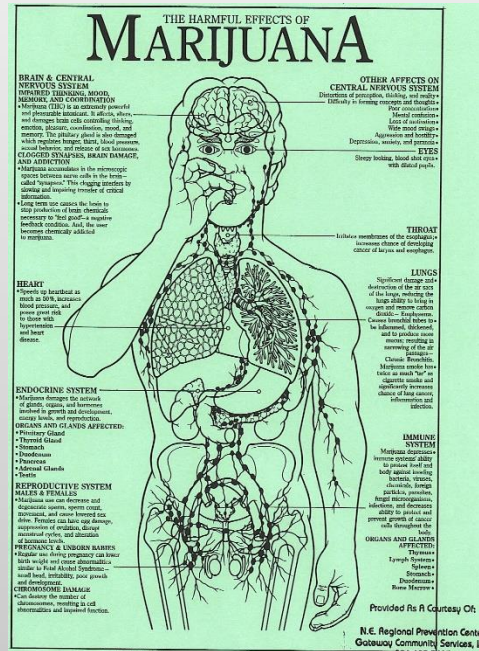


Medical Use of



Marijuana

Wajeeh Bajwa
 Orlando Jama'at

Presentation Covers

- The History of Marijuana
- Epidemiology of Marijuana
- Pharmacology
- Major Effects
- Marijuana and Driving
- Treatment
- Islāmic Perspective

A History

- Origin in China or central Asia in Neolithic times (10,000 years ago)
- First “used” as food
- First “high” could have occurred around 6,500 B.C.
- As a medicine (Chinese emperor Shen Nung – c. 2700 B.C.)
- Social “hospitality” 200 A.D. (Galen)
- Source of ropes and sails – 3rd century Rome
- Utilized in Africa 6 centuries ago for religious, social rituals, medicinal purposes
- George Washington and the colonies

Epidemiology

- By 2001 more than 12 million Americans (about 5% of the population) were using marijuana on a monthly basis (average of 18.7 joints) (SAMHSA, 2002)
- Over 110,000 visits to an emergency room listed marijuana as a contributing factor (DAWN)
- 39% of adult male arrestees and 26% of adult female arrestees tested positive for marijuana, as did 53% of the juvenile male and 38% of the juvenile female arrestees (DEA, DAWN, ADAM, 2003)

Pharmacology

ADMINISTRATION AND INTOXICATION:

- 420 chemicals (30 to 60 “cannabinoids”— most potent, delta-9-tetrahydro-cannabinol, or THC)
- Ingested orally, intoxication effects in 30 minutes
- Smoking inhalation, intoxication effects within minutes
- 59% of smoked THC absorbed; 3% THC when orally ingested
- Smoked THC effects 3 – 4 hours; longer if ingested orally
- 1960’s “joint” had 1-3% THC; wide range now (4-15%)
- One “joint” today equivalent to smoking 3-5 “joints” in the 1960s.

Pharmacology

MARIJUANA CONCENTRATIONS

- Ordinary: average of 3% THC
- Sinsemilla: average of 7.5% THC, can be up to 24%
- Hashish: averages 2 to 8% THC, can be up to 20%
- Hash oil: averages 15 to 50% THC, but may be 70%
- "Joint" contains between 0.5 and 1.0 grams of plant matter; THC content between 5 and 150 milligrams

Source: 2006 NIDA Report

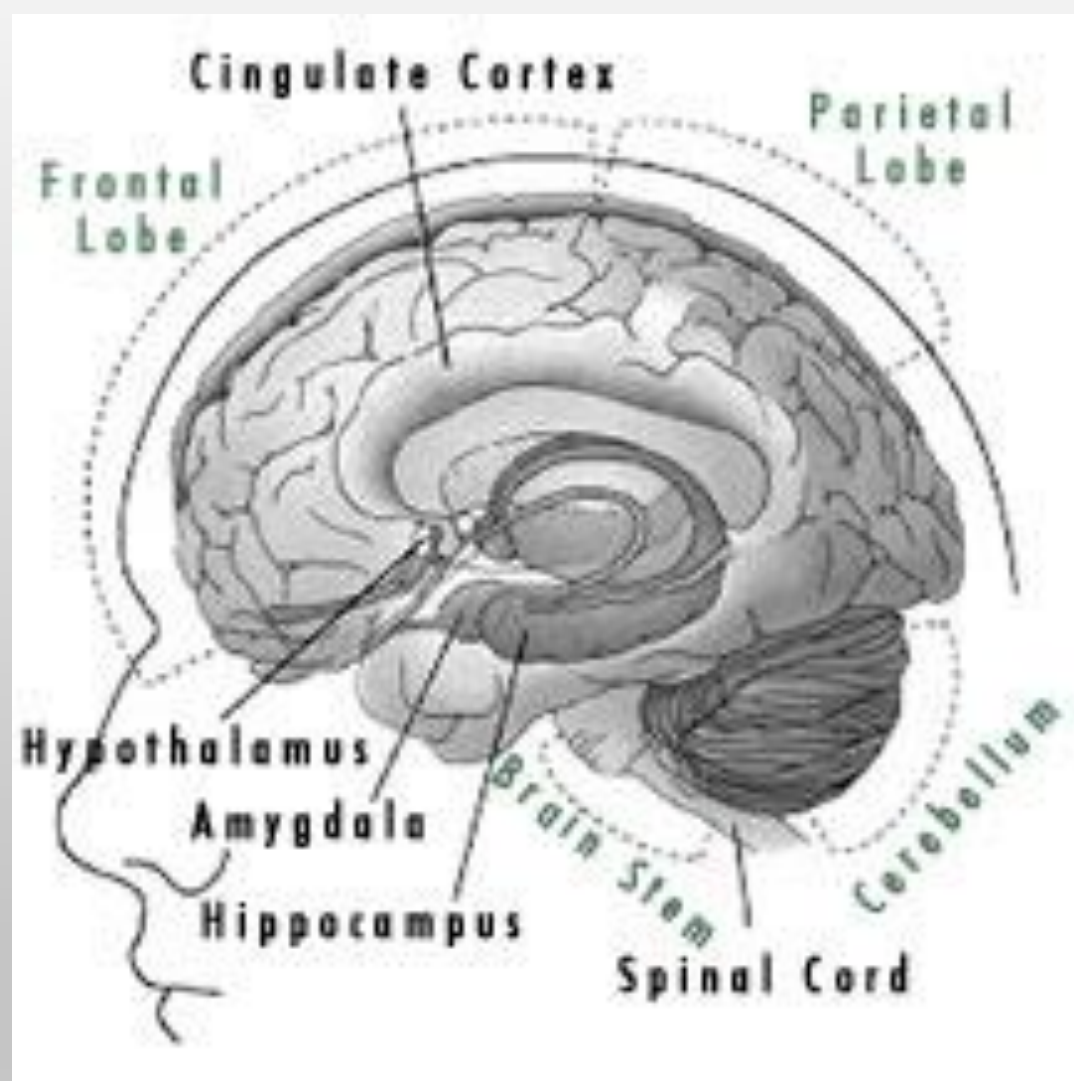
Pharmacology

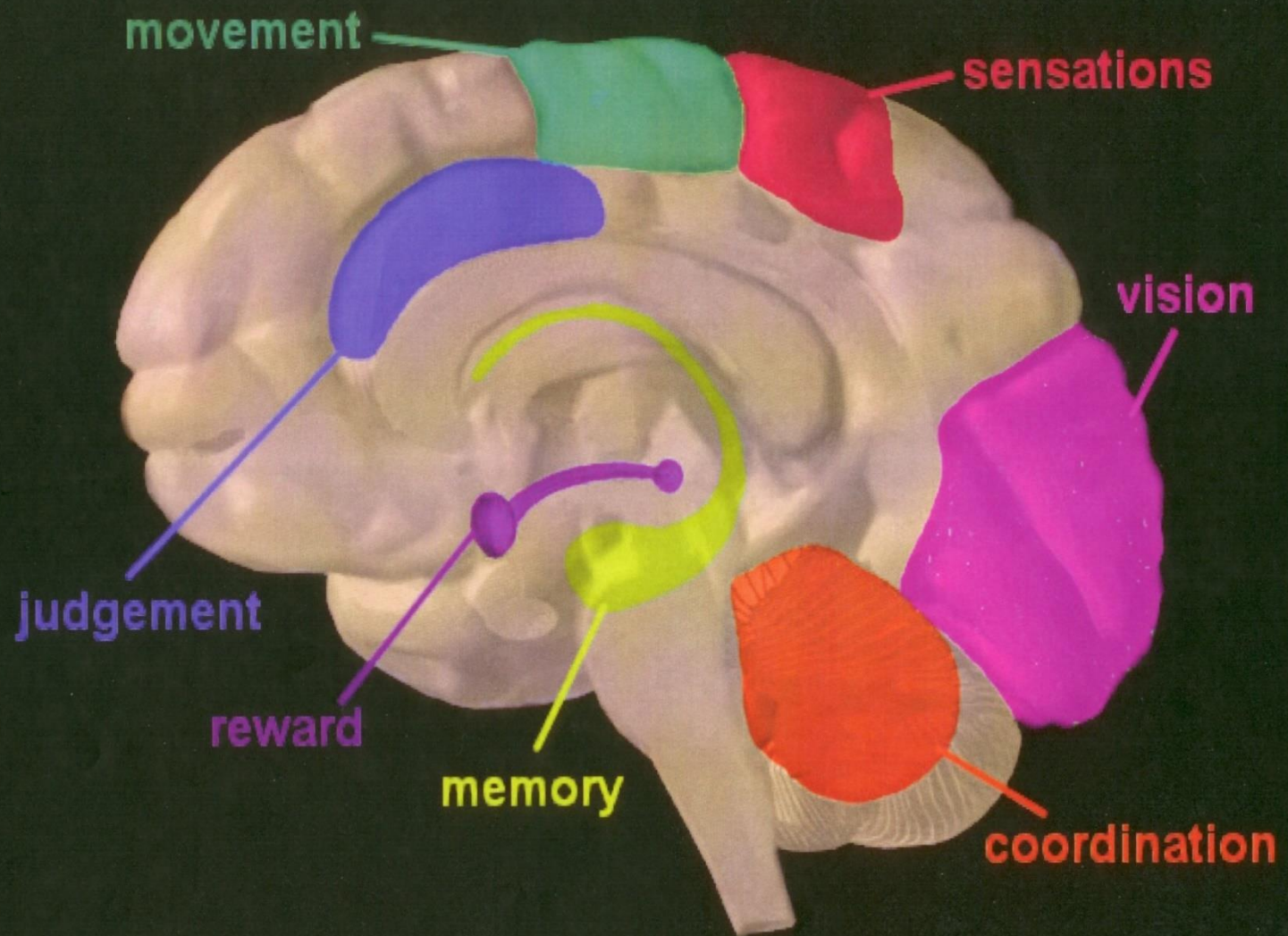
- Marijuana is fat soluble
- Effects may persist or reoccur for 12-24 hours
- The ability to drive a car or a plane, other motor performance tasks, alertness and the ability to concentrate may be affected for hours to days

Pharmacology

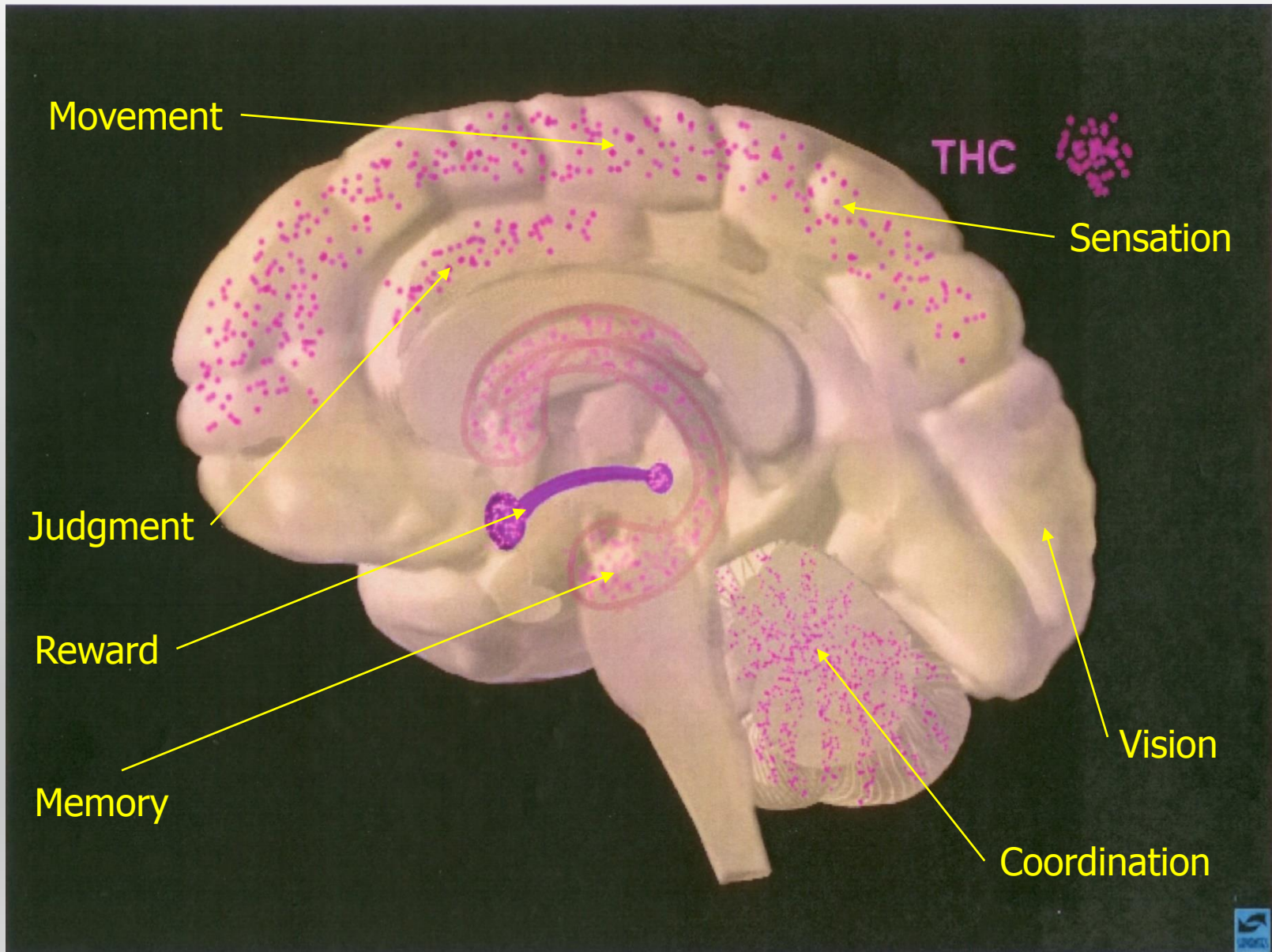
MECHANISM OF ACTION

- Receptor sites in the brain that were specifically reactive to the THC in marijuana were discovered in 1990.
- In 1992 – NIDA announced the discovery of ANANDAMIDE (Sanskrit word for “bliss”), the natural neurotransmitter that exists in the receptor sites.
- Receptors for anandamide found in several regions of the brain, but not that much in the brainstem (as compared to receptors for opioids and cocaine) and that is why it is so difficult to physically overdose with marijuana. (Huestis et al., 2001)
- Like other psychoactive drugs, THC activates neurons because its chemical structure mimics the natural neurotransmitters – can directly and indirectly target the brain’s reward system by flooding the circuit with dopamine.





THC Impact Areas



Marijuana's Effect on the Brain regions in which cannabinoid receptors are abundant

Brain Region	Functions Associated with Region
• Hippocampus	Body movement coordination
• Cerebellum	Learning and memory
• Cerebral cortex	Higher cognitive functions, Reward
• Nucleus accumbens	Movement control, Body movement coordination, Body "housekeeping," temperature regulation, salt/water balance)
• Basal ganglia	Emotional response, fear
• Spinal cord	Sleep and arousal, temperature, motor control

Major Effects

SHORT-TERM EFFECTS

Physical:

- Relaxation to sedation
- Bloodshot eyes
- Coughing/lung irritation
- Some pain control
- Appetite
- Loss in muscular coordination
- Decreased blood pressure
- Decrease in pressure behind the eyes
- Increased heart rate
- Increased blood flow through the mucous membranes of the eye
- Decreased nausea
- Impaired tracking ability
- Marijuana can act as a stimulant or depressant
- Temporary disruption of the secretion of testosterone

Major Effects

SHORT TERM EFFECTS

- Mental
 - Mild to moderate dose:
 - confused and separated from the environment
 - feeling of déjà vu
 - Drowsiness
 - feelings of detachment and being aloof
 - difficulty in concentrating
 - disrupts short-term memory
 - Strong dose:
 - stimulation, giddiness, distortions of color/time/sound
 - Very strong dose:
 - feelings of movement, visual hallucinations and hallucinations
 - Mental effects dependent on set, setting, and experience
 - can exaggerate mood, personality, empathy or suggestibility

Major Effects

POTENTIAL ADVERSE PSYCHIATRIC REACTIONS:

- Hallucinations
- Precipitate individuals who are predisposed
 - Paranoid ideation
 - Suspiciousness
 - Frank delusions

Major Effects

LONG TERM EFFECTS

- Respiratory problems - irritant to lungs
- 4 joints equivalent to pack of cigarettes (Tashkin, 1998)
- Can depress the immune system
- Increased coughing with acute and chronic bronchitis

Major Effects

LONG TERM EFFECTS

- Learning and emotional maturation:
 - Disrupts concentration
 - slow learning (state dependency)
 - interferes with short-term memory
 - "Amotivational syndrome" "the mirror that magnifies" – can exaggerate natural tendencies in the user - primitive brain takes over – "don't have to do things/don't bother doing it" (Inaba, 2005)
- Acute mental problems:
 - long-term and lasting problems are rare BUT, can trigger pre-existing problems "post hallucinogenic drug perceptual disorder"

Major Effects

MAJOR ISSUES OF CONCERN

- Decrease in color discrimination
- Decrease in ocular motor tracking
- Visual distortion
- Decreased recognition
- Decreased analysis of peripheral visual field light stimuli
- Poly-abuse: Marijuana and alcohol

Major Effects

CLINICAL SYNDROME

Tolerance:

- Develops quickly and continues long term
- Tolerance develops to anandamide
- Cannabinoid receptor antagonist - SR141716A
(Rinaldi-Carmona, 1994)

Major Effects

CLINICAL SYNDROME

Dependence/Withdrawal

- 9.2% (Warner, 1995) to 20% (Hall, 1994)
- Anger, irritability, aggression
- Aches, pains, chills
- Depression
- Inability to concentrate
- Sleep disturbance
- Slight tremors
- Decrease in appetite
- Sweating
- Craving

Effects last 3 to 7 days to several weeks after abstinence (Haney, 1999)

Major Effects

CLINICAL SYNDROME

Overdose

- no documented cases of death
- BUT, poly-abuse is very common

Marijuana and Driving

- 65% of heavy drinkers also smoke marijuana
- Marijuana appears in urine and blood 3 - 5 times more frequently in fatal driving accidents than in the general population (SAMSHA, 1999)
- Marijuana: drive slower, Alcohol: drive faster
- Low dose marijuana + low dose alcohol (.04 BAC) = .09 BAC
- Moderate marijuana + low dose alcohol = > .12 BAC
- High marijuana + low dose alcohol = inability to stand
- Impairment lasted 3 hours

Source: James O'Hanlon, Ph.D.

Institute of Human Psychopharmacology/The Netherlands (2000).

Marijuana and Driving

- Impairment dose related
 - 60% failed field sobriety test 2 1/2 hours after moderate smoking
 - Impairment documented 3-8 hours later (Hollister, 1986)
 - Low amounts, diminished ability to perceive and respond to changes on the road
 - Did not make appropriate speed adjustments
 - Induces drowsiness and impairs judgment (Mathias, 1996)
 - With alcohol, performance gets worse

(SAMHSA/NHTSA)

Marijuana and Driving

- 2 joints smoked (10 minutes apart with 1.8-3.6% THC)
- Failed field sobriety tests 20 minutes later:
 - one leg stand/30 seconds
 - touch finger to nose
 - walk straight line
- Subjects swayed, raised arms to keep balance
- In 12 states (Arizona, Georgia, Indiana, Illinois, Iowa, Michigan, Minnesota, Nevada, Pennsylvania, Rhode Island, Utah, and Wisconsin), it is illegal to operate a motor vehicle with any detectable level of a prohibited drug, or its metabolites, in the driver's blood.

Treatment

ADDICTION:

- pathological attachment (“craving”)
- loss of control
- continuation despite consequences

CAGE:

- Cut down
- Anger
- Guilt
- Eye opener

Treatment

RISK FACORS

- Liabilities issues after an accident/incident
- Increased use
- Easy access to drugs
- Cigarette smoking
- Peers who “drug”
- Working 20+ hours/week (9th – 12th grade)
- Appearing older
- Low grades
- Sexually deviant behavior
- Perceived risk of untimely death

Medical Marijuana

- Has been studied in many countries
 - reduces intraocular pressure
 - control of nausea and vomiting
 - anticonvulsant
 - appetite stimulant
 - withdrawal from depressants and opioids
 - Analgesic

(Source: IOM, MJ and Medicine, 1999)

What Else

- “Gateway Drug”
- “Attitudes” and “Profiles”
- Correlation with:
 - Violence
 - Sex
 - Flashbacks

The Holy Qur'ān:

- The guidance about use of intoxicants is contained in the following verses of the Holy Qur'ān:

‘They ask thee concerning wine and the game of hazard, Say: ‘In both there is great sin and also some advantages for men; but their sin is greater than their advantage.’ (Al-Baqarah (2):220)

The Holy Qur'ān:

'O ye who believe! intoxicants and game of chance and idols and divining arrows are only an abomination of Satan's handiwork. So shun each one of them that you may prosper.' 'Satan desires only to create enmity and hatred among you by means of intoxicants and games of chance, and to keep you back from the remembrance of Allah and from Prayer. But will you keep back?' (Al-Ma'idah (5):91-92)

Hādith

Narrated by Ḥaḍrat Jābir bin `Abdullāh (May Allāh be pleased with him) said the Prophet of Allāh (May peace and blessings of Allāh be on him) “If the larger dose of a thing causes intoxication, it’s small quantity is also unlawful.”

Commentary on the Hadīth:

- The same is true of opium, morphia, bhang, charas, hashish cocaine and other intoxicants; their limited consumption leads in the end to heavy dosages and the man who plays in ankle-deep water by the seashore eventually gives up his ghost in its overflowing depths.
- The Holy Qur'ān has, therefore, notwithstanding its recognition of some merits of wine and gambling, given the finding that their danger far exceeds their benefits, ﴿ ثُمَّ هُمَا أَكْبَرُ مِنْ نَفْعِهِمَا [Al-Baqarah (2):220] i.e., even if they have, beyond doubt, some benefits, their injurious properties far exceed their advantages. The true Muslim should, therefore, in any case, abstain from them.

Way of the seekers:

- Safeguard the child against all intoxicants. Intoxicants damage the nerves of the child. Consequently it becomes a liar. An addict becomes a blind imitator also and ceases to have a will of his own.
- One of the relatives of Hazrat Khalifatul Masīh I (May Allāh be pleased with him) was a chronic addict to intoxicants and was not even remotely interested in the duties of religion. Once he brought a young companion whom, he claimed, he would shape after his own pattern. Huzur reasoned with him and asked him to desist from this nefarious design. But he would not listen. (continued ...)

Way of the seekers:

Huzur summoned the boy and persuaded him to drop his company, learn some vocation and not be foolish. This made him think and he left. But after a little while, the relative brought another young man and challenged Huzur to try to "spoil" him. To his warped mind, spoiling a young man meant his being separated from him. Huzur did all the counselling he could. He even offered cash to him to start him in some business. But he would not listen. This surprised Huzur who asked his relative what had he done to hold him. He said: "It is simple. I supply intoxicants to him. Now he does not have any will to leave me."

In short, addiction to drugs kills initiative.

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Acknowledgement:

Some material for this presentation came from a presentation “Inside the Mind of the Marijuana User” by Garry E. Rubinstein, M.A., NV LADC Coordinator, Substance Abuse Treatment Programs, University of Nevada, Reno