

The following table uses analytics from TikTok’s Creative Center to show how many views videos posted to hashtags for each category of substance have accumulated in the three years to 31 August 2023, with figures for the number of these views that came from users aged 18–24 years.

Substance	Number of Hashtags	US views in last three years	US views from 18–24 year olds in last three years
Anabolic–androgenic steroids	16	384 Million	300 million
Peptides	9	163 million	87 Million
SARMs	5	40 Million	33 Million
Total	30	587 Million	420 Million

EXAMPLES: TIKTOK VIDEOS DOWNPLAY THE HEALTH RISK OF SLDS

Content found under the hashtags encouraged and trivialized SLDs abuse, often by downplaying or ignoring health risks. One video displaying vast quantities of anabolic-androgenic steroids was captioned “Risk it.” Some videos featured clips of elite bodybuilders, such as Chris Bumstead, reported to have taken steroids previously.⁸³



“RISK IT”

Views: 55,800

Likes: 7,544



“HAPPENS EVERY TIME 🤩👁️ @CBUM ... #GYM #GYMTOK #INNERDEMON #ROIDS”

Views: 870,200

Likes: 95,200



“LIFE IS SHORT MAKE IT SHORTER TAKE TREN”

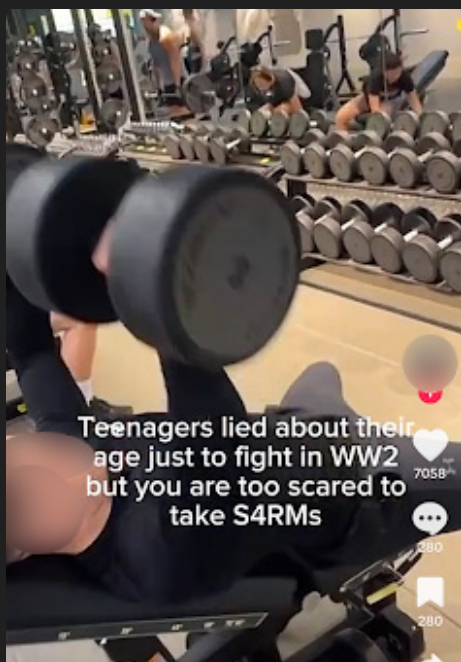
Views: 177

Likes: 19

EXAMPLES: TIKTOK VIDEOS ENCOURAGE TEENS TO ABUSE SLDS

Some videos targeted teenagers, with one encouraging viewers to hide SLDs by telling parents “they’re vitamins.” Another video stated: “teenagers lied about their age just to fight in WW2 but you are too scared to take S4RMs [SARMs]”. This was accompanied by a link to a research chemical website with a promotional code.⁸⁴

In several cases, researchers identified videos where users explicitly stated they were under 18 and were taking SLDs to achieve bodybuilding goals, creating an unhealthy and dangerous environment where teens encourage one another to abuse drugs.



“TEENAGERS LIED ABOUT THEIR AGE JUST TO FIGHT IN WW2 BUT YOU ARE TOO SCARED TO TAKE S4RMS”

Views: 84,400

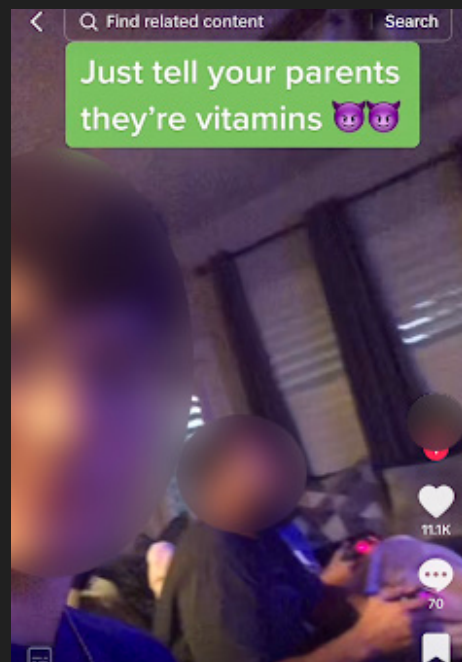
Likes: 7,150



“REASONS I’M ON S@RMS [SARMS] AT 17”

Views: 64,500

Likes: 5,368



“JUST TELL YOUR PARENTS THEY’RE [SLDS] VITAMINS”

Views: 54,500

Likes: 11,100

6. SOME SITES SELLING POTENTIALLY ILLEGAL SLDs REACH 1.8M FOLLOWERS VIA TIKTOK INFLUENCERS

Some websites selling potentially illegal SLDs are using networks of TikTok influencers with a total of nearly 1.8 million followers to promote their products, often paying influencers commission on sales.⁸⁵

Researchers identified 35 TikTok accounts that were judged to be actively involved in promoting the sale of potentially illegal SLDs through affiliate marketing schemes, potentially enabling them to financially benefit from sales. Accounts were included if they fit the following criteria:

- ▶ They were found to have promoted websites selling SLDs through affiliate marketing schemes, either using discount codes or affiliate links.
- ▶ The websites they promote sell SLDs, such as peptides or SARMs that are potentially illegal when sold for human consumption under US law.

In total, these accounts have 1,797,800 followers and their videos have been “liked” nearly 63 million times.⁸⁶ Out of these 35 accounts, two present as female and the rest present as male. Further detail on how accounts were identified and their followers measured are available in Appendix I.

The accounts all belong to users who post videos displaying their physiques or techniques for gaining muscle. Many openly documented their own experiences with SLDs or uploaded videos in an educational style that highlighted supposed benefits of SLDs, often ignoring or downplaying the health risks.

Within this set of 35 accounts researchers identified 13 websites selling SLDs that ship to the US and are being promoted through affiliate marketing.

SITES IN OUR STUDY SELLING SLDS REACH 540 TIMES AS MANY FOLLOWERS THROUGH INFLUENCERS

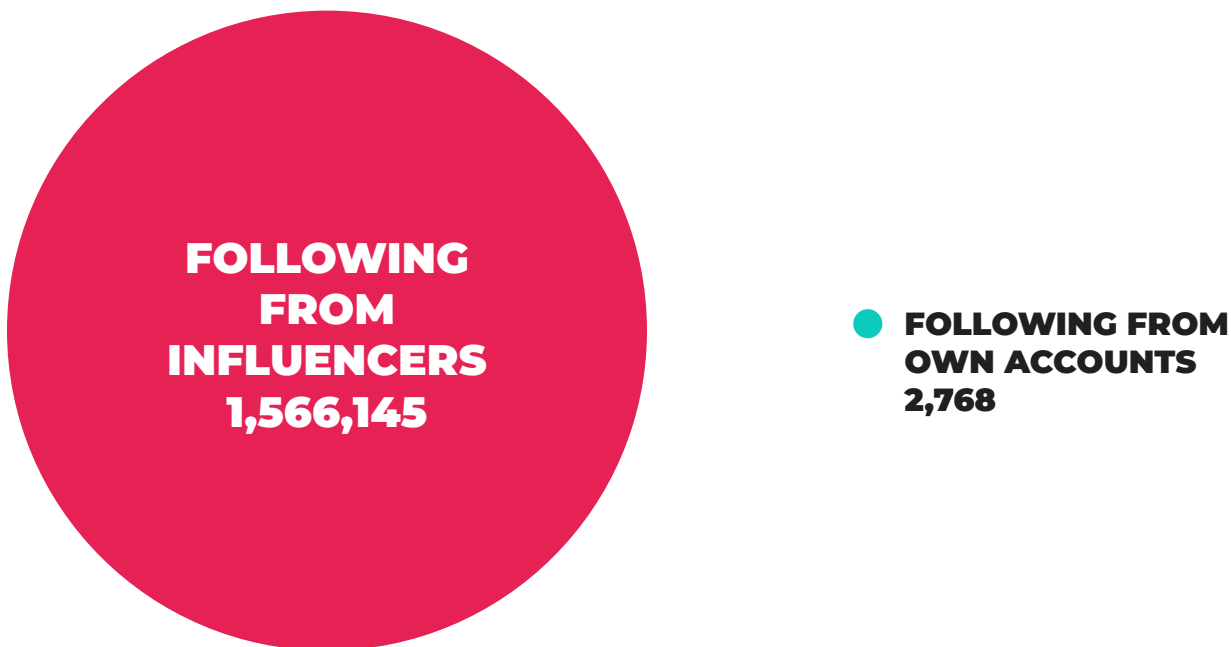
Websites identified in our study as selling potentially illegal SLDs reach 540 times as many followers on TikTok through affiliate schemes with influencers, than through their own TikTok accounts.

To measure the increase in reach achieved through affiliate marketing, researchers compared how many followers websites have on TikTok accounts they directly operate, if they have such accounts, with the number of followers their affiliated influencers have.

Out of the 13 websites identified as having affiliated influencers on TikTok, just six directly operate their own TikTok accounts with 2,768 followers in total.

The same six websites that directly operate TikTok accounts are partnered with 25 of the 35 influencers we studied in total. This subset of 25 affiliated influencers have 1,566,145 followers.

This means that where it is possible to compare TikTok accounts directly operated by websites selling SLDs to accounts belonging to influencers affiliated with them, we find that influencers grant them access to a total following 540 times larger than that granted by their own accounts.



CASE STUDY: THE INFLUENCER HOMEBREWING STEROIDS AND MARKETING TO TEEN BOYS

Username: Teach_me_roids

Followers: 40,700

Partnership: SwissChem.is

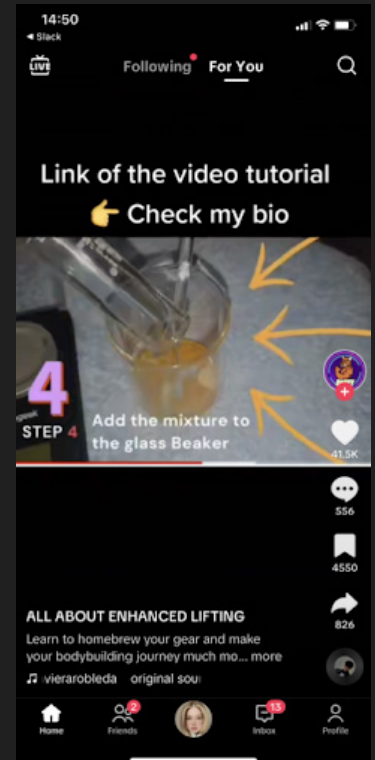
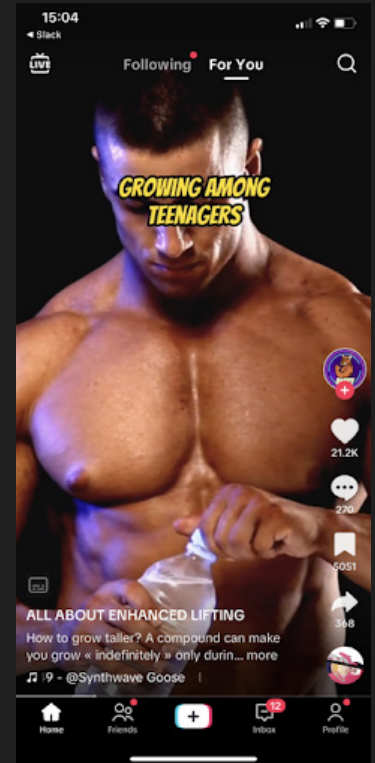
Teach_me_roids is a TikTok influencer who creates misleading pseudo-educational content, actively marketed towards teenagers. His bio contains a 10% discount code for SwissChem.is.⁸⁷

He encourages teenagers to self-medicate during puberty in order to suppress their estrogen levels, which he claims will increase their height and genital size.⁸⁸

The harmful side effects of this advice are addressed flippantly and he recommends that teenage boys take steroids in their twenties to combat the side effects of suppressing estrogen during puberty.⁸⁹

These videos overtly target teenage boys, with hashtags such as #teenfitness and #teenbodybuilding included in the captions.⁹⁰

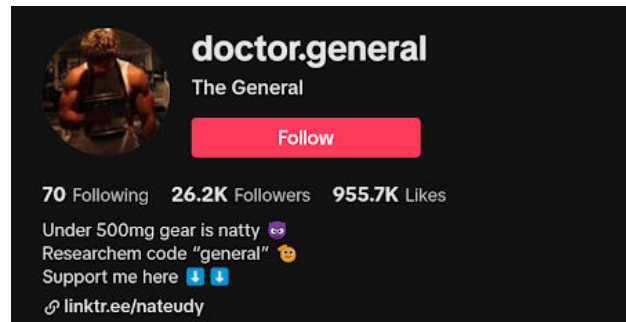
Another set of TikTok videos from the account that have been viewed 437,000 times direct followers to a YouTube video, in which Teach_me_roids demonstrates how to homebrew anabolic-androgenic steroids using amateur laboratory equipment.⁹¹ The YouTube video has almost 17,000 views and contains links to websites where raw materials can be purchased.



7. INFLUENCERS ARE EARNING COMMISSION ON THE SALE OF SLDs THAT THEY PROMOTE ON TIKTOK

All 35 SLD influencers identified by this report are involved in affiliate schemes with websites selling potentially illegal SLDs, potentially allowing these influencers to benefit financially from sales of drugs.

Affiliate marketing involves partnerships between businesses and individuals – or “affiliates” – where individuals can earn money by promoting the business’ products in exchange for a commission on sales.⁹² Discount codes and affiliate links are common features of affiliate marketing, which enable websites to track the amount of sales driven by a given influencer.⁹³



For each of the 35 influencers, researchers recorded screenshot evidence that they had encouraged their followers to buy SLDs either by promoting an affiliate link or a personalized discount code for a website selling SLDs. Where discount codes were advertised, researchers confirmed that they functioned by providing a discount at the relevant website.

Bodybuilder accounts typically embedded their discount codes or affiliate links in their TikTok bios or in “link-in-bio” tools such as Linktree or Direct.me. Promotion would at times be preceded by encouraging language such as “Pioneering Human Evolution” or “Under 500mg gear is natty”.⁹⁴

Some accounts would encourage followers to use the codes or links in order to provide support, such as by stating “Support me here ↓” before linking to websites selling SLDs.⁹⁵ Other accounts took a slightly different approach, instead posting videos encouraging followers to buy specific products using their discount codes.

AFFILIATE SCHEMES OFFER PERKS INCLUDING 30% COMMISSION

Websites selling SLDs are not always open about the details of their affiliate schemes, such as the commission paid to influencers. However, researchers were able find examples of affiliate schemes, such as the following from Next Chems, which promises its affiliates the following:

- ▶ 20% commission on each sale
- ▶ Up to 30% commission on total monthly sales of more than \$2,000
- ▶ Flexible payments in Bitcoin or other cryptocurrencies, or by bank transfer
- ▶ A 10% coupon code for each recorded sale in addition to commission
- ▶ No contracts, allowing influencers to promote other sites and products alongside⁹⁶

8. SOME SITES SELLING SLDs SKIRT THE LAW BY PRESENTING DRUGS AS “RESEARCH CHEMICALS”

Some sites selling SLDs via TikTok influencers appear to skirt the law by claiming their products are not for human consumption, despite the fact they are clearly being marketed as drugs.

Disclaimers stating that products are “research” chemicals, “not for human consumption” or intended for “laboratory use” appeared on 10 out of the 13 websites identified as selling SLDs via bodybuilder influencers on TikTok. These appeared either on individual product listings or elsewhere on the websites, sometimes hidden within large blocks of text.

The inclusion of these disclaimers appears to be an attempt to evade enforcement action. According to US law, the sale of both SARMs and peptides – the two categories of SLDs being sold on these websites – is prohibited when they are marketed as drugs.⁹⁷ But this opens up a loophole where they can be sold legally so long as they are not intended for human consumption.

The FDA has made clear that such disclaimers do not hold weight when products are also being marketed as drugs. This was illustrated by a public letter sent from the FDA to Warrior Labs, a website selling SLDs, warning that its SARM products were considered to be drugs regardless of such disclaimers.⁹⁸ To back up this claim, the FDA pointed to statements on the seller’s website and social media indicating that its products are intended for human use.⁹⁹

The FDA has also separately warned about the role of influencers in promoting the use of SARMs, stating: “Social media posts by influencers and sellers of SARMs contribute to the availability and promotion of these dangerous products...Online vendors and social media influencers are using social media to make SARMs seem safe and effective”.¹⁰⁰

AFFILIATE SCHEMES, DESCRIPTIONS AND REVIEWS IMPLY PRODUCTS ARE INTENDED FOR HUMAN USE

Despite disclaimers, all 13 websites selling SLDs analyzed in this report market their products in ways that could imply their products are for human consumption. This is primarily demonstrated by their decision to partner with TikTok bodybuilding influencers, who in turn encourage their followers to purchase and consume SLDs, but additional evidence can also be found in their product reviews and descriptions.

Researchers found that several websites selling SLDs included usage directions in product descriptions. Amino Asylum, a website selling SARMs, provides a detailed “Usage Guide” containing dosage directions and supposed health benefits of several different drugs that the website describes as SARMs.¹⁰¹ The guide openly refers to the products as “PEDs” (Performance Enhancing Drugs) and claims it helps users “understand how to harness the power of the products sold by Amino Asylum”.¹⁰²

Usage Guide

This guide was built to help you better understand how to harness the power of the products sold by Amino Asylum.

Ostarine

★ Administration Route : Oral

★ Dosage : 5-30 mg

★ Frequency: Daily

What is Ostarine?

Ostarine is a Selective Androgen Receptor Modulator (SARM). While traditional androgenic hormones do increase muscle mass and strength, they typically also aromatize into estrogen and can bind to unwanted tissues such as the prostate, causing unwanted side effects. SARMS have similar anabolic properties to traditional anabolic steroids but with more selective receptor targeting and with minimal aromatization, making them much more tolerable than traditional hormonal PEDs.

Product reviews left on its website also show that it is aware customers are purchasing drugs for human consumption. One reviewer alluded to having orally consumed the SARM Ostarine, noting that the drug is “not “flavored” and contain[s] no artificial flavoring additives.”¹⁰³

Another customer claims that Amino Asylum’s RAD-140 was their “First SARM and or Steroid cycle”, writing: “You’ll see small gains in strength and overall pumps hardness depending on your initial leanness, years of training, muscle maturity”.¹⁰⁴

ChemPerfect, another website selling SARMS, encourages deceptive labeling of payments made through Venmo when purchasing SLDs on their website. When checking out an item from their online store, they suggest describing the payments as “groceries” and state that orders will be canceled if product names or order numbers are mentioned in payment descriptions.¹⁰⁵

CASE STUDY: SELF-DESCRIBED “DOCTOR” WITHOUT MEDICAL LICENSE CLAIMS SLDs ARE RISK-FREE

Username: DrTonyHuge

Followers: 28,600

Partnership: SwissChem.is, NextChems

“Dr Tony Huge”, whose real name is Charles Anthony Hughes and who is in fact not a licensed medical doctor, runs a TikTok account where he recommends SLDs and supplement routines to his audience.¹⁰⁶

Hughes is the man behind Enhanced Labs, formerly Enhanced Athlete, a supplement website. He previously came under fire for selling the dangerous weight loss drug DNP.¹⁰⁷

In his videos, Hughes consistently underplays the health risks of steroid abuse and encourages abuse of experimental SARMs. He routinely undermines the scientific community, claiming that the risks of SARMs should be up for public debate.¹⁰⁸

In one video, Hughes recommends his TRT+ (Testosterone Replacement Therapy) program, claiming that taking TRT alongside anabolic-androgenic steroids almost completely removes side effects, stating “we can be anabolic without side effects or with very very minimal side effects”.¹⁰⁹

Hughes’ bio contains a link to his profile on Direct.me, which in turn links users to a list of websites selling SLDs with discount codes.¹¹⁰ He also encourages followers to sign up to affiliate schemes for sites selling potentially illegal SLDs, providing sign up links.¹¹¹



9. RECOMMENDATIONS: TIKTOK MUST ENFORCE ITS RULES ON THE PROMOTION OF DRUGS

This report reveals TikTok’s role in the promotion and marketing of steroids and steroid-like drugs (SLDs). Despite TikTok’s community guidelines prohibiting the trade or promotion of SLDs, and the potential illegality of marketing these chemicals as providing health benefits without warning labels, such content is widespread on the platform.¹¹²

TikTok’s failure to enforce its own rules disproportionately risks harm to young people. Over half of the views on videos identified in this report were from users aged 18–24. TikTok withholds data on how many users under 18 are viewing this content, so the true impact on the platform’s young users could be even greater.

Our findings suggest TikTok is increasing access to a number of these dangerous drugs. Urgent action is needed. Applying the principles of CCDH’s STAR Framework, we propose the following recommendations for TikTok and for policymakers:

1. TikTok must enforce its own rules prohibiting the promotion of drugs, including:
 - a. Removing content which promotes or markets potentially illegal SLDs
 - b. Penalizing users who repeatedly violate rules on drug content
 - c. Addressing the prevalence of links in user bios that host drug sales
2. TikTok must be transparent about teen users accessing SLD content
3. Lawmakers must close loopholes allowing sites selling SLDs to operate online

The CCDH STAR Framework is the global standard for social media reform. It outlines the four key components of effective reform and social media governance: safety by design, transparency, accountability to independent and democratic bodies, and responsibility for companies and their senior executives.¹¹³ These principles underpin CCDH’s recommendations in each of our reports.

S

Safety by Design – social media platforms must ensure that new products and features are safe by design from the outset, before public release.

T

Transparency – social platforms must be open and honest with the public, introducing transparency of data, algorithms, advertising and enforcement.

A

Accountability – social platforms must be held accountable to democratic and independent bodies charged with enforcing these principles.

R

Responsibility – senior executives must be held responsible for implementing regulations, with consequences for omissions and failings.

1) TIKTOK MUST ENFORCE ITS OWN RULES PROHIBITING THE PROMOTION OF POTENTIALLY ILLEGAL DRUGS

● *Safety by Design, Transparency*

TikTok's rules prohibit trading and depicting potentially illegal drugs, with an explicit ban on "showing or promoting recreational drug use, or the trade of alcohol, tobacco products, and drugs."¹⁴ This report shows that content violating TikTok's standards is potentially being viewed hundreds of millions of times, a result of the platform's failure to enforce its rules.

TikTok must immediately enforce its own community guidelines and prohibit the marketing of these potentially illegal SLDs. This should include:

- ▶ **Removing content that markets potentially illegal SLDs.** The SLDs highlighted in this report are dangerous and potentially illegal. Medical authorities are clear that misuse of these substances can cause infertility, deformation, and even death.¹⁵ Content marketing these substances should be removed from the platform.
- ▶ **Penalizing users who repeatedly violate rules on drug content.** Consistent enforcement will be required to address the marketing of potentially illegal SLDs on TikTok. Content creators who repeatedly violate community standards by marketing controlled substances should be penalized by the platform.
- ▶ **Addressing the prevalence of links in user bios that host drug sales.** TikTok's bio character limit restricts users from including more than one weblink on their profile. To share more than one link, creators use "link-in-bio" tools such

as Linktree which direct to a landing page with multiple weblinks. This report has documented the prevalence of links which lead to websites selling potentially illegal SLDs, including bodybuilder influencers all offering promotional codes or affiliate links to facilitate purchases.

2) TIKTOK MUST BE TRANSPARENT ABOUT TEEN USERS ACCESSING SLD CONTENT

● *Transparency*

By analyzing existing transparency data offered by TikTok, this report is able to show that US users aged 18-24 have viewed content posted to SLD hashtags 420 million times, amounting to over half the total views of this content.

Armed with this transparency data, organizations like ours are able to identify online harms and demand action from platforms to address them. However, TikTok does not currently allow researchers to view data about how many of the platform's youngest users, aged under 18, are viewing harmful content.

This is important because content identified by our research shows that some influencers are deliberately targeting teens with content that recklessly promotes SLDs, while other influencers are themselves aged under 18 and promoting their use of SLDs to achieve body image goals.

TikTok's decision to withhold basic data about the content that users aged under 18 are viewing leaves open the high likelihood that an even younger audience is being harmed by content encouraging drug abuse. TikTok should be transparent about the number of underage users engaging with SLD content as a necessary first step in reducing the potential for harm on its platform.

3) POLICYMAKERS MUST CLOSE LOOPHOLES THROUGH WHICH SITES SELLING SLDs OPERATE ONLINE

Accountability, Responsibility

Sites selling SLDs exploit loopholes in the law to sell substances that are potentially illegal for human consumption or without prescription. These loopholes include such things as marketing these products as “research chemicals” and inserting disclaimers that the drugs are not suitable for humans.¹¹⁶

Influencers on TikTok are clear that the drugs they promote are intended for humans. We have seen evidence which suggests that these influencers are receiving commission on the drugs that they are promoting, providing a clear incentive to recklessly promote the supposed benefits of SLDs and downplay the risks.

The US Food and Drug Administration, the FDA, has issued warnings about social media’s role in the popularity and sale of SLDs, saying “social media posts by influencers and sellers of SARMs contribute to the availability and promotion of these dangerous products”.¹¹⁷

Policy makers must investigate the loopholes that have resulted in the widespread availability of potentially illegal SLDs online, and take proportionate steps to clamp down on their use while preserving access for genuine prescribed and research purposes.

APPENDIX 1: METHODOLOGY

This appendix outlines in more detail how researchers identified social media accounts, hashtags and content that promotes the abuse of SLDs.

HOW WE IDENTIFIED SLDs STUDIED BY THIS REPORT

This report deliberately focuses on three classes of drug, all of which are potentially illegal for sale as SLDs and carry significant health risks: anabolic-androgenic steroids, peptides and SARMs.¹¹⁸

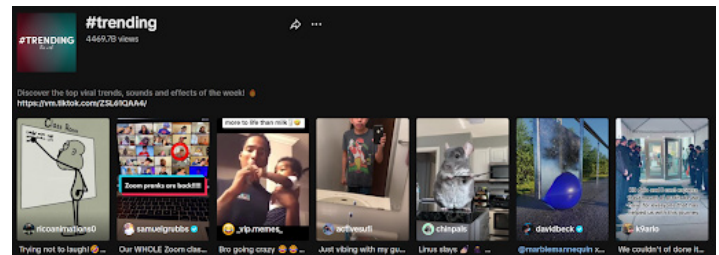
To assist in identifying online content referring to these SLDs, researchers compiled a list of common drugs in each category drawn from regularly updated lists produced by the World Anti-Doping Agency (WADA) and the US Anti-Doping Agency (USADA).¹¹⁹ This list is reproduced in Appendix II of this report.

HOW WE IDENTIFIED TIKTOK HASHTAGS CONTAINING CONTENT PROMOTING ABUSE OF SLDs

In order to analyze the reach of videos posted to TikTok hashtags that frequently promote the abuse of SLDs, researchers first collected a long list of hashtags using the following terms:

- ▶ Words and phrases associated with SLD use
- ▶ Names of individual SLDs and classes of SLDs (see Appendix II)
- ▶ Misspellings of the above words, phrases and names

This long list was supplemented with other relevant hashtags encountered on TikTok videos promoting SLD use in the course of our research and through TikTok's own recommendation feature, which suggests related hashtags.



Example of TikTok's presentation of videos with #trending, available at [tiktok.com/tag/trending](https://www.tiktok.com/tag/trending)

Each hashtag in this long list was then assessed to determine whether at least half of the top 20 videos featuring a given hashtag promote, sell or normalize SLDs. On viewing a hashtag, TikTok orders videos from most viewed to least, allowing us to define the "top 20 videos" as the first 20 that TikTok presents on a hashtag page. Where fewer than 20 videos were visible for a hashtag, researchers assessed all the videos presented by TikTok.

Two researchers were then asked to carry out independent assessments using this criteria, and hashtags were only included in the short list for our final analysis if both researchers agreed in their assessment. Hashtags were also eliminated from our long list if TikTok did not allow access to data about the number of views from US or 18–24 year old users for videos posted with that hashtag in its Creative Center.¹²⁰

Using this methodology we identified a final short list of 30 hashtags frequently used to promote SLD abuse.

HOW WE MEASURED VIEWS OF VIDEOS POSTED TO HASHTAGS USED TO PROMOTE SLDS

For each of the 30 hashtags in our final short list (see above), we used TikTok’s Creative Center to record how many views videos posted to these hashtags have received from US users in the three years to 31 August 2023, and the proportion of those views that came from users aged 18–24.¹²¹ The period of three years was selected as it is the maximum that TikTok’s Creative Center allows. A full list of these hashtags is available in Appendix III of this report.

Videos posted to these hashtags are referred to as amassing “up to” a certain number of views as some videos may have been posted with more than one hashtag under analysis, causing any views they amassed to be counted more than once. Unfortunately TikTok does not allow researchers access to data about all of the individual videos posted to each hashtag that would be required to account for this. In its absence we have used the words “up to” to signify that this should be considered an upper estimate.

Insights

Last 7 days

United States

Posts

1M

Last 7 days, United States

712M

Overall

Views

6B

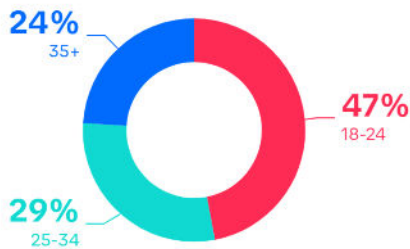
Last 7 days, United States

5T

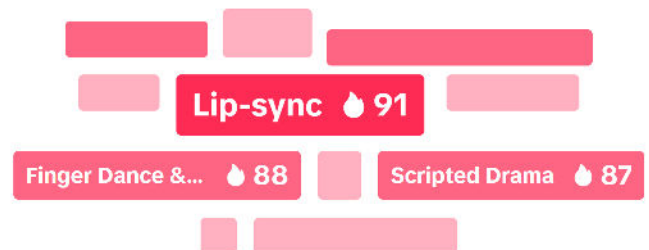
Overall

Audience insights

Age range



Related interests



Examples of data presented in TikTok’s Creative Center for the hashtag #trending¹²²

HOW WE IDENTIFIED ACCOUNTS AND WEBSITES PROMOTING THE SALE OF SLDs

In order to analyze the potential reach of TikTok influencers who promote websites selling SLDs, researchers collected a long list of influencer accounts using the following approaches:

- ▶ Identifying SLD influencers in the course of our hashtag research (see above)
- ▶ Searching “link in bio” sites such as Linktree for profiles mentioning SLDs
- ▶ Searching “link in bio” sites for profiles mentioning websites known to sell SLDs

Accounts identified in this way were included in our analysis if they met the following criteria:

- ▶ They were found to have promoted websites selling SLDs through affiliate marketing schemes, either using discount codes or affiliate links. Researchers recorded whether influencers promoted these websites using a “link in bio” or in posted content.
- ▶ The websites they promote sell SLDs, such as peptides or SARMs that are potentially illegal when sold for human consumption under US law.

Using this methodology researchers were able to identify 35 TikTok influencer accounts that met these criteria, with links to 13 different websites selling potentially illegal SLDs. For each of these TikTok accounts, researchers recorded how many followers and likes they had on 5 September 2023 and recorded screenshot evidence of them promoting SLD websites.

Researchers summed the follower totals of accounts on the final short list in order to estimate their total potential audience. The number of people reached could be smaller as each account’s audience of followers could overlap with another account’s. Unfortunately TikTok, like most platforms, does not currently offer researchers the necessary data access or tools to determine how many unique users follow a given set of accounts.

Further investigation found that of these 13 websites, just six directly operate TikTok accounts. This allowed for a further comparison of how many followers these six websites reach through TikTok accounts they operate directly, versus followers reached by influencers they are known to partner with.

APPENDIX 2:

LIST OF SLDS STUDIED BY THIS REPORT

To assist in identifying online content referring to these SLDs, researchers compiled the following list of common drugs in each category drawn from regularly updated lists produced by the World Anti-Doping Agency (WADA) and the US Anti-Doping Agency (USADA).¹²³

Following the approach taken in WADA’s International Standard Prohibited List, this report classes together peptides, which are strings of amino acids that can stimulate the production of hormones, typically human growth hormone, with

other drugs that have similar chemical structure or biological effects.¹²⁴ Throughout the report we refer to these drugs in short as “peptides”.

Drugs marked with an asterisk differ pharmacologically from SARMs, but have been included in that category in recognition of the fact that they are frequently marketed as SARMs, sharing similar effects and legal status.¹²⁵ This reflects the USADA’s guidance which lists these drugs alongside SARMs in recognition of the way they are marketed to athletes.¹²⁶

Type	Substance	Source	Other Names
AAS	Anadrol	USADA	
AAS	Boldenone	USADA	Equipoise
AAS	Dianabol	USADA	
AAS	Nandrolone	USADA	Deca Durabolin
AAS	Oxandrolone	USADA	Oxandrin
AAS	Stanozolol	USADA	Winstrol
AAS	Trenbolone	USADA	Tren
Peptides	BPC-157	USADA	
Peptides	Growth hormone (GH)	WADA	
Peptides	TB-500	WADA	
SARMs	Andarine	USADA	S4
SARMs	LGD-3033	USADA	
SARMs	LGD-4033	USADA	Ligandrol

Type	Substance	Source	Other Names
SARMs	Ostarine	USADA	Enobosarm, MK-2866, S-22
SARMs	RAD-140	USADA	Testolone
SARMs	S23	USADA	
SARMs	TT-701	USADA	
SARMs*	GW501516*	USADA	GW1516, Cardarine, Endurobol
SARMs*	Ibutamoren*	USADA	MK-677, Nutrabol
SARMs*	SR9009*	USADA	Stenabolic
SARMs*	YK-11*	USADA	

APPENDIX 3: LIST OF HASHTAGS

Researchers compiled the following list of TikTok hashtags that frequently promote the use of SLDs. Figures for the number of views from US users in the three years to 31 August 2023 and the proportion of those views that come from 18–24 year olds are sourced from TikTok’s Creative Center.¹²⁷ Please see Appendix I for more detail on our methodology in identifying these hashtags.

Category	Hashtag	US 3 Year Views	US % 18–24	US 18–24 3 Year
AAS	steroid	166,000,000	74%	122,840,000
AAS	roids	100,000,000	85%	85,000,000
AAS	notnatty	66,000,000	86%	56,760,000
AAS	trensetter	11,000,000	53%	5,830,000
AAS	trenbolon	8,000,000	82%	6,560,000
AAS	dianabol	7,000,000	88%	6,160,000
AAS	winstrol	6,000,000	37%	2,220,000
AAS	roid	6,000,000	78%	4,680,000
AAS	Anadrol	4,000,000	40%	1,600,000
AAS	trenbolona	3,000,000	87%	2,610,000
AAS	roids 🥬	3,000,000	81%	2,430,000
AAS	notnatty 😞😞	3,000,000	90%	2,700,000
AAS	trencycle	325,000	37%	120,250
AAS	decadurabolin	301,000	47%	141,470
AAS	anabolen	67,000	81%	54,270
AAS	roidtok	50,000	59%	29,500
Peptide	peptides	75,000,000	55%	41,250,000
Peptide	hgh	57,000,000	54%	30,780,000
Peptide	peptidetherapy	11,000,000	52%	5,720,000
Peptide	bpc157	8,000,000	43%	3,440,000
Peptide	humangrowthhormone	6,000,000	48%	2,880,000
Peptide	Sermorelin	2,000,000	50%	1,000,000
Peptide	tb500	2,000,000	51%	1,020,000
Peptide	bpc157peptide	1,000,000	56%	560,000
Peptide	bpc157injection	1,000,000	67%	670,000
Peptide	rad140	31,000,000	82%	25,420,000
SARMs	YK11	5,000,000	88%	4,400,000
SARMs	lgd4033	3,000,000	84%	2,520,000
SARMs	MK2866	988,000	74%	731,120
SARMs	ostarin	58,000	37%	21,460
TOTAL		586,789,000	72%	420,148,070

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- ²⁷ See Section 6 of this report for more detail.
- ²⁸ See Section 7 of this report for more detail.
- ²⁹ See Section 6 of this report for more detail.
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⁶⁶ (p) 3 The term “new drug” means— (1) Any drug (except a new animal drug or an animal feed bearing or containing a new animal drug) the composition of which is such that such drug is not generally recognized, among experts qualified by scientific training and experience to evaluate the safety and effectiveness of drugs, as safe and effective for use under the conditions prescribed, recommended, or suggested in the labeling thereof, except that such a drug not so recognized shall not be deemed to be a “new drug” if at any time prior to the enactment of this Act it was subject to the Food and Drugs Act of June 30, 1906, as amended, and if at such time its labeling contained the same representations concerning the conditions of its use; or

(2) Any drug (except a new animal drug or an animal feed bearing or containing a new animal drug) the composition of which is such that such drug, as a result of investigations to determine its safety and effectiveness for use under such

conditions, has become so recognized, but which has not, otherwise than in such investigations, been used to a material extent or for a material time under such conditions.

[...]

SEC. 301. [21 U.S.C. 331] The following acts and the causing thereof are hereby prohibited:

(a) The introduction or delivery for introduction into interstate commerce of any food, drug, device, tobacco product, or cosmetic that is adulterated or misbranded.

(b) The adulteration or misbranding of any food, drug, device, tobacco product, or cosmetic in interstate commerce.

(c) The receipt in interstate commerce of any food, drug, device, tobacco product, or cosmetic that is adulterated or misbranded, and the delivery or proffered delivery thereof for pay or otherwise.

(d) The introduction or delivery for introduction into interstate commerce of any article in violation of section 404, 415, 505, or 564.

[...]

SEC. 303. [21 U.S.C. 333] (a)(1) Any person who violates a provision of section 301 shall be imprisoned for not more than one year or fined not more than \$1,000, or both.

[...]

SEC. 505. [21 U.S.C. 355] (a) No person shall introduce or deliver for introduction into interstate commerce any new drug, unless an approval of an application filed pursuant to subsection (b) or (j) is effective with respect to such drug.

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(2) Any drug (except a new animal drug or an animal feed bearing or containing a new animal drug) the composition of which is such that such drug, as a result of investigations to determine its safety and effectiveness for use under such conditions, has become so recognized, but which has not, otherwise than in such investigations, been used to a material extent or for a material time under such conditions.

[...]

SEC. 301. [21 U.S.C. 331] The following acts and the causing thereof are hereby prohibited:

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(b) The adulteration or misbranding of any food, drug, device, tobacco product, or cosmetic in interstate commerce.

(c) The receipt in interstate commerce of any food, drug, device, tobacco product, or cosmetic that is adulterated or misbranded, and the delivery or proffered delivery thereof for pay or otherwise.

(d) The introduction or delivery for introduction into interstate commerce of any article in violation of section 404, 415, 505, or 564.

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TikTok's Toxic Trade
Published September 2023
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