



Use of medicines and dietary supplements among Bridge players in two world-class tournaments



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ABSTRACT

As the World Bridge Federation is a signatory to the World Anti-Doping Code, top-level Bridge players undergo anti-doping testing in international tournaments. Compared to “physical” athletes, Bridge players are “mind” athletes who are more likely to use medications and dietary supplements simply because they are, on average, older. Data on socio-demographic characteristics, behavioural risk factors, presence of chronic diseases and use of medications and supplements were collected among 125 Bridge players participating in two world-level Bridge tournaments. About one third of the players were older than 60 years, and 76.8% reported at least one chronic condition, with cardiovascular diseases, back/joint problems, insomnia, asthma and diabetes being the most common. Some 60% of players reported using at least one medication in the preceding week, including substances on the World Anti-Doping Agency prohibited list, whereas 44.0% reported to have used at least one dietary supplement. As “mind” athletes, professional Bridge players’ demographic and health-related characteristics indicate to a different pattern of drug use than “physical” athletes normally considered under the World Anti-Doping Code.

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1. Introduction

The use of performance-enhancing substances in sport is widespread, from top-level athletes (Tang, 2013) to both adults and adolescents in the general population (Cohen, Collins, Darkes, & Gwartney, 2007; Tahtamouni et al., 2008). The effort to control the use of performance enhancing substances in all levels of sport is based on a list of substances which are prohibited in-competition, out-of-competition, and in particular sports, published annually by the World Anti-Doping Agency (WADA) (WADA, 2015). This list encompasses anabolic agents, hormones and their antagonists and modulators, beta-2 agonists, diuretics, glucocorticosteroids and psychoactive drugs. Athletes who suffer from genuine medical conditions can still assume any prohibited substance, provided that they are granted Therapeutic Use Exemption (TUE) by an authorised committee (Dvorak, Kirkendall, & Vouillamoz, 2006). Cases of athletes who required TUEs for treatment of chronic conditions

are common (Fitch, 2012), but the phenomenon may be far more relevant in the case of an aged sports population, which is typical of “mind” sports. This paper offers initial data on the relationship between substance use and anti-doping for mind sports drawing on data from the World Bridge Federation.

Mind sports are games of skill where the mental component is more significant than the physical component, including Bridge, Chess, Draughts, Go, Xiangqi and others. In 1999 the World Bridge Federation (WBF) was recognised as part of the Olympic movement by the International Olympic Committee, and subsequently adopted the World Anti-Doping Code. Adopting the Code led to testing Bridge players for prohibited substances with the result of adverse analytical findings being recorded against some Bridge players (WADA, 2014).

In comparison with physical sport athletes, Bridge players may make greater use of prohibited substances simply because they are older on average and thus more likely to suffer from of a chronic illness. For example, when an athlete tests positive for the presence of a diuretic, which are banned substances in sports at all times, they are assumed to have been used to mask the presence of a performance-enhancing drug. However, older “mind” athletes are likely to be prescribed diuretics to treat congestive heart failure and hypertension, which are common chronic diseases among the elderly typically unseen in younger “physical” athletes.

In addition to medicines, athletes also use other drugs or substances, such as dietary supplements or herbal medications, to

Abbreviations: ATC, anatomic therapeutic chemical; IRR, incidence rate ratio; TUE, therapeutic use exemption; WADA, World Anti-Doping Agency; WBF, World Bridge Federation.

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maintain health and enhance performance (Maughan, Greenhaff, & Hespel, 2011). A cross-sectional study in Beirut city found that about one third of people exercising in gyms reported to use at least one dietary supplement (El Khoury & Antoine-Jonville, 2012). Another study showed that almost 90% of Canadian top-level athletes reported using three or more dietary supplements, with sport drinks, multivitamin and mineral supplements being the most widely used (Lun, Erdman, Fung, & Reimer, 2012).

Importantly, the question of substance based enhancement that the Olympic movement seeks to address with anti-doping relates to the cognitive, emotional and social domains (Maturro, 2012). Individuals may aim to increase their cognitive capacities, such as memory, concentration and alertness (Triviño, 2014; Normann & Berger, 2008). Ginkgo Biloba extracts, which are one of the most commonly used supplements, are marketed as an aid to the treatment of memory problems and dementia (Fugh-Berman & Cott, 1999). Bridge players may be sensitive to the alleged properties of these (and other) cognitive enhancers, because of their demographic profile and the focus on mental abilities required by their sport (Clarkson-Smith & Hartley, 1990).

In the absence of developed literature on doping among mind-athletes generally, and a lack of literature addressing Bridge specifically, the current study aimed to establish baseline data on drug and dietary supplement use in top-level Bridge sports players. We aimed to assess the use of drugs (both prohibited and non-prohibited according to WADA list) and supplements among elite Bridge players.

2. Methods

2.1. Participants recruitment

Data were collected in two world-level tournaments: the 14th World Bridge Games held in Lille, France in August 2012, and the 31st World Bridge Teams Championships held in Bali, Indonesia in September 2013. These events were attended by the best Bridge players in the world: the top 15 players in the WBF Open Ranking participated in at least one of the two tournaments.

During the captains' meeting before the start of each tournament, researchers asked team captains to invite their athletes (Open and Women teams) to participate in an anonymous interviewer-administered health survey. Four players from each of 34 teams (both Open and Women Teams from 17 countries, $n = 136$) participating in the Lille tournament were invited to take part to the survey whereas all players from all 44 teams ($n = 264$ players) were invited in Bali. In the latter tournament, 50 players were excluded because they had already been included in the previous sample. The survey was carried out on competition days, either during breaks between match rounds or when players were not on the active rosters. See Table 1 for the demographic characteristics of the sample.

2.2. Data collection

Data were collected by means of an interviewer-administered questionnaire. The interview was carried out in English with all participants, with the exception of the Italian teams (interviews conducted in Italian), and the Chinese teams (interpreter translations between interviewer and respondent). In order to guarantee anonymity of responses, no information on TUE for neither prohibited substances nor results from anti-doping tests were collected. TUE forms were instead assessed at the aggregate-level.

Questions regarded socio-demographic and anthropometric characteristics, behavioural risk factors, chronic diseases and use of medications and supplements. Body Mass Index (BMI) was calculated by dividing participant's weight (in kg) by the square of height (in m^2).

Table 1
Socio-demographic characteristics and behavioural risk factors of elite Bridge players.

		N	%
Sex	Male	67	53.6
	Female	58	46.4
Age (years)	≤40	29	23.4
	41–50	23	18.6
	51–60	34	27.4
	61–79	38	30.6
Educational level	Some high school	3	2.4
	High school graduate	17	13.7
	Some college or technical school	12	9.7
	College graduate	92	74.2
Continent ^a	Europe	52	41.6
	America	36	28.8
	Asia	15	12.0
	Africa	12	9.6
	Oceania	10	8.0
Smoking	Never	67	54.0
	Former	31	25.0
	Occasional	4	3.3
	Current	22	17.7
BMI category	Normal	55	45.1
	Overweight	45	36.9
	Obese	22	18.0

^a Europe (England, France, Germany, Ireland, Italy, Netherlands, Scotland, Spain, Sweden); America (Argentina, Brazil, Canada, Chile, USA); Asia (China, Hong Kong, Philippines) Africa (Egypt, South Africa); Oceania (Australia, New Zealand).

The section on drugs and dietary supplements asked players to provide the brand name or the active ingredient(s) of drugs and dietary supplements. The interviewer-administered questionnaire was used to facilitate accurate recall and reporting of substances and therefore improve the quality of the data. Drugs, reported either as active ingredients or brand names were classified according to the Anatomic Therapeutic Chemical (ATC) Classification System. Supplements were divided in the following categories: herbal and other dietary supplements (including Fish oil, Ginkgo Biloba, Ginseng and combination herbal pills), vitamins and minerals (Bailey, Gahche, Miller, Thomas, & Dwyer, 2013; Laditka, Laditka, Tait, & Tsulukidze, 2012).

2.3. Ethics approval

The research protocol was proposed by the WBF Medical and Prevention Commission to the WBF Executive Council. The Council gave its approval as part of a wider initiative of health surveillance of Bridge players requested by the International Olympic Committee.

2.4. Statistical analysis

Firstly, descriptive statistics (frequency counts and percentages) regarding use of drugs and dietary supplements were computed. Secondly, negative binomial regression models were built in order to identify the variables associated with a higher number of either medications or supplements used.

3. Results

Overall, 125 players coming from 22 countries were interviewed in both tournaments, with roughly a similar number of males and females (Table 1). About 30% of players were older than 60 years and most (74.2%) were college graduate. Regular daily smokers were 17.7%, whereas overweight/obese subjects were 54.9%.

The presence of at least one chronic condition was reported by 76.8% of players, with back/joint problems, insomnia,

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