ABSTRACT

LABOR GYMNASTICS FOR THE PSYCHIC HEALTH IN AN ELEMENTARY SCHOOL

The objective of this research was to investigate the real effect of the Labor Gymnastics in the mental recuperation of students in a Brazilian school. The research was realized at the Elementary School Guilherme Clemente Köehler – Polivalente from Ijui, RS, Brazil. It was composed of 107 students from 5, 6, 7, and 8 grades. For the investigation of the mental work productivity of the students was used the methodology of the “Simples Proof Test” that has been used for a long time in Russia. The results of the research showed that the Labor Gymnastics, realized by the students, after one hour of studies in mathematics, Portuguese and sciences provides an increase of the mental work productivity in the students of the 5 grade, average of the 26,0%, p<0,001; in the 6 grade in average 15,9%, p<0,001; in the 7 grade in average 14,7%; and in the 8 year students 11,5%, p<0,001. Based in these observations we can conclude that the Labor Gymnastics increases the productivity of the mental work in students of 5, 6, 7, 8 grades. Probably, it should be tried in the teaching and learning process in some Elementary Schools in Brazil.

UNITERMS: Labor Gymnastics, psychic health, school, the mental work productivity.

Introduction

Nowadays the process of teaching and learning in an elementary and high school, is becoming more and more intense. The advances in a society scientific and technological are developing quickly, it means that the young citizens need to have more knowledge. So, the students spend the most part of the time in their studies and less time in physical activities, having damage with the health. According to UTIVILHISKI, 1972; NICOGOCIAN & GASLER, 1977; ANDROPOVA, 1968, 1982; KALININE, 1990; KALININE & GOLLER, 1995 studies, they have noticed that the end of the school year, the mental students performance have reduced, due to syllabus activities by previous classes. Besides, the students results presented by IAGODIN, 1988, have appeared the mainly because of the excessive demand by school syllabus activities. The end of
the year in a high school, 50% of the students are with complaints in the cardiovascular system and 20% - 30% have presented psychic disturbance.

In front of this facts, it becomes obvious the necessity to look for ways to offer improvements of the mental work from the students in their classes during the school day. A way to solve this problem can be the Labor Gymnastic at school, that was approved in companies and industries (CHACHBASIAN & TRACHTENBERG, 1961; BELINOVITCH, 1964; FEIGUIN & LOVITCHKIA, 1971; NIFONTOVA, 1981; KOLLING, 1982; PEREIRA, 1987; PEGADO, 1990; PULCINELLI, 1994; CASAGRANDE, 1997; GALANTE et al, 1998; LIMA, 1998; SALVE & BANKOFF, 1998; KONRATH, 1999; PRADO, 1999; LEWINSKI & PESSATTO, 1999; OLIVEIRA, 1999 and others.). The Labor Gymnastic in companies serves, mainly, increasing the company production through the physical and psychic state improvement of the employees and consist in intermissions with physical activities from 10 to 12 minutes, making from 8 to 12 physical activities. The physical activity intermission can be realized at 11h00 and 15h00, at this time the employees are tired.

The Labor Gymnastic at school helps, mainly, to regain the mental work capacity of the students and consist of:

a) Entered Gymnastic – 6 to 8 physical exercises made from 4 to 5 minutes, in the beginning of the first day school class.

b) Pause of the Physical Culture – from 3 to 5 exercises realized from 2 to 3 minutes, after 30 minutes of the studies in each school day.

c) Intermission of the physical activity – 8 to 12 physical exercises realized from 10 to 12 minutes at the intermission after four day classes school.

The researches realized at schools in Russia showed that the Labor Gymnastic at school practiced by the students increase the speed in doing their cognitive operations (IVANOV, 1961), increase the information assimilated and eliminate the negative influences of the excessive emotional nervous tension. (NIFONTOVA, 1981). The capacities to arithmetic activities and logical increase in a high degree (PUTIVILHISKI, 1972). The researches by FOMIN (1964), KALININE (1990), also showed that the corrected application of the Labor Gymnastic at school cannot only regain, but increase the capacity of the students mental work.

At the same time the researches by FOMIN, 1964; GUR & VDOVITCHENCO, 1971; LEONOV, 1975; GANDUR, 1983; KALININE, 1990, alerted that the Labor Gymnastic at school
can have positive effects only when the time of its application, the contents and the intensity in doing the physical activities, the region where the school is located and the physical development of the students at school will be considered.

Based at the text written up, it's visible that the Labor Gymnastic at school can relieve the mental tiredness of the students and benefit their mental health.

In spite of the great importance of the subject to the school reality, in a Brazilian literature we haven’t found any work about the Labor Gymnastic utilization at school in Brazil. Many researches about the utilization of the Labor Gymnastic realized in Brazil by KOLLING, 1982; PEREIRA, 1987; PEGADO, 1990; PULCINELLI, 1994; CASAGRANDE, 1997; GALANTE et al, 1998; LIMA, 1998; SALVE & BANKOFF, 1998; KONRATH, 1999; PRADO, 1999; LEWINSKI & PESSATTO, 1999; OLIVEIRA, 1999 explain only about the Labor Gymnastic in companies.

So, the purpose of this research was investigating the influence of the Pause of the Physical Culture (a way of the Labor Gymnastic at School) in the mental work capacity of the students from 5ª, 6ª, 7ª e 8ª grade at the elementary school in Brazil during the school day.

Method and Material

The research was realized in a state public elementary school Guilherme Clemente Köehler – Polivalente in Ijuí city, RS, Brazil. The students that participated the research were of the 53 class (5ª grade), 62 class (6ª grade), 71 class (7ª grade) and 82 class (8ª grade), adding 107 students.

The Pause of the Physical Culture (5 physical exercises to higher members and trunk, done in a dynamic regime during 2-3 minutes) was applied during a school week at 53, 62, 71 e 82 classes, after an hour of the studies at math, Portuguese and science classes. This is the time that according to FOMIN (1964), GANDUR (1983), KALININE (1990), KALININE et. all. (1996) the students began getting tiredness.

The productive of the mental work of the students was detected immediately before doing the Labor Gymnastic and before 5 minutes in its realization. For the detection of the production in students mental work was used the “Simple Proof Test” Method.

The “Simple Proof Test”, is a test done of a table with the alphabet letters put in line and mixed (attached). The time spent to the “Simples Proof Test” is two minutes. When the test is
doing, the student needs to look for and mark two letters requested by the teacher (example: A and B), running the lines from the left to the right. When finished the time, the student can mark with a circle the last letter observed. Will be observed the number of the letters run (N) and the number of mistakes done (E).

\[ Q = \frac{(N/10)^2}{[(N/10) + E]} \] – it means the productivity of the mental work.

The “Simples Proof Test” Method was approved in a Academy of Science and Educational of the URSS (Program and Methods of the investigation in the Daily Regime, of the Work Capacity and of the State of Health from the students, 1978), and was approved in many researches realized by FOMIN (1964), ANDROPOVA (1968, 1982), FISCHER (1976), BELOUS (1977), GANDUR (1983), KALININE (1990) and others.

The “Simples Proof Test” Method was created only to investigate the dynamic of production change of mental work at the same person, it means that can’t be used to compare the productivity of mental work in different people. This method show only the tiredness mental development of the person.

The statistic treatment of the data acquired was realized through the “Signs Method” utilization of the statistic that isn’t parametric (SIEGEL, 1975).

Results and Discussion

At the TABLE 1 – are presented the results of the investigation at the influence of realization the Pause Physical Culture (5 physical exercises to higher members and trunk done in a dynamic regime during 2-3 minutes) in class at the mental work productivity of researched students.

The results of the research are presented at the table 1 show that the Labor Gymnastic in a Pause Physical Culture way cause increase, with \( p < 0.001 \), the mental work productivity in these students. The mental work productivity of the students after done the Pause Physical Culture increased in average, a class from 6.1 to 38.7%.
The analyses of the results presented in the same table also show that the same kind of Pause Physical Culture done in different times cause, in the same students, different effects. For example, the increase of the mental work productivity in students of the 53 classroom on Wednesday (8h40min) was 11,6%, p<0,01 and the increase on Thursday (11h10min) was de 38,7%, p< 0,001.

The great difference in mental work productivity increase after the realization of the Pause Physical Culture in students of the 53 classroom (11,6%, 8h40min., Wednesday; 28,8%, 8h40min., Thursday; 38,7%, 11h10min., Thursday; and 25%, 8h30min, Friday) show the effects of the Labor Gymnastic realization depend of many conditions in its application. What prove the results of the researches from FOMIN (1964); GUR & VDOVITCHENCO (1971); LEONOV (1975), GANDUR (1983); KALININE (1990).

At the GRAPHIC 1 are presented the results of the change investigation of the effects at the Pause Physical Culture realization in mental work productivity of the researched students in dependency of the grades they are studying.

The research results presented at the TABLE 1, and at the GRAPHIC 1 show the kind “Pause Physical Culture”, with the same content of the exercises prove in students of different grades the different mental work productivity.

The increase of the mental work productivity after the Pause Physical Culture realization in students of the minor grades is better than the students of the higher students. The mental work productivity after done the Pause Physical Culture increase average:

- 26,0% (p<0,001) – in the fifth grade students
- 15,9% (p< 0,001) – in the sixth grade students
- 14, 7% (p<0,001) – in the seventh grade students
- 11,4% (p<0,001) – in the eighth grade students

In researches by FOMIN (1964); GUR & VDOVITCHENCO (1971); LEONOV (1975), GANDUR (1983); KALININE (1990), it was established that the effects of the Pause Physical Culture realization at 5ª e 6ª grades in the Elementary Schools of the central region in Russia, average a classroom, don’t overcome 15%. But the data in our research show the increase of the mental work productivity in students of the 5ª e 6ª grades at the researched school is higher, 38,7%, 53 class, Thursday, 11h10min. (Look at TABLE 1), than the Russia school. It means that the
Elementary School from Ijuí, RS – Brazil will have more benefits with the Labor Gymnastic realization than the Russia school.

CONCLUSION

Based by the results of the research realized, we can do the follow conclusions:

- The Labor Gymnastic, in the Pause Physical Culture way, can increase the mental work productivity of the students of 5ª, 6ª, 7ª and 8ª grades at the Elementary state public Guilherme Clemente Köehler School – Polivalente from Ijuí city, RS, until 38,7%;

- The increase of mental work productivity after the Pause Physical Culture realization by minors students grades, average, it’s bigger than in higher students grades, (26,0%, 15,9%, 14, 7%, 11,4%, from fifth to eighth grades).

SUGESTION

Based in results acquired in this research, we recommend the experimental implantation of the Labor Gymnastic in the Pause Physical Culture way, in same Elementary School from Brazil.

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ATTACHED

Simples Proof Test Protocol

UNIJUI – Human Movement Laboratory

Completed Name ______________________ date was born______
### TABLE 1 – Results of the investigation of Labor Gymnastic in the Pause Physical Culture way, at the mental work productivity of the 5ª, 6ª, 7ª e 8ª students grades at Clemente Köehler Elementary School – Polivalente Ijuí city, RS, Brazil.

<table>
<thead>
<tr>
<th>Class</th>
<th>Amount of students per class</th>
<th>Days of Application</th>
<th>Time of Application</th>
<th>Mental work Productivity in unit. Conditional, average per student</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>21</td>
<td>Wednesday</td>
<td>08h 40min</td>
<td>Qa: 34,5, Qd: 38,5, δ (%): 11,6**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thursday</td>
<td>08h 40min</td>
<td>Qa: 30,9, Qd: 39,8, δ (%): 28,8**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thursday</td>
<td>11h 10min</td>
<td>Qa: 24,8, Qd: 34,4, δ (%): 38,7**</td>
</tr>
<tr>
<td>Date</td>
<td>Time</td>
<td>Qa</td>
<td>Qd</td>
<td>δ</td>
</tr>
<tr>
<td>------------</td>
<td>----------</td>
<td>-----</td>
<td>-----</td>
<td>-------</td>
</tr>
<tr>
<td>Friday</td>
<td>08h 30min</td>
<td>30,8</td>
<td>38,5</td>
<td>25**</td>
</tr>
<tr>
<td></td>
<td>AVERAGE 5 grade</td>
<td>30,2</td>
<td>37,8</td>
<td>26,0***</td>
</tr>
<tr>
<td>62</td>
<td>35</td>
<td>Tuesday</td>
<td>09h 40min</td>
<td>33,2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wednesday</td>
<td>09h 20min</td>
<td>29,5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wednesday</td>
<td>11h 10min</td>
<td>37,5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thursday</td>
<td>11h 10min</td>
<td>33,1</td>
</tr>
<tr>
<td></td>
<td>AVERAGE 6 grade</td>
<td>33,3</td>
<td>38,6</td>
<td>15,9***</td>
</tr>
<tr>
<td>71</td>
<td>30</td>
<td>Thursday</td>
<td>09h 20min</td>
<td>37,8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Friday</td>
<td>08h 40min</td>
<td>37,2</td>
</tr>
<tr>
<td></td>
<td>AVERAGE 7 grade</td>
<td>37,5</td>
<td>43,0</td>
<td>14,7**</td>
</tr>
<tr>
<td>82</td>
<td>21</td>
<td>Monday</td>
<td>08h 40min</td>
<td>42,5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tuesday</td>
<td>11h 10min</td>
<td>40,1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wednesday</td>
<td>09h 20min</td>
<td>37,7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Friday</td>
<td>11h 00min</td>
<td>41,2</td>
</tr>
<tr>
<td></td>
<td>AVERAGE 8 grade</td>
<td>40,4</td>
<td>45,0</td>
<td>11,4**</td>
</tr>
<tr>
<td></td>
<td>GENERAL AVERAGE</td>
<td>34,8</td>
<td>40,2</td>
<td>22,0%***</td>
</tr>
</tbody>
</table>

Obs.: *p< 0,05; ** p< 0,01; *** p< 0,001.

Qa – is the mental work productivity of the students just before the Pause Physical Culture application of physical activity (average per student).

Qd – is the mental work productivity of the students, 5 minutes after the Pause Physical Culture application of physical activity (average per student).

δ - is the increase in mental work productivity percentage of the students, after the Physical activity Pause application.

**GRAPHIC 1** Mental work Productivity of the students in conditional units before (Qa) and after (Qd) of the Labor Gymnastic in the Pause Physical Culture way, like the mental work productivity increase of “Qd” in relation the “Qa”.

![Chart](chart.png)