STUDIA UBB EDUCATIO ARTIS GYMN., LXI, 2, 2016, pp. 5 - 14
(RECOMMENDED CITATION)

WEIGHT TRAINING IN GYMS OF CLUJ-NAPOCA AS LEISURE PHYSICAL ACTIVITY: WARM-UP AND COOL-DOWN PHASES

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ABSTRACT. The human body becomes more efficient as it reaches adequate levels of physical fitness. Practicing regular exercise combined with good nutrition decreases the time needed for recovery and reconstruction of all tissues (Bushman, Clark-Young, & American College of Sports Medicine, 2005). The type of activities that people practice lifelong determines their functional capacity that they will keep for their own musculoskeletal system, with important implications for the whole body. The practice of weight training plays an important role in delaying and reducing the negative effects that aging has on the human body (American College of Sports Medicine, 2013). **Objective of the study:** The objective of this study was to investigate the weight training practiced as a leisure activity in Cluj-Napoca's fitness gyms. We were interested in methodical approach implemented by practitioners for warm-up and cool-down. **Methods:** The research was conducted from 14 August 2013 to 20 August 2014 in Cluj-Napoca's weight training gyms. The subjects were practitioners of all gyms where weight training is practised, and where we were granted access. We registered between 4 and 6 practitioners in every gym. A total of 155 practitioners were interviewed, 81 of them accepted to participate to our study. **Conclusions:** The methodical approach of weight training workouts is faulty for many practitioners. For most of them, the warm-up phase does not present proper importance and the majority of practitioners do not do it right. The situation is even worse if we analyse the implementation of cool-down phase. This part of workout is missing to almost all practitioners. Practitioners of weight training does not relate to dynamics of heart rate when they plan the warm-up and the cool-down for their workout. The heart rate dynamics recorded for weight training workouts were on a wide range of values. Practitioners presented different approaches and the lack of research it is a demand for all of us to continue the research in this field.

Keywords: warm-up, cool-down, fitness, weight training, leisure, Cluj-Napoca.

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REZUMAT. ***Antrenamentul cu greutăți în sălile de fitness din Cluj-Napoca ca activitate fizică de timp liber: aspecte privind pregătirea organismului pentru efort și liniștirea acestuia la sfârșitul ședinței de antrenament.*** **Obiectivul studiului:** Obiectivul acestui studiu a fost investigarea şedinţei de antrenament specific acestei activităţi de timp liber din perspectiva începutului şi sfârşitului antrenamentului. Ne-a interesat abordarea metodică pe care practicanţii din sălile de fitness din Cluj-Napoca o realizează când încep şi când termină antrenamentul cu greutăţi. **Subiecţi şi metode:** Cercetarea s-a desfăşurat pe perioada unui an, din data de 14 august 2013 până în data de 20 august 2014, în sălile de fitness din Cluj-Napoca. Subiecţii studiului sunt practicanţi din toate sălile de fitness în care se efectuează antrenamente cu greutăţi şi în care ne-a fost acordat accesul, între 4 şi 6 practicanţi din fiecare sală de fitness. Au fost intervievaţi 155 de practicanţi. 47,74% au refuzat participarea la studiu, iar 52,26% şi-au dat acceptul. **Concluzii.** Din punct de vedere metodic mulţi practicanţi abordează deficitar antrenamentele cu greutăţi în sălile de fitness. Pentru mulţi dintre ei pregătirea organismului pentru efort nu prezintă importanţa cuvenită, iar la foarte mulţi dintre practicanţi aceasta este realizată necorespunzător. Problemele sunt şi mai mari atunci când este nevoie de includerea părţii de liniştire după efortul din partea fundamentală. Această parte de antrenament lipseşte la un număr foarte mare de practicanţi. Practicanţii antrenamentului cu greutăţi nu se raportează la dinamica FC atunci când îşi construiesc partea de pregătire a organismului pentru efort sau cea de liniştire după efortul din partea fundamentală. Dinamica FC în antrenamentele cu greutăţi înregistrate variază pe o plajă foarte largă. Abordările practicanţilor au fost foarte variate, iar lipsa cercetărilor pe această direcţie ne obligă să continuăm studiile pe această direcţie de cercetare.

Cuvinte-cheie: pregătirea organismului pentru efort, liniștirea organismului după efort, fitness, antrenament cu greutăți, timp liber, Cluj-Napoca.

Introduction

The human body becomes more efficient as it reaches adequate levels of physical fitness. Practicing regular exercise combined with good nutrition decreases the time needed for recovery and reconstruction of all tissues (Bushman, Clark-Young, & American College of Sports Medicine, Action Plan for Osteoporosis, 2005). The type of activities that people practice lifelong determines their functional capacity that they will keep for their own musculoskeletal system, with important implications for the whole body. The practice of weight training plays an important role in delaying and reducing the negative effects that aging has on the human body (American College of Sports Medicine, 2013).

The American College of Sports Medicine (ACSM), in 2005, presents the following structure for leisure activities (American College of Sports Medicine, 2005, p. 136):

- A warm-up period (approximately 5 to 10 minutes),
- A stimulus or conditioning phase (cardiorespiratory fitness, flexibility, resistance training) (20 to 60 minutes),
- An optional recreational game (provides variety),
- A cool-down period (5 to 10 minutes).

Every workout should begin with a warm-up phase. The warm-up must be a transitional phase from rest to conditioning phase. This transitional phase should allow the body to prepare for the physiological, biomechanical and energetic changes that will occur in our body (American College of Sports Medicine, 2009). Warm-up aims physiological and psychological preparation for training tasks (Bompa, 2002; Sbenghe, 2005).

A proper warm-up must raise body temperature with 1^0-2^0C and raise the heart rate in the range of 120-130 beats/minute (Sbenghe, 2005). A positive effect given by the appearance of perspiration is lowering the temperature at skin level. Thus, the difference of temperature between the skin and the body increases, which results in a low blood flow necessary to transfer the excess of heat to skin (Wilmore & Costill, 1993).

We have to note some negative effects that improper warm-up can have on our bodies. It was observed, following research conducted over the years, a statistical increase in the number of people diagnosed with cardiovascular disease who underwent acute myocardial infarction or death during strenuous activities (Giri, Thompson & Kiernan, 1999; Mittleman, Maclure, Tofler, Sherwood, Goldberg & Muller, 1993; Siscovick, Weiss, Fletcher & Lasky, 1984; Thompson, Funk, Carleton & Sturner, 1980; Vuori, 1986; Willich, Lewis, Lowel, Arntz, Schubert & Schroder, 1993; cited by the American College of Sports Medicine, 2009, p. 10).

This risk exists even for people not diagnosed yet with cardiovascular disease, but participating in strenuous activities. The risk is greater among the adults than among the young practitioners, probably due to the high prevalence of cardiovascular disease as we age. The risk is higher among sedentary individuals who do not practice regularly exercise and participate sporadically in intense physical activities (American College of Sports Medicine, 2009).

Physical activity practiced regularly reduces, in time, the risk of cardiovascular disease but intense physical activity practiced sporadically increases the risk of death for people susceptible to heart disease (Thompson, et al., 2007). Intense exercise may increase risks in coronary arteries (Thompson, et al., 2007) or

may enhance the activity of platelet aggregation (thrombocytes) induced by catecholamine in sedentary individuals who are not accustomed to intense physical activity (Kerstin, Ellis, Bernard, Errichetti, Rosner & Michelson, 1993; Li, Wallen & Hjemdahl, 1999; cited by Thompson et al, 2007, p. 2360). For example, "an analysis of a database with 2.9 million members of a large commercial health/fitness facility chain reported 71 deaths over a 2-year period" (Thompson, et al., 2007, p. 2361). "Nearly half of the exercise-related deaths were among members who exercised infrequently or less than once a week" (Thompson, et al., 2007, p. 2361).

The conditioning phase should not end the training session. It is recommended a cool-down phase at the end of every workout (Plowman & Smith, 2002; Weinberg & Gould, 2006). The cool-down is just as important as the warm-up. "Just as it is essential to warm up, it is important to cool down at the end of a workout" (Delavier & Gundill, 2011, p. 37).

This part of the training session refers to an activity performed at low intensity exercises and represents a transitional period from the conditioning phase to rest (Ratamess Jr., 2012). "It helps return the body to homeostasis in a controlled manner" (Ratamess Jr., 2012, p. 189). It is important that this phase to be gradual (American College of Sports Medicine, 2005). A controlled cool-down attenuates the effects of stress imposed to circulatory system during conditioning phase and helps the return of heart rate to rest values (American College of Sports Medicine, 2005).

A reduction of coronary perfusion can be enhanced by a decreased venous return, secondary to abrupt stop of physical activity, which explains the clinical observations that collapse may occur immediately after exercise (Thompson, et al., 2007). "Ischemia can alter depolarization, repolarization, and conduction velocity and thereby trigger threatening ventricular arrhythmias" (Thompson, et al., 2007, p. 2360). American College of Sports Medicine (2005) also sustain that the absence of cool-down after physical activity can increase the risk of cardiovascular complications. The cool-down maintain adequate venous return, thereby reducing the potential for postexercise hypotension and dizziness" (American College of Sports Medicine, 2005, p. 138).

Objective of the study

The objective of this study was to investigate the weight training practiced as a leisure activity in Cluj-Napoca's fitness gyms. We were interested in methodical approach implemented by practitioners for warm-up and cool-down.

Methods

The research was conducted from 14 August 2013 to 20 August 2014 in Cluj-Napoca's weight training gyms. The subjects were practitioners of all gyms where weight training is practised, and where we were granted access. We registered between 4 and 6 practitioners in every gym. A total of 155 practitioners were interviewed, 81 of them accepted to participate to our study. To build the sample we used a non-random sampling as a member of the population probability of being selected in the sample could not be determined. For each of the 81 subjects was recorded only one session of training.

The data needed for research were recorded on a sheet of observation during the workout. Heart rate was recorded with Polar equipment integrated into our personal methodical approach (Văidăhăzan, Hanţiu, Pop, & Pătraşcu, 2015). After workout it has been applied a questionnaire to find out the practitioners point of view on the importance of warm-up and cool-down.

To decide whether practitioners have achieved the objectives of warm-up and cool-down we have concluded that some conditions must be met. For warm-up these conditions were:

- Warm-up must last at least 5 minutes;
- Warm-up must include aerobic activity and analytical exercises that prepares the joints;
- Heart rate must not exceed 130 beats / minute during the first 5 minutes of training session.

For cooling-down, these conditions were:

- Cool-down must last at least 5 minutes;
- Cool-down must include aerobic activity with decreasing intensity;
- At the end of the cool-down heart rate must not exceed 120 beats / minute.

Results

Of the 81 subjects 69.14% (56 subjects) were male and 30.86% (25 subjects) female, aged between 18 and 60 years. We present in Table no. 1 a distribution of subjects by age.

Table 1. Distribution of subjects by age

	≤ 20 years	21-25 years	26-30 years	31-35 years	36-40 years	41-45 years	46-50 years	≥ 50 years
Percentage	8.64	27.16	29.63	12.35	8.64	2.47	1.23	9.88

Practitioners were asked to give different degrees of importance for warm-up phase. Table no. 2 presents their answers, depending on the importance given.

Table 2. The importance of warm-up

	Not important	The least important	Somewhat important	Quite important	Very important
Percentage	3.70	7.41	1.23	28.40	59.26

For a significant number among practitioners (87.65%) the warm-up it is quite important or very important.

Analysing the observational sheets we noted that 76.54% included the warm-up phase in their workout, but only 7.41% (6 practitioners) met all conditions that we consider mandatory for a proper warm-up. Table no. 3 offers an overview.

Table 3. Overview for warm-up phase

	Warm-up included intentionally	All conditions for a proper warm-up were fulfilled
Percentage	76.54	7.41

Table no. 4 presents the level of the heart rate maximum during the first 5 minutes of workout.

Table 4. Heart rate maximum in the first 5 minutes of workout

	Less or equal to 130 beats/min.	Interval of 131-140 beats/min.		Interval of 141-150 beats/min.	Interval of 151-160 beats/min.	Interval of 161-170 beats/min.	Interval of 171-180 beats/min.
Percentage	32.10	29.63		12.35	9.88	7.41	8.64

Practitioners were asked to give different degrees of importance for cool-down phase. Table no. 5 presents their answers, depending on the importance given.

Table 5. The importance of cool-down

	Not important	The least important	Somewhat important	Quite important	Very important
Percentage	4.94	13.58	12.35	28.40	40.74

For a significant number among practitioners (69.14%) the cool-down it is quite important or very important.

The cool-down was analysed only on 80 practitioners because one subject have not included weight training in his workout when he was monitored.

Out of 80 practitioners, only 8.75% were consciously including specific content for cool-down. Only one practitioner, of those who included consciously the cool-down phase in their workout, met all the mandatory conditions we looked for in a proper cool-down.

Table 6. Overview for cool-down phase

	Warm-up included intentionally	All conditions for a proper warm-up were fulfilled
Percentage	8.75	1.25

Table no. 7 presents the level for heart rate maximum at the end of workout.

Table 7. Heart rate maximum at the end of workout

	Less or equal to 120 beats/ min.	Interval of 121-130 beats/ min.	Interval of 131-140 beats/ min.	Interval of 141-150 beats/ min.	Interval of 151-160 beats/ min.	Interval of 161-170 beats/ min.	Interval of 171-180 beats/ min.	Interval of 181-190 beats/ min.
Percentage	18.75	15.00	22.50	18.75	7.50	5.00	8.75	3.75

Discussions

Both the warm-up and the cool-down are very important in the dynamics of weight training workout. The correct implementation of these phases in the workout structure is based on importance that every practitioner gives for these phases. Subjects in our study give greater importance for warm-up, as evidenced by the results presented above. Both phases, however, have achieved high scores (over 50%) on the scale of assessments for the most important criteria: "Quite important" and "Very important".

Although almost 90% of practitioners admitted that warm-up is quite important or very important to them, only 76.54% of subjects intentionally included specific content in their workout. Analysing further, we observed that a very small percentage of subjects (7.41%) fulfilled the mandatory requests for a proper warm-up. This fact suggests a lack of knowledge regarding the implementation of warm-up in personal workout.

Analysing the maximum heart rate in warm-up phase of every workout we observed that for 67.90% of subjects the heart rate value exceeded 130 beats / minute in the first 5 minutes of workout. For 16% of subjects heart rate exceeded even the value of 160 beats / minute. Thus, we have to note an improper methodical approach for the beginning of a workout for majority of practitioners.

For many subjects included in our study (69.14%) the cool-down is quite important or very important. Even so, we have noted that only one subject fulfilled all the conditions that we consider mandatory for a proper cool-down phase.

Heart rate recorded at the end of workout showed values greater than 120 beats / minute for 81.25% of registered practitioners. For 17% of subjects the value of heart rate was greater than 160 beats / minute. These records suggest an improper methodical approach for the final part of a workout for majority of practitioners.

Conclusions

The methodical approach of weight training workouts is faulty for many practitioners. For majority of them the warm-up does not present proper importance and the majority of practitioners do not do it right. The situation is even worse if we analyse the implementation of cool-down phase. This part of workout is missing to almost all practitioners.

Practitioners of weight training does not relate to dynamics of heart rate when they plan the warm-up and the cool-down for their workout.

The heart rate dynamics recorded for weight training workouts were on a wide range of values. Practitioners presented different approaches and the lack of research it is a demand for all of us to continue the research in this field.

Acknowledgment

The content of this article is part of the PhD research conducted in Sport Science and Physical Education.

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