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TRAINING VOLUME AND METHODS OF ATHLETES COMPETING AT A MIXED MARTIAL ARTS EVENT

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ABSTRACT

This study surveyed 32 athletes competing at a mixed martial arts (MMA) event held in Butte, Montana. The survey attempted to gather information regarding overall training volume, supplement use, volume change and specific exercises used. The survey return rate was 100 percent (32/32). Twenty-five of 32 athletes supplemented their training with strength training. Overall frequency of strength training ranged from one to six sessions/week, and overall frequency of fighting-specific training sessions/week ranged from two to 10. Two of 32 athletes used/had used anabolic-androgenic steroids. Sixteen MMA athletes performed exercises specifically for the neck musculature, and eight used the power clean within their strength-training program. Results suggested that strength and conditioning specialists should educate MMA athletes regarding the importance of, volume variation and periodization, balanced training, effective exercises, and the side effects of anabolic androgenic steroid use.

Key words: mixed martial arts, periodization, strength training, conditioning

INTRODUCTION

The sport of mixed martial arts (MMA) is becoming one of the most popular sports in the world today, and training for the sport must be comprehensive in nature. The sport is a mixture of various combat sports that include stand-up striking, i.e., boxing, kick-boxing, muay thai, stand-up grappling, i.e., judo, greco-roman and freestyle wrestling, and ground grappling, i.e., ju-jitsu, judo and wrestling. The most successful athletes in this arena combine elite level skills with extraordinary strength and conditioning levels. Because MMA combines different sports, high training volumes for MMA athletes have been frequently reported and overtraining is a serious risk, which is probably why there is also serious concern over anabolic androgenic steroid (AAS) use in the sport.

Although strength and conditioning guidelines have been formally established for grappling and striking sports (Cordes 1991, Ebben 1997, Grisaffi 1996, Kovaleski Gurchiek and Pearsall 2001, Lansky 1999, Pulkkinen 2001, Takahashi 1992), an extensive literature search yielded only two results in peer reviewed sources regarding

training methods employed by MMA athletes (Amtmann 2002, Amtmann et al. 2008). Neither of these studies, however, revealed insight into training volume changes in the months prior to an MMA event.

Recently, a MMA event was held in Butte, Montana. The Event Director designated time for surveys to be completed just prior the rules meeting. The major purpose of the survey was to add to the existing information about the strength and conditioning practices employed by MMA competitors and how training volume varied as the date of the bout approached.

METHODS

Experimental Approach to the Problem

This was an exploratory descriptive study that sought to add to the minimal information in peer-reviewed research journals regarding the strength and conditioning methods MMA athletes employ.

Subjects—Thirty-two athletes from across the country competed at an MMA event held

in Butte, Montana, and completed surveys that questioned the athletes about their overall training methods. The competitors for the event ranged in age from 19 to 41 years. An institutional review board approved this project and each subject signed an informed consent form that informed them of their rights relative to this survey.

Procedures—The questionnaire consisted of three sections, and took ~15 min to complete. The first section of the survey addressed the athletes' overall MMA training and strength training volume.

The athletes were surveyed regarding the volume of MMA specific training four, three, two and one month away from an MMA bout, and volume of strength training when more than two months or less than two months out from an MMA bout.

The second section surveyed the athletes regarding anabolic-androgenic steroid (AAS) use and a final third section sought to gain information about the specific exercises the athletes used.

Previous research has shown that if the respondents of a survey know and trust the individual distributing the survey, the response rate will be higher than an unknown surveyor (10). The author was well acquainted with several of the coaches and most of the athletes competing at this event, and he was competing in the event, which may have had a positive influence on the 100 percent (32/32) survey return rate.

Survey Distribution—The director of the event designated a 15-min period of time prior to the rules meeting for the surveys to be distributed. The rules meeting was held about 4 hrs before the start of the event. The survey was designed with efficiency of completion in mind and was short enough that the athletes would take their time in completing it. The survey also allowed us to gain more information than in previous surveys. Analysis of the data consisted of descriptive statistics that identified the responses to each item/question.

RESULTS

Twenty five of 32 respondents participated in some type of weight training program in addition to their fight specific training. A slight change in the number of strength training (ST) sessions/week was noted as the bout neared within 2 mos (Table 1). When > 2 mos out from the bout, 17 athletes participated in ST sessions one to three times/week and eight participated in ST sessions three to six times/week, and 21

Table 1. Strength Training Sessions Per Week and Number of Sets Per Exercise

	ST* Sessions/Week	More than 2 MO**	Less than 2 MO
	1-2	5***	6
	2-3	12	13
	3-4	7	4
	5-6	1	2
Sets/Exercise			
	1	3	1
	2	4	4
	3	14	14
	4 or more	4	6

* ST = Strength Training

** MO = Months out from bout

*** Number of athletes responding to this range or number

respondents performed one to three sets/exercise with the other four performing four or more sets/exercise. When the bout was within two months nineteen athletes participated in ST sessions one to three times/week and six athletes participated three to six times/week, and 19 performed one to three sets/exercise and six athletes performed four or more sets/exercise.

Frequency (sessions/wk) of MMA specific training sessions ranged from two to 10, and the volume of MMA specific training varied depending on how close the athlete was to the date of the bout. A summary of results from this section of the survey appear in Table 2. When the bout was more than four months away, 14 athletes trained two to three times/week, 11 trained four to five times/week and seven trained six or more sessions/week. When the bout was

Table 2. MMA-Specific Training Sessions Per Week

Sessions/Week	4 Months Out	3 Months Out	2 Months Out	1 Month Out
2-3	14*	9	6	6
4-5	11	15	17	17
6-7	4	4	4	3
8-9	2	3	2	3
10 or more	1	1	3	3

*Number of athletes responding to this particular frequency

one month away only six athletes trained two to three days/week, 17 trained four to five times/week, and nine trained six or more sessions/week.

Survey results also revealed that 16 of 32 athletes performed exercises specifically for the neck musculature, six used the power snatch, and eight used the power clean in their strength training program. Finally, two of 32 athletes responded positively to previous AAS use.

DISCUSSION

Most athletes surveyed (25 of 32 respondents) participated in a ST program to prepare for their bout with only 16 of 25 performing exercises specific to the neck. In a previous study, Amtmann (2004) reported that only five of 28 athletes used exercises specifically for the neck, so 16 of 25 is a relative good percentage. The volume of ST, both number of ST sessions/week and sets/exercise varied only slightly as the bout neared. The volume of MMA-specific training sessions varied slightly more with the largest trend being an increase in MMA-specific training. This suggested that some of the athletes may understand and implement periodization and volume variation to suit their MMA specific needs. Obviously the best way to train for an MMA style bout is to participate in MMA-specific training, and results of this survey suggested that some athletes involved in this particular event understand that concept.

It isn't always the athlete that trains the most, but the one who trains the smartest, who is successful. Smart training may include an adjustment to overall strength training volume to allow for metabolic

conditioning specific to MMA, which may require increases in MMA specific training and adjustments to strength training. Smart training would also include training the entire musculature of the body, including the neck. Finally, smart training should exclude the AAS use.

One of the limitations to this study is that the sample was a convenience sample of athletes fighting at a specific event that included both amateur and professional fighters. Some of the professional fighters are sponsored and are able to train with much greater frequency than the amateur fighters who have to fit their training into work and family schedules.

PRACTICAL APPLICATIONS

The sport of mixed martial arts combines several combative sports, and the overall volume of training for these athletes might likely be very high. As a bout nears it may be necessary to vary overall training volume to fit the individual needs of the athlete. This information is beneficial to the strength and conditioning specialist in several ways. First it appears that some of the athletes did not include strength training in their training. Second, many of those that did include strength training did not perform any strength training for the neck. Third, it appears that some of the athletes adjust their training volume to allow for more MMA specific training. The certified strength and conditioning specialist could be well-utilized by some of these athletes to develop sound programs specific to the needs of each individual MMA athlete.

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