

# Diving, cannabis use, and techniques of neutralisation: exploring how divers rationalise cannabis use

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## ABSTRACT

**Background:** Diving medicine literature often regards the use of cannabis as a potential contra-indicator for fitness to dive. With that said, there has been no empirical research done with cannabis-using divers to examine how they subjectively understand and construct the risks that their cannabis use may have on their diving. This study explored how cannabis-using divers rationalise the pejorative associations of cannabis use through rhetorical techniques of neutralisation (TON) that function to deny the risks that cannabis use may have on their diving.

**Materials and methods:** Ten medically-fit professional divers from South Africa were individually interviewed. The interviews focussed on each diver's reported recreational use of cannabis. The interviews were transcribed and analysed through a framework for TON originally formulated by Sykes and Matza (1957).

**Results:** Analysis revealed six primary TON employed to refute the pejorative associations of cannabis use on dive work, namely: 1. Denial of responsibility: which denies a diver's direct culpability for their cannabis use; 2. Denial of injury: which asserts that no (serious) harm results from a diver's cannabis use; 3. Denial of victim: which repudiates the potentially deleterious effects that cannabis use may have on a diver; 4. Condemnation of condemners: which minimises cannabis use in relation to other divers' unsafe diving practices; 5. Appeal to loyalties: which situates cannabis use within interpersonal networks to whom a diver has a "higher" allegiance; 6. Denial of penalty: which justifies cannabis use by virtue of a perceived lack of punitive action by a Diving Medical Examiner.

**Conclusions:** The findings of this research highlight the TON which potentially inform a diver's cannabis use, particularly in relation to their diving. Identifying such TON carry important implications for the ways in which fitness to dive is assessed.

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**Key words:** cannabis use, diving medicine, diving psychology, techniques of neutralisation, fitness to dive

## INTRODUCTION

Cannabis is a psychotropic substance with a history of recreational, commercial, and medicinal use which stretches far back into the annals and practices of ancient civilisations [1–3]. With that said, the politico-legal histories of cannabis, especially in the so-called "West", has been immensely contentious with opinion and science on cannabis use hotly debated and sharply divided [4].

Cannabis, more commonly known as marijuana/marijuana, weed, pot, grass, ganja, and, in South(ern) Africa spe-

cifically, dagga, is a combination of plant alkaloids composed by a number of chemical cannabinoids, as part of which the compound delta-9-tetrahydrocannabinol ( $\Delta^9$ -THC) is typically regarded as the most psychoactive constituent [5]. It is the  $\Delta^9$ -THC which is largely responsible for the psycho-pharmacological effects which produce the "high" associated with cannabis use [5], and which continue to underpin its status as one of "the most commonly used psychoactive substance" (p. v) [6] around the world. It is also the psychoactive effects of cannabis that have driven



the long history of legal regulation of cannabis cultivation, selling, and use [4], as well as fuelled more recent moves to have the therapeutic benefits of cannabis legally recognised through campaigns for the decriminalisation and legalisation of cannabis use [7].

In South Africa, the use of cannabis has been prohibited since 1928 [8]. However, in September 2018, a ruling by South Africa's Constitutional Court set in motion the possibility of decriminalising the private use of cannabis [9]. This development has renewed attention to cannabis use and the challenges it poses for South African workplaces [10].

In occupational medicine, cannabis use has long been a concern with regards to occupational health and safety [11]. Given that cannabis has been shown to potentially “impair your concentration, your ability to think and make decisions, and your reaction time and coordination” (Potential impairment from cannabis use is also predicated on a number of other variables, such as, concentration of  $\Delta^9$ -THC, regularity of use, method of consumption, and other anthropometric factors associated with the user.) (p. 1) [12], its use has typically been a contra-indicator for safety-critical activities, such as driving [13–16], and safety-critical occupations, such as diving [17].

## DIVING AND CANNABIS USE

According to St. Leger Dowse et al. [18] the “use of illicit drugs within the diving community is a subject of overdue open debate” (p. 9). The diving medical literature has treated the use of most (if not all) illicit substances by a diver as a potential (if not definitive) contra-indicator for diving [17]. A lack of research on the prevalence/patterns of illicit substance use within the diving community has meant that no conclusive pictures of illicit substance use by divers exist. However, in one of the more sizeable studies focussing on illicit substance use in 479 recreational divers from the United Kingdom, cannabis was found to be the “most frequently used illicit drug” (p. 12) [18] amongst the divers participating in that study.

Professional dive work, be it in the commercial, military, or recreational sectors of diving, is regarded as a “high hazard activity” (p. 4) [19] given the multidimensional risks associated with working in the maritime and (sub)aquatic environments. In this regard, the Diving Medical Assessment (DMA) is a central part of the occupational regulation of safe diving. The primary purpose of the DMA is for a Diving Medical Examiner (DME) to determine a diver's “fitness to dive”. The DMA therefore functions as an occupational health and safety tool (for divers) and, at the same time, a medico-legal tool (for state agencies and private organisations who employ divers), which attests to a diver's ability to dive safely and, in turn, minimise the likelihood of diving-related accidents.

The DMA entails a series of objective clinical examinations and tests, conducted by the DME, to determine a diver's physiological and psychological suitability to withstand the personal, occupational, and environmental rigours of diving. The DMA does however also rely on a diver's subjective reports about their own physical and mental health which could impact on their ability to perform dive work safely. This is where it is suspected that divers may under-report illicit substance use, amongst other contra-indicators for diving, to avoid the consequences such reports may have on the DMA outcome [20]. For the full-time professional diver the primary imperative to successfully obtain medical clearance to dive is a matter of financial necessity. Indeed, it is not unusual for research to report on divers not fully disclosing contra-indicators to dive, such as potentially injurious patterns of cigarette and alcohol use [21].

What is of primary interest in this study are the rationalisations which work to both sustain a diver's use of cannabis and, at the same time, function to neutralise the potential risks of cannabis use in relation to their ability to dive safely. Identifying how a diver discursively justifies their use of cannabis through such rationalisations has significant implications for further understanding how they come to perceive, construct, and manage the prospective risks of using cannabis, in relation to their dive work. Understanding how a diver may invest in and employ particular rationalisations within their own talk about cannabis use offers insight into the degree to which possible health care interventions with cannabis-using divers need to be specifically tailored to engage and deconstruct particular rationalisations.

## RATIONALISING CANNABIS USE: TECHNIQUES OF NEUTRALISATION

First formulated in Sykes and Matza [22] sociological study of delinquency, techniques of neutralisation (TON) were originally conceptualised as “justifications for deviance that are seen as valid by the delinquent but not by the legal system or society at large” (p. 666). For Sykes and Matza [22], any person who engages in behaviour which could be considered delinquent, deviant, or illegal comes to develop and employ particular TON which specifically function to justify their behaviour by neutralising any pejorative quality or consequence conventionally associated with such behaviour [22].

What is especially interesting in the work of Sykes and Matza [22], as well as those researchers who have adopted and adapted their work [23], is the illustration of how TON are both situationally specific and, at the same time, highly dextrous in their temporal character, that is to say, they can emerge *before* a potentially delinquent act (to help underwrite the underlying motivational complex which makes the act possible), *during* (to rationalise the ongoing

pursuit of the act and refute any immediate consequences), or *after* such an act (to protect the actor from any socially pejorative association to the act or from personal feelings of remorse, blame, or guilt). In this regard, there is never a universal character to any TON, but, rather, a set of context dependent socio-cognitive processes which draw from the values, norms, and practices which are contingent to a specific context of potential delinquency [23].

With regard to cannabis use, TON have been studied in non-diving samples [24], in effect helping to reveal the adaptive system of rationalisations which underpin cannabis use and defuse any prospective risk to using cannabis. With little published data on cannabis use by divers, the researchers of this study opted to explore how a sample of cannabis-using divers employ specific TON in an effort to neutralise the pejorative associations that cannabis use may have on their diving.

## MATERIALS AND METHODS

### STUDY DESIGN, ETHICS, AND PARTICIPANTS

This study draws on narrative extracts of individual interviews conducted with 10 full-time divers from South Africa who reported some measure of recreational cannabis use during the course of a psychological screening interview for their DMA. At the end of this screening, each diver was invited to participate in a research interview focusing on their cannabis use, in relation to their diving. The recruitment of the 10 divers to participate in this study took place over a 3-month period. Ethics approval was obtained from the University of Pretoria's Faculty of Humanities Postgraduate Research Ethics Committee (Ethics Clearance Reference: HUM013/0519), and after each diver supplied informed written consent to participate, their interviews were conducted.

All the divers were medically cleared for diving. The sample consisted of 1 woman and 9 men, with an age range between 21 and 32 years. All had 12 years of formal education in the South African schooling system and had completed the necessary qualifications to be certified in South Africa for professional dive work. All earned their primary income from diving and dived regularly as part of their work.

As a qualitative research interview which aimed at generating in-depth narrative accounts of cannabis use it was determined that the format of each interview would be unstructured. The interview therefore adopted a conversational and non-punitive tone which attempted to disarm potential trepidation about openly discussing cannabis use.

### ANALYSIS

Analysis of the transcribed interviews was conducted through a thematic content analysis using the original TON

framework formulated by Sykes and Matza [22]. In doing so, the researchers followed a process of (re-)reading the transcribed text with the aim of coding appropriate instances of text within the TON framework. The thematic analysis served an inductive and generative research function which endeavoured to not only constitute the TON framework, but, if need be, to revise the coding framework in the event that data collected did not “fit” the existing analytical frame. To this effect, the researchers were able to derive another TON (*denial of penalty*) that, while not articulated in Sykes and Matza's work [22], was evident in the interview data for this particular sample of divers, and perhaps unique to the South African context.

In what follows, extracts from the transcribed interviews are cited to highlight how this sample of divers applied TON in their talk about their cannabis use in an effort to rationalise and offset any pejorative associations that their cannabis use may have had on their diving.

## RESULTS

Analysis revealed that this sample of divers used six primary TON, namely: 1. Denial of responsibility: which denied a diver's direct culpability for their cannabis use; 2. Denial of injury: which asserted that no (serious) harm (had ever) resulted from a diver's cannabis use; 3. Denial of victim: which repudiated the potentially deleterious effects that cannabis use may have on a diver; 4. Condemnation of condemners: which minimised a diver's cannabis use by comparatively evaluating it against other divers' unsafe behaviour; 5. Appeal to loyalties: which situated and legitimised a diver's cannabis use within interpersonal networks to whom a diver had a “higher” allegiance; 6. Denial of penalty: which justified a diver's cannabis use by citing the lack of potential punitive action by a DME. While the first five TON are derived from Sykes and Matza's original framework; the sixth TON was generated through the thematic content analysis of this research data.

### DENIAL OF RESPONSIBILITY

For the denial of responsibility TON, the participating divers would deny direct responsibility for their cannabis use by identifying other causative factors as the sources responsible for motivating and sustaining their cannabis use. For most of the participants, the principle causative factor identified was “stress”. Interestingly, the kind of “stress” underpinning their cannabis use was typically articulated in two ways: (1) the stress associated with dive work, (2) the stress of working for organisations which employed divers.

In the first account of stress, a participant would describe diving as an inherently dangerous occupation which was accompanied by a significant amount of stress. Here, professional dive work would be contrasted with other more

conventional types of work which a diver would not consider as dangerous and, in turn, as far less stressful:

*It's stressful this work. You don't just sit at desk. There's lots risks. Lots can go wrong. And you sit with that stress all the time. If you [are] in the water you feel that stress; if you [are] out the water you [are] thinking about the next time you have to go in. It's there all the time. That's why I smoke [cannabis]. It's the only thing that takes that stress out of me (D1 – pseudonym code).*

In the second account of stress, participants would invoke their employer or employing organisation as the causal agent of their cannabis use. Participants would discursively position themselves within the common refrain of being “over-worked and under-paid”. In this regard, the contractual conditions of a diver’s employment would often be identified as a source of stress motivating their cannabis use.

What was often evident in both the above-mentioned accounts of stress is how the denial of direct responsibility would be rhetorically coupled to participants also framing their cannabis use as a technique for helping cope with stress. In this regard, stress was often constructed as both a source for initiating cannabis use and, at the same time, maintaining cannabis use under the guise of being a coping technique for diving-related stress.

### DENIAL OF INJURY

The denial of injury TON typically entailed participants refuting any suggestion of the potentially injurious effects of their cannabis use on their ability to dive safely by citing their dive safety record. In other words, a participant would highlight that they have never (subjectively) experienced any deleterious effects from using cannabis on their diving performance. Moreover, participants would report a dive record free of incident/injury to themselves, dive partners, or dive work/tasks. In doing so, the “clean” safety record of a participant would serve as tangible proof that their use of cannabis had no impact on their ability to dive safely:

*I've never had anything bad happen. You can speak to any of the guys I've dived with. They know I smoke [cannabis]; but none of them will refuse to dive with me because I've never had anything go wrong. They know I've got a good track record without any fuck-ups (D5).*

Interestingly, the denial of injury was also evident in the ways that some participants would unequivocally counteract any alleged negative effects of cannabis use on dive performance by citing “positive” or even performance-enhancing effects of cannabis use. Participants would often point to an array of psychological and physiological capabilities that they believed were enhanced by cannabis use, for example concentration:

*Maybe for someone else [smoking cannabis] can slow them down or make them chill out. Not with me. My body*

*responds to it very differently. It's the complete focus. I can actually work a lot better after a spliff (A colloquial term for a cannabis cigarette or “joint”). I'm more focussed... definitely more focussed (D3).*

It is worth mentioning that it is not unusual for cannabis users to consider their perceptual and sensory experiences of using cannabis as an objective and often enhanced change in (their sense of) reality [25]. This kind of unconditional positive regard for the reality/performance-enhancing effects of cannabis has also been documented in non-diving samples of cannabis users [26].

### DENIAL OF VICTIM

This TON typically involved a participant demonstrating resistance to being discursively positioned as in any way potentially “at risk”, “at harm”, or “victim to” their cannabis use. This TON would often feature in moments of a research interview where a researcher would suggest potentially deleterious short- or longer-term effects that cannabis use may have on a participant’s physical or cognitive competences to dive safely. In response to such suggestions, participants would often rhetorically resist the discursive status of “victimhood” and narratively re-position themselves as “competent” and professional divers, who were fully cognisant of safe diving practice, and, simultaneously, “competent” and well-informed recreational cannabis users, who were fully aware of how to manage their use of cannabis:

*I know exactly what I'm doing. I've been smoking [cannabis] for a while so I know how I feel. I'm not a pothead. I don't just light up whenever. I know if I'm diving then I'm not going to smoke [cannabis]. And I will never smoke before a dive. I'm not stupid. But if I've got a few days to myself and I'm not going in the water then I'm gonna smoke [cannabis] (D8).*

In these accounts, the denial of victimhood or personal harm was rhetorically underwritten by participants deploying “competency discourses” which functioned to reaffirm their ability to capably and proficiently organise their recreational cannabis use behaviour in such a way that it did not interfere with safe diving practice.

### CONDEMNATION OF CONDEMNERS

The fourth TON employed by this sample of divers involved the condemnation of condemners. (The “condemners” here being the DME, other health professionals, and other divers who identified cannabis use as potentially problematic). Put differently, it refuted any suggestion of cannabis use as pejorative, by comparing it with other recreational behaviour or diving practices that would be described by participants as far more harmful. Here, a diver would employ the technique of minimising the risk(s) entailed in cannabis use by comparing it against: (1) other unsafe recreational



behaviours allegedly committed by (other) divers, such as excessive alcohol consumption; and/or (2) other unsafe diving practices, such as diving with unsafe equipment.

In the first account, the consumption of alcohol was often identified as a far riskier recreational behaviour. In this regard, participants typically cited instances of (other) divers diving when intoxicated or being partially inebriated:

*I know okes (a colloquial term for men) who've gone into the water while their hanging (a colloquial description for a hangover). And that's a hundred time more worse if you think about what alcohol can do if you dive and you've got that in your system (D2).*

What is interesting about these accounts, is how they also mirror the ways other non-diving cannabis-users have tended to set-up alcohol consumption as a more pernicious and injurious form of substance use, compared to the use of cannabis [27]. In these accounts, participants often constructed the use of alcohol by divers as a problem far more endemic to the diving community, and a form of recreational behaviour having much more negative implications for a diver's ability to dive safely:

*...there's too much focus on this dagga thing. But [the DME] never asks about alcohol. They don't come down on you for drinking too much or if you're hanging and you've had to dive. If you had to ask how many divers are smoking [cannabis] and how many are diving while drunk you would shit. You never let any of us dive again (D7).*

In the second account for this TON, participants would cite alleged instances of other unsafe diving practices that required much more attention, as opposed to cannabis use. In one such example, a participant highlighted personal experiences of having to dive (because of occupational/contractual obligations) even when diving equipment was (allegedly) faulty:

*...[cannabis use] is not an issue for me. I'm worried about maintenance. The big challenge we have at [Diving Organisation] is maintenance, not weed. Equipment is old, regulators are faulty (D10).*

Interestingly, in both accounts of this TON, participants would typically berate their perceived “condemners” by highlighting what were, at least in their eyes, other pejorative behaviours and practices that required urgent attention in the diving community/industry.

## APPEAL TO LOYALTIES

This TON could be identified by the way participants appealed to loyalties to whom a participant had a greater allegiance. Here, cannabis use was justified as part of recreational behaviour which was often embedded in (inter-)personal networks for which the use of cannabis was commonplace, normalised, and even expected. A common (inter-)personal network highlighted by participants was their social circle of friends:

*I've been smoking with friends forever. If we get together, we smoke. That's not gonna change. That part of my life is very important. I need that chill time from work. If I don't that then you're definitely gonna have book me into [a Psychiatric Hospital] (D4).*

Another common (inter-)personal network highlighted were participants' dive buddy/colleague circle. In these accounts, a participant's use of cannabis use was connected to social behaviour which was an expected part of “fitting in” with fellow divers whom they dived and worked with:

*About half the guys here smoke [cannabis]. If I didn't join in then I would be sitting on my own (D6).*

What is interesting in this particular account, is the way in which D6 positions cannabis use as a pro-social behaviour. This sociability is, at least for D6, vital in affirming inter-personal and occupational allegiances which are themselves an important element of diver safety.

In another account of appealing to loyalties, one participant justified his cannabis use as part of recreational behaviour intimately connected to his ethno-cultural affiliation outside of diving. Here, cannabis use was constructed as a socio-behavioural practice deeply emplaced within an ethno-cultural repertoire of recreational practices. For this particular participant, the cultural valence and personal investment he attaches to what cannabis use means for his own ethno-cultural identity and history ultimately superseded the potential effects that his cannabis use may have on his diving.

## DENIAL OF PENALTY

The sixth TON employed by the participating divers is what the researchers of this study have come to call a “denial of penalty” or, more specifically, an assertion of the absence of any significant penalties or punitive action against the participant, even when reporting cannabis use to their DME. An example of this could be seen in the way one participant stated that there no longer existed any punitive action which could be taken against him and his cannabis use, especially in light of the recent court ruling on cannabis use in South Africa:

*But it's legal now [to smoke cannabis in South Africa]. So even if I tell [the DME] it's not like she can do anything. And even is she says I can't smoke [cannabis]; I will challenge it because the court said there's nothing wrong with [cannabis use] (D9).*

While this particular account demonstrates a rationalisation of cannabis use premised on a belief that the recent court decisions automatically decriminalises and legalises cannabis use in South Africa, this is in fact a misinterpretation of the court ruling. (Readers are referred to the Psychological Society of South Africa's position statement which succinctly clarifies what the ruling actually means for

legal cannabis use in South Africa [<https://www.psyssa.com/psyssa-position-statement-on-cannabis/>]). Moreover, this TON deliberately neglects the existing occupational health standards for divers in South Africa which typically identify any form of illicit substance use as a contra-indicator for diving.

## DISCUSSION

### THE CONTRADICTION OF RESPONSIBILITY FOR CANNABIS USE: A SHIFTING LOCUS OF CONTROL

One of the more interesting findings from this is that way in which the participants negotiated responsibility for the cannabis use and, with this, demonstrated shifting locus of control. (A person's locus of control generally refers to the degree to which they perceive, experience and attribute their thoughts, feelings, and behaviours to intrinsic [intra-personal] or extrinsic [external] sources [28]). For example, in the denial of responsibility TON, responsibility for a participant's use of cannabis is externalised and attributed to environmental stress, demonstrating an extrinsic locus of control. In the denial of victim TON, divers re-assert their personal agency over behaviour through competency discourse, reiterating a comprehensive knowledge of the risks of diving and the cannabis use, and so demonstrate an intrinsic locus of control. This observation challenges traditional profiling that report a strong intrinsic locus of control among professional divers [29], and suggest that a more nuanced version of divers' sense of agency is required. An understanding of where divers locate control over their behaviour would be an important guide for a DME or allied health professional when engaging divers in health education.

### CANNABIS USE AS A CONTRA-INDICATOR TO DIVE? WHAT TON TELL US ABOUT THE COMPLICATED PICTURE OF DETERMINING A DIVER'S PSYCHOLOGICAL COMPETENCE TO DIVE

While the medical literature on cannabis use and diving may be clear that cannabis use typically marks a relative contra-indicator for diving [17, 20], the findings of this study indicate that determining a diver's psychological suitability for dive work is not always as clear cut. In this regard, it is important to note, as we have highlighted in our discussion document "Psychological competency-to-dive: A primer" (available for download from the South African Underwater and Hyperbaric Medical Association [<http://www.sauhma.org/psychological-fitness.htm>] or on request from the researchers): "psychological performance and mental health [for diving] lies on a continuum... which makes it difficult to determine cut-off points that would guide clinical decision making" (p. 1) [30].

In other words, there are some rationalisations for cannabis use employed by the divers in this study which may

be particularly problematic and potentially contra-indicate psychological suitability for diving, such as, the denial of responsibility TON, which may point to compromised judgement. However, other rationalisations may in fact point to the capability of some cannabis-using divers to successfully organise and responsibly manage their recreational cannabis use in a way which does not interfere with their ability to dive safely. For example, in D8's assertion that, as part of the denial of victim TON, he would never use cannabis prior to diving and would confine his cannabis use to periods of non-diving. However, with that said, recognising potentially adaptive and insightful TON on the part of a cannabis-using diver still requires a comprehensive analysis and evaluation of, for example, a diver's judgement, decision-making, and reality-testing, in relation to other rationalisations which may also be employed to justify cannabis use.

### THE CONTINUING NEED FOR HEALTH PROMOTION AND HEALTH EDUCATION INTERVENTIONS WITH DIVERS: DEVELOPING MORE SUITABLE TECHNIQUES OF COPING

There is concern about the way many of the participants framed cannabis use as an unproblematic technique for coping with the stress and rigours of diving. This continues to point to the need for the DMA to serve not just as an evaluation of diver's fitness to dive, but, also, as an opportunity for proactive health promotion, especially when it comes to "upskilling" a diver's ability to cope with the physical and emotional demands of dive work. This would reconfigure both the concept and practice of the conventional DMA, bringing it much more in line with developments in preventative occupational medicine and, moreover, how the World Health Organisation (WHO) defines health, namely, as not just the absence of health-compromising factors or disease but as the presence of health-promoting factors and skills [31].

Thus, while the DME has always played an important clinical role in determining a diver's medical fitness to dive, it may also be necessary for the DME to play a more active role as health promoter and educator, especially when it comes to helping the diver develop more adaptive coping skills. Here it may be helpful for the DME who feels under-skilled/qualified in the area of psychological skills building to refer a diver to a psychologist suitably experienced in the emerging sub-field of diving psychology [30], and who can help a diver work on a programme of behaviour modification which is practically suitable within the very unique demands of a diver's lifestyle and work environment. Expanding the repertoire of adaptive coping techniques that a diver has available to help them manage stress is incredibly important, especially given the weight of research which already documents problematic patterns of alcohol [32], cigarette [21], and illicit drug [18] use amongst divers.

In the same vein, it may be necessary for those medical practitioners and allied health professionals working with divers to play the role of health educators, particularly when it comes to debunking myths about cannabis use in the wake of moves across the world to, in some instances, decriminalise, and, in other instances, legalise, the use of cannabis. While this kind of debunking may seem self-evident, it cannot be taken for granted, especially given that not all legislative changes in regards to cannabis use mirror the medical norms and standards for diving and the determination of a medically fit and psychologically competent diver.

## CONCLUSIONS

The findings of this qualitative study highlighted how a sample of cannabis-using professional divers from South Africa rationalise their recreational use of cannabis by neutralising possible pejorative associations with their ability to dive safely. In this regard, the participating divers were shown to employ TON which, albeit in qualitatively different ways, ultimately function to the same end, namely, to defuse the negative connotations associated with cannabis use and its potential effects on safe diving, in order to justify its ongoing use.

## REFERENCES

- Grinspoon L, Bakalar J. *Marihuana: The forbidden medicine*. New Haven: Yale University Press 1993.
- Maule WJ. Medical uses of marijuana (*Cannabis sativa*): fact or fallacy? *Br J Biomed Sci*. 2016; 72(2): 85–91, doi: [10.1080/09674845.2015.11666802](https://doi.org/10.1080/09674845.2015.11666802).
- Pedersen W, Sandberg S. The medicalisation of revolt: a sociological analysis of medical cannabis users. *Sociol Health Illn*. 2013; 35(1): 17–32, doi: [10.1111/j.1467-9566.2012.01476.x](https://doi.org/10.1111/j.1467-9566.2012.01476.x), indexed in Pubmed: [22827932](https://pubmed.ncbi.nlm.nih.gov/22827932/).
- Hudak J. *Marijuana: A short history*. Washington D.C.: The Brookings Institution 2016.
- Huestis MA, Mazzoni I, Rabin O. Cannabis in sport: anti-doping perspective. *Sports Med*. 2011; 41(11): 949–966, doi: [10.2165/11591430-000000000-00000](https://doi.org/10.2165/11591430-000000000-00000), indexed in Pubmed: [21985215](https://pubmed.ncbi.nlm.nih.gov/21985215/).
- World Health Organisation. The health and social effects of non-medical cannabis use. WHO; 2016. <http://apps.who.int/iris/bitstream/10665/251056/1/9789241510240-eng.pdf> (05 May 2019).
- Clarke RC, Merlin MD. *Cannabis: Evolution and Ethnobotany*. Berkeley: University of California Press 2013.
- Peltzer K, Ramlagan S. Cannabis use trends in South Africa. *S Afr J Psychiatr*. 2007; 13(4): 6, doi: [10.4102/sajpsychiatry.v13i4.33](https://doi.org/10.4102/sajpsychiatry.v13i4.33).
- Constitutional Court of South Africa Case CCT 108/17. 2018. <http://www.saflii.org.za/za/cases/ZACC/2018/30.pdf> (05 May 2019).
- Schillack V, Wentzel M, Essack Y. The role of the laboratory in dealing with cannabis in the workplace. *Occ Health South Afric*. 2019; 25(2): 77–78.
- Phillips JA, Holland MG, Baldwin DD, et al. *Marijuana in the Workplace: Guidance for Occupational Health Professionals and Employers: Joint Guidance Statement of the American Association of Occupational Health Nurses and the American College of Occupational and Environmental Medicine*. *Workplace Health Saf*. 2015; 63(4): 139–164, doi: [10.1177/2165079915581983](https://doi.org/10.1177/2165079915581983), indexed in Pubmed: [25862727](https://pubmed.ncbi.nlm.nih.gov/25862727/).
- Health Canada. Consumer information – Cannabis (marihuana, marijuana). <https://www.canada.ca/en/health-canada/services/drugs-health-products/medical-use-marijuana/licensed-producers/consumer-information-cannabis-marihuana-marijuana.html> (05 May 2019).
- Bédard M, Dubois S, Weaver B. The impact of cannabis on driving. *Can J Public Health*. 2007; 98(1): 6–11, indexed in Pubmed: [17278669](https://pubmed.ncbi.nlm.nih.gov/17278669/).
- Hartman RL, Huestis MA. Cannabis effects on driving skills. *Clin Chem*. 2013; 59(3): 478–492, doi: [10.1373/clinchem.2012.194381](https://doi.org/10.1373/clinchem.2012.194381), indexed in Pubmed: [23220273](https://pubmed.ncbi.nlm.nih.gov/23220273/).
- Kurzthaler I, Hummer M, Miller C, et al. Effect of cannabis use on cognitive functions and driving ability. *J Clin Psychiatry*. 1999; 60(6): 395–399, indexed in Pubmed: [10401919](https://pubmed.ncbi.nlm.nih.gov/10401919/).
- Ramaekers JG, Berghaus G, van Laar M, et al. Dose related risk of motor vehicle crashes after cannabis use. *Drug Alcohol Depend*. 2004; 73(2): 109–119, indexed in Pubmed: [14725950](https://pubmed.ncbi.nlm.nih.gov/14725950/).
- Edmonds C, Bennett M, Lippmann J, et al. Diving and Subaquatic Medicine. 2015, doi: [10.1201/b18700](https://doi.org/10.1201/b18700).
- St. Leger Dowse M, Shaw S, Cridge C, et al. The use of drugs by UK recreational divers: illicit drugs. *Diving Hyperb Med*. 2011; 41(1): 9–15, indexed in Pubmed: [21560979](https://pubmed.ncbi.nlm.nih.gov/21560979/).
- Health and Safety Executive. HSE Diving Health and Safety Strategy to 2010. HSE; 2010. <http://www.hse.gov.uk/diving/divingstrat2010.pdf> (05 May 2019).
- Health and Safety Executive. The medical examination and assessment of commercial divers (MA1). HSE; 2015. <http://www.hse.gov.uk/pubns/ma1.pdf> (05 May 2019).
- Armstrong ME. *Smoking and risk taking in recreational SCUBA divers*, doctoral dissertation. University College London 2012.
- Sykes GM, Matza D. Techniques of Neutralization: A Theory of Delinquency. *Am Sociol Rev*. 1957; 22(6): 664, doi: [10.2307/2089195](https://doi.org/10.2307/2089195).
- Peretti-Watel P. Neutralization theory and the denial of risk: some evidence from cannabis use among French adolescents. *Br J Sociol*. 2003; 54(1): 21–42, doi: [10.1080/0007131032000045888](https://doi.org/10.1080/0007131032000045888), indexed in Pubmed: [12745817](https://pubmed.ncbi.nlm.nih.gov/12745817/).
- Priest T, McGrath JH. Techniques of neutralization: Young adult marijuana smokers. *Crim*. 1970; 8(2): 185–194, doi: [10.1111/j.1745-9125.1970.tb00739.x](https://doi.org/10.1111/j.1745-9125.1970.tb00739.x).
- Fuller RC. *Spirituality in the flesh: Bodily sources of religious experiences*. Oxford: Oxford University Press 2008.
- Peretti-Watel P. Cognitive dissonance and risk denial: The case of cannabis use in adolescents. *J Socio Econ*. 2006; 35(6): 1032–1049, doi: [10.1016/j.socsec.2005.11.023](https://doi.org/10.1016/j.socsec.2005.11.023).
- Caulkins J, Kilmer B, Kleiman M. *Marijuana Legalization: What Everyone Needs to Know*. 2016, doi: [10.7249/cb525-1](https://doi.org/10.7249/cb525-1).
- Khan TH. *Emotional intelligence, social intelligence, locus of control in relation to stress management in adolescents*. Raleigh: Lulu Publications 2016.
- Van Wijk CH. Personality profiles of divers: integrating results across studies. *Int Marit Health*. 2018; 69(4): 297–303, doi: [10.5603/IMH.2018.0046](https://doi.org/10.5603/IMH.2018.0046), indexed in Pubmed: [30589070](https://pubmed.ncbi.nlm.nih.gov/30589070/).
- Van Wijk CH, Martin JH, Firfirey N, Fourie M, Arrenbrecht R, Jason AE, Waters AH. *Psychological competence-to-dive: A primer*. Research Report 01/2018. Simon's Town: Institute for Maritime Medicine; 2018. <http://www.sauhma.org/psychological-fitness.htm> (01 November 2018).
- World Health Organisation. *Constitution of the WHO*, 37th ed. Geneva: WHO; 1946.
- St. Leger Dowse M, Cridge C, Shaw S, et al. Alcohol and UK recreational divers: consumption and attitudes. *Diving Hyperb Med*. 2012; 42(4): 201–207, indexed in Pubmed: [23258456](https://pubmed.ncbi.nlm.nih.gov/23258456/).