

and used America's fear of a changing society and placed the blame on those who partook in drugs, including marijuana. Nixon was successful in creating a clear "us vs. them" picture through his efforts and amped up the usage of drugs to be a "serious national threat to the personal health and safety of millions of Americans." This began his War on Drugs campaign.

It was June 1971 when Nixon framed marijuana as public enemy number one. In 1972, the commission unanimously recommended that they decriminalize possession of marijuana, but Nixon ignored this. The Drug Enforcement Administration (DEA), which is responsible for dealing with drug use and drug smuggling in the United States, was formed by Nixon in 1973.

By the 1990s, reports on the public opinion on marijuana began to change as support for its legalization slowly began to increase. By 2000, its support jumped up to 31%; in 2013, Americans showed 58% support to legalize and the 2015 poll showed 71% in favour of legalization. This, in part, was due to people realizing that, by partaking in smoking marijuana, they were not actually overcome by schizophrenia, the urge to murder, or drop out of college.

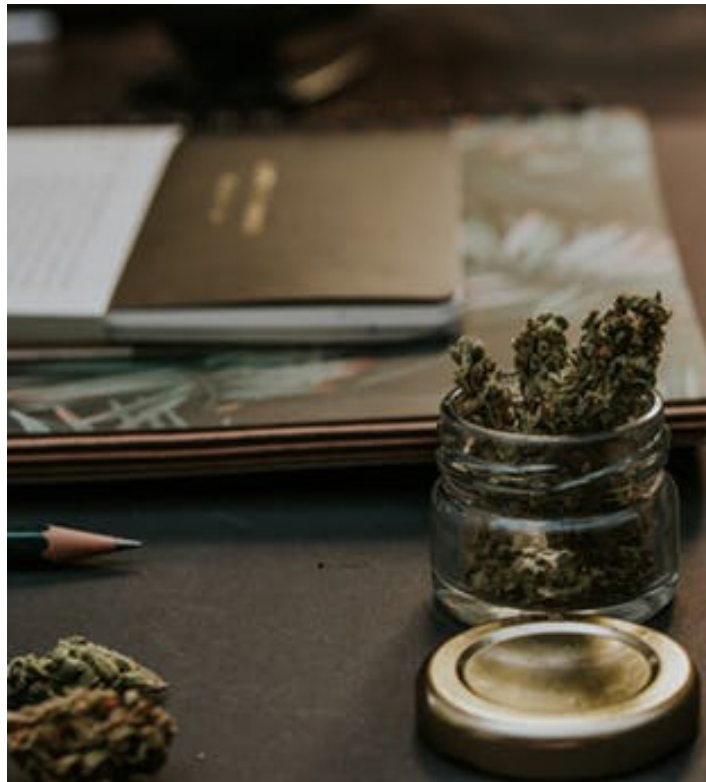
Now that marijuana is legalized, I thought I would touch upon the laws and regulations being put in place. You must be 18 years of age to buy or consume marijuana. You will be able to buy it dried, fresh, or in oil form. Adults can legally grow up to 4 cannabis plants per household for their own personal use. Should an adult sell to a minor, the maximum jail penalty is 14 years. The same laws apply to driving high as they do to driving drunk.

Smoking marijuana will be prohibited

within vehicles, anywhere a child is present, or where tobacco is restricted. Police are allowed to conduct roadside saliva tests if they suspect someone to be driving high; the laws on driving high mirror those of driving drunk. As of October 17, Edmonton will have 17 private retailers available to legally sell marijuana. The city has received 242 retail proposals, but it is unclear how many will be approved.

Each province sets specific rules on weed, so if you intend to leave Alberta, it is best to research the province's laws. For example, in Manitoba, you must be 19 years of age, and public consumption of marijuana is prohibited, which includes smoking on the streets or sidewalk, beaches, parks, or restaurant patios.

Whether you have been enjoying marijuana for years or you are now curious to see what it is all about, please remember to stay safe and never drive high.



THE BOLT NEWS

By Students, For Students.



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HALLOWEEN TRADITIONS

Natasha Eklund examines the historical roots of our spookiest holiday. Where did it originate, and why?

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CUE POETRY

Poetry returns to The Bolt, featuring work by J. Becks and one anonymous writer. Want to submit? See page 5.

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"IT'S WHAT'S INSIDE THAT COUNTS"

Donovan Makus talks the human body and what's inside it, and answers a question you never asked: what is gut flora?

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HELLO MARY JANE

Natasha Eklund is back to talk about the history of marijuana which would lead to its legalization in Canada.

Halloween Traditions

by Natasha Eklund

Halloween is an exciting time of year: a time to get all dressed up, carve pumpkins, eat candy, and, of course, party.

Halloween's origins are found in the pagan Celtic festival, Samhain. This festival occurred in autumn and contains a mix of supernatural beliefs with a mix of harvest, similar to our modern Halloween holiday. The Samhain festival was seen as marking the end of the harvest and the beginning of winter. The tradition was in celebration of the final harvest, closing the stages of growth, and the beginning of winter. It is also known as a Fire Festival, as is seen as an assertion of life in the presence of an approaching dark and cold winter. It is associated with dark, supernatural beliefs connected with death or the underworld, and this festival is seen as a time of instability, leaving humans "susceptible to divine and supernatural interference," which is where we get the idea of spirits being free to roam earth on Halloween.

This festival became Christianized in 1550 and renamed to All Saints Day, which occurs on November 1. It was around this time that the evening before November 1 became known as "All Hallows' Eve," a term used until mid-1700s; this too adapted some pagan characteristics. The combination tradition of All Hallows' Eve and All Saints Day was brought to Canada in the mid-to-late 1800s by Irish and Scottish immigrants who were escaping the potato famine. People both celebrated and feared October 31 as the idea that

the dead would be able to roam free among the living continued on. It was believed that, if the dead were mistreated, their spirits would haunt and punish the community. It was from this that people began to wear masks and costumes to frighten and confuse these spirits. From this, we are able to see how our modern tradition of Halloween was formed as many different beliefs and practices were slowly being merged together. Due to the Catholic Christianization of the Samhain tradition, the Devil began to be associated as one of the halloween icons, alongside witches.

The persecution of so-called witches began roughly in the 1480s. Accused individuals, most of whom were women, started being tortured, imprisoned, and executed for witchcraft. In 1590, King James VI of Scotland set out to meet his soon-to-be queen, Anne of Denmark, on October 31, but due to a horrible storm, had to turn back. James blamed this storm on witches in North Berwick, which began the horrible trials and executions. Scotland had seen approximately 4,000 individuals burned alive at the stake for witchcraft, and North Berwick saw 70-200 individuals being horribly tortured, imprisoned, and executed all under authority of King James. Some "signs" of witchcraft included having red hair, unusual "devils marks" (aka birthmarks), or being left-handed. As well, older women who worked with herbs and medicine were also a prime target. It is likely that many of these individuals had ended up confessing to witchcraft simply to end the

member of the House of Commons, quoted a British parliament member, who claimed that the defeat of the Spanish-American War and the defeat of the French in the Franco-Prussian War was easily credited to the habit of smoking cigarettes, and that if individuals smoked, they would lack the vitality to become good soldiers. However, they were referring to tobacco more so than marijuana.

By the early 1920s, the Canadian government had passed harsh drug laws which included a six month minimum jail sentence for possession. By the late 1940s and 1950s, the mindset of drug users was that they had "inadequate personalities" and were, therefore, a threat to society due to their criminal activities. In Canada, however, the drug use was most commonly referred to as heroin as the use of marijuana was still rare.

In fact, a large reason for the marijuana prohibition in American is thanks to Harry Anslinger, a veteran of the Bureau of Prohibition whose term began in the late 1930s. Anslinger was one of the most passionate anti-drug advocates--he even toured the country giving speeches on why marijuana should be illegal. His information included creative stats and compelling anecdotes which were greatly manipulated and possibly made up. Anslinger preached that those who partook in marijuana would rob, rape, and murder strangers, police officers, and even members of their family. As well, Anslinger appealed to the public's scare tactic of racial overtones as he implied that marijuana was introduced to the United States from Mexico.

The Tax Act of 1937 was one of the first of the government's effort in criminalizing marijuana. This involved taxing all people involved in marijuana production, including anyone who im-

ported, manufactured, produced, sold, or prescribed marijuana. By the time the 1960s rolled around in America, there was a dramatic social change, and marijuana was at its centre. This decade was the time of hippies and beatniks--two cultural groups who pushed against society's norms and controversial government policies. They were about freedom, civil rights, and peace. The government's response was to increase the criminalization of drugs in efforts to stop this movement and bring society back to how it was before the 1960s.

It did not help that Richard Nixon believed that drugs were detrimental to society; they added a criminal element that users should be removed. Nixon was known for his paranoia and irritation towards "otherness" (Jews, women, blacks, Democrats, Congress and foreigners). Nixon capitalized on this



Hello, Mary Jane: The Legalization of Marijuana

by Natasha Eklund

As we know, marijuana (party parsley, Lucifer's lettuce, hippy cabbage or wacky tobacco) is legalized and has been the subject of hot debate. Due to this historic occasion, I decided to research the history of this controversial drug. Unfortunately, the majority of the research I will present is based within the States as it was difficult to find much information on marijuana in Canada.

It's a no-brainer that this plant has been around for millions of years and has been recorded for various uses by humans for at least 5,000 years. To begin addressing this complex history, I thought I would start with the basics. There are three distinct genera of Cannabis: sativa, indica, and ruderalis. Each strand has its own particular characteristics: sativa is known to grow much taller and its stem is firm (hemp is commonly acquired from this plant), ruderalis is smaller and it tends to be less potent because of its many years of cross-breeding in Central Russia, and the indica plant is shorter and stockier. If you choose to partake in smoking marijuana, you may find you have different experiences, which is based on the strand that you smoke. Sativa tends to create a euphoric feeling, but indica tends to be more mellow and calming.

It is also commonly known that hemp, a product of marijuana, can be used for a variety of products. Hemp stalks can create strong materials that can be used in sails for ships, clothing, plastic, and other purposes. As seen throughout American history,

the cultivation of hemp was encouraged and even required during wartime.

Surprisingly enough, many key historical figures have partaken in and benefited from marijuana. Henry VIII and his daughter, Elizabeth I, issued decrees to encourage hemp cultivation in England. As well, Queen Victoria was prescribed medical marijuana as a pain reliever for menstrual cramps. George Washington and Thomas Jefferson were both successful hemp farmers who had kept detailed notes on their precise process of farming the crop. In historic Chinese culture, cannabis was used frequently for medical purposes, even by the nation's emperors.

Marijuana was banned within the United States in the 1930s, but its name still made its appearance in multiple song lyrics and was credited by many artists. Louis Armstrong released a song in the 1920s called "Muggles," which was, at the time, jazz and blues slang for marijuana. Bob Marley's song "Kaya," the Beatles song "Got to Get You into My Life," and Bob Dylan's song "Rainy Day Women" all make mention of marijuana.

In Canada, the history of marijuana was much harder to find. The Montreal's Woman's Christian Temperance Union (WCU) advocated for restrictions and prohibition on smoking and cigarette usage from 1892-1914. The opposition to smoking was not due to concerns of health, but rather concerns of physical and mental degradation as it was claimed that smoking stunted growth. Robert Holmes, a

torture; as well, many ended up simply dying from the injuries inflicted upon them. One of the brutal and horrific implements of torture used was known as the "breast ripper." This device had 4 pronged levels that would encircle the accused person's breast and rip it off.

In association with witchcraft, cats quickly became a symbol of Halloween as they were known to be connected to witches; this thought dates back to the Middle Ages. It was believed that witches were able to shapeshift into cats and that they would shapeshift their cats into horses to ride. Black cats in particular became associated with Halloween due to the connection with witchcraft and the superstition that black cats are a symbol of bad luck and a bringer of misfortune.

Another common icon and tradition of Halloween is the tradition of pumpkin carving. This originated from the Celtic tradition of carving turnips, which were used to keep away evil spirits. Reports of pumpkins being carved dates back as early as 1820s, but jack-o-lanterns were not a common occurrence or idea until the late 1800s.

Halloween, in early Edmonton, was characterized by the popular pranks of the 1900s which involved tipping outhouses, soaping windows, stealing gates and porch furniture, and attempting to block the street with whatever could be found. The general rule was that any pranking would be accepted as long as no one was hurt and property damage kept minimal--if you ask me, this is would be much more fun than spending an evening watching horror movies. However, pranking had taken a turn, as they begun to get more risky in the 1920s; by 1930 Edmonton's glory days of Halloween pranks had come to an end, The pranks of 1930 involved

damaging sidewalks and fences and derauling a streetcar. There was an instance where eight young men stole and destroyed a horse-drawn wagon.

Trick-or-treating wasn't always a common part of Halloween. In 1927, the town of Blackie, Alberta, was the first to record the phrase "trick-or-treat" in its local newspaper, as some pranksters arrived at a house and demanded a trick or a treat. However, this prank had formed into a new Halloween tradition, as by the 1930s, most children in Edmonton had their own homemade costumes, and by 1940, vacuum-formed masks had become available to buy. If you ever look up the early handmade Halloween costumes, you will see they were quite terrifying. The common costumes children chose were a bit of an issue with presenting race as many children would paint their faces black, and there was a stereotypical "Indian princess" costume.

The popular treats among the early 20th century trick-or-treaters consisted of popcorn, apples (and other fruits), and nuts. Of course, the concerns of Halloween safety were an issue far before the first reported (and false) claim of poison candy in the 1960s. There has been a continuing scare that Halloween candy may be poisoned or altered in some fashion, causing harm to an unsuspecting child. Very rarely are these cases proven true. Sadly, these concerns have brought an end to homemade candy apples and other delicious treats. Just last year, a report of a child eating suspicious candy and falling ill was reported and, after the police tested all candy, they revealed there were no traces of poison.

Now that you know some fun facts about our modern Halloween tradition and how it has developed, go out and have fun, and of course, stay safe!

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HELPING PEOPLE**

**INSPIRED BY:
SERVING MY
COMMUNITY**

**INSPIRED BY:
A CAREER
WITH VARIETY**

You don't need a policing background to become a member of the Edmonton Police Service. Every year we hire people from a wide variety of backgrounds, some of them graduates of Concordia. They all have different educational backgrounds, career paths, and reasons for joining. But the one thing they do have in common is the desire to serve the citizens of Edmonton.

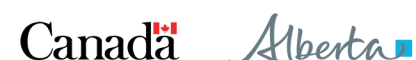
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made by forced labor will not be allowed. The labor chapter also ensures that national laws allow unions and prevent discriminatory hiring policies from taking place. Although it may seem like such practices are already protected, many US firms do business in Canada, and if Concordia students take jobs with such businesses, they can be protected against fallacious practices both at home and abroad. Many women's rights are included as well; they deal with discrimination based on pregnancy, sexual harassment, and gender identity. Having these new rules in place can give those who might be subject to discriminations peace of mind when entering the workforce. Even though it maybe possible for such practices to happen, the deal includes a "non-derogation" clause to make sure legislation is not passed to infringe on the mentioned labor conditions. If anything rises to concern, the three countries can open up a forum for discussion to navigate, if needed. This will hold all governments accountable. With these new protections and policies in place, both current and future graduates can be assured knowing that they, as well as their products, will be protected.

Intellectual Property and Digital Trade

A big section of the new trade deal was designed with regards to intellectual property and patents. Intellectual property, or IP for short, refers to to creations of the mind, such as literary and artistic works, designs, symbols, names, and images used in commerce. All three countries now have the obligation to protect and respect IP across their borders. For any students that are creators of any kind, USMCA seeks to enforce stronger civil and criminal matters, especially for things like music and film production. Another benefit will be to make sure trademarks are better protected; this means that brand-name labels will keep their integrity. Nobody likes knock-off

items that weed their way into retail spaces, and now imported goods will be screened a lot better for such items. Included with trademarks is protection for pharmaceutical patents. US pharma-companies will now have better security for their drugs here in Canada (and visa versa). This does not mean, however, that we should fear an increase in pricing; rather, if there is anything to fear, it would be that the profits of drug companies will continue to grow as protections for them, which means fewer players in the marketplace.

Climate Protections

With the scientific claim that climate change is the biggest threat to humans, the USMCA has a section dedicated to stronger climate protection and adherence to climate regulations. Although it does not come anywhere close to goal outlines in the Paris Climate Accords, all three countries have committed to better protection with respect to wildlife and biodiversity. The environmental protections also include a provision to ensure that each country doesn't pass laws that might go against the outlined goals. The North American Agreement on Environmental Cooperation (NAAEC) is set up to ensure that resolutions with the new climate policies are followed properly. While protecting the climate further will require massive socioeconomic changes, this part of the new trade deal is a step in the right direction for us.

Sunset Clause

The last addition to the new deal is something called a "sunset clause." This means that the terms of the agreement expire after a period of time. With that said, it is important to note that, going forward into the future, the provisions of USMCA are bound to change with new governments being elected and different economic issues that might arise in the future.



USMCA: The New NAFTA, Kind Of

by Reid Offers

A lot has happened between the last issue and now, and the trade negotiators from North America have come together and agreed on a new deal. While the new deal still needs approval from the legislatures to be finalized, a lot has both changed and stayed the same with regards to NAFTA.

The new trade agreement is being called "United States-Mexico-Canada Agreement," or USMCA for short. As uncreative as the name may be for this new trade agreement, it was named on purpose as the three countries wanted to distinguish USMCA from NAFTA.

Most modern economists would contend that free trade is a win-win for all parties involved. Steering clear of protectionist tariffs and opening up new protections for firms and employees, the new trade agreement seeks to change some things from NAFTA. Some of the most major changes brought about from it are listed below:

- Country of origin rules
- Labor provisions
- Intellectual property and digital trade
- Environmental protections



Country of Origin Rules

When I was younger, my baby-boomer father would always complain about the current state of automobiles and how "they don't make 'em like they used to." This is usually said with reference to the fact that a lot of parts are being manufactured in Asia. Under the USMCA, however, this will no longer be an issue, because the majority of cars and trucks being sold in North America will have to abide by new regulations. This means that by 2030, 75% of automobile components and alike will have to be made from parts manufactured right here in North America. What does this mean in regards to pricing? It is hard to say at this point; however, it most likely will not have a huge effect on MSRP's (manufacturer's suggested retail price) of vehicles, since some major Japanese and German carmakers already have factories in the United States. In the long run, Korean carmakers are more likely to move some of their manufacturing over as well. Twenty years from now when we are all graduated, we can have the peace of mind of driving cars around (or the cars driving us around) knowing that its parts and components were made by North American workers.

Labor Provisions

Unlike some international conglomerates that resort to child labor and poor working conditions, the US, Mexico, and Canada have agreed to more strict labor provisions in USMCA. In order to safeguard against unfair employment practices, all three nations have decided that any imported goods follow strict protocol for labor. Any goods that are

SHOW TIME!

Here is what is playing in theaters this week:

First Man
PG

Night School
PG

Goosebumps 2: Haunted Halloween
PG

Fahrenheit 11/9
PG

Twilight
PG

Johnny English Strikes Again
PG

Smallfoot
PG-13

Venom
14 A

A Star is born
14 A

Hunter Killer
14A

Halloween
18 A

Cinaplex North

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4	6			1	8		
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Across

- Without
- Western alliance: Abbr.
- Wash gently against
- Pack away
- Stocking material
- Lickety-split
- Fountain order
- Cato's 1052
- Try the food
- "Spicy" Angie Dickinson TV role
- Thor Heyerdahl craft
- Tonic's mate
- EMTs' destinations
- "Spicy" Tina Louise TV role
- Atlanta university
- Soul, to Sartre
- Attempt
- First baseman Martinez
- Beach hills
- Timber wolf
- Mountain precipitation
- Gary's state: Abbr.
- Turned white
- "Spicy" John Cleese TV role
- Physician's org.
- Peak for Heidi
- Inventor Whitney
- "Spicy" Barbara Bain TV role
- Founded: Abbr.
- Songstress Eartha
- Race course
- Valerie Harper sitcom
- Adam's grandson
- Shell out
- Capital of Yemen
- Hide-hair connection
- Dogs may pull one

1	2	3	4	5	6	7	8	9	10	11	12
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46	47	48		49			50				
51			52			53			54	55	56
57					58			59			60
61					62			63			
64					65				66		

Down

- Mil. registration group
- Resting on
- Lymph ___
- Exchange
- Drilling equipment
- Et ___; and others
- Dishonest scheme
- Dormant
- On ___ with: equal to
- Out-of-date
- Stage performer
- High schoolers
- Campaign nastiness
- Quarry
- Eats in style
- Comes down with
- "___ the Mood for Love"
- It's forbidden
- Get taller
- "Amazing" magician
- Cabbage side dish
- Bridge fee
- Assist in crime
- Crime scene discovery
- "___ for Murder"
- Not mentioned
- Twosome
- Words to a black sheep
- Campus speaker
- London apartments
- Players with big serves, often
- Baryshnikov's nickname
- Playwright Chekhov
- It means nothing to Juan
- El ___: ocean current
- Clothes
- "See no ___ ..."
- "Must-see" review
- Guided



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..Ghost..

by J. Becks

Her skin is white,
 Almost grey like clouds on summer day
 Her mind is an antonym of storm clouds
 Her eyes let so many tears run free
 She thought she'd drown
 Her lips pale and longing
 Her skin tickles and shivers for touch
 Her heart no better than an ice block in her Blue faded, chest
 Her icy presence makes others chill
 Her soul trapped in a grave under a dead mangled tree, on a abandoned hill
 With crooked branches like his grin
 With pair of chilling eyes
 In grotesque way she was thankful
 She couldn't remember the wicked ways of man
 She believed his lies and that's how she died
 It was all part of his plan
 But she could never be free of the sadness that wraps around her like a shroud
 Like chains,
 She's bound,
 Just a ghost,
 Just a forgotten girl,
 Long ago buried

Henna

Anonymous

To break the surface of something great--
 To delve in deep without mistake--
 The desire to wander the garden within--
 The need to feel things that make you spin.
 Insatiable lust to be woven inside--
 Unquenchable thirst to be one with the tide.
 I circle the surface, my face to the floor--
 Begging to be on your side of the door.
 Our love is Henna--beautiful, grand;
 Circular patterns down to the hand--
 Can we transform it into a tattoo?
 How can I transfer this longing to you?

Individuals who are sadistic tend to display recurrent aggression and cruel behavior. Sadism can also include the use of emotional cruelty, purposefully manipulating others through the use of fear, and a preoccupation with violence.

As for the third personality disorder? Prior to doing research for this article, I had never even heard of "Machiavellianism." It is a part of a group consisting of three personality types that psychologists have dubbed "The Dark Tetrad." Very fitting. Machiavellianism is a personality trait which sees a person so focused on their own interests that they will manipulate, deceive, and exploit others to achieve their goals. Narcissism, on the other hand, is associated with Narcissistic Personality Disorder. With this disorder, an individual is callous and has exaggerated feelings of self-importance, an excessive need for admiration, and a lack of empathy.

All three of these sound very nasty. Psychology Today confirms this in their article: "trolls truly enjoy making you feel bad... Both trolls and sadists feel sadistic glee at the distress of others. Sadists just want to have fun... and the Internet is their playground!"

So what can we do? In this day and age, with so many of us reliant on our devices, we cannot realistically completely avoid the Dark Tetrad. However, the understanding that these individuals are sick and rarely receiving treatment makes them seem a little more pitiful. Also keep in mind that not every single person in the Dark Tetrad will troll someone. The best thing we can do about those who do is to ignore them. This can be extremely frustrating, don't get me wrong. I've fallen prey to them constantly! But they feed upon inflicting pain. If they are ignored, they will either up their game or go away. They are human. Eventually, their fixation will die or they will be drowned out.



Alberta Health Services

If you're partaking in marijuana, it's safer to limit use to

A. Once a week or less B. Once the sun reaches high noon
 C. Once a day D. Once every 3 days

A. Once a week or less is safer especially if you are under 25. Because your brain is still developing.

What's Your HIGH Q?

Take the full quiz at: drugsafe.ca

The Psychology Behind Trolls

by Nicole Beaver

We see it in the media every day: there was another act of violence. There was yet another school shooting, another black man killed by police, another celebrity accused of committing heinous acts against women. On Facebook, Instagram, and Reddit--wherever there is a platform--people flock over. In droves they comment, expressing their opinions, picking up their figurative microphones and declaring their thoughts to the world. Sometimes these opinions can be offensive depending on what your personal beliefs are, or whether or not you were a witness to a particular situation, being directly exposed to what actually happened. Online wars break out between individuals who have never met each other before. Furthermore, there are people out there who advocate for the senseless crimes they see. In the online world, these people are called "trolls."

Trolls are, of course, everyday people who seem to gain satisfaction from making people angry. They'll do anything to bring their adversaries down. Actually, I was recently targeted by a troll who made false accusations about me; I had made a comment in support of transgender women, and this troll accused me of assaulting her. It was ridiculous, but they got what they wanted: attention. So what is the psychology behind these annoying little scabs? Psychology Today actually has some insight into this that I found extremely interesting. The article I am referencing mentions a study done from Science Direct, humorously titled "Trolls Just Want to Have Fun." It states the following: "trolling correlated positively with sadism, psychopathy, narcissism and Machiavellianism...of all personality measures,

sadism showed the most robust associations with trolling and, importantly, the relationship was specific to trolling behavior." I am briefly going to explain the basics of sadism/psychopathy, narcissism, and Machiavellianism.

Let's go over the difference between sadism and psychopathy. Psychopaths are rare, making up 1% of the human population. They are also frequently associated with Ted Bundy and Jeffrey Dahmer. Psychopaths are, in fact, rarely serial killers, though pop culture depicts them otherwise. Nowadays, "psychopathy" is an outdated term, more commonly called Antisocial Personality Disorder. Sadism, on the other hand, is formally known as Sadomasochism. It is "the tendency to derive pleasure, especially sexual gratification, from inflicting pain, suffering, or humiliation on others." As the scientific study demonstrated, sadism is more common than you may realize. Sadistic Personality Disorder is a very real thing, but it is important to realize that it is just that--a personality disorder.

Backwards Garden

by J. Becks

I Know Everything Thing May Seem Backward	Stop those tears	I'll hold your hand tight You won't get lost little one	Just sing that bluesy song
Or Simply Out of place	And sing that song		In my garden
Let me take your hand	'Round the garden	No need to fight anymore	Sing for me, help the flowers grow
And sing that Bluesy Song	Through the valley	Sing for me that bluesy song	The sprites will dance
Sing for me	Take my hand	Your sweet, sweet sound	Sing it slow
Come honey I take you 'round the garden	Honey sing that song for me	The one I'm so fond of	Sing for me child
I know you may be scared	Off we go round and round	Little butterfly kisses and curled flowers	Let your voice ring
But trust me doll	Sing that song, that bluesy song	In the garden through the valley	Little dear
Your the fairest	Let out your sound	I'll take you there	Sing for me your charming voice
And I won't let you fall	I long for it so	Just take my hand	Let yourself wander
Just sing that song	Take my hand and we'll go far	Just sing for me, it's only fair	Sing that bluesy song
Take my hand and forever we'll go.	Sing your pretty voice	Sing for me that bluesy song	Make the flowers grow
Take my hand	I know about your scars		Make the wind dance
I know you may be scared	Just take my hand and kisses little dear	As we lay under the Willow tree	Stop your tears little dear
Everything is twisted	Come with me now	Sing for me dear	Sing the song
But don't be scared as we sing that bluesy song	Through the valley	That bluesy song	In my backwards garden
Take my hand and through the valley we'll go	Take my hand you'll be safe	Your soft voice	Sing for me oh sweet honey
Sing for me my dear	Just sing for me love	Sing to me	Song for me dear
I'll fight your foes	Sing for me that bluesy song	Look at me with your crystal eyes	And take my hand off we go
You have nothing to fear	I'll take you to the garden	I want to see	
		No surprises little one	



"It's What's Inside That Counts"

by Donavan Makus

When we think of ourselves as human beings, we tend to view ourselves as one organism. We know that our bodies consist of many different organ systems, tissues, and, at the lowest levels, chemical molecules with new properties at every level. At our core, though, all those parts combine to form one human body. Much like we don't exist in life alone, a healthy body doesn't function alone--we form mutually beneficial partnerships with many microorganisms. While these microorganisms are dispersed throughout our body, the ones that form our gut microflora have wide-ranging effects on our bodies and lives and, as research evolves, we're learning more about how they affect the very core of bodily function.

Before looking into what our gut biome does for us, it's important to set the stage to understand who they are and what they do. Like many organ systems, we are not born with a completely functional gut biome; instead, it develops over time. Contact with our environment, our mothers, and other people helps build up our gut microbiomes from birth until we turn 3 years old. This is when our gut biome is mainly formed, consisting primarily of bacteria and also containing other organisms, like fungi. However, our gut biome isn't done changing; it will adapt throughout our lives as microorganisms die and are replaced. This process is rapid as the number of cells in this gut biome is quite large, outnumbering our own human cell count by a factor of at least ten. Technically speaking, our gut microflora are not part of our bodies at all as our digestive tract is not "inside" our body. Our digestive tract is open to the external environment, and any food we digest is absorbed into our bodies through membranes.

To visualize this it's helpful to think of our digestive tract as the central hole in a donut. Inside this "external" environment live the constantly changing microbiota.

Having covered what our gut biome is, we're left with a question: why do we have them? We generously provide them with a home and nutrients in the form of the food we eat, and providing them with these benefits comes at a cost to us. Humans can function without a gut biome, leaving us with the question of why we don't try our best to eliminate them if they are acting as parasites. The exact ways that these microorganisms contribute to our functioning is complex, which tells us how our tiny partners can have an outsized influence on our lives. In exploring how we form a mutually beneficial relationship with these gut organisms, our first stop will be the gut itself.

Considering their location, the first and most obvious service these microbotics provide is related to the digestion and absorption of nutrients from our food. Our body doesn't store food intact; despite talk of "cheesecake sticking to our thighs," all food we eat is broken down into the 3 main macromolecules; carbohydrates, fats, protein. We also absorb a range of micronutrients such as sodium and potassium. Our gut microbiota play a key role in extracting both micro- and macro-nutrients through the process of digestion. This area of nutritional research has been an area of great interest in recent years, with researchers studying the effects of different diets on mice to see if a poor gut microbiome could explain weight gain and obesity. For years, the familiar mantra of weight management has been "calories in, calories out," but research-

ers have struggled to explain "calories out" fluctuations of up to several hundred calories between individuals. Energy, represented in calories, isn't miraculously appearing or disappearing. This creates a vexing problem for science. We know that excess weight represents the storage of excessive energy, leading to the question of how body masses of animals--who were fed identical diets--could differ. Due to their role in digestion, our gut biome lets us extract additional calories from our food, and had been identified as a potential factor in this discrepancy. Studies of rodents, who had their gut bacteria purposely eliminated, found they had to consume 30% more calories than regular rodents merely to maintain their weight. Thanks to advances in microbiology, researchers are now investigating the role microbiota play in weight management. The research is still in its infancy and certainly not free from controversy related to contradictory research results. Some researchers, using mice, have discovered that a typical modern Western diet (high in saturated fats and sugar and low in fiber) leads to shifts in gut microflora that seemed to lead to weight gain and obesity. Other researchers found that transplanting an obese mouse's gut microflora into a lean mouse caused the lean mouse to gain weight, without any increase in caloric intake. While even the most eager researchers are not suggesting changes in gut microbiota alone lead to the rise of obesity, they are correlated with a poor diet, which could be a factor in the obesity epidemic. This provides insight into the complex role of our gut flora in nutrition.

Despite their status as foreign elements suspended inside our digestive tract, gut microflora play a key role in helping us fight other, pathogenic (disease-causing) microbes. Their mere presence is beneficial as they prevent harmful bacteria from gaining a foot-

hold in our digestive tract; however, taking up space isn't their only role. Through their metabolic role, these microbes synthesize compounds that help train and power our immune system. Our gut biome also helps us to develop the thick lining of our digestive tract, helping protect us from potential pathogens. Finally, gut bacteria play a role in converting immune cells in order to activate them and keep our bodies functioning in peak condition. Through these dual roles centered around our digestive tract, our gut biome helps both power us and keep us healthy.

Though the main role taken by gut microbiota is related to metabolism and fighting infection, this isn't the only role our tiny partners play. When we think of bacteria, our first choice for bodily systems dealing with them likely isn't the nervous system with its blood-brain barrier--researchers have actually discovered links between gut bacteria and mental health. In 2004, scientists found that mice lacking gut biomes were more sensitive to stress, opening up new avenues of research. Gut bacteria are known to synthesize neurotransmitter molecules, which affect the nervous system and could help explain these findings. However, attempts to study mental health and the brain's functioning relating to gut flora in humans have been contradictory or inconclusive and will require future research, presenting an exciting opportunity for some of the many Psychology students here at Concordia.

The evolving status of research on gut flora serves as an important lesson not to forget that little things can have a big impact. Far from just affecting our digestion, these tiny microbes play a key role in many systems, ranging from immune protection to mental health, and we should let their outsized influence remind us that small things can indeed play large roles.