©Journal of Sports Science and Medicine (2006) **CSSI,** 21-27
http://www.jssm.org

Combat Sports Special Issue

Research article

EVIDENCE OF NATIONALISTIC BIAS IN MUAYTHAI

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Published (online): 1 July 2006

ABSTRACT
MuayThai is a combat sport with a growing international profile but limited research conducted into judging practices and processes. Problems with judging of other subjectively judged combat sports have caused controversy at major international tournaments that have resulted in changes to scoring methods. Nationalistic bias has been central to these problems and has been identified across a range of sports. The aim of this study was to examine nationalistic bias in MuayThai. Data were collected from the International Federation of MuayThai Amateur (IFMA) World Championships held in Almaty, Kazakhstan September 2003 and comprised of tournament results from 70 A-class MuayThai bouts each judged by between five and nine judges. Bouts examined featured 62 competitors from 21 countries and 25 judges from 11 countries. Results suggested that nationalistic bias was evident. The bias observed equated to approximately one round difference between opposing judges over the course of a bout (a mean of 1.09 (SE=0.50) points difference between judges with opposing affilations). The number of neutral judges used meant that this level of bias generally did not influence the outcome of bouts. Future research should explore other ingroup biases, such as nearest neighbour bias and political bias as well as investigating the feasibility adopting an electronic scoring system.

KEY WORDS: MuayThai, judging, nationalistic bias.

INTRODUCTION

Background

One combat sport with a rapidly growing international profile is MuayThai. The national sport of Thailand is increasing in popularity with fights regularly screened on satellite and terrestrial television channels. Although professional MuayThai is seen more as a spectator rather than a participation sport, amateur participation and competition is growing in popularity with an estimated one million participants worldwide (Gartland et al., 2001). More than sixty-nine countries from five continents sent teams to compete in the 2004 Amateur World Cup (IFMA, 2005) and a 100 counties are predicted to attend the 2006 amateur world championships (Tapsuwan, 2005).

The sport involves a style of boxing where competitors try to win bouts by scoring points, knockouts or stoppages using full contact blows. Legal techniques include a variety of punches, elbows, knees strikes, kicks and grappling techniques. Target areas for strikes include anywhere on the body except for deliberate strikes to the groin area. All bouts are held in an international style boxing ring with competitors using six, eight or ten ounce boxing gloves. Amateur competition has thirteen weight classes and the professional sport has eighteen (WMC, 1995). Professional fights involve five three-minute rounds punctuated by two-minute rest periods, while international level amateur bouts

involve four two-minute rounds with one-minute rest periods. All bouts are controlled by a referee from inside the ring, and scored by three judges in professional fights, and up to five judges plus a jury panel in amateur competitions. While those competing at professional level wear limited protective equipment that includes boxing gloves, mouth guard and groin guard, those competing in amateur competition wear headguards, body protectors, elbow pads and shin-guards. In the amateur sport, competitors are identified by the colour of the protection, shorts and vests worn; these are coloured either blue or red depending on the corner the boxers are competing out of for a particular bout.

The professional sport is well established with a notable history; references to the activity dating back to the eleventh century and written records of formal competition dating back to the sixteenth century (Wongbandue, 1998). However, amateur MuayThai is a rather recent innovation being introduced with the formation of the Amateur MuayThai Association (AMTA) in 1990. The organisation of this body and its international arm, the International Federation of MuayThai Amateur (IFMA), led to MuayThai being included as a demonstration sport in the Asian games (Prowsree, 2000).

MuayThai judging

Judges in MuayThai have to make similar types of decisions to those made in professional boxing. However, there are differences, particularly in the professional sport. In MuayThai, judges have to consider several factors to decide who wins a fight. Firstly, judges have to make a comparison of the number of legal blows each contestant lands on legitimate targets and decide who landed the greater number of blows (Boxing Board of Sport, 2002). Secondly, judges need to decide on the relative power of attacks hitting their target (Boxing Board of Sport, 2002). Along with the number of blows landing, the perceived strength of blows is also considered in deciding the winner of a fight.

The amateur sport uses a '20 point must system' this requires a judge to award 20 points to the competitor they consider to have won the round and a lower score (usually 19 points) to the loser. At the end of four rounds, each judge totals their scorecard to decide the winner. If the points they awarded are equal, judges award the decision the fighter who they feel has tried to attack the most. If this is similar, judges are directed to award a win to the boxer who they feel has displayed the best style or has shown the best defence (IFMA, und).

The professional sport uses a 'ten point must system' similar in principle to the amateur system: the winner of the round is awarded 10 points and the loser awarded less; usually 9 points. However, unlike amateur MuayThai, professional fights in Thailand are judged as a whole with individual rounds not having equal emphasis. This allows judges to make a retrospective assessment of the effect of cumulative blows over the early rounds. Emphasis is given to a fighter finishing the strongest over the last three rounds (Myers, 2005).

With fights judged as a whole rather than in equal round units, when there is a clear difference between fighters the fight is usually scored 49:47. Closer fights are scored 49:48. It is usual for professional judges in Thailand to make notes during a fight and complete the scoring for rounds after the fight has finished. However, this is impossible in championship bouts where scorecards are collected after each round. It is also usual in Thailand for a judge to avoid awarding a total score of 50 points for a boxer; the maximum score for a fight usually being 49 points (although it is possible for a fighter to score 50). This adjustment is to give credit to a boxer who tries to fight, but has not managed to win.

Bias in judging

No published studies have been conducted specifically on MuayThai judging and evidence of any problems with judging bias is purely anecdotal. However, there is enough evidence from other subjectively judged sports to suggest that similar problems could surface in international competition. Subjective sports in major international competitions such as the Olympic Games have not escaped judging controversies with many of these the result of nationalistic bias. Several major judging biases have been established empirically in subjectively judged sports (Vanden Auweele et al., 2004). Bias has been identified in combat other sports. Balmer et al. (2005) found evidence of bias in European championship boxing, where a home advantage was evident. The authors found that a 'home' boxer tends to be awarded closely fought rounds more often than the 'away' boxer. While some types of bias are not obvious across all sports, the 'patriotism effect' is evident across a wide range of sports in the form of nationalistic bias. Nationalistic bias, has been identified in figure skating (Campbell and Galbraith, 1996; Seltzer and Glass, 1991; Whissell et al., 1993), gymnastics (Ansorge and Scheer, 1988; Ste Marie, 1996), ski jumping (Zitzewitz, 2002) and rhythmic gymnastics (Popović, 2000). These sports require judges to make subjective decisions to decide outcome similar to MuayThai.

Having identified bias, subjectively judged sports have adopted different approaches to adjusting scoring to avoid or lessen problems of nationalistic bias. Some of these approaches have

been statistical approaches, others technological. For example, several proposals were made to try to reduce bias in ice-skating. These included: increasing the number of judges from 9 to 14; using median scores to rank skaters; and using trimmed means to try to control the influence of extreme scores on overall position (Zitzewitz, 2002). On the other hand, two combat sports, Taekwondo and amateur boxing, opted for solutions that involve technology.

In 1990, after serious problems with judging at the Seoul Olympic Games in 1988 (Maese, 2004), the Association Internationale de Box (AIBA) made electronic scoring (the Chowdhry Scoring System) compulsory for international competitions (AIBA, 2003). This system requires each of the five judges at ringside to use a keyboard with 4 buttons: red and blue 'point keys' for recording scoring blows, and red and blue 'W keys' for recording warnings. When a judge sees a scoring blow they press a button and computer software records the point awarded and opens a one-second window giving time for other judges to confirm the score. If three or more judges press the same key within that second, the score is "accepted" for that boxer and recorded. Bouts are awarded to the boxer who has the highest total of blows (AIBA, 2003).

Taekwondo, another Olympic combat sport that involves kicking as well as punching, also decided to use technology in a campaign to improve its reputation after judging problems. The World Taekwondo Federation commissioned electronic protective equipment that registers a score when contact is made. When electronic scoring is used, the electronic body armour automatically records body blows. Head blows are recorded by two judges using an electronic scoring instrument similar to the one used in amateur boxing. One point is awarded for attack on trunk protector, two points for attack on face and an extra point awarded if the contestant is knocked down and receives a count from the referee (WTF, 2005). Along with electronic scoring, the rules of Taekwondo make a specific reference to avoiding using any officials with the same nationality as either of the competitors being assigned to a contest. However, an exception is made when there are not enough referees or judges to make this possible (WTF, 2005).

Given that Olympic recognition is a major goal for MuayThai's international development (Tapsuwan, 2005), an investigation into judging would contribute to the sport's credibility. This is particularly pertinent given the major changes made to scoring in Olympic combat sports. The purpose of this study was to determine the level of nationalistic bias in international MuayThai judging and to explore possible strategies to reduce bias. It was hypothesised that evidence of nationalistic bias will be observed.

METHODS

Data were collected over a one-week period from scorecards from the 2003 International Federation of MuayThai Amateur (IFMA) World Championships in Almaty, Kazakhstan. The competition was held in the Culture and Sports Palace from September 1st until September 9th 2003. The competition included 44 countries competing for 54 medals across 14 weight classes. The competition comprised of A-class and B-class competitions; A-class featuring the world's top competitors and the B-class for less experienced competitors from countries with less experience in the sport. The data for this study comprised of tournament results from 70 A-class MuayThai bouts, each judged by between five and nine judges. The bouts featured 62 competitors from 19 countries and 25 judges from 16 countries.

Statistical analysis

We examined nationalistic bias at the level of individual judges scores for each bout.. As a given bout could have non-neutral judges sharing nationality with either boxer, judges were categorised as red (sharing nationality with the red corner boxer), blue (sharing nationality with the blue corner boxer) or neutral (sharing nationality with neither boxer). Scores for each judge in each bout were summed for each of the four rounds, where minus values were assigned to scores in favour of the boxer competing out of the blue corner and positive values assigned to scores in favour of boxers competing out of the red corner boxer. For example, if a judge had a boxer from the red corner winning three rounds and losing one, this would result in a score of +2. Conversely, if a judge scored a boxer fighting out of the blue corner all four rounds, this would result in a score of –4. In total, the dataset was made up of 2,028 difference scores over the 70 bouts. Of these 70 bouts, only the 43 with at least one judge sharing nationality with at least one of the competitors were used in this analysis.

These data were analysed using a multilevel model, with judges scores fitted as a normal response variable. Further details of this type of model can be found in Goldstein (2003). In the current study, we fit a simple two level model with scores nested within bouts, and bout included as a random effect. Importantly, this controls for what are likely to be highly variable differences between boxer's abilities, acknowledging that judges scores are more likely to be similar within than between bouts. This type of approach is common where

Table 1. Multilevel model output of judge's scores on the basis of nationality relationship with boxers. Note 'Shared nationality with blue corner boxer' is a reference category.

Parameter	Estimate (standard error)
Fixed	
Intercept	-.30 (.47)
Shared nationality with blue corner boxer	-
Neutral nationality	.64 (.35)
Shared nationality with red corner boxer	1.09 (.50)
Random	
Between bouts variance	4.95 (1.20)
Between scores variance	4.21 (.37)
-2 * log likelihood	1409.88

observations are clustered within groups (for example pupils within schools, or people within households) and these observations are likely to be affected by these clusters, which is certainly likely to be the case in the current study. Accounting for such clustering avoids tests that are often too liberal for level-2 (bout level) covariates and typically result in falsely rejecting the null hypothesis too often (Gibbons and Hedeker, 1997). The model had a single categorical predictor with three categories 'red' (judge shared nationality with the red corner boxer), 'blue' (judge shared nationality with the blue corner boxer) or 'neutral' (judged shared nationality with neither boxer).

Second, we examined the impact of any observed bias on the overall outcome of all bouts in the Almaty tournament and discuss control of nationalistic bias.

It is hypothesised that nationalistic bias is observed, although the overall is likely to be dictated by the ratio of the neutral to same nationality judges.

RESULTS

Nationalistic bias - judges scores within bouts

Of 70 bouts at the Almaty tournament, 43 (61.4%) had at least one non-neutral judge. Table 1 shows output from the multilevel model of judge's scores on the basis of whether or not they shared nationality with one of the boxers. Note, that negative scores indicate judging in favour of boxers competing out of the blue corner and positive scores indicate judging in favour of boxers competing out of the red corner (see analysis section). The model also includes a random bout parameter, again, as discussed in the 'analysis' section.

Firstly, the intercept value of -0.30 suggested that on average, judges sharing nationality with blue corner boxers (our reference category) scored these boxers around a third of a round better than boxers competing out of the red corner on average over the course of a bout. Of more interest though, is how scores changed with judge's nationality. Secondly, neutral judges typically scored boxers competing out of the red corner two-thirds of a round (0.64) better than judges sharing nationality with boxers competing out of the blue corner over the course of a bout. Thirdly, judges sharing nationality with boxers competing out of the red corner typically scored such boxers over a round better than judges sharing nationality with boxers competing out of the blue corner over the course of a bout, a statistically significant difference. The equation below provides a simple summary of the model;

Judges score = -0.30 + 0.64 'neutral' + 1.09 'red'

So a judge who shared nationality with a boxer competing out of the blue corner typically scored 0.3 rounds in favour of those boxers, a 'neutral' judge, who didn't share nationality with either boxer typically scored 0.34 rounds in favour of boxers competing from the red corner (suggesting boxers competing from the red corner were marginally superior overall) and a judge sharing nationality with the boxer in the red corner typically scored 0.74 rounds in favour of boxers competing out of that corner.

Nationalistic bias and bout outcome

Despite evidence of nationalistic bias, this does not guarantee that that the outcome of bouts will change. A simple, logical solution to the issue would be to simply remove non-neutral judges. This also allows examination of the impact of bias at bout level. Table 2 summarises the outcome of the 43 bouts with at least one non-neutral judge; using all scores for bouts but removing the scores awarded by judges who shared nationality with boxers competing out of the red or blue corners and using only neutral judges.

Table 2 shows only modest changes in outcome when removing non-neutral judges. Effectively, two bouts would change in outcome; one moving from a draw to the red corner boxer winning and one blue corner win moving to a red

Table 2. Bout outcome overall, with 'red' judges removed, with 'blue' judges removed and with only neutral judges.

	Blue boxer wins	Draw	Red boxer wins
Using all judges scores	19	1	23
'Red' judges removed	19	1	23
'Blue' judges removed	18	0	25
Neutral judges only	18	0	25

corner win. Essentially, non-neutral judges decisions impacted on the outcome of two of forty-three bouts where they were present, or two of seventy bouts in the entire Almaty tournament.

However, that is not to say that nationalistic bias does not have the potential to impact more severely on outcome. Table 3 examines the seventeen bouts with both red and blue judges and shows large differences.

The fact that the scores of judges who share nationality with boxers competing from the red and blue corners do not impact on the outcome is not a case of their scores balancing each other out (removing judges who share nationality with either red or blue boxers still results in 7 blue and 10 red corner wins), but is simply a consequence of same nationality judges not having enough judges (essentially a majority would be required if neutral judges are fairly consistent) for their scores to have real impact. Bias is clearly present, though same nationality judges' minority status reduces the impact of this bias. Moreover the natural control exerted by relatively large numbers of judges in the Almaty tournament also reduces the impact of unusual neutral judge scores, which could in turn potentially allow same nationality judges to have a greater influence.

DISCUSSION

The aim of this study was to explore national bias in MuayThai. The results suggest there was evidence of nationalistic bias in judge's scores at the 2003 World Championships. These findings are consistent, to varying degrees, with the findings of other subjectively judged sports (Ansorge and Scheer, 1988; Campbell and Galbraith, 1996; Popović, 2000; Zitzewitz, 2002). The bias observed in MuayThai equated to approximately one round difference between opposing judges (i.e. one sharing nationality with one boxer and one with the other) over the course of a bout.

However, although there was evidence of nationalistic bias at the championships, the impact of this bias on the outcome of bouts appeared diluted by the large numbers of judges (i.e. there were few bouts where nationalistic bias had an impact on the final result). Although five judges are placed around the ring at all international IFMA championships, judges' scorecards are vetted by a jury panel that sits together and judges the fights (IFMA, und). This means in practise that each fight is judged by between five and nine judges in international competitions. In essence, judges sharing nationality with boxers at the Almaty tournament were effectively outnumbered by neutral judges, meaning that in real terms, the overall outcome of bouts was rarely influenced.

Although the impact of nationalistic bias on bout outcomes was diluted, the outcomes of five of the bouts were decided on by the verdict of a single judge. This allows the possibility that nationalistic bias could have played a role in the outcome of these five bouts. However, this only occurred in bouts that were judged by fewer than eight judges. This suggests that the current system can lessen the impact of nationalistic bias as long as eight or more judges from different nationalities are used to judge each bout. Moreover, many countries taking part in the championships did not send judges because of cost; this may have had the effect of magnifying bias associated with the host country.

To avoid problems of nationalistic bias, MuayThai may need to consider adopting some kind of electronic scoring system. However, the method used in amateur boxing would not be practical for MuayThai. Problems with judges failing to record all blows delivered in bouts, would only be compounded in MuayThai where judges have to record kicks, knees and elbows along with punches. On the other hand, a variation of the system employed in Taekwondo could prove to be

Table 3. Bout outcomes for the seventeen bouts with red, blue and neutral judges; overall, with only neutral judges, with only 'red' judges and with only 'blue' judges.

	Blue boxer wins	Draw	Red boxer wins
Neutral only/all scores	7	0	10
Red judges only	4	2	11
Blue judges only	11	1	5

suitable. Although it would not address all of the scoring issues in MuayThai, the use of body armour to record kicks and knees to the body electronically and judges recording strikes and kicks to the head and legs would be worth exploring. By using this system and reversing the points awarded in Taekwondo so body kicks and knees were worth two points and head (and leg strikes) one point, the system would enable amateur scoring to have some similarities with scoring in the professional MuayThai. If this system were to be adopted, different impact tolerances would need to be set for the different weight classes. However, this would not necessarily address the problem of recording scores for techniques that currently score highly like unbalancing an opponent with a front push kick, that involves good timing rather substantial.

Future research will investigate the impact of other ingroup biases. The potential for nationalistic bias to be compounded by other ingroup biases is real. In this study 46 (65.7%) bouts were judged by at least one judge from a neighbouring country. Where biased judges have the opportunity to outnumber neutral officials the outcome could be seriously biased.

CONCLUSION

Our study shows that nationalistic bias is present in international MuayThai judging. However, the number of neutral judges currently used to judge bouts at world championship level means that this level of bias generally does not influence the outcome of bouts**.** Our results suggest that the officials responsible for assigning judges to judging panels need to consider the nationality profile of panel members for each bout carefully.

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KEY POINTS

- Nationalistic bias is evident in international amateur MuayThai judging.
- The impact on the outcome of bouts is limited.
- The practice of using a large number of neutral judges appears to reduce the impact of nationalistic bias.

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