

## STRENGTH AND CONDITIONING PRACTICES OF IRAN Wrestling League STRENGTH AND CONDITIONING COACHES

Jamshidi - far Saeed, Mirzeai Bahman, Damirchi Arsalan  
Faculty of Physical Education, University of Guilan, Guilan, Iran

**Annotation.** *Purpose:* The purpose of this study describes the results of a survey of the practices of Iranian Wrestling League strength and conditioning (IWL S&C) coaches. *Material:* The response rate was 88.5% (100 of 113). The contents survey examines include: (a) background information, (b) physical testing, (c) flexibility development, (d) speed development, (e) plyometrics, (f) strength/power development, (g) unique aspects, and (h) comments from coaches providing additional information. *Results:* Results indicate, in part, that coaches assess an average of 7.3 parameters of fitness, with tests speed being the most common. All coaches used a variety of flexibility development strategies. Results reveal that all of IWL S&C coaches follow a periodization model. Speed as the first priority (100%) and muscular endurance, power and strength as second priority (97%) of importance in evaluating their athletes. Sixty-six percent coaches (66%) indicated that their athletes used Olympic-style lifts. All coaches employed plyometric exercises with their athletes. Ninety-two percent (92%) of the coaches reported that used plyometric trainings for increasing the speed of their wrestlers and 82% of the coaches used plyometric jump in place exercises as regular practice in their trainings. *Conclusions:* The squat and its variations, as well as the Olympic-style lifts and their variations, were the most frequently used exercises. The survey serves as a review and a source of applied information and new ideas.

**Keywords:** Periodization, speed, power, Plyometrics, flexibility, strength.

### Introduction

Since the beginning of time, wrestling has been one of the major physical activities of mankind. For certain, wrestling is one of the earliest recorded sports and it was one of the first sport disciplines to be included in the program of the ancient Olympic Games. Wrestling is the most popular sport in Iran with 37 medals in the Olympic Games and success reflects a deep-rooted connection to this sport among Iranians (25). Having only technical capacity and tactical qualification in practice level are not enough adequate to win the competition (10). Nowadays, the theory of wrestling, methods of training, biomechanics, physiology, assessment and evaluation of wrestling are considered as important factors for wrestlers in their preparation for competition (1). The use of physical fitness tests for the measurement of the current status of the wrestler can provide both the wrestler and coach with information relative to the wrestler's current physiologic capability and can allow them to compare that capacity with reference values from appropriate peer groups. Also, the assessment of current status reveals strengths and relative weaknesses and can become the basis for the development of an optimal training program (Mirzaei et al., 2009). A recent surveys the much resources are available have described the components of wrestling scientifically evaluated aspects physical conditioning (1, 3, 4, 15, 20, 25, 27, 30, 33, 34, 36, 37, 39, 40, 41, and 43), because one of the challenges confronting the coaches and sport scientists is to understand the physical and physiological factors contributing to successful wrestling (Mirzaei et al., 2009). Competitive wrestling activity is extremely dynamic in nature, encompassing repeated explosive movements at a high intensity that alternates with submaximal work (18). Surveys of strength and conditioning practices offer comprehensive information about the modalities of professional practices. Thus, coaches have access to a serviceable source of the collective ideas of others that they can use to compare with, and potentially incorporate into, their own practices. At this time, no similar source of information exists for strength and conditioning a study of training methods used by wrestling coaches. Surveys are an effective method of determining contemporary strength and conditioning practices. They have been used to examine strength and conditioning program of college (6, 7, 9, 10, 16, 23, 24, and 30) and professional (12, 13, 14, and 35) athletes and coaches. The responsibilities of the Iran wrestling league strength and conditioning (IWL S&C) coaches are many, including program design, exercise technique, organization and administration, and testing and evaluation. The purpose of this survey was to examine a variety of strength and conditioning practices and collective knowledge of IWL S&C coaches and describe the common and the unique strength and conditioning practices employed by these coaches.

### Methods

#### Experimental Approach to the Problem

We managed the professional sports survey, previously derived from studying of Simenz and dugan (35) that to provide comprehensive descriptive information about the practices of IWL S&C coaches and to extend previous surveys on the professional sports. This study was designed because of testing the hypothesis that IWL S&C coaches follow contemporary, scientifically based principles of strength and conditioning and that the majority of these coaches would be willing to share their ideas through this survey.

#### Survey

The survey, strength and conditioning practices of professional strength and conditioning coaches, was somewhat adjusted from that of Simenz and dugan (35) for this application. The original survey was pilot tested with an

advisory group of S&C coaches and exercise experts, particular in this field; furthermore, this survey composed mainly of 8 sections: background information, physical testing, flexibility development, speed development, plyometrics, strength/power development, unique aspects of the coaches' program, and comments, and was based on the national strength and conditioning Association's 1988 Role Delineation Study (28). The survey compared all of the relevant obtained results with those of the previous professional sports surveys (12-14, 35).

#### **Data Collection**

Participants in this study were defined as membership in the National Wrestling Federation (NWF). A listing in the NWF membership directory for Iranian coaches who were coaching as Iran Wrestling League coaches. After receiving approval from the NWF, the vast majority of survey in present study was conducted via face-to-face interviewing. We met all of S&C coaches; afterwards, for talking about introductory letter describing the project and they agreed to cooperate with us. At this audience we interviewed 100 coaches S&C for this survey. 113 IWL S&C coaches who were surveyed responded, Representing 30 of the provinces of the Iran (approximately in over the nationwide). Data were collected from October 2011 to August 2013. After completion of data collection and analysis, a report of survey findings was mailed to all IWL S&C coaches participating in the survey, and no coach or team name also was associated with any responses.

#### **Statistical Analyses**

The survey contained fixed-response and open-ended questions. Answers to open-ended questions were content-analyzed according to methods described by Patton, 1990 (29), and previous related studies in other surveys of professional sports strength and conditioning practices (12, 13, 14, and 35). The responses of the coaches IWL S&C to questions are delineated as row data. Researchers were acquaintance with qualitative methods of sports science research and content analysis. During data analysis, three researchers evaluated and generated all the raw data and higher-order themes via independent, inductive content analysis for each research questions and compared independently generated themes until researchers consensus was reached at each level of analysis and then it best represented the raw data making summit the themes. At the point of development of higher-order themes, deductive analysis was used to confirm that all raw data themes were represented.

#### **Results**

##### **Background Information**

The survey population was conducted on 100 of 113 (88.5%) IWL S&C coaches granted to the face-to-face or telephone interviewing survey. Thirteen IWL S&C coach indirectly pretexted to participate in this survey. Ten IWL S&C coach granted directly telephone interviewing survey to participate.

All of the coaches reported averaged 6.74 and 13.16 years in their present positions and profession, respectively. All of coaches also reported having an assistant and needed having assistants. More than half of the coaches (64%) had master's degrees.

##### **Physical Testing**

The allocation of the analysis fitness components was second section of this survey that assessed variables of physical testing. According to previous related studies (12, 13, 14, and 35), coaches were asked from the how often and what times of the year variables of athlete fitness were tested (Figure 1), what parameters of fitness were tested (Figure 2), and what specific tests were used. All of the IWL S&C coaches reported testing athletes. Coaches reported testing an average of 7.3 parameters of fitness using specific tests. Approximately half (51%) of the IWL S&C coaches who selected "other" reported in general preparation phase evaluated aerobic base, heavy resistance, flexibility and %body fat by 33 coaches, and early pre-season or off-season training are measuring and reserved for maximum muscular strength, was reported by 12 coaches, measuring pre-season and in-season body composition "weekly (weight)," "monthly (weight and body fat)" and "the in-season whenever possible situations," each of which was reported by 27, 17 and 11 coaches, respectively. Regarding which variables of physical fitness were measured and what specific tests were used, 97 IWL S&C coaches reported measuring muscular strength, muscular endurance and muscular power. Methods specific were used for muscular strength included the "upper back," and "bench presses," reported by 54 coaches; a (lower body) "leg squat test," reported by 53 coaches; a (lower body) "leg press," reported by 37 coaches; "1 repetition maximum (RM) bench/ deadlift/ squat," reported by 40 coaches; and reported by 15 coaches: "hand toes power test". 71 IWL S&C coaches who reported measuring muscular power, Methods specific were used for testing muscular power included a "match press," 41 coaches tested the "vertical jump or jumping from a crouch," 65 coaches tested the "clean and Jerk," 36 coaches tested the "power cleans," other muscular power tests used included the "power ball toss," and (lower body) "board jump" tested by 5 coaches. 82 IWL S&C coaches who reported measuring muscular endurance, Methods specific were used for testing muscular strength included a "1 minute sit-up test," 68 coaches tested the "RMdips test," 43 coaches tested the "pull-up / chin up Test." Other tests for muscular endurance include the "push-up," "maximum bench press test," and "trunk lift test," "parallel Squats (max reps at 130% of body wt)," "rope climbs in 5 minutes (5m)," reported by 36, 21, 33, 30, and 32 coaches, respectively. Sixty-seven IWL S&C coaches tested acceleration using tests include a "40 yard dash test," reported by 59 coaches; and reported by 15 coaches testing a "20-m spring." All of the IWL S&C coaches tested for athlete speed. Methods used included a "36 meter sprint test" reported by 79 coaches; "50 meter sprint" reported by 27 cachers. Other coaches reported various tests of 30-to 60 yard dash. Ninety-one IWL S&C coaches reported testing anaerobic capacity. Some of the tests revealed by coaches, include a "running- based anaerobic sprint test (RAST)," reported by 35 coaches; "800-m run," reported by 33 coaches tested. Other coaches reported various tests of "30-second Wingate test," and "400 m run," each report by 8 coaches. Fifty

IWL S&C coaches reported measuring body composition. 32 coaches used “skin calipers,” and reported testing “% body fat.” Seventy-one IWL S&C coaches stated that they measure agility. 37 coaches reported testing “zigzag run,” and “4×9 m run test,” report by 64 coaches. Other tests included a “test,” and “Illinois test,” each report by 2 coaches, and a “cone shuttle drill test” reported by 1 coach. Eighty-six IWL S&C coaches expressed that they measure flexibility. Methods included a “sit and reach test” reported by 67 coaches; “ank extension test,” reported by 18 coaches; and testing “shoulder flexibility test,” reported by 2 coaches. Fifty-two IWL S&C coaches declared that they measured cardiovascular endurance. Methods used included a “2400 m cooper test,” reported by 39 coaches; “2 minute cooper test,” reported by 45 coaches; “Bruce test,” reported by 7 coaches; and 11 coaches using the “300 yard shuttle test.” Thirty-eight IWL S&C coaches said they measured anthropometric measurements on their wrestlers. Twenty coaches reported measuring “weight,” and 12 coaches reported indicated “% body fat,” “skinfolds and calipers.

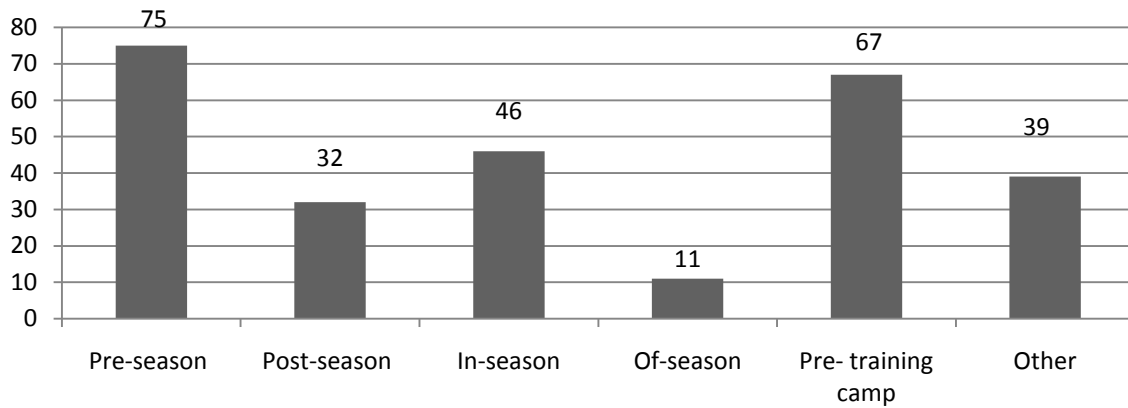


Figure 1. Times when variables of athlete fitness are formally measured.

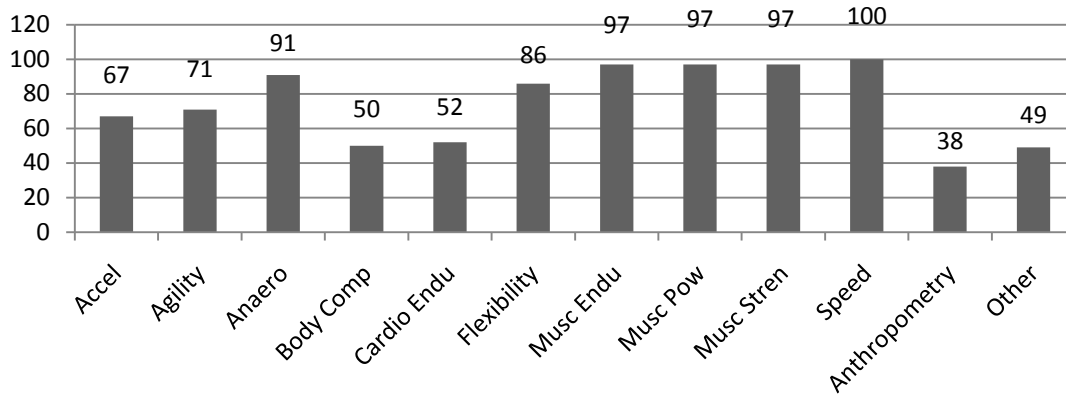


Figure 2. Variables of athlete fitness tested.

### Flexibility Development

The eighty-six of the 100 IWL S&C coaches all reported that their teams performed some type of flexibility training. Only six coaches of 86 coaches not indicated that their teams performed static stretching, while 30 coaches denoted that they employed dynamic stretching exercises. 13 coaches reported employed proprioceptive neuromuscular facilitation (PNF) stretching exercises. Coaches were inquired to indicate when athletes were encouraged or required to perform flexibility exercises (Figure 3), the duration of the typical flexibility session (Figure 4), and the duration that athletes were encouraged to hold a static stretch (Figure 5). Comments to this question included “flexibility development has negative effects on power athletes in competition,” “static stretching should be used to each after activities.” The mean average duration of the typical flexibility session was  $10.2 \pm 2.8$  minutes. The mean average duration an IWL athlete was encouraged to hold a static stretch was  $10.31 \pm 2.9$  seconds.

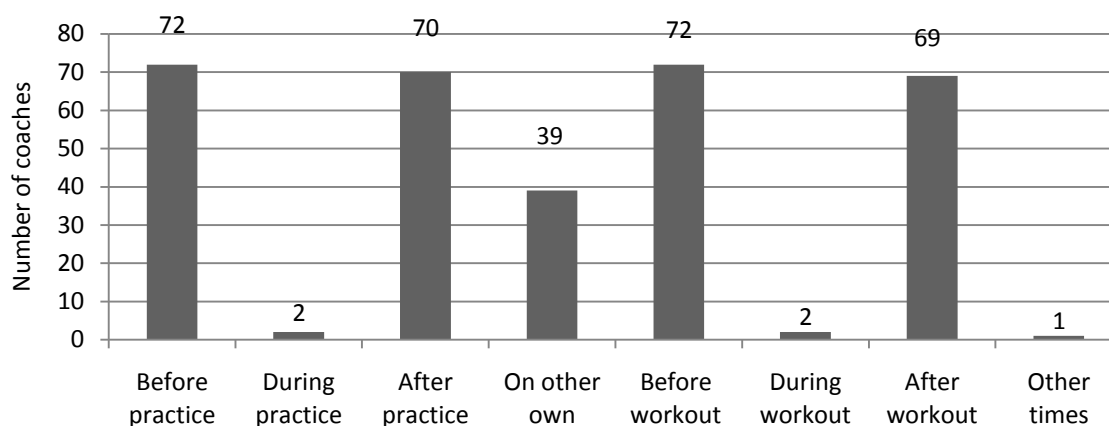


Figure 3. Times when athletes are encouraged or required to perform flexibility exercises.

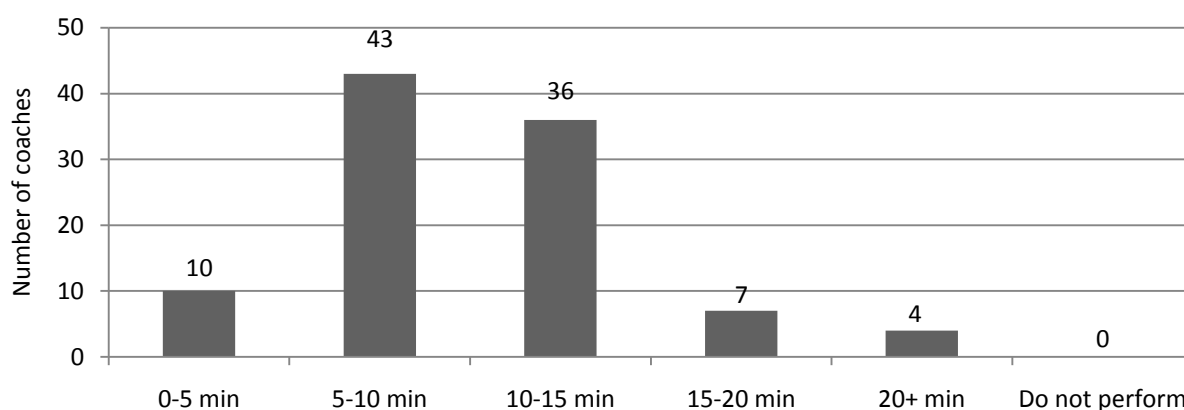


Figure 4. Length (in minutes) of flexibility development session.

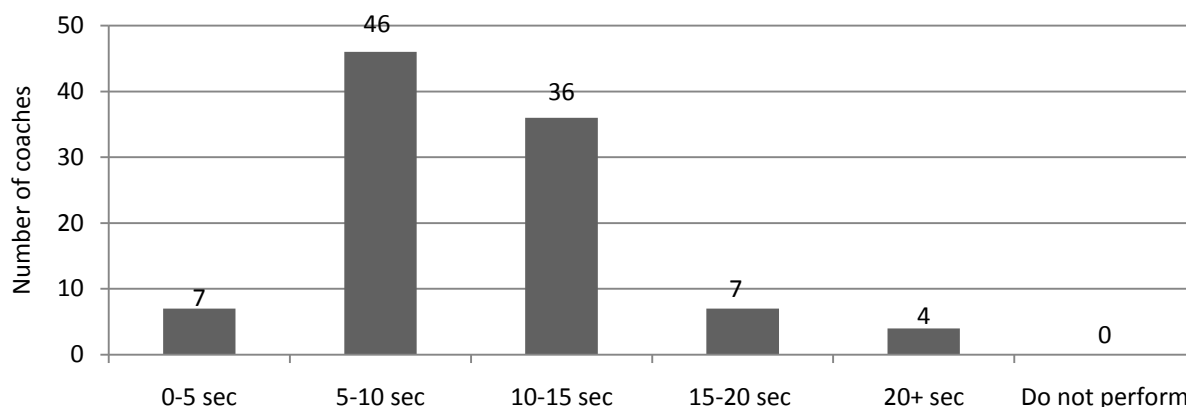


Figure 5. Amount of time (in seconds) athletes are encourage to hold a static stretch.

### Speed Development

All of (100%) IWL S&C coaches reported incorporating some type of a speed development exercise into their program (Figure 6). Ninety-two coaches reported using plyometrics training such as “Maxex drills; 1-3 set, 6-8 reps, 2-minute rest,” to increase speed. Seventy-one coaches reported using over-speed running such as “downhill running,” and 69 coaches reported using form running such as “hill repetitions,” “high knee running or quick feet drill,” “butt kickers,” and “tempo run.” Thirty-one coaches indicated using speed endurance workout such as “fartlek run,” and “interval training.” Twenty-four coaches reported using resisted running. Fourteen coaches responded to the “other” part indicating that they used “high intensity shuttle run,” “rowing methods,” and “cross drill.” Results, also, clarified that 46 coaches inclined to employ speed development training year around.

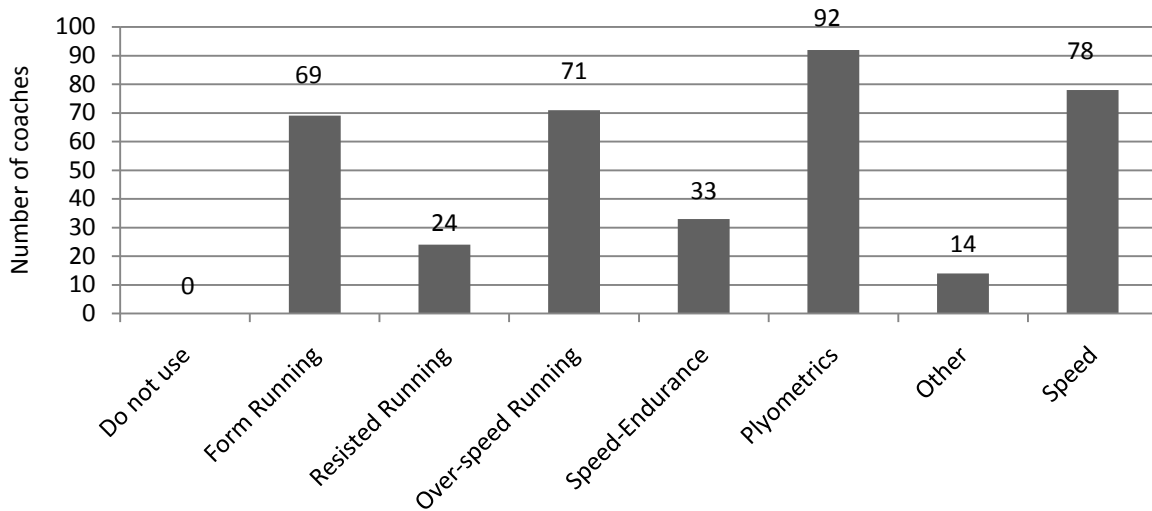


Figure 6. Used types of speed-development exercises

### Plyometrics

One-hundred of 100 (100%) IWL S&C coaches reported using plyometrics. All of coaches responded to this questions that how and when plyometric exercises are used and how they integrated plyometric training into the weight-training program (figures 7-9, respectively). Figure 10 describes identify the types of plyometric exercises regularly used in their program. Eighty coaches reported they used the types of plyometric training for speed development. Sixty-four reported they used plyometric training for upper body power. Moreover, fifty-four respond was added into comment that they employed plyometric training for lower body power. Thirty-four coaches reported they used plyometric training for improving vertical jump, and 31 stated they used plyometric training for total body training.

Sixty-four coaches reported they incorporated plyometric training year-round, and 52 reported they incorporated plyometric training during pre-training camp, 48 stated that they incorporated plyometric training during pre-season, and incorporated plyometric training during training camp, and 18 coaches incorporated plyometric training during post-season, and 16 coaches quoted using plyometric training during in-season. Comments made

By IWLS&C coaches concerning the stage, cycle, and Phase of plyometric training incorporation included: "urging athletes upon plyometric training during in-season made a mistake and may be result in excessive pressure on them," "off-season is the best time for this training."

Coaches were asked how they integrated plyometric training into the weight-training program (figure 9). Thirty-five coaches reported that they conducted plyometric training and weight-training workouts both on separate days and after the weight training on same day, and 16 responded that they performed plyometric training before the weight training on same day, and 14 coaches reported using complex training with plyometric training and weight training combined in the same workout. Comments included: "depending on time and opportunity, it was employed," "when we feel that progress is not good."

In response to the question about identify the types of plyometric exercises regularly used in their program (figure 10). Eighty-two coaches reported using jump in place plyometrics, 74 coaches used standing jumps plyometrics, 68 coaches used multiple hops or jumps, 66 coaches employed depth jumps, 65 coaches employed upper-body plyometrics, and 61 coaches indicated that they used box drills. Thirty coaches who responded "other" provided additional information about the types of plyometric exercises regularly used in their program, these responses included: "occasionally combined one or more type of plyometric with acrobatic movement," "squat jumps training," and "medicine ball training."

The last question in this section was estimate the annual number of injuries as a result of plyometric training.

Forty-one coaches reported seldom plyometric training injuries, and 20 coaches each responded (no & yes) plyometric training injuries.

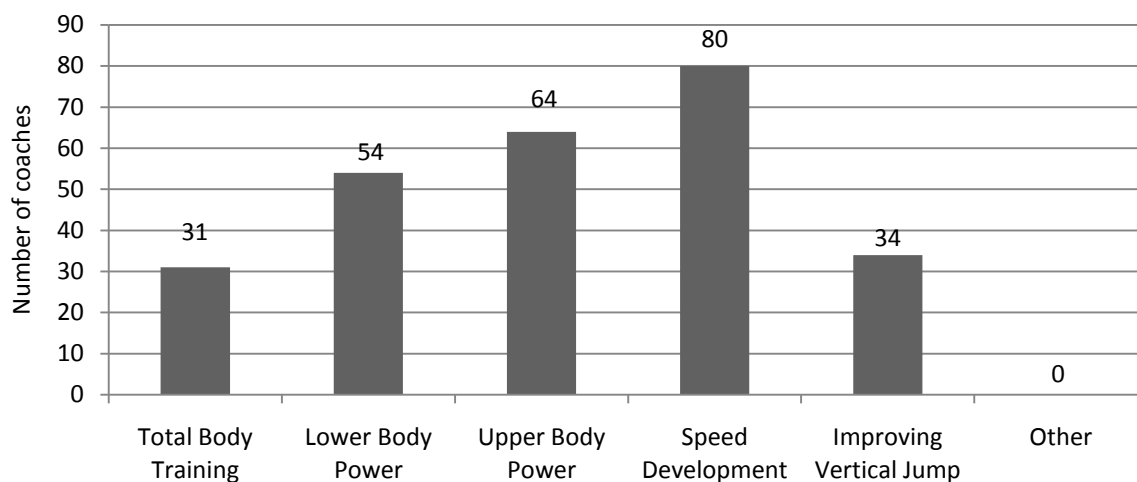


Figure 7. Types of plyometric training used.

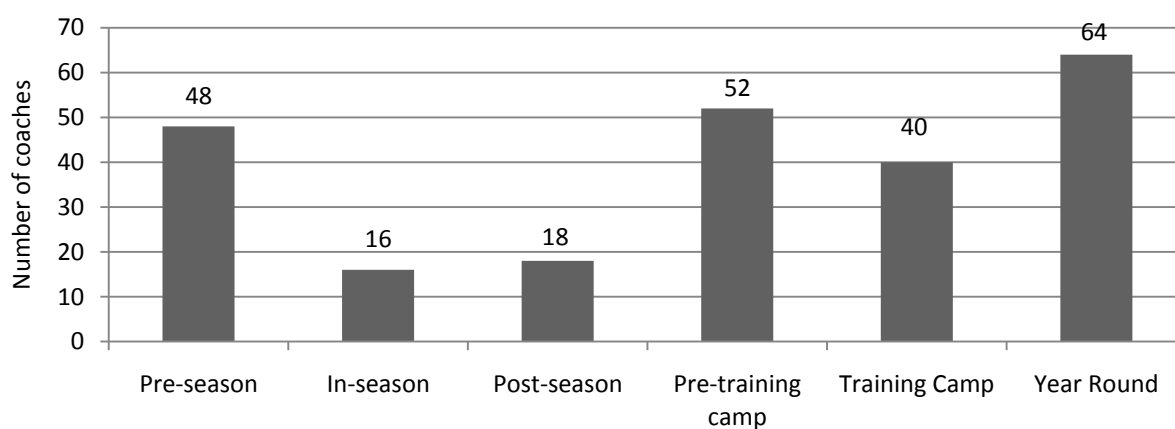


Figure 8. The stage, cycle, and phase of training in which Iran Wrestling League strength and conditioning coaches incorporate plyometric training.

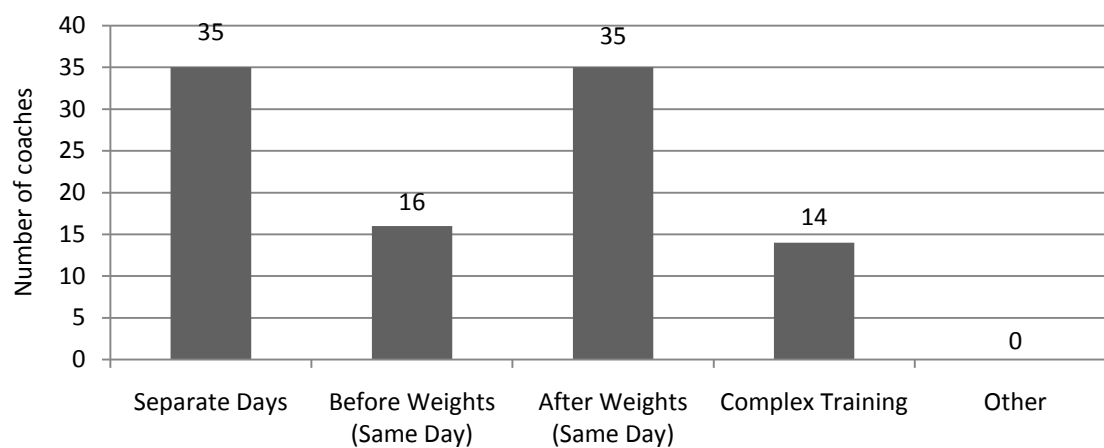


Figure 9. Method of integration for plyometric training and weight training.

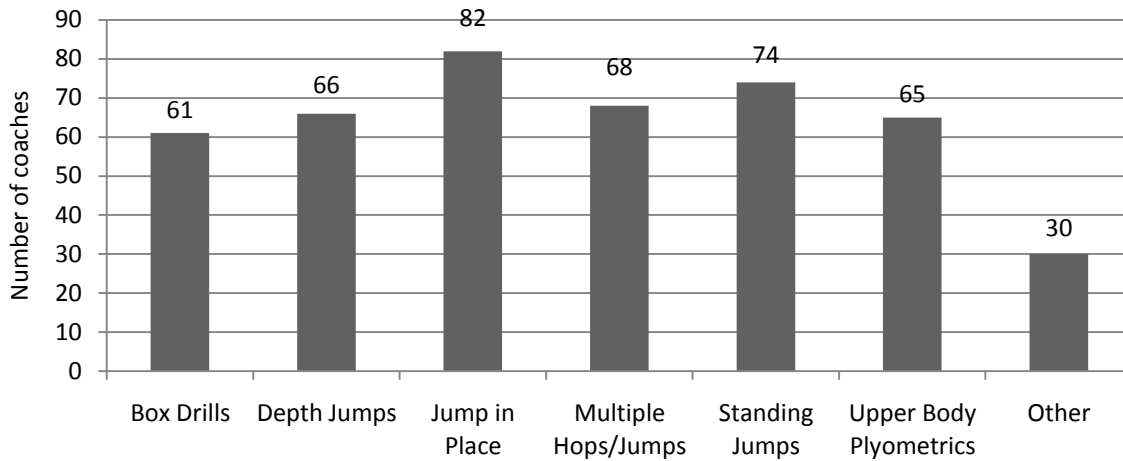


Figure 10. Plyometric exercises regularly employed.

**Strength/Power Development**

The first question in this section was asked to determine the number of days per week that athletes participated in an off-season strength/power development program. Seventy coaches reported 3 days per week. Twenty-two coaches reported 2 days per week. The average of all the IWL S&C coaches' responses was 2.68 days per week. A comment of this question from 37 coaches was consisting of: "adequate power scale and conditioning wrestlers categorized how many days is enough for that." The subsequent question was the survey assessed the average length of these off-season resistance training workouts (figure 11). Forty two coaches reported that workouts were 45-60 minutes long, 23 reported that workouts lasted 30-45 minutes, 14 reported that workouts lasted 15-30 minutes, 12 reported that workouts lasted 0-15 minutes, and 9 reported that workouts lasted 60 minutes or longer. A comment of 28 coaches included: "maybe changed or not." In the third question were asked from coaches that how many days of the week their athletes participate in in-season strength/power development activities.

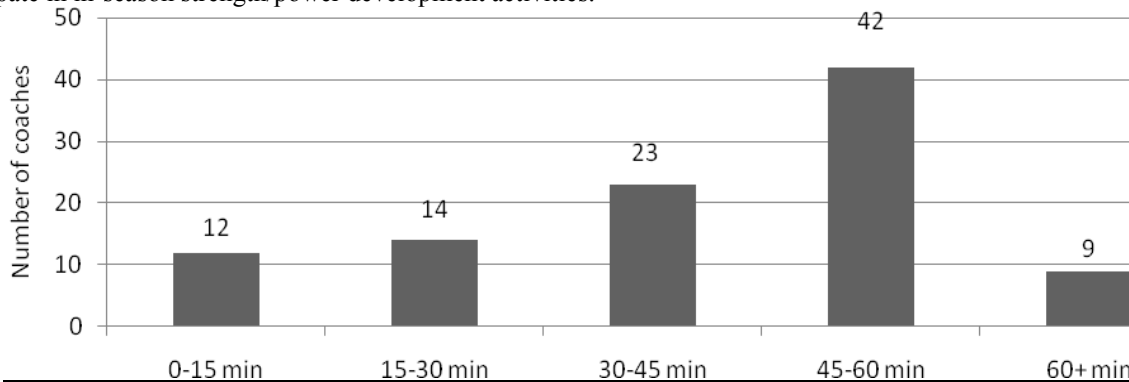


Figure 11. Average length of Iran Wrestling League strength and conditioning coaches' off-season weightlifting workouts.

All of IWL S&C coaches responded the question. The average of all the IWL S&C coaches' responses was 1.89 days weight training per week of in-season training. 22 coaches made comment on question for example "I'd rather not employ or less intensity weight training in-season training." The fourth question evaluated the average duration of these in-season training workouts. Forty-seven coaches reported that workouts were 45-60 minutes long, 27 coaches reported that workouts lasted 30-45 minutes, 24 coaches reported that workouts lasted 15-30 minutes, and 2 coaches reported that workouts were 60 minutes or longer. The fifth question in the strength/power section of the survey asked IWL S&C coaches if they used Olympic style (weightlifting) exercises or their variations; 83 coaches reported they did, and 17 coaches endorsed "if we have the time."

Question six in this section of the survey asked whether coaches use of machines in training program. All but seventeen coaches reported seldom or no use of machines. Seventeen coaches' responses include: "lack equipment," "rehabilitation," and "the only for off-season."

Question 7 in the strength/power development asked IWL S&C coaches to identify, in order of importance, the 5 resistance-training exercises that were most important in their program. All of the coaches responded to this question. On the basis of these responses, sixty-two coaches reported that the squat or its variations were the most important exercises. Twenty-nine coaches reported that the Olympic lifts were most important exercises. Nine coaches each reported that other exercises were most important.

For the second most important exercises, 36 coaches identified “squat” or “squat variations.” Thirty-five coaches indicated bench press were most important. Fifteen coaches reported that variations of the Olympic lifts were the second most important exercises. Fourteen coaches each identified different exercises as the second important exercises in their programs.

Twenty-eight coaches indicated that the Olympic lifts were the third most important exercise in their programs. Twenty-six coaches each indicated that “bench press.” Twenty-five coaches reported that the snatch press was important exercise. Twenty-one coaches reported 14 different exercises as the third most important in their programs.

The fourth most important exercise according to the coaches included Olympic lift variations, as indicated by 39 coaches, and bench press, indicated by 31 coaches. Seventeen coaches reported that squat variations were the fourth most important exercises. Thirteen coaches each identified different exercises as the fourth most important in their programs.

The fifth most important exercise according to the coaches included leg press, as indicated by 21 coaches. Sixty-six coaches each reported that “deadlift,” “power and jerk,” “lunge variations,” “pull-up,” and “clean,” were the fifth most important exercises. Nineteen coaches each identified different exercises as the fifth most important in their programs.

The eighth question in this section assessed the IWL S&C coaches’ conceptualization of training, specifically inquiring about the use of a periodization model (PM), training phases, and cycles. Responses were content analyzed into 2 categories, including a periodization model and a non-periodization model (NPM). One-hundred of 100 (100%) coaches responded conceptualization training according to PM.

Coaches were also asked to in section; describe the name of training cycle, time of the year the training cycle is used, and the length of the training cycle. Table 1 presents higher-order themes, number of responses, and select raw data representing responses to these questions. Fifty-nine coaches indicated sport season, and 35 coaches described the length of training cycles as being between 2 and 8 weeks long.

The nine question in this section asked how coaches determined training loads. All of the coaches assign the training loads their athletes. Thirty-seven coaches observed that RM and 19 coaches monitored body weight in the training loads. Table 2 depicts summary coaches’ responses to this question.

Table 1.

*Conceptualization of training.*

Higher-order themes	Number of responses	Select raw data representing responses to this question
Sport season	59	Preparatory phase (general and specific), competitive (off and in-season), Transition, with tapering at training camp.
Physiological adaptations/cycles	35	Hypertrophy off-season (4 wks). Strength off, in-season (3, 9 wks). Power off, in-season (3, 9 wks). Transition (2 wks)
Annual	27	“Year round,” “developing a model plan based on yearly observations.”
Multi-cycles	11	Suggesting a monocycle is for novice athletes. Tricycles are recommended only for international athletes.
Miscellaneous	8	“Same exercises during the off-season switch to other exercises during the competitive season.”
No answer	31	

Table 2.

*Determination of training loads.*

Higher-order themes	Number of responses	Select raw data representing responses to this question
%Repetition Maximum	37	Use the maximum weight lifted is recorded.
body weight	19	A fighter doesn't want to do so much weight, because it inhibits flexibility
progressive training	16	“I like use of FPLP (Flat pyramid loading pattern) method”
Miscellaneous	28	“The amount of overload should be enough for each exercise.”
No answer	-	

Question 10 in this section of the survey evaluated the number of sets and reps used in the off-season. Table 3 is described coaches’ responses to this question. Question 11 in this section of the survey evaluated the number of sets and reps used in the in-season. These responses to this question are depicted in table 4.



Table 3.

*Sets and repetitions used during off-season program.*

Higher-order themes	Number of responses	Select raw data representing responses to this question
Phase and cycle, Sets and repetition range	66	Start by 50% 1RM ,2–3 sets, 15–20 reps; hypertrophy 4 sets, 10 reps; basic strength 3-4 sets, 6-8 reps; strength/power 3–4 sets, 4-6 reps.
Conceptual reply	13	In off-season consists of high volume and low intensity training (weight 50-60% 1RM, 3-5 set; 10-15 reps).
No answer	21	

Table 4.

*Sets and repetitions used during in-season program.*

Higher-order themes	Number of responses	Select raw data representing responses to this question
Sets and repetition range	72	2-4 set, 4-6 reps; 2-3 set, 3 reps; 2 set, 1RM.
Conceptual reply	8	Depends on time competition, maintenance power and strength by higher intensity and lower volume.
No answer	20	

Table 5.

*Unique aspect of each IWL strength and conditioning program.*

Higher-order themes	Number of responses	Select raw data representing responses to this question
Assistance exercises	9	–We should recruit smaller muscle groups that can be incorporated into the routine. They can be useful for maintaining a balance.”
Program organization Specificity	9	Training load is dependent on the athlete's previous training history and athletes’ readiness.
Rest Periods	8	–One minute is suggested for rest periods hypertrophy and rest periods of 3-5 minutes are also recommended for power training.”
Sport specific	6	–In my opinion, agility and speed training can also be integrated into the 2 – 3 day per week conditioning program in in-season such as dummy throw coefficient.”
Evaluation and testing	7	–Except physical fitness tests we need different tests to forecast athletes’ performance,” –w should monitor how our players respond to challenges and difficult situations,” –Watching videotape can give we a fresh perspective on our wrestlers.”
Exercise Injuries	8	–We should be careful abrupt increase in frequency, intensity and duration of exercise, strength, contribute to injuries in athletes.”
Specific exercises listed	28	Wrestlers’ get-ups with resistance 3 sets, 6 reps; Tennis Ball Drop; Power drop; Backward throw.
Miscellaneous	19	–Having a quick reaction time is important for evasion skills of the wrestlers.”
No reply	6	

**Unique Aspects of the Program**

The last section of the survey depends on unique aspects of the IWL S&C programs. The first question in this section of the survey evaluated what they thought was unique about their program. Responses were content analyzed into 9 categories: (a) assistance exercises, (b) program organization Specificity, (c) rest Periods, (d) sport specific, (e) evaluation and testing, (f) exercise Injuries, (g) specific exercises listed, (h) miscellaneous, (i) no reply. Table 5 summarizes the coaches’ responses to this question.

Question 2 in this section inquired what coaches would like to do differently with their strength and conditioning programs. Responses were analyzed into themes such as (a) equipment, budget, time, (b) change exercises, (c) no changes. These responses to this question are depicted in table 6.

Table 6.

*How IWL strength and conditioning coaches would change their programs.*

Higher-order themes	Number of responses	Select raw data representing responses to this question
Equipment, budget, time	73	Shortage (i.e., income, assistant, machine training, floor space, machine testing, time for weight training and develop cardiovascular system)
Change exercises	8	Despite shortages I incorporate technique movements with balance, power, strength, and speed.
No changes	7	–Types changing are risked for adaptation athletes”
No reply	12	

### Comments

The final section of the survey was designed to provide the coaches an opportunity to make comments. Seventy-one coaches filled out a variety of comments. These responses are depicted in table

Table 7.

*Comments.*

Higher-order themes	Number of responses	Select raw data representing responses to this question
Request for knowledge of the findings	21	–I would to seeing your results finding”
Thanks and appreciation	23	–Thank for your effort”
Forgive	9	–Sorry if not comprehensive data”
Miscellaneous	18	–This study is beneficial and much easier to create a program training”

### Discussion

This study is first extensive survey IWL S&C practices. The survey response rate 100 of 113 (88.5%) coaches is higher than response rates association with surveys of professional Basketball (69%), baseball (70%), hockey (77%) football and (87%) strength and conditioning coaches (12, 13,14, 35), and the response rates of college 29.7% (10), 42.7% (9), 59% (24), and 61.97% (7) strength and conditioning surveys. The higher than response rate was because of the use of interview face-to-face in coaches.

The coaches who responded to this survey averaged 13.16 years of experience, compared with the average experience of S&C coaches in the MLB (5.14 years), NHL (6.28 years), NFL (6.52 years), and the NBA (9.55 years) (12, 13, 14, 35). May be the longer than years of experience was because the coaches have mastered knowing how to preserve your athletes' confidence. Furthermore, each IWL S&C coaches have one assistant, which is further of reports by other S&C coaches (12, 13, 14, and 35).

All IWL S&C coaches reported testing athletes, results indicate, in part, that coaches assess an average of 7.3 parameters of fitness using 7.8 specific tests, which is similar to the NBA S&C coaches, who tested an average of 7.3 parameters of fitness using 7.8 specific tests (35), and in other surveys of professional S&C practices tested with 3.7-10.0 specific tests (12-14). Similar to survey HS S&C (10) and unlike previous surveys of professional S&C practices (12-14, 35), majority IWL S&C coaches reported testing speed.

Majority of the IWL S&C coaches employed static stretching (80%), whereas 63% these coaches used dynamic stretching, which is very close to that professional S&C practices (12-14, 35), but unlike HS S&C practice; 95% HS S&C coaches used dynamic stretching. In fact recent research suggests that static stretching may not be beneficial before training or athletic performance (44, 45). Dynamic stretching seems to be more appropriate as part of the warm up (23). All IWL S&C coaches trained athletes for speed development, resembling their MLB (30 of 30) and NBA (16 of 20), but is dissimilar to NHL (7 of 23) and NFL (9 of 26) counterparts. Sixty-seven of IWL coaches tested athletes for acceleration, this is greater what were tested by coaches in any of the professional sports previously assessed (12-14, 35). Conversely, body composition was the variable of athlete fitness least tested by IWL S&C coaches (50%), which is less than the NBA (95%) (35), the NHL (87%) (12) and the NFL (77%) (13). More IWL coaches tested muscular (power, strength, endurance), which is consistent with existing literature relating to the large anaerobic and strength/power components needed for wrestling performance, or maybe were because of the using explosive techniques, short duration, high-intensity intermittent exercise lasting a total duration of 6 minutes (3 2-min bouts) (8, 25), which is very close to the NHL S&C practices (12). All NHL coaches reported for strength and (19 of 23) coaches tested power. Response rate by IWL coaches was alike the NBA coaches (35). All IWL S&C coaches similar to NBA S&C coaches (35) and HS S&C coaches (10) used plyometrics with their athletes; also this finding is slightly greater in previous surveys of college and professional sports including MLB (95.2%), NHL (91.3%), Division I (90%), and NFL (73%)(12, 13, 14, 24 and 35).

Regarding program design, the average frequency of the IWL coaches' off-season and in-season training program was 2.68 and 1.89 days a week, respectively, which are less than the previous surveys collage and professional

S&C exercises (12-14, 24, 35). A number of coaches commented that they had many training program with superabundant shortage (i.e., assistant, machine training, floor space, machine testing) and little contact time with players during the season in the road. More (83%) of the IWL coaches used Olympic-style weightlifting, this present finding is less than the NHL (100%), HS (97%), NBA (95%), NFL (88%) and Division I (85%); but is greater in contrast to 24% MLB. It seems that for some strength coaches they are the way to go and that for others they are irrelevant and a waste of time. According to reported by IWL coaches, variations squats and Olympic lifts were most important exercises very close to previously surveys professional S&C coaches.

All of the IWL coaches utilized a PM in their programs, compared with 94.7% in the HS, 91.3% in the NHL, 85% in the NBA, and 69% in the NFL (10, 12, 13, 14, 24 and 35).

The practices of IWL S&C coaches are correspond with surveys NBA and NHL practices in aspects: plyometrics, flexibility, infrequent injuries, speed development, periodization and Olympic lifting. Differences include conceptualization of training and testing. The IWL S&C coaches none claimed to use nonperiodized programming, which is contrast with NFL S&C coaches (12, 13, and 35).

### Practical applications

This article gives an account of the practices of IWL S&C coaches until will be found in agreement method. Based on the results of the aforementioned studies, Iran wrestling league coaches and the coaches at all levels can use source of data describing wrestling strength and conditioning practices, also can utilize it as a benchmark of strength and conditioning practices and a potential source of new ideas for enhance their programs.

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**Information about the authors:**

**Jamshidi - far Saeed:** ORCID: 0000-0002-7761-4356; aeedjamshidifar@yahoo.com; University of Guilan; P.O Box 1438, Rasht, Iran.

**Mirzeai Bahman:** ORCID: 0000-0003-3723-7434; bmirzaei2000@yahoo.com; University of Guilan ; P.O. Box 1438, Rasht, Iran.

**Damirchi Arsalan:** ORCID: 0000-0002-3442-0631; damirchi@guilan.ac.ir; University of Guilan; P.O. Box 1438, Rasht, Iran.

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