

Enhancements in Cognition in Sports

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Enhancements to Cognition in Sports

Enhancements through Hormones

The participation in sports is governed by specific rules, some of which prohibit the sportsmen from using particular drugs that improve their cognitive performance in sports. The use of the commonly abused drugs in sports is considered a form of cheating for the competitors in sports and other public participants. One of the areas that has been widely discussed in sport is the improvement of performance through the use of hormones to increase the intensity of physical activity. The hormones are induced medically to faster the process of healing among the sportsmen, especially after injuries. However, the hormones have been rejected in the WADA rules, and after coemption in sports, they are considered to be a violation of the gaming rules (Handelsman, 2015). The hormonal detection has gone wild with the introduction of confiscated equipment for detecting hormonal inducements on the sportsmen. Some of the significant abused hormonal substances detected in the systems of the sportsmen include the adrenaline and peptide. However, WADA and sporting regulation should be careful to allow the medical use of the hormones in the treatment of injuries amongst the players.

Performance Enhancing Tests in WADA Labs

	2003	2005	2007	2009	2011	2013
Accredited Labs	31	33	34	35	33	33
Total tests	151,210	183,337	223,898	277,928	243,193	269,878
Positives (% of total)	2,447(1.6%)	3,909(2.1%)	4,402(2.0%)	5,610(2.0%)	4,856(2.0%)	5962(2.2%)
Hormones (% of +ve)	46%	55%	55%	73%	68%	57%
Androgens	2389	3893	4375	5541	4800	3352
Blood/Epo	58	16	27	68	50	63
GH/peptides	0	0	0	1	6	0

(Handelsman, 2015).

The use of hormones in sports has raised conflicting issues with medical induction of the hormones into the sportsmen. The ban on performance improvement hormones is seen as quite ridiculous for the sportsmen who must get good medical care to avoid the consumption of the illegal hormones intently. The WADA statistics prove that, despite the banning of certain improvement hormones, their prevalence continues to be strong in the tests carried out among the sportsmen (Handelsman, 2015). The urine sample proves a higher detection of testing for the hormones with blood sampling to determine the conventional growth hormones such as peptides. According to WADA, the allowance of growth hormones is already taking place in the medical treatment of the sportsmen with hormones such as testosterone. The treatments must follow proper clinical attention for the sportsmen. The banning of hormonal stimulation is seen as an unfair practice in sports due to their increased cognitive performance improvement among the sportsmen (Handelsman, 2015). For instance, the growth of hormones have resulted in increased skills, strength, stamina, and quick recovery through tissue repair, factors which can lead to unfair competition amongst the sportsmen. However, the introduction of hormones into the sportsmen's systems may be due to medical procedures such as blood transfusion, and these hormones can be detected through blood screening in WADA.

The detection of the standardized testing in the WADA ensures that the anti-doping measures are taken into consideration to control the hormonal induction among the sportsmen. However, the hormonal detection would require the formulation of intelligence in the practice of testing to prevent the banning of sportspeople due to medical hormones and procedures which are not meant to improve their performance and cognitive development in sports. The most common detectable hormones, such as androgen, haemoglobin, and peptide, could be employed among the sportsmen to foster the healing process, especially during injuries (Handelsman, 2015). After the hormonal treatment, the sportsmen ought to be

allowed to participate in sports with minimal inspection of their treatment on hormones in their sports activities. The WADA must develop measures that will ensure that the handling of testing and sample collection is executed to avoid unnecessary deterring sportspeople from undertaking their normal sports activities.

Commonly Abused Products in Sports

The abuses of substance have been a common phenomenon in sports in which the players are focusing on self-enhancement. Substance abuse is depicted to destroy the competitive power of sports. Despite the improvement of the hormonal capabilities and improved performance, substance abuse results in negative health impacts, later in the lives of the sportspeople (Malve, 2018). Conversely, the players are deployed to engage in competition with normal people in sports, making the competition unfair. The commonly abused drugs in the sports world include substances such as the anabolic-androgenic steroids, the growth hormones, body stimulants, and analgesics, just to mention a few of the commonly abused substances (Momaya, Fawal, & Estes, 2015). Some of the commonly abused substances are medical ones and have been reported to influence the hormonal performance among the sportsmen leading to their improved performance.

The current regulatory bodies in sports focus on detecting commonly abused products and banning sportspeople who are users of such products from partaking in sports activities. The regulation of commonly abused substances among the sportsmen requires the medical team to be cautious when prescribing drugs to the sportspeople to avoid interfering with their careers (Momaya, Fawal, & Estes, 2015). The medical prescription of such products may lead to misinterpretation of the sportsmen as abusing such products, which would lead to frustrations and banning their participation in sports activities (Malve, 2018). The sportsmen should be very careful which kinds of drugs that they are using. Otherwise, various tests on them may prove abuse of certain products banned in sports, which might have been used for medical

purposes. The question remains on whether the sportsmen should be allowed to participate in the competitions when the commonly abused products are detected within their bodies (Momaya, Fawal, & Estes, 2015). The query should consider some of the products to be prohibited by the regulatory bodies among the sportsmen. The substance abuse among sportspeople should be allowed, especially, for medical reasons rather than for performance improvement and in increasing hormonal performance.

Cognitive Enhancement in Sports

Cognitive improvement has led to the questioning of the ethical concerns in the sports and medical implications of the sports activities. Cognitive enhancement in sports has, over the years, been perceived as a monolithic issue requiring medical attention. The differences in cognitive capabilities in sports are brought about by the differences in the level of training and education in life. Majority of the sportsmen have gone through various training and hardship, which brings about the differences in the cognitive capabilities. The challenges in the sports would post it a requirement for the players and sportspeople to enhance their cognitive functions. The improved cognitive abilities are portrayed to assist the sportsmen in acquiring specific skills that make them outdo others in the same games. The query lies in whether the rules of sportsmanship would allow for the cognitive enhancements.

The employment of the Biochemical strategies in the improvement of the cognitive capabilities raises concerns in the sportsmanship rules. For instance, increasing the oxygen capabilities and the use of drugs raises concerns on the sportsmen's rule for fairness in life. The biochemical products that are used to enhance cognitive capabilities such as cocaine, coffee, caffeine in tea, and glucose raise ethical issues in the sportsmanship rules (Kim, Hong, Kim, & Yoon, 2019). Additional methods, such as fasting and could increase the levels of cognitive performance in adults. The use of drugs has been perceived to improve cognitive activities of the sportsmen for which WADA has prohibited some of the drugs.

Another example of cognitive enhancement includes the use of genetic modifications to increase the performance of the sportsmen and increase the learning process and memory capacities.

In today's society, the rules of sportsmanship are governed by equality of capabilities, and the competitors are artificially enabled to perform better than others in the same game. For example, normal individuals are competing with supernatural genetical modified individuals with higher cognitive performance. The employment of the neuroenhancements would pave the way for the banning of medical neuro improvements (Kim, Hong, Kim, & Yoon, 2019). The use of neuro improvements would create unfairness in the sportsmanship, seeking to ban the Transcranial magnetic stimulation (TMS) with an understanding of the locomotive enhancement in training and sports.

Seeking further information on TMS will require the questioning of the rules of the sportsmanship on fairness and whether it would be fair to compete in the same environment with modified individuals that have different capabilities, not natural but induced to increase performance. The utilization of the TMS is a new approach that the WADA and the sports regulators have not come into terms with ensuring fairness in competition. The noninvasive method in increasing cognitive development would enhance the performance of the sportsmen (Erhardt et al., 2016). The electro, medical, and non-medical methods can be applied to improve the cognitive functions of the sportsmen, which make them have a differential outcome in their physical performance and stimulation capabilities. The enhancement of the sportsmen, performance in their balance, strength, reaction time, and reduced fatigue mean the players would compete unfavorably with other competitors that have not had their mental and cognitive capabilities improved.

The technology has been incorporated in the sports to ensure that cognitive improvement is achieved, enabling the sportsmen to perform better. The employment of the

electric stimulation enables the athletes to perform better on the field. The employment of the TMS through bodily vibrations have been quite difficult to detect, making the athletes powerfully compete with visuospatial memory and improved performance than normal competitors. The employment of the physical activities to improve cognitive improvement cannot be prevented among the sport world where there are no measures to stop athletes from improving mental capabilities. Conversely, the sportspeople have had to stimulate their performance through the integration of the machines and their minds to ensure they achieve time responses, like scoring a goal within ten minutes of the game, time maintenance in athletes, and also the utilization of the wearable gadgets to stimulate their mind to action.

Over history, the sportspeople have used behavioral strategies to improve their cognitive performance. For example, everyday practice to live a healthy life have led to the improvement of cognitive performance and general physical performance. Some of the activities that enhance good cognitive performance include getting a good sleeping time and regular physical exercise. Some other behavioral activities improving cognitive functioning include cultural actions such as dancing, music, and getting to learn a second language. Some cultural and natural actions have been mastered over time to improve the cognitive improvement and performance. For example, playing video games and customized computerized training could lead to better cognitive performance. The training on cognitive performance leads to higher levels of unfairness in the training process and competition among the athletes. However, the question lies on whether the TSM should be employed in sports and deny people the physical and natural measures of improving their competitiveness in athletes. The use of TSM should follow a natural setting and improvements through electrical stimulation that must be regulated in the modern sportsmanship rules.

Justifications for The TMS Use in Sports

The application of the TMS in the sports have already been employed among the players with natural methods such as meditation and induced fasting to improve their cognitive capabilities. The testing for the tDCS, which includes the transcranial direct stimulation, has been moved from a successful laboratory to the realistic world practicing with animals and people (Edwards et al., 2017). The tDVS have confirmed to improve performance, behavior, and cognitive capabilities among humans (Kim, Hong, Kim, & Yoon, 2019). In the sports world, athletes are driven by the motives to improve the performance abilities, through safety methods and flexible methods that are cheap and supports the ethical query of sports. The electro improvements of the sportsmen would mean that their performance would improve and be regulated beyond their standard capabilities. In real physical activities, the athletes would perform better than their counterparts, beating them in fair games (Mehrsafar, & Gazerani, 2019). However, the electro enhancement has had negative impacts on the lives of people leading to neurological and mental challenges.

The use of tDCS can generally be used in sports to increase mental and physical activities. The employment of the tDCS would lead to improved performance among the sportsmen through ethical methods (Dresler et al., 2018). Testing for tDCS would not be detected through the sample or blood samples for the tests against the performance improvement among the sportsmen (Kim, Hong, Kim, & Yoon, 2019). The technology would provide the sportspeople with control over their muscles, the timing, and maximizing on their speed (Mehrsafar, & Gazerani, 2019). For example, in the world of sports, especially football, the majority of the African countries playing against Messi are unable to compete favorably and end up losing against the white people who have had their cognitive and physical abilities immensely improved.

The employment of the tDCS in training enables the improvement in the performance of the sportsmen. The combination of the intensive training with the tDCS training enables

the athletes and sportspeople leading to growth in the peak powers and the ability to handle various workloads that could be achieved with normal physical exercise (Kim, Hong, Kim, & Yoon, 2019). The tDCS makes it possible for athletes like the Messi to attack within a concise time of involvement in football and gain control over time to achieve what they set (Edwards et al., 2018). Additionally, improvement in the cognition has enabled them to know the critical areas in attacking, which provides the way for the players to work against fatigue (Mehrsafar, & Gazerani, 2019). However, training with the tDCS must be incorporated with the real physical exercise on the ground to ensure that sportspeople achieve improved performance without facing the side effects of being unable to make cognition between the tDCS and the physical training.

The world health organization considers the method of TMS to help keep up a good health in the modern era (Erhardt et al., 2016). However, the employment of the technology for the improvement in performance for both the physical and mental enhancements would raise ethical concerns in the sports world (Kim, Hong, Kim, & Yoon, 2019). The ethical concerns come to people that continue to use enhancements methods to improve cognitive capabilities to increase the powers in the memory and focus (Edwards et al., 2018). The use of transcranial magnetic stimulations would be considered allowable in society, despite the already raised ethical concerns (Edwards et al., 2017). The use of such devices to enhance cognitive capabilities in the sports world can be compared to physical training differences for people in developed and those in less developed countries (Erhardt et al., 2016). For instance, people in the developed world would learn to engage in sports with higher cognitive development and stimulation than the people in less developed countries. The developed countries would train their sportspeople to take time and maintain their energy levels to increase their performance. In contrast, those in less developed countries have to develop a mechanism for thorough physical exercise.

The use of the devices to improve the cognitive development should not be stopped, and the sports world would be better if they seek for measures to inhibit sportspeople who have been enhanced through technology to perform much better than people that train through natural methods (Kim, Hong, Kim, & Yoon, 2019). However, ethical methods do not provide valid claims to end the TMS for the employment of technology is essential, even for modern sports. The advocacy for the employment of the TMS technology is paramount for all the sportspeople as long as the methods are natural and do not involve unethical stimulation and technological enhancements that give the sportspeople abnormal strength and characters to compete against the normal sportsmen.

Conclusion

The world of sports is governed by specific rules that ensure ethical and safe competitions for the sportspeople. The majority of the sports regulators have adopted measures that counteract the use of traditional enhancement such as substance abuse and the use of medical drugs to improve on strength and physical exercise. The methods have been developed to test for substance abuse through the use of urine screening and blood testing, which are just a means to ensure fair competition among the players. Conversely, with an increase in technology, various ethical issues have arisen that are difficult to accept, or reject when it comes to cognitive and physical improvements. The sports world must agree with technology that cognitive improvement existed a long way ago, even as a natural part of people's daily lives. Additional claims and technology must be developed to counteract the substance abuse among the sportspeople. The employment of technology and intelligence would ensure the sportsmen are controlled in their medical attention to use enhancements such as opioids as allowed by medical Practitioner. The technological employment would also prohibit the induction of hormones from increasing performance and cognition among the athletes, meaning the competitions would be based on fairgrounds. With the various

increasing compacted technology, the use of Trans Cranial Magnetic Stimulus (TMS) should be allowed with limits on the natural induction without substance and hormonal affluence.

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