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# The road to hell is paved with good intentions—A critical evaluation of WADA's anti-doping campaign



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#### ABSTRACT

In 2012 following a foundation board meeting a working group under the World Anti-Doping Agency (WADA) was established in order to investigate the lack of effectiveness of the anti-doping testing programs. The working group identified a number of weaknesses with lack of compliance with the antidoping code by central stakeholders, as the essential problem. According to the working group human and political factors are the reason why anti-doping has been unsuccessful. There is no critique of WADA and the purpose of anti-doping as such. So the aim of this paper is to measure if world anti-doping - its inadequate harmonization, coordination and effectiveness with regard to detection, deterrence and pre vention of doping aside - is generally sound and successful. It does so by exercising a critical examination of the purpose as stated in the World Anti-Doping Code: "To protect the athletes fundamental right to participate in doping-free sport and thus promote health, fairness and equality for athletes worldwide" After a brief introduction to the background for the foundation of WADA followed by an explanation o political success it goes on to evaluate the stated purpose step-by-step. Based on the working group: finding and illustrated by exemplary cases the paper demonstrates that anti doping does not offer any protection of athletes right to participate in doping free sport; that it does not offer significant healtl protection; and that it does not protect fairness and equality for athletes worldwide. This leads to the conclusion that anti-doping under the auspices of WADA has been unsuccessful and counter-productive © 2016 Elsevier Ltd. All rights reserved

#### 1. Introduction

The World Anti-doping Agency (WADA) is a remarkable organisation. Before its formation in 1999, anti-doping regulations were in the hands of the respective sports organisations and their approach to the phenomenon differed markedly. Some organisations enforced harsh penalties, others were lax. The International Association of Athletics Federation (IAAF) for instance applied four-year bans for serious first time offences, whereas the International Cycling Union (UCI) found warnings and bans the length of weeks or a few months appropriate.

The disparity between the sports organisations anti-doping regulations indicate that doping was understood like other sport-specific infringements such as tackles, false starts, holding, hacking, dress, equipment, verbal abuse etc. So it was not more peculiar that different sports organisation had different doping regulations than there was dissimilar sanctions of physical contact in basketball, football, rugby and boxing. With the French authorities' intervention in the Tour de France in 1998 this perception changed.

France-Belgium border had pulled the soigneur of the Festina-Lotus team Willy Voet over and found his trunk loaded with performance-enhancing medical products, doping was instantaneously transformed from a sports problem to a political one Consequently the perception of doping as simply a sporting rule violation became inadequate. This change of perception was underlined by the subsequent arrest of the entire Festina-Lotus team selected to race the Tour. The police raids and interrogation o riders in custody signalled that doping was a criminal offence in France and the implications of this was of great concern to the leading international sports organisations. The prospect of prestigious sporting events tarnished by images of athletes removed from competitions in handcuffs was nightmarish. The sports organisations understood that their independence was at risk. In an attempt to avert political interference and ensure that sporting organisations kept control of sports, the International Olympic Committee (IOC reacted promptly by organising the World Conference on Doping in Sport, held at the IOC headquarters in Lausanne on 4th February

The moment it was made public that custom officers at the

This convention was designed to consolidate political acceptance of the IOC as the leading authority in world anti-doping, bu

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it had the opposite effect. The anti-doping program, drafted by the IOC ahead of the meeting, was opposed by a number of leading government representatives who expressed distrust in IOC's motives and called for the establishment of an independent United Nations like body in which national governments would have a significant say (Hanstad, Smith, & Waddington, 2008). The IOC had no alternative but to accept the government proposal of establishing a world anti-doping organisation, independent of the IOC. Given the circumstances – the magnitude of the doping use revealed in France during the Tour, the media furore it had caused, and the ineffectiveness of anti-doping efforts up to that point – it is understandable why governments wanted to see more effective measures taken and pushed for a solution that gave them direct influence on the development of international anti-doping policy.

It seems fair to suggest that the establishment of WADA was the right response to the doping crisis. This unique construction, equally funded by the IOC and the governments, was a statement of intent. It was an extraordinary initiative to secure (the re-establishment of) the integrity of sport and it was widely lauded. Since its very beginning WADA has enjoyed massive backing. Leading media representatives have generally taken the WADA premises for granted. Issues regarding athletes' legal protection and right to privacy have been more or less neglected.

The armoury WADA has evolved to catch doping athletes such as the strict liability rule and the 365 days per year testing availability and whereabouts requirement could hardly have been implemented had the agency not been endowed with special goodwill by international political and legal institutions. The political acceptance of the interpretation that professional sports are not professions in the ordinary sense of the word and athletes therefore are not entitled to the same level of protection as workers in other professions is crucial to the WADA cause. Even among the most staunch supporters of WADA we find recognition that antidoping authorities is now equipped with powerful weapons. Dag Vidar Hanstad and Sigmund Loland acknowledge this in striking fashion:

Given that we accept the principal and moral basis of antidoping work, the compulsory reporting system constitutes nothing more than a logical and effective extension of its methods. To use the earlier metaphor of [former Chief Medical Officer for the US Olympic team Dr. Robert] Voy, WADA is gradually moving from doing anti-doping work with unarmed weapons to shooting with live ammunition. (Hanstad & Loland, 2009, p. 6)

The backing of WADA and the acceptance of its armoury, that has the potential to destroy the career and reputation of athletes found to have committed a doping rule infraction, has root in a firm conviction that the organisation strives to achieve a morally sound goal which is in the best interest of the sporting community and clean athletes. The purpose of this paper is to critically examine if the WADA policy is indeed as successful and sound as its unwavering backing by media and politicians alike suggests.

#### 2. Political inertia

A policy is successful if it fulfils its objectives. However, as Ross Coomber pointed out the very same year WADA was founded an "unintended effect of existing policy may be that it works against some of the principles upon which it is based and seeks to maintain" (Coomber, 1999, p. 103). Ideally, responsible politicians would not persevere with a policy that does not live up to its purpose but search for alternative measures better suited to solve the problem at hand and change the policy accordingly. But in the real world, it is not easy to change institutionalised policy (Hunt, 2015). This is

particularly true when it comes to international policies negotiated between multiple stakeholders with different attitudes and aspirations. When a compromise is reached and the policy set in motion, appetite for change is small even if the chosen path proves suboptimal or even counterproductive. Those who have vested interest in the policy whether as proponents, ambassadors or officials with prestige, livelihood or both at stake will typically fend off criticism by claiming that their critics are ill informed, do not see the bigger picture, or suffer from tunnel vision.

Admittedly the line of thinking in the present paper does not take into account all the obstacles, challenges, and difficulties that anti-doping employees are faced with on a daily basis. However, references to the complexity and intricate nature of the global anti-doping campaign do not justify persisting with a deficient system. If Coomber's observation, quoted above, accords with the development of global anti-doping policy it is a problem for the integrity of the enterprise that needs to be exposed and criticised. The best way to check if the principles upon which anti-doping were founded have been sacrificed is to evaluate its stated purpose and its practical outcomes. So what is the purpose?

#### 3. WADA's purposes

The purposes of anti-doping as presented in the World Anti-Doping Code (WADC) are:

To protect the athletes' fundamental right to participate in doping-free sport and thus promote health, fairness and equality for athletes worldwide, and

To ensure harmonized, coordinated and effective anti-doping programs at the international and national level with regard to detection, deterrence and prevention of doping. '(WADA, 2015, p. 11)

This formulation cited from the latest revision has remained unaltered since the first version of the WADC was published in 2003. The rationale appears clear and sober. Few would disagree that protecting fairness, equality, and the health of athletes through harmonized and effective anti-doping programs is a good idea. A testing and penal system that on the one hand catches cheating athletes, and on the other hand deters other athletes from resorting to doping, is hard to argue against so long as the extra demands it puts on the athletes are fairly reasonable. Of course, if athletes in order to make out of competition testing efficient were requested to accept surveillance via tagging like criminals who serve their time at home it would probably be considered disproportionate and meet resistance. But the system as it is now where athletes are requested to provide whereabouts information and give urine and blood tests would be hard to criticise if the purpose to protect health, fairness and equality for those subjected to the system was achieved. Sadly it is not. Even WADA recognises that the system is dysfunctional. Thus in the preamble for the working group on the (in)effectiveness of testing, appointed in spring 2012, the WADA Foundation Board admits:

Over recent years it has become apparent that traditional antidoping testing programs are not catching many cheats. The latest available laboratory statistics (for 2010) indicate a mere 2790 adverse analytical results were returned from more than 258,267 tests analyzed; a meager 1.08%. In addition, a significant portion of those results were for cannabis only. The likely figures for 2011 show little change. Such statistics might appear to suggest that doping is not a major scourge for international sport, yet the intelligence otherwise gathered points strongly in the direction that it is still a huge threat, and that many are

avoiding detection. (Pound, Ayotte, Parkinson, Pengilly, & Ryan, 2013, app.B, p. 1)

The working group's task was to identify why the testing system is so ineffective and what could be done to improve it. The group observed numerous critical weaknesses in all corners of the system involving lack of commitment, limited expertise, insufficient resources, strategic resistance etc. So anti-doping is obviously far from perfect, and this inspires the pertinent question: Has the situation at least improved since WADA was established if we use its stated purpose as the yardstick?

## 4. Athletes' fundamental right to participate in doping-free sport

As the WADA Foundation Board concedes the testing regime leads to a very low number of adverse analytical findings. This could be deemed a success were it a reflection of the actual number of athletes doping. However, as the Board intimates it is in all likelihood an indication of the ineffectiveness of the anti-doping work rather than evidence of an almost doping-free sport. Intelligence otherwise gathered, as mentioned in the preamble, and post-career confessions have time and again proven that positive tests only reveal the tip of the iceberg. So even though there probably are sports where the use of doping is exceptional or completely absent, anti-doping is still far from a situation where it can meaningfully be said to protect athletes' right to participate in doping-free sport.

In sports where intentional drug use is non-existent antidoping's effort to protect this right to compete in doping free sport may do more harm than good. One extreme example is the 12 old Polish kart driver Igor Walilko who were handed a two-years ban after he tested positive for the stimulant Nikethamide that he had got into his system unknowingly from eating an energy bar. The ban supported by WADA was later reduced to 18 months after appeal to CAS (Corrigan, 2011). Still the sanction seems harsh as the substance in question did not add any extra power to the kart and is unlikely to have had any influence on the race result.

At the other extreme we find Lance Armstrong who in 2013 publicly confessed doping during his career. This was celebrated as a major victory for anti-doping but in reality it was testament to its defeat. Armstrong won his first Tour de France victory the year WADA was formed, and he went on to win the race seven consecutive times. He was one of the most tested athletes on the planet during his peak years. Still, he got away with doping as part of his Tour de France preparation and during the race year after year. It is true that he tested positive for cortisone in 1999 but thanks to the UCI's accept of a backdated Therapeutic Use Exemption (TUE) his doping was masked as a saddle sore treatment (USADA, 2012). Even worse, when in 2001 he returned a "suspicious sample" at a time when the EPO test was relatively new (introduced into cycling just three months prior) as he prepared for the Tour by racing the Tour of Suisse, he also managed, USADA maintains, to negotiate a solution with the UCI leadership so this career threatening test result was swept under the carpet (USADA, 2012). Rather than exemplify the efficacy of anti-doping testing, it proves that despite the resources, goodwill and power given to anti-doping authorities after the Festina-affair, Armstrong's clean competitors' right to participate in doping free sport was far from being protected. A fact underlined by other riders who have admitted to massive use of drugs never detected during the same years. The Danish rider Michael Rasmussen's 2013 autobiography speak volumes about the testing systems inability to secure the right of clean athletes to participate in doping free sport as he reveals he used a wide range of banned products including EPO, growth hormone, testosterone, DHEA, insulin, IGF-1, cortisone, synthetic blood and blood transfusions during 12 years of professional cycling, and he never failed a test (Rasmussen, 2013).

Even though cycling is often presented as the sport with the most ingrained doping culture, athletes' fundamental right to participate in doping free sport has not been protected in other sports either. The 2015 revelations of systematic doping in Russian athletics, and the IAAF's then President Lamine Diack's acceptance o bribes to make positive test from Russian athletes disappear, is another kick in the teeth to those who believe that WADA are able to protect clean sports (Pound, McLaren, & Robertson, 2015). This leads to the next question: Even if anti-doping is unable to protec athletes' rights to participate in doping free sport does the effort a least contribute to the promotion of health, fairness and equality? If we take the word "promote" to mean "support and active encouragement of a course" the answer is unconditionally yes. In this sense WADA is unquestionably promoting health, fairness, and equality But if we apply the definition "to further the progress of something" the answer is much less positive. There is reason to argue that on a practical level anti-doping is rather counter-productive to the protection of health, fairness and equality as will be demonstrated in the following.

#### 5. Health

It is true that before anti-doping rules were in place athletes could use potent drugs to suppress the body's signals of pain and fatigue. This may be the reason why sport witnessed a number of near fatalities. Jean Malléjac's collapse at Mont Ventoux in the 1953 edition of the Tour is one of the most dramatic episodes of the preanti doping history of cycling. The rider only survived thanks to race doctor Pierre Dumas's resolute resuscitation effort. Although there was found no hard evidence of drug use, pills or vials, there was no doubt in Dumas's mind the collapse was a result of drug use and the experience made him a proponent of anti-doping (Dimeo 2007). The episode stands as a strong reminder of the health risl unregulated doping abuse poses and exemplifies why some kind o regulation is needed.

However, to claim that the use of banned performance enhance ing drugs is bad for health per se is exaggerated. Most performance enhancing substances are in fact medicines approved for use by sick, weak, and old people so the damage they can do to young well-trained athletes if used responsibly should be negligible. The perception that the danger of drug use in sport is exaggerated is supported by a noteworthy study in which the mortality of the 786 French riders, who participated at least once in the Tour de France from 1947 to 2012, was examined. The Tour de France riders lived on average six years longer than the background population (Marijon et al., 2013). These findings are so much more remarkable as the study includes riders, who took part in the race at a time when no doping restrictions were in place. If doping in the Tour de France has been so rife as history suggests, the natural conclusion to draw is that doping does not pose a major health risk. Anti-doping regulations, all other things being equal, prevent doping abuse and thus protect athletes' health to some extent, but this does not mean that the health protection anti-doping offers benefits athletes' health in general because a number of factors come into the equation.

First, before 1998 media paid scant attention to doping ever in cycling. Few outside professional sport had heard about EPO Doping was a secret; something athletes were introduced to gradually as they moved into the professional ranks as part of their "education" (Ohl, Fincoeur, Lentillon-Kaestner, Defrance, 8 Brissonneau, 2013). This changed as the Festina affair brought the use of doping into the public domain. Suddenly everybody learned about EPO and the performance-enhancing effect it had. While the exposure of a widespread doping culture caused immediate

condemnation it did not diminish athletes' interest in the potent product's performance-enhancing qualities. So, unfortunately, the anti-doping campaign had the effect of an advertisement for EPO inspiring sub-elite riders and even middle-aged men to buy the product with the aim to perform well in sportive races (Henning & Dimeo, 2014). According to the UCI's Independent Commission for Reform in Cycling doping in amateur sport has become endemic (Fotheringham, 2015). If this is true, the sheer difference in numbers between amateur cyclists and professional riders means that the health risk has been significantly increased. In addition to this, the health risk related to middle-aged amateurs' self-administration of EPO is higher than it is for an elite, fully fit professional cyclist who is doping under guidance of experienced doctors. So if the health benefits of the anti-doping campaign were to be measured from a general public health perspective the result would in all likelihood be that it had increased, rather than diminished the health risk.

Second, if we leave the general public health perspective aside and focus solely on the athletes who are the main targets of the campaign, there are also direct negative effects to consider. The promotion of anti-doping has led to suspicion of all sorts of performance enhancing means that involves the use of needles. Thus the prohibited list includes a ban on "Intravenous infusions and/or injections of more than 50 mL per 6 h period except for those legitimately received in the course of hospital admissions, surgical procedures or clinical investigations" (WADA, 2016). This prohibition prevents athletes from receiving intravenous dietary supplements for recuperation. So, endurance athletes with a strong disposition to persevere through pain and fatigue in multi-stage events will have to carry on in a physically drained condition to the detriment of their health. The problem has been amplified in cycling by UCI's "no needle policy" that was implemented as an image enhancing response to the fact that the syringe has become a symbol of doping. This policy "means riders can no longer inject vitamins, sugars, enzymes, amino acids or antioxidants to aid recovery" (Farrand, 2011). Since WADA did not challenge the UCI over this initiative the agency apparently agree that athletes are to be deprived of injections during competition although the substances injected are not on the banned list and have been used to maintain athletes' health.

Third, there is the question of athletes' psychological wellbeing. When required to provide a test athletes is put in a state of anxiety. They can never know for sure if the test will turn out positive. Doped athletes have freely chosen to take that risk. Clean athletes know this risk as well. They can never be one hundred per cent certain that they have not unwittingly consumed a banned substance or that they will be victims of a false positive test result. Living with this fear is stressful and it goes without saying that this is not benefitting athletes' mental wellbeing. If this is a problem that applies to every athlete the stress level is of course increasing immensely in the case they test positive. So it is unsurprising that positive tests have led to depression and suicide attempts.

Proponents of anti-doping may cynically argue that if for instance the Italian rider Marco Pantani's tragic death in a hotel room in Rimini in 2004 was a result of a depression developed after he was taken out of the Giro in 1999 with a too high haematocrit value he was a doper and thus responsible for his tragic fate. But this is not true for the young Belgian professional cyclist, Jonathan Breyne, who in 2013 at the age of 22 attempted to take his own life after he was provisionally suspended by the UCI following a positive test for clenbuterol at a race in China. "The news was like my world collapsing on me," he explained in an interview he gave hours before his suicide attempt. "What have I done to deserve this? Nothing. Absolutely nothing. I've never taken anything. But how can I prove that with what's happened in China?" The psychological impact of the situation is unmistakably: "I haven't eaten since

Wednesday, I'm not hungry. This is all making me ill because I am wondering why it is happening to me" (MacMichael, 2013). Luckily Breyne survived his suicide attempt but had it been successful the fact that he was later exonerated would have been inconsiderable. The regime established to protect his health was close to causing his death.

#### 6. Fairness and equality for athletes world wide

Breyne's case should not only be considered in light of the near fatal outcome of his positive test. In the interview mentioned above he explains why he felt sure he would be handed a lengthy ban: "The amount [of clenbuterol] found in Contador's urine, the UCI told me, were tiny compared to mine" (MacMichael, 2013). In 2010 the winner of the Tour de France Alberto Contador tested positive for the same substance. The concentration of clenbuterol in his urine sample was no more than 50 picograms which "was 40 times below the minimum requirement of detection capability required by WADA" (Gallagher, 2012). Prior to the positive test he had tested negative on previous occasions during the race so it is unlikely he had taken the drug between stages to any performance enhancing effect. Contador claimed it was a case of food pollution. The Spanish Cycling Federation (RFEC) accepted the food contamination explanation and acquitted him. But WADA and the UCI appealed to the Court of Arbitration for Sport (CAS), and this court overruled the RFEC to give him a period of ineligibility of two years (Barak, Byrne-Sutton, & Hass, 2012). Since there is no threshold for clenbuterol his suspension was in accordance with the rulebook. But if we take the concentration of clenbuterol into account and the fact that it might have been a case of meat pollution and not – as CAS speculated – a result of eating a food supplement which made it a case of negligence, are we safe to say that this ruling is fair? If the answer is yes it is understandable why Breyne thought there was no way off the hook for him given the concentration in his sample was much higher. It is true that Contador maintained he ate beef bought in Spain where official food controls have yet to find clenbuterol contaminated meat whereas Breyne had been eating in China where, in the wake of the Contador case, it became public knowledge that livestock was treated with clenbuterol. However, it is not immediately clear why this should count as a mitigating factor in Breyne's case. If Breyne's positive test was thought to be a result of eating meat in a country in which there is a well-known history of clenbuterol residues in meat, eating meat in this country is a clearer example of negligence than eating beef from a country where clenbuterol polluted meat is not a recognised problem, even though there has been outbreaks of illness due to the ingestion of meat containing clenbuterol residue in Spain, a fact that was not taken into account in CAS's evaluation of Contador's case (Mitchell, 2011). The CAS arbitrators "invention" of the food supplement explanation indicates that they understood this. But since neither the defendant nor the appellants mentioned food supplements as the potential source of the substance the alleged explanation is a spurious reason for giving Contador's two year suspension - the maximum at the time - without openly accepting WADA's more colourful and dramatic but equally conjectural proposal that the clenbuterol entered Contador's body via a blood transfusion (Barak et al., 2012). Whatever the truth of the matter is, it is hardly testament to fairness and equality for all athletes that Contador received the maximum penalty for a first time offence based on a loose assumptions of negligence whilst Breyne was exonerated for a similar offence.

Doping rule violations should be assessed with the same yardstick regardless of the performance or status of the athletes in question. The legal argument that all cases are different and therefore must be treated differently is a weak defence for different outcomes in similar cases when the stated intention is fairness and equality. If this is not immediately clear by the comparison between Breyne and Contador, it should be blatant if we compare the outcome of two other clenbuterol cases, namely those of the Italian cyclist Alessandro Colò and the Danish rider Phillip Nielsen. Both riders competed in the same race in Mexico in April 2010; both riders tested positive for clenbuterol during that race; both lived and ate at the same hotel; both claimed they did not know how the substance had entered their bodies and had their explanation of possible food contamination accepted by their respective evaluation panels. Still, Colò was handed a one-year suspension in Italy whereas Nielsen was acquitted in Denmark. Article 10.5.2 of the 2009 WADC pertaining to negligence states that

If an Athlete or other Person establishes in an individual case that he or she bears No Significant Fault or Negligence, then the otherwise applicable period of Ineligibility may be reduced, but the reduced period of Ineligibility may not be less than one-half of the period of Ineligibility otherwise applicable (WADA, 2009).

The WADC specifically mentions the possibility of a reduced sanction. It does not mention the option to let a positive test go unpunished even if there is no fault or negligence on the part of the athlete. So it is perfectly clear why Colò was suspended for 12 month. This was the maximum reduction he could get according to the WADC. It is unclear why WADA decided to withdraw its initial appeal to CAS and not to pursue the lenient Danish approach in the Nielsen case. WADA explains the decision with reference to "compelling evidence from a FIFA study at the U17 World Cup in Mexico that indicates a serious health problem in Mexico with regards to meat contaminated with clenbuterol" (Cyclingnews, 2011). Assessed as an individual case it seems sensible and just to withdraw the appeal if there is no fault on the athlete's part. However, the reason why WADA insists on the strict liability principle and emphasise that doping rules are sporting rules not legal rules, is that in most cases it is impossible to establish whether a banned substance is present in an athlete's body by accident or by intent. Regardless how much clenbuterol-contaminated meat there is in Mexico, Nielsen could still have taken the substance with performance-enhancing intent. He could even have done so knowing that if he tested positive he could explain it away with reference to the high rate of meat pollution in the country. Should WADA have lived up to its purpose regarding equality for all athletes they ought to have upheld the appeal regardless of the situation in Mexico and argued for a ban similar to the one Colò received. Especially because article 10.5.2 of the WADC unmistakably states that "the reduced period of Ineligibility may not be less than one-half of the period of Ineligibility otherwise applicable" even in cases where there is no significant fault or negligence on the part of the athlete. Many other examples from various sports could have been used to illustrate the anti-doping system's inconsistency, but the different outcomes of the clenbuterol cases in cycling presented here suffice to demonstrate that fairness and equality for athletes world-wide are not rigorously pursued much less achieved.

#### 7. Concluding remarks

If it is true, as stated by the WADA Executive Committee on the lack of effectiveness of testing programs, that the science behind the test system is robust and reliable in and off itself and that the problem are human and political factors this only explains why WADA has not been able to ensure "harmonized, coordinated and effective anti-doping programs at the international and national level with regard to detection, deterrence and prevention of doping." (Pound et al., 2013, p. 3/9). As this paper has shown WADA itself does little to ensure harmonisation and equality. The WADA-led anti-doping regime is constructed in such a way that it inevitably works

against the principles upon which it is based. Rather than protecting health, fairness and equality it increases the health hazards and contributes to make the playing field even more uneven.

So the conclusion is that the current anti-doping policy assessed in the light of its purpose is unsuccessful and unsound. Thus, it WADA was the body it presents itself to be, we should expect the organisation to admit that the current anti-doping strategy does not work, that it produces serious unintended consequences, and that it is time to consider an entirely new approach to the doping problem.

#### References

- Barak, E., Byrne-Sutton, Q., & Hass, U. (2012). UCI v. Alberto Contador Velasco and RFEC; WADA v. Alberto Contador Velasco and RFEC. Retrieved from Lausanne. Coomber, R. (1999). Controlling drugs in sport: contradictions and complexity. In N. South (Ed.), *Drugs cultures, controls and everyday life* (pp. 103–114). London: Sage.
- Corrigan, J. (2011). The last word: war on drugs guilty of wounding youngsters. *Th. Independent*, 18 September, Retrieved from. http://www.independent.co.uk/sport/general/others/the-last-word-war-on-drugs-guilty-of-wounding-youngsters-2356556.html
- Cyclingnews. (2011). WADA withdraws appeal in Nielsen Clenbuterol case.. October 13, 2011, Retrieved from. http://www.cyclingnews.com/news/wadawithdraws-appeal-in-nielsen-clenbuterol-case/
- Dimeo, P. (2007). A history of drug use in sport 1876–1976: beyond good and evil. London: Routledge.
- Farrand, S. (2011). UCI approves no needle policy (May 4, 2011). Retrieved from http://www.cyclingnews.com/news/uci-approves-no-needle-policy/
- Fotheringham, W. (2015). Middle-aged businessmen are winning amateur cycling races on EPO. *The Guardian*, Retrieved from. http://www.theguardian.com/sport/2015/mar/09/doping-cycling-uci-commission-epo-worldtour
- Gallagher, B. (2012). Alberto Contador handed two-year ban for doping and is stripped of 2010 Tour de France title by the CAS.. February 6, 2012, Retrieved from. http://www.telegraph.co.uk/sport/othersports/cycling/9063709/Alberto-Contador-handed-two-year-ban-for-doping-and-is-stripped-of-2010-Tour-de-France-title-by-the-CAS.html
- Hanstad, D. V., & Loland, S. (2009). Elite athletes' duty to provide information on their whereabouts: justifiable anti-doping work or an indefensible surveillance regime? *European Journal of Sport Science*, 9(1), 3–10.
- Hanstad, D. V., Smith, A., & Waddington, I. (2008). The establisment of the world anti-doping agency: a study of the management of organizational change and unplanned outcomes. *International Review for the Sociology of Sport*, 43/3, 227–249.
- Henning, A. D., & Dimeo, P. (2014). The complexities of anti-doping violations: a case study of sanctioned cases in all performance levels of USA cycling. Performance Enhancement & Health, 3(3–4), 159–166. http://dx.doi.org/10. 1016/j.peh.2015.08.001
- Hunt, T. (2015). Anti-doping policy before 1999. In V. Møller, I. Waddington, & J. Hoberman (Eds.), Routledge handbook of drugs and sport (pp. 209–218). London: Routledge.
- MacMichael, S. (2013). Belgian rider Jonathan Breyne attempts suicide after positive result for clenbuterol. Retrieved from. http://road.cc/content/news/103851-belgian-rider-jonathan-breyne-attempts-suicide-after-positive-result-clenbuterol.
- Marijon, E., Tafflet, M., Antero-Jacquemin, J., El Helou, N., Berthelot, G., Celermajer, D. S., . . . & Jouven, X. (2013). Mortality of French participants in the Tour De France (1947–2012). European Heart Journal, http://dx.doi.org/10.1093/eurhearti/eht347
- Mitchell, C. (2011). A performance drug that can taint feed, athletes. February 14, 2011, Retrieved from. http://www.foodsafetynews.com/2011/02/legally-used-in-certain-countries/-.VsRRnhgmTEk
- Ohl, F., Fincoeur, B., Lentillon-Kaestner, V., Defrance, J., & Brissonneau, C. (2013). The socialization of young cyclists and the culture of doping. *International Review for the Sociology of Sport*, http://dx.doi.org/10.1177/1012690213495534
- Pound, R. W., Ayotte, C., Parkinson, A., Pengilly, A., & Ryan, A. (2013). Lack of effectiveness of testing programs, Report to WADA executive committee. Retrieved from Montral, Canada.
- Pound, R. W., McLaren, R. H., & Robertson, J. (2015). Independent commission investigation.. Retrieved from Montreal:. https://www.wada-ama.org/en/resources/world-anti-doping-program/independent-commission-report-1
- Rasmussen, M. (2013). *Gul feber*. Copenhagen: People's Press. USADA (2012). Reasoned Decision of The United States Anti-Doping Agency on Disqualification and Ineligibility, Retrieved from Colorado Springs.
- WADA. (2009). WADC, World Anti-Doping Code.. Retrieved from. http://www.wada ama.org/Documents/World\_Anti-Doping\_Program/WADP-The-Code/WADA\_ Anti-Doping\_CODE\_2009\_EN.pdf
- World Anti Doping Code (2015)
- \keeper.dssc.au.dk\ansatte\$\avc\Documents\Litteratur\Doping.
  WADA. (2016). 2016 List of Prohibited Substances and Methods.. Retrieved from.
  http://list.wada-ama.org/list/m2-chemical-and-physical-manipulation-2