



## Research Article

# Lockdown at home during coronavirus: Physical exercise changes in students and teachers in Spanish high school

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### ABSTRACT

The arrival of coronavirus produced a lot of changes in some societies. One of them was that people stayed confined at home during some weeks and months. This situation changed a lot of life's routines. Physical activity was one of them. This article presents a confinement changes in the physical exercise in Spanish high school students and teachers. Study recovers the information after 1 month lockdown. We could find that some routines were changed as the frequency, the length, the kind of practice activities, the person with whom did exercise, etc. Students and teachers adapted their physical activities to this circumstance. Between the research data, we emphasize that people followed doing physical exercise (more frequency but fewer length), especially physical condition activities, alone and with their families. We differentiated students and teachers results.

### INTRODUCTION

With the coronavirus crisis, some governments decide to confine people for preventing infections. This confinement could have effects about the people, especially in the younger and elder people.

In Spain, On March 13, the Spanish Government decided to declare the alert state. With this status all the people had to stay at home. Only was allowed the fundamental activities: Military activities, health workers, supermarkets workers, pharmacies, and so on. Schools were closed and all the students had to stay at home. It was a new situation never produced before and opened a lot of possibilities about to study of physical exercise.

It could have an effect about mental and physical health. Nieman (1998) recommended that physical activities are very important to reduce the illness and the mental health.

Obesity higher is problem and it has a big relation with physical activities. If people reduce caloric expenditure of the work and they increase diet calories, their height will be increased. It is

a phenomenon more usual in young and adult people (Prentice and Jebb, 1995; Bouchar and Blair, 1999).

Marcos Becerro and Galiano (2003) studied the effects of the deficiency physical activities and the cardiovascular system. It is an important risk factor.

Barcelona Global Health Institute (ISGlobal)<sup>1</sup> report explains that physical activity was reduced 38% during one confinement week. And April 18, Spanish people walked 90% less in comparison to January 13. They used electronics device for studying these movements.

For knowing the effects from the confinement on high school students and teacher, we chose a high school in Spain for testing the opinion to the students and teachers about their physical activity during the confinement.

With this study, we can offer to the students and teachers' physical activities for keeping your physical condition and their mental health.

### Statement of the Problem

The aim of the study is to know the physical exercise practice before the confinement and during the confinement. With it, we can adapt

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<sup>1</sup> López Tovar, A. La Vanguardia Newspaper. Found April 25<sup>th</sup>, 2020.

the lessons to the students and we can offer activity/activities to teachers and students in this period.

## RESEARCH METHODOLOGY

For doing the research, we chose a sample and did a form with different questions about the physical exercise before lockdown and during it.

We had to distinguish physical activity of physical exercise. The physical activities are all the everyday activities that they need a movement of physical action. For example, walking to the school, climbing the stairs, going to work with bicycle purpose of them are not to do exercise.

With physical exercise, we want to refer us to voluntary activities for maintaining or improving physical condition or get fit, for example, walking on mountain, running around the town, fitness activities. Furthermore, we have included sports.

Study sample was Maestrat High School students and teachers. This school is located in Sant Mateu, Castellon (Spain). They found 414 students and 60 teachers. They were divided in:

- Secondary Obligatory students: 323 students
- A level: 71 students
- A professional training studies: 20 students.

We created a form with *Google forms application*. Questions in the form were divided in three sections:

Questions and possibilities from the 1<sup>st</sup> section questionnaire:

1. Which is your group? Teacher, student, family, other
2. Which is your course? 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> of Obligatory secondary School, 1<sup>st</sup>, 2<sup>nd</sup> of high school and formative studies.

In the 2<sup>nd</sup> section of the form, we ask about the physical activity and sport before the confine. Questions from the 2<sup>nd</sup> section questionnaire are:

1. How many weekly days do you practice Physical Exercise or Sport? Any days; 1 or 2 days; 3 or 4 days; more than 5 days.
2. How many weekly hours do you practice Physical Exercise or Sport? Any hour; between 1 and 3 weekly hours; between 4 and 6 h; between 7 and 9 hours; more than 10 h.
3. What kind of exercise do you do before the confine? Physical condition activities; gymnastics activities; corporal expression or dance; individual sport; team sport; relaxation activities, motor games, other skills; and any exercise.
4. Do you play a federate sport? Yes, or not.
5. Before the confine, I did physical exercise alone; with my family, with my friends; I did not play physical exercise.

6. Which is the reason for you doing physical exercise? For improving health; for body beauty; for occupying free time; for doing social relationships; for developing the social prestige; and for living of it in the future.

In the 3<sup>rd</sup> section, we asked questions about physical exercise during the confine.

We repeated the questions 2.1; 2.2; 2.3; 2.5; and 2.6 and we also others as:

- During the confine: I increased the days of physical exercise; I reduced the days of physical exercise; and I kept the days of physical exercise.
- During the confine: I increased the hours of physical exercise; I reduced the hours of physical exercise; I kept the hours of physical exercise.

Finally, we asked with an open question which are the major changes in their life about the physical exercise.

Form was sent on April 6, coinciding with World Physical Activity Day. It was the 24 day of the confine and. We finished data collect on April 13 (31 days after at the begin of the confine). In this time, the people were confined yet. All the students and teachers were free to participate in the study.

We have to explain that the study did not consider 2 h of Physical Education lessons that the Secondary Obligatory Studies and 1<sup>st</sup> of High School do in the school year.

## RESULTS AND DISCUSSION

### Information about the Students

The sample was 414 students. On April 13, we obtained 244 complete forms. After this day, we received more forms, but they were not considerate in the study. Students participation was 58 % of students sample [Figure 1].

Students' participation of 3<sup>rd</sup> and 4<sup>th</sup> of secondary obligatory studies, 1<sup>st</sup> high school, and professional training studies were satisfactory because we obtained a participation more than 60%. We stand out from the low participation of the students of 2<sup>nd</sup> secondary obligatory studies.

Related to the frequency of the physical exercise, we stand out that the students did more exercise during the confine. Furthermore, we found students that before the confine did not physical exercise (16.5%), and with the confine, they began to do physical exercise. Hence, with confine 9.9% of students did not physical exercise [Figure 2].

We can take some possibilities? About this result: (1) Some students considered that with the physical education lessons, in high school, were sufficient; (2) students lifestyle, with a

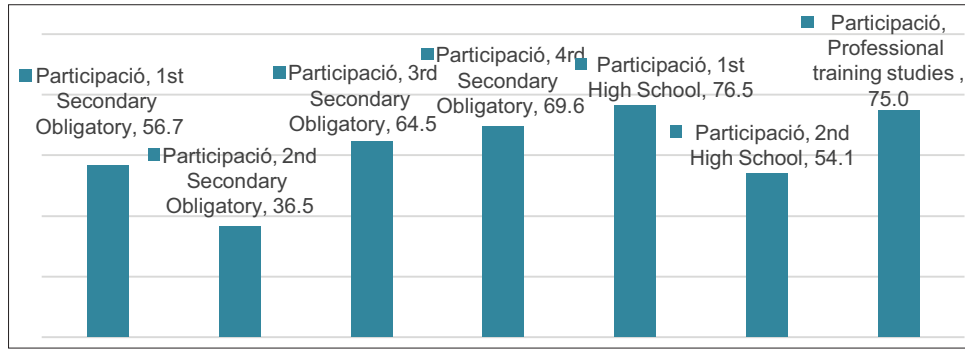


Figure 1: Response divided by class

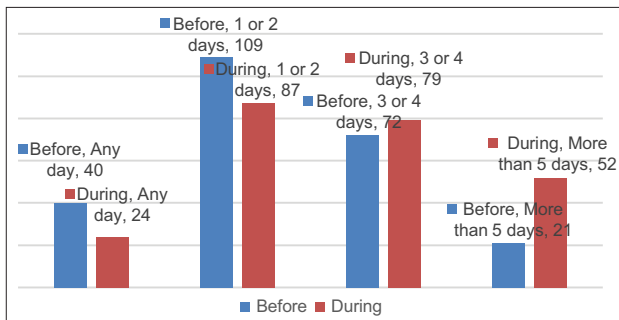


Figure 2: Physical Exercise frequency (weekly)

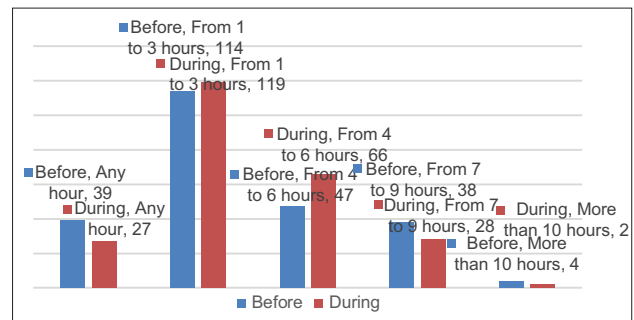


Figure 3: Weekly hours of physical exercise

lot of extra school activities as music, English lessons, etc., difficult their physical activities because they had not more time to practice them; (3) during the confine they were bored and decided to do physical exercise; and (4) during confine they changed the physical education lessons for physical exercise at home.

Findings of the study revealed that without to count the hours of physical education in the high school, students increased their voluntary physical activity during the confine (16.1% not did exercise before and 11.15% not did exercise during the confine).

Data revealed that the most popular option about practice hours was to do from 1 to 3 h of exercise. Mostly, students did between 1 and 6 h weekly. Furthermore, we want to stand out that before the confine we found 42 students (17.35%) that they did more than 7 h of physical exercise, and during the confine, this number fall down to 30 students (12.39%). Reasons for falling down this number can be: (1) Home space is limited; and (2) at home is not usually to have physical exercise tools, etc. [Figure 3].

Related with student’s perception about the physical exercise frequency during the confine was that it grew it though the results are very similar. About 40.1% of the students believe that it grew, and 34.3% reduced it. We found this evidence in the previous figure, and we confirmed it with the student’s perception [Figure 4].

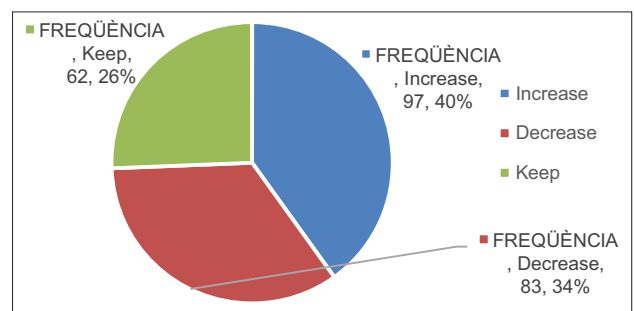


Figure 4: Students perception about the physical exercise frequency during confine

Related with the student’s perception about the duration of physical exercise during the confine, they said that it fell. We can explain it because some students (27.75%) compete in different sports. In our case, a lot of students are training football. Usually, this practice needs two or more training sessions (between 60 and 120 min). Besides, it has the competition and a previous warm-up (between 80 and 120 min more or less) [Figure 5].

Other question about the evolution of the physical exercise was: “with whom do exercise?” In this case, students could select one or more options.

Usually, students did physical activities alone (40.9%) and with friends (37.6%), but when the confine arrived, it changed.

Hence, students continued to do activities alone (59.2%) but they changed the activities with your friends for activities with their families (from 9.7% before to 28.1% during confine).

Data revealed that activities with friends fell down from 37.6% to 2.7%. It was a good option for doing exercise, but with the confine, it was very difficult to find your friends because all people have to stay at home.

If we compared before the confine and during it, the family was the biggest option changed. It is a very important thing because the family used the confine for doing physical exercise together. This fact could help to improve family relation.

We also stand out the high number of students that they did alone exercise before the confine (88.2%) and during the confine (90.1%). We must remember that students could choose more than one option in the form [Figure 6].

Related with the kind of exercise, data revealed that about 54.4% of students chose more than one question. It means they did more than one activity.

Findings of the study revealed that before the confine, physical condition activities were the most popular practice between students (27.2%). It was represented by all the motor practices with fitness relation as body-building, CrossFit, etc. It was followed to individual sport with 21% (running was

incorporated it this option even it did not be a competitive practice) and team sports (20.1%).

With the confine, the most important evolution has been that individual and team sports fell down. Team sports decreased from 20.1% to 8.5%, and individual sports decreased from 21% to 11%. It was normally because the space at home is limited. They were changed for physical condition activities. It changed from 27.2% to 45.6%. Motives of this evolution could be: (1) From the Physical education department, during the 1<sup>st</sup> and 2<sup>nd</sup> trimester of the school year, we worked a lot this kind of activities; (2) it was not necessary big equipment for doing them; (3) did not need a big space; and (4) students could find a lot of activities in the internet; etc.

Finally, we want to consider that physical education teachers did, at the begin confine, a lot of virtual suggestions of these topics using, for example, YouTube, Moodle, and others softwares. Spanish government decided to confine people, and education system was not prepared for it [Figure 7].

We want to emphasize the growth of the relaxation techniques as yoga, tai-chi, etc. They changed from 3.3% to 7.1% with confine.

Finally, we asked about the main motivation for doing physical exercise. In this case, the health (29%) and the body image (26%) were the most important between the students. After these, we found the free time occupation (20%) [Figure 8].

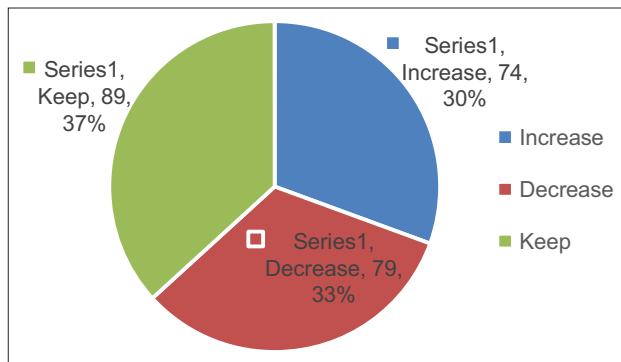


Figure 5: Students perception about the duration of the physical exercise during confine

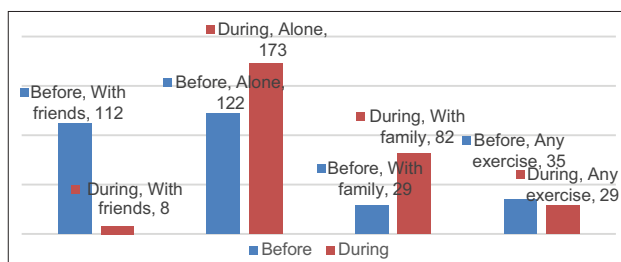


Figure 6: With whom did exercise

### Teachers Information

The study sample was 60 teachers and 35 teachers answered the form (58.3%).

Data revealed that there were a low number of teachers did not do physical exercise before (8.57%) and during the confine (5.71%) [Figure 9].

About 54.4% of the teacher's respondent that they increased the frequency of physical exercise during the confine and in 29% decreased activity. More available free time and to need to get fit was the most important elements for increasing their physical exercise. Space limitation was the more difficult element for decreasing the movement [Figure 10].

Related with the physical exercise length during the confine, we found that it is lower than before the confine (43%) though some teachers respondent higher than before (31%) [Figure 11].

We could find an evolution about "With whom teachers did physical exercise?" In this case, we could find, before confine at home, that teachers did physical exercise alone (52.3%) and with friends (27.3%). When confine arrived, it changed.

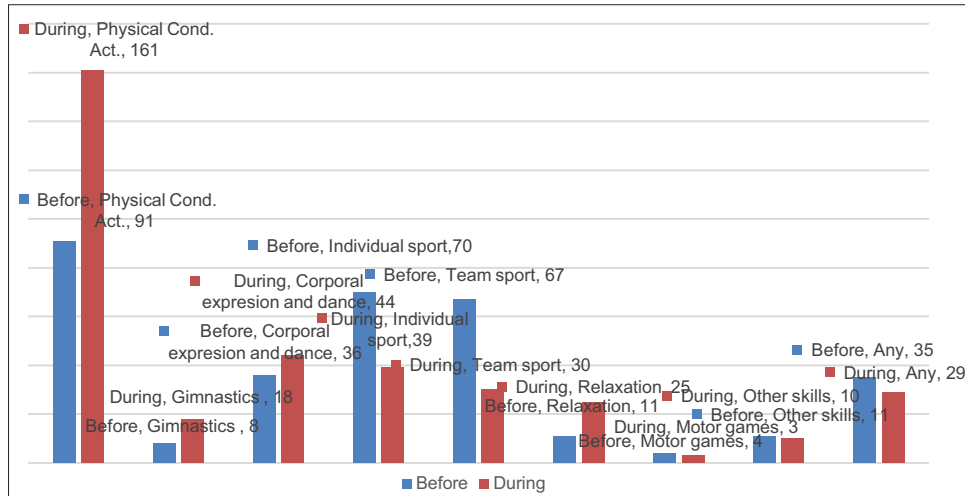


Figure 7: Physical activities developed

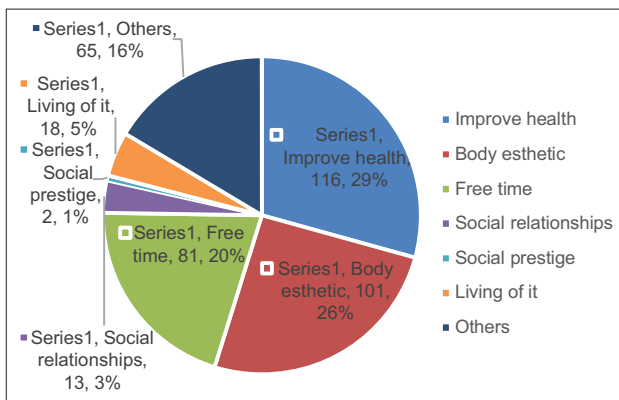


Figure 8: Main motivation for doing physical exercise

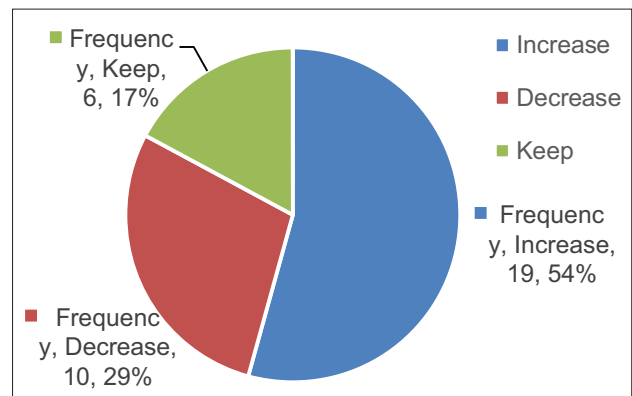


Figure 10: Teachers perception about frequency of the physical exercise during the confine

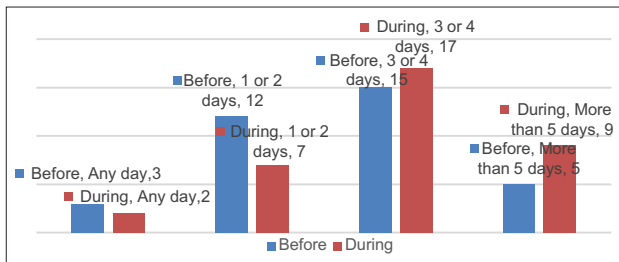


Figure 9: Physical exercise frequency (weekly)

Hence, the most popular option was alone (60%), but family was the second option with 35.6%. We did not find any teacher that during the confine did exercise with friends. Before this situation, this option was very important.

Most teachers did exercise alone (52.3%) before the confine. This option was increased to 60% during confine. It is similar to the family option that it changed from 14.3% to 45.7% [Figure 12].

Related with kind physical activities practiced for teachers, data revealed that before locked out, 60% did one activity, and

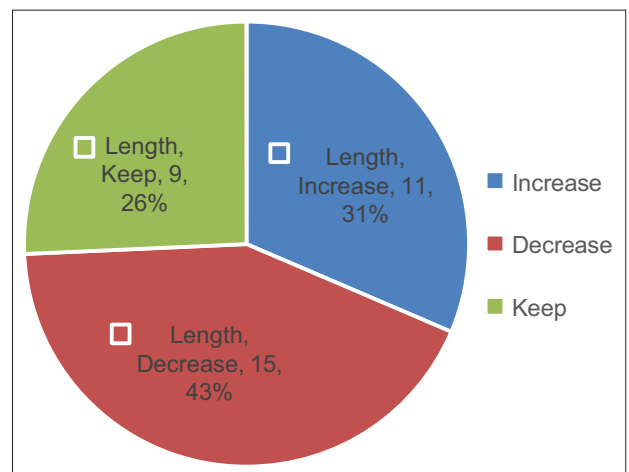


Figure 11: Teachers perception about length of the physical exercise during the confine

28.55% did more than one activity. But during confine, 51.42% did one activity and 42.85% more than one. We must consider that teachers could choose more than one question, and the

results meant that teachers researched different activities for occupying their free time at home.

The findings of the study revealed that individual sport (35.71%) and physical condition activities (33%) were the most develop before confine. However, it changed with the people locked down. In this case, physical condition activities were practiced a lot (31.4%). After we found relaxation activities (25.5%) and individual sport, corporal expression and dance with 17.6%. Hence, confine produced an important effect on physical activities that teachers practice at home and physical condition activities were always higher [Figure 13].

Main teacher’s motivation to do physical exercise was to get healthy (45%) and to improve body aesthetics (23%). This question was not asked with people lockdown situation [Figure 14].

Comparing students and teachers’ data, physical exercise evolution is very similar in the two groups. During confine, more students and teachers did the physical exercise in comparison with before confine.

Furthermore, we found that students and teachers increased the number of days that they did physical exercise though it was more important in the teacher. However, teachers

and students decreased the length of these activities. More available time was the reason for doing more daily physical exercise. Furthermore, lower physical exercise length was normally because their possibilities at home are more limited.

It is very important that students considered the physical activities as an alternative to occupy free time, and it helped to improve health. Furthermore, to do physical exercise alone was the most popular option between teachers and students before and during confine. The second option more popular was with friends in two groups. However, when confine arrived, it changed and alone and with family were the options more important between students and teachers. More time at home opened the possibility to do physical activities with the family. Maybe, doing activities with family will improve the relationship between them although we have to study this fact in the future. Physical activities with friends fall down with confine.

Related with kind physical activities developed, before people were lockdown, sports were the most popular option between the students and teachers although students practiced more team sports and teachers more individual sport. In the case of the teachers, sport had not regulations for federation. That is, teachers practiced running, go cycling, swimming, etc., but they did not compete in these modalities. Physical condition activities also were important before the confine.

However, when confine arrived, physical condition activities were the most important. Sports fall down in students and teachers. Furthermore, we must consider the relaxation techniques as yoga, tai-chi, etc., increased its practice, between students and teachers, in this period.

Some people explained that one of the most important changes was that before confine, they did physical activities in nature, but with block out, it has been impossible.

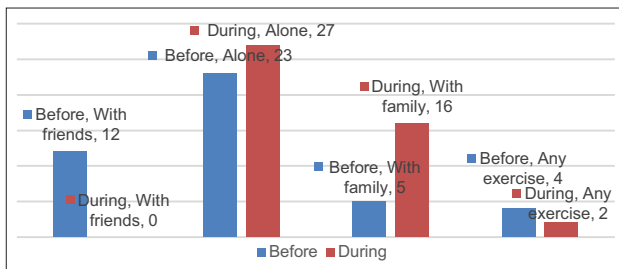


Figure 12: With whom did teachers physical exercise?

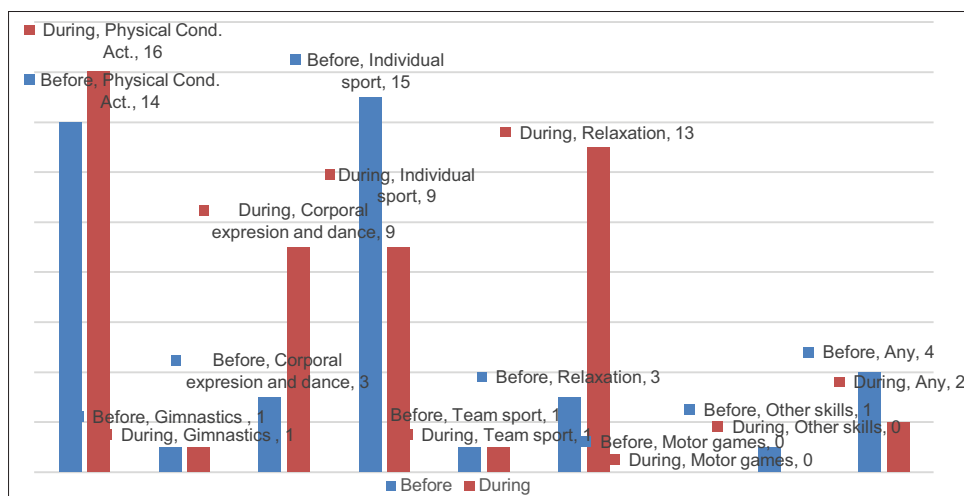
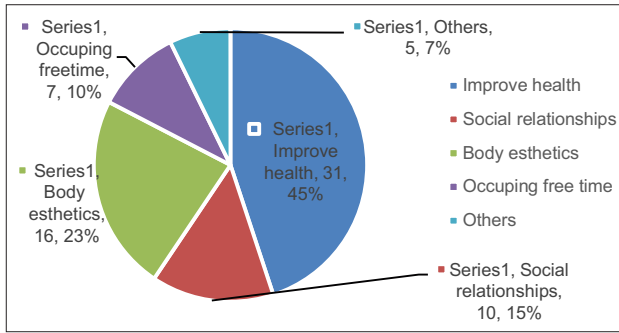


Figure 13: Physical activities developed



**Figure 14:** Teacher reasons to did physical exercise

## Recommendations

The following are recommended:

(1) For improving the study, we have to compare with other similar students and teachers around other places; (2) although physical exercise is good for health, it has to be practice with a frequency, duration, and intensity. In this case, we could not know this intensity, and so, we do not know the positive effects for people health; (3) each day people go to work or to buy, for example, walking, running, cycling. With confine people had to reduce these physical activities. We think physical activities at home will not improve the people physical condition. They only will be to maintain this physical condition level. For we find it out, we had had to examine the people physical condition with some tests before that people were locked out and after it for taking a right conclusion about the confine effects in the people. (4) We need to take a body perimeter marks, height and weight for comparing this evolution in the time; (5) From physical education department we have to offer to the student and other teachers different activities for keeping the interest in the movement and in the physical exercise; (6) using technologies for teaching and sharing information about physical activities and exercise. Now, we can find a lot

of platforms, software, and applications for doing exercise and exchanging information: YouTube, WhatsApp, Facebook, meet and hangout of Google, zoom, etc., are tools that we used in the lockdown period to offer an alternative to the students. Ortí (2019) explains some technologies for using in physical education lessons; (7) offer physical activities to the students for doing with friends; (8) future form must have a question about if people live in a flat, detached house, cottage, terraced house, etc., other about gender. With this information we could compare girls and boys and the evolution of their physical activities before and during confine; and (9) distribute data in school course; Finally, in our research, we did not consider hours to students who did physical education lessons at high school. It is a research limitation.

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