

Original Article: **Assessment and subjective perception of high-school students after an educational component of hypopressive exercise.**

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Assessment and subjective perception of high-school students after an educational component of hypopressive exercise.

Valoración y percepción subjetiva de alumnado de bachillerato tras una unidad didáctica de ejercicio hipopresivo.

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Abstract



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The growing practice of hypopressive exercise (HE) in sports or fitness centers sets up the possibility of including it as content in the framework of physical-healthy activity in physical education sessions. In this way, the aim of the study was to find out the perceptions and perceived benefits after practice of an Educational Component (EC) of hypopressive exercise (HE) by high-school students. The sample was made up of 120 high-school students from a state institute in Vigo, who took part in an EC of HE. An ad-hoc questionnaire was drawn up to find out their subjective impressions, possible perceived benefits and perceptions about ease or difficulty in the technical learning. The results reveal high unawareness of HE (82%). 49% viewed them as good physical education practice. The greatest difficulties in learning them were: apnea (28%), the abdominal vacuum (38%) and postural positioning (33%). HE may be planned as innovative content in physical education sessions, as a respiratory and postural training methodology, but demands an appropriate progression in its teaching-learning.

Key words

Physical education; Hypopressive Exercise; Educational Component; High School.

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Resumen

La creciente práctica de ejercicio hipopresivo (EH) en los centros de deporte o fitness plantea la posibilidad de incorporarlo como contenido en el marco de la actividad físico-saludable para las sesiones de educación física. El objetivo del estudio fue conocer las percepciones y beneficios apreciados tras la práctica de una Unidad Didáctica (UD) de ejercicio hipopresivo (EH) por estudiantes de bachillerato. La muestra estuvo compuesta por 120 alumnos/as de Bachillerato de un instituto público de Vigo que participaron en una UD sobre EH. Se diseñó un cuestionario ad-hoc para conocer sus impresiones subjetivas, posibles beneficios observados y percepciones sobre la facilidad o dificultad en el aprendizaje técnico. Los resultados revelan un bajo conocimiento de los EH (82%). Un 49% lo percibe como una buena práctica de ejercicio físico. Las mayores dificultades para su aprendizaje fueron la apnea (28%), el vacío abdominal (38%) y la colocación postural (33%). El EH se puede plantear como un contenido innovador en las sesiones de educación física como metodología de entrenamiento respiratoria y postural, pero requiere de una adecuada progresión en su enseñanza-aprendizaje.

Palabras clave

Educación Física; Ejercicio Hipopresivo; Unidad Didáctica; Bachillerato.

Introduction

Hypopressive exercises (HE) consist in respiratory and postural actions that are done in a systematic way, among which respiratory apnea phases associated to costal opening are interspersing. Their practice has begun to increase in the last years in sports and fitness centres (Rial and Pinsach, 2014). They were popularised in the north of Europe as postpartum rehabilitation exercises, as well as for the rehabilitation of pelvic floor dysfunctions (Moraleda, 2007). These exercises appear as an alternative of physical-healthy practice. Nevertheless, few evidences exist of their preventive effects in different populations such as the population of young students.

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A research of 2011 applied HE in children with idiopathic scoliosis showing improvements in the rib hump and scoliosis curves (Caufriez, Fernández and Brynhildsvoll, 2011). Another recent research carried out in students of superior grade cycle in animation of physical activities and sports, with a 7 weeks program of HE that showed improvements in different parameters related to the physical condition such as the isquiosural flexibility or the vital capacity, compared with the control group (Marcilla, Rial, Chulvi-Medrano and García-Soidán, 2014). In this regard, a HE single session has shown high effects in different physical parameters of fitness professionals (Rial, Chulvi-Medrano, Pinsach and Navarro, 2014a) and physically active women (Rial, Sousa, García and Pinsach, 2014b). Nevertheless, not a single research has appreciated the immediate effects of the HE in teenagers.

In today's society, the formative process that must guide the physical education in A levels is directed around two main focus: the first one, the progress of the health as individual responsibility and social construction; the second one, the development of the student's autonomy to satisfy their motor necessities. From the physical education area is attempted to introduce innovative and current contents of which contribution implies an added motivation to the student body as well as to provide of knowledge about different tendencies of healthy physical activity.

If we analyse the curriculum (Royal Decree 1631/2006), it is extracted that the hypopressive technique can contribute to the achievement of different basic competences, to develop different contents, concepts and procedures of the physical education in high school such as the knowledge of the own body, the experience of different motor possibilities, the training of regular practice habits of physical activity for an activity more active and healthy of the free time, as well as being capable of design and handle a personal project of physical activity in an autonomous way, to appreciate the practice and the importance of the breathing, postural hygiene, knowledge and practice of training methodologies of the physical condition or exercise directed to the health.

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To incorporate the learning and knowledge of a technique based on postural and breathing principles in young students of high school, inside the physical condition and health contents block, it could be an alternative proposal because is a physical activity that offers tools to the students body for the self-management of their physical condition according to their personal objectives.

There is no evidence of some research or practical proposal of HE for the students of high school. For this reason, the aim of this research consisted in propose a Didactic Unit (DU) of HE to the students of A level to know their impressions/perceptions about this body technique at the end of the educational intervention.

Material and method

Context and Participants

A research was designed with descriptive and exploratory character of only group and intentioned sample for February 2015. One hundred and twenty students (66 girls and 54 boys) of high school with ages between 16 and 17 years old ($A = 16,8$; $SD = 0,3$) participated in this research. They were divided into five groups of the Alexandre Bóveda State High School of Vigo (Spain) situated in an urban environment.

Instruments

For the data collection it was used a self-managed questionnaire done *ad-hoc* that consisted of six questions with the aim of knowing perceptions or impressions about the practices carried out. All the students that took part in the DU of HE completed the questionnaire at the end of the unit. The questionnaire consisted of questions with close and open character. Its completion was carried out anonymously to favour the personal and original answer of the students, indicating that the questionnaire was not considered in the assessment of the subject.

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Procedure

The DU was developed in two practical sessions of physical education. Their development was:

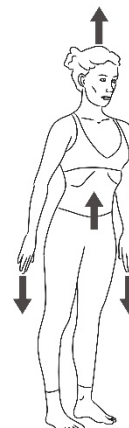
In the first session, it was carried out a presentation of the contents and a brief conceptual approach to hypopressure and hypoproressure concepts, the technical basis of HE and their main practical applications in the area of the physical-healthy activity. Afterwards, the technical principles of HE were developed and practiced (Rial y Pinsach, 2014): i) Axial growth of the spine ii) Cervical correction iii) Moving ahead the corporal axis iv) Muscle activation of the scapular waist v) Light knee flexion vi) Light dorsal flexion of ankles. Four basic postures were included and presented easily to facilitate the learning.

In the second session, the technical principles of the HE were remembered and the students must verify in pairs if the technical execution was correct through the following indications: i) Sinking of the clavicle cavity and contraction of the cervical breathing muscle; ii) Sinking of the navel associated with the opening of the thoracic cage iii) Complete exhalation and following breathing after the apnea iv) Verification of the costal opening without breathing through the nose.

The next task consisted in teaching with a circular arrangement the first three basic HE: Venus, Athena, Artemis (see figure 1) through the direct instruction methodology. Once the postural positioning was learned, it was carried out a 10 minute practice with the breathing patterns in the three learned postures. When the task was finished, in the following practical session, the questionnaire was given to know the subjective impressions, perceptions or immediate effects these sessions caused. The questionnaire was anonymous and according to the subjective and personal opinion of the students.

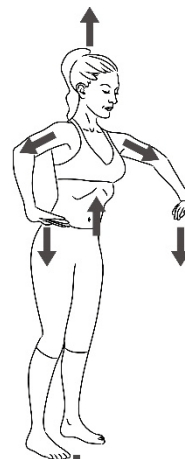
1st. Venus Exercise

In biped station with spreading arms along the spine, we adopt the technical principles described for the HE. Three diaphragmatic breathings are carried out followed by an expiratory apnea with costal opening kept between 10-15 seconds. This procedure is carried out three times keeping postural corrections.



2nd. Athena exercise

In biped station with arms in internal rotation with elbow and wrist flexion, once it is situated in the technical posture. Three diaphragmatic breathings are carried out followed by an expiratory apnea with costal opening kept between 10-15 seconds. This procedure is carried out three times without losing position.



3rd. Artemis exercise

Flex the column and rest hands on the thighs. The cervical and dorsal spine should be flexed. The spine is kept arched as the figure shows and from there, the breathing procedure described for the previous positions is repeated. The exercise is repeated three times without lost the position.



Figure 1. Sequence of basic hypopressive exercises practiced. Source: own production.

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Data analysis

Once the questionnaires are collected, two members of the research team began the data analysis separately. It was chosen an analytic induction methodology to identify common categories or patterns. Firstly, it was carried out a detailed reading of the open answer to be able to do a global analysis about its content (Friberg and Ohlen, 2007). Secondly, categories based on the grouping of the different answers were established. This allow to group the answers according to the type of content. Afterwards, the team was get together to put in common the categories and results to reach an agreement, contrasting if the categories were concordant or not after the analysis. The register of the data was carried out by an Excel spreadsheet and a statistical package (2010 Microsoft Excel Version). Descriptive data are presented by graphs and data of percentages and frequencies.

Results

Previous knowledge of the HE

Every student that participates in the HE sessions answer to the questions formulated in the questionnaire. In the first question *¿Did you know the Hypopressive exercises before the P.E. teacher explain them?*, it is extract that the 82% of the participants do not have the previous knowledge about the HE, in contrast to the 13%. The motivation or newness for the content was an aspect mentioned by the participants. The learning of a new technique is reflected in comments as: *“it was a new experience and I would do it again”*.

Perceived benefits

In the second question *¿Have you perceived some benefit after the practice of the Hypopressive?* It is emphasise that after only one session of hypopressive the 45% of the students tell that they feel some benefit, while the 55% says the contrary. For

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those who answer affirmatively, it is suggested to answer through one open question, *¿which is or which are these perceived benefits?* The category of benefit mainly perceived was related to the postural awareness followed by the breathing and the feelings of relaxation.

Table 1. Results by categories of answers about the open questions of the questionnaire.

Question	Category	Frequency	(%)	Total
¿Type of perceived benefit?	Postural Awareness	22	18%	120
	Abdominal Strength	7	6%	
	Breathing	16	13%	
	Back pain relief	4	3%	
	Period pains	3	3%	
	Physical recovery	7	6%	
	Relaxation	9	8%	
	Good way of exercise	59	49%	
	Help breathing	17	14%	
	Boring	7	6%	
Subjective impressions	Good for people with health problems	11	9%	120
	Difficult-weird	14	12%	
	relax	10	8%	
	Others	4	6%	

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¿Which part of the practice was the most difficult to you?	Apnea and complete exhalation	33	28%	120
	Costal opening	45	38%	
	Posture	39	33%	
	Breathing with the low part of the abdomen	4	3%	
	To overtake the centre of gravity	7	6%	
¿Which part of the practice was the easiest to you?	Breathings-Inhalations	41	38%	120
	Apnea	11	9%	
	To overtake the centre of gravity	4	3%	
	The postures of the exercises	44	37%	120
	Costal opening	7	6%	

Subjective impressions

The second open question was referred to explain the subjective impressions the students had after the practice of the HE. It is emphasise that the category of answer connects the hypopressive with a good way of exercise (49%) followed by the relation with the help they provide to breathe better (14%) and their technical difficulty (12%). About that technical difficulty that appears in the previous question too, in the following it is asked specifically about the part that was the most difficult to them.

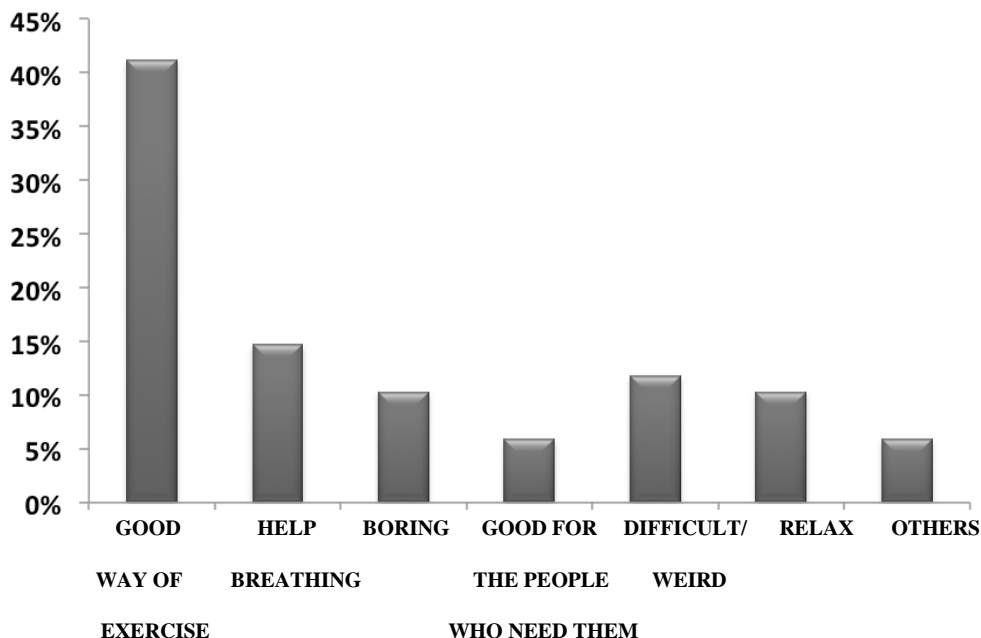


Figure 2. Graph of categories of answers about subjective impressions about the HE.



It should be pointed out that almost the 50% of the survey respondents believe that HE can be a good way of physical exercise and some of them said: *“I found these exercises easy, with good results and you do not need to spend much time on them”*; *“I believe that these exercises are interesting and they can help us with daily life problems like obesity”*; *“They seems to me very weird but interesting and I think they can really help”*.

Difficulties and facilities of the HE

In the results obtained after asking the question about the part of the practice that was the most difficult in the practice of the HE, the technical basis corresponding to the abdominal vacuum or the costal opening (38%) followed by the postural positioning (33%). Another basis that has been highlighting as the most difficult one was the part of

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the breathing like the expiratory apnea (28%). Some of the participants express that: *“it seems like I am choking”*, *“it is an anxious situation”*.

In contrast to this question, it was asked about the subjective perception in the part of the practice of the HE which was the easiest for them. It is emphasise that almost all the categories that for some students were the difficult ones, for others these categories were easier. Among these common categories we underline: apnea; to overtake the centre of gravity and the costal opening. The easiest part of the DU of HE has been the breathing between apneas (38%) and some of the postures (37%), both categories were not mentioned in the question about the biggest difficulty found. Despite these difficulties produced by the apnea, some of the students highlighting that the more they do these exercises, the more this feeling disappears:

“at the beginning I felt so overwhelmed, but then this feeling disappeared”,

“at the begging I was incapable of do it, however, little by little I was able to do it”



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Discussion

The discussion of the results is difficult because it was not found in the literature any practical proposal carried out with students of high school and HE. The few researches carried out with this technique were with adult population, specifically women. Maybe for this reason is that exists high previous ignorance about the content.

A research of Rial, Tracogna, Álvarez and García-Soidán (2014) analyses the benefits perceived for a group of women that attend regularly classes of hypopressive in a fitness centre for 8 weeks. Among the subjective perceived benefits they pointed out the improvement of the urinal incontinence, corporal posture and back pains. Along these lines, a research of 8 weeks too (Soriano-Segarra, Corbí y González-Millán, 2012) assessed the subjective assessment of a group of 20 women after a HE program. The 100% reveal posture changes and an increase of the general welfare according to the

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participants. Moreover, the postural awareness has been mentioned by the participants as one of the benefits as well as one of the impressions mainly perceived after the DU carried out with the students.

One of the aims was to assess the immediate perceptions after carry out the two practical sessions of HE. The high or immediate effects to one training session have been evaluated in physically active populations such as fitness instructors (Rial et al., 2014a) and women (Rial et al., 2014b). Both designs analyse the immediate changes after only one HE session in corporal and physiologic parameters. Nevertheless, in this research the subjective assessments of a different group as the A level group of students are only described.

We found as one of the main limitations of the research, the lack of other elements of quantitative and qualitative analysis. Furthermore, the sort of instrument used, the sort of question and/or its formulation could determinate the answer of the student, being another limitation. The limited scientific literature and practical application in the educational area cause the need of opening future investigations about the possible effects of the HE practice.

Conclusions

As more relevant conclusions and based on the main aim, it is highlighted that the HE is a previous little known technique for the A level students, being their teaching inside a context of educational innovation and motivation to current contents. The perceived benefits and impressions about this technique are connected with specific competences of physical education such as the postural and breathing awareness. Because it is a technique that involves certain difficulties must be adapted to a suitable progression for its correct teaching and learning.

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