

# Body percussion and urban rhythms as an interdisciplinary resource

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**Abstract.** The dual task is an excellent resource for cognitive stimulation, both in healthy people and in people with some cognitive impairment or syndrome, thanks to the latest scientific publications in this field. In this article we propose practical resources linked to the dual motor task with cognitive activities. For this purpose, we implement two known rhythms that help to work on body schema, coordination, dissociation and laterality, among other aspects. The Bapne method is concerned with providing practical resources so that professionals from various fields have the opportunity to use them in their professional circle.

## 1. Introduction

The application of rhythmic motor activities linked to dual tasks has been increasingly investigated in the medical and educational fields with very positive results [1-8]. Neuromotricity is an excellent tool, given that it implements in its essence, rhythmic motor activities with the aim of working, certain cognitive and executive functions on the basis of dual-task. The existing literature demonstrates very positive effects, both in young and healthy older adults as well as with cognitive impairment [9-14].

There is an abundant scientific literature on the positive use of dual-tasking while walking or moving in space in both healthy individuals and those with some disease or illness [15-25]. Regarding the implementation of rhythmic activities coupled with the subject's gait, studies argue a clear improvement [11, 12, 13, 14, 26, 27, 28, 29]. The Bapne method has a concrete protocol of highly sequenced activities with the aim of working the dual task through rhythm in which it includes displacement and praxias [30-53].

## 2. Development

There is documentation arguing that gait is considered an automatic motor function regulated by subcortical processes. Several studies indicate that various cognitive processes such as working memory, executive function and attention are related to cortical areas which in turn are involved in dual-tasking [54].

Cortical and subcortical areas are constantly involved in the process of performing rhythmic motor activities including dual tasks.

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For this reason, the main objective of this article is to propose practical resources linked to the dual task, starting from two well-known rhythmic structures. This will involve the movement of the upper limbs versus the lower limbs, where the voice will have to perform various types of tasks independently of what the hands and feet do.

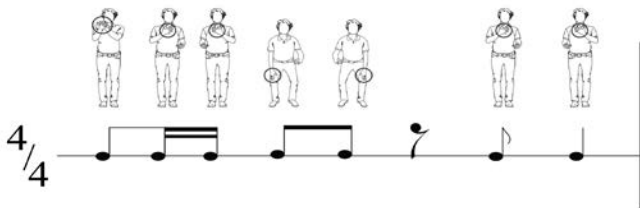
The article has 3 basic premises:

A. Free movement at the same time that the double task activity is performed.

B. Performing the square with the feet as a geometric figure while performing the dual task.

C. Combination of other geometric figures with the feet while implementing other more elaborate dual-task activities.

For this we will apply the two rhythmic structures that can help us to work this concept. First we present a rhythm to which we have added corporal percussion.

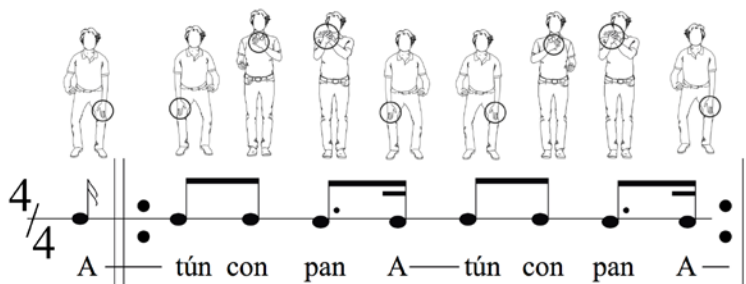


**Fig.1.** Basic rhythm with Body percussion for dual Task

The sequence of learning by parts where we work the upper and lower limbs in addition to laterality, we expose it in detail in the following video:



Secondly, we implemented a rhythm from Latin American culture called "Reguetón" to which we have added body percussion and a text that serves as support.

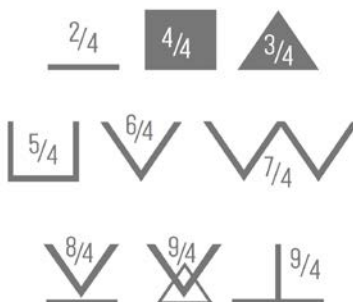


**Fig.2.** Reggaeton rhythm with body percussion and double task

This rhythm is very popular nowadays in Latin America and we teach it in a specific way in order to work on certain rhythmic figures. In the following video you can learn it in detail.



These activities can be performed either seated or bipedal, with free movement and with the execution of a geometric figure, for example a square, while the upper limb percusses the rhythms described above.



**Fig.3.** Geometric figures to make with the feet

- Globally we can argue that we implement various cognitive tasks while executing:
- Counting numbers from 1 to 4; 1 to 8, etc.
  - Perform arithmetic tasks (2+2=4).
  - Asking for the capitals of countries.
  - Asking for opposites (White / Black; sweet / salty...).
  - Ask for the translation of words into another language

All these activities are part of an overall structure called "BAPNE Glossary".

**BAPNE ACTIVITIES - SUMMARY** Phd. Francisco Javier Romero-Naranjo

<p><b>1. CLAP CHANGE (Typologies)</b></p> <ul style="list-style-type: none"> <li>• Simple/Double</li> <li>• Group</li> <li>• Music Reading (Body Selfage)</li> <li>• BAPNE for Math</li> <li>• Polyrythm</li> </ul> <p><b>2. STOMP CHANGE (Typologies)</b></p> <p><b>3. CLAVE CUBANA - CANON &amp; Others &amp; MELODY</b></p> <p><b>4. LATERALITY (Typologies)</b></p> <ul style="list-style-type: none"> <li>• Ia + Ri (Inverted)</li> <li>• With the A = BAPNEIDOLE + Maki - Maki</li> <li>• Red - Black + Zimba + Math + Countries + Translate</li> <li>• Square + Triangle + U</li> </ul> <p><b>5. IMITATION</b></p> <ul style="list-style-type: none"> <li>• Imitation Clap</li> <li>• Progressive Imitation</li> <li>• Polymetric Imitation</li> <li>• Mirror Imitation movement (Maki - Maki)</li> </ul> <p><b>6. OFF BEATS (Typologies: Simple/Double)</b></p> <p><b>7. CANON (Typologies)</b></p> <ul style="list-style-type: none"> <li>• Inverted Canon</li> <li>• Movement Canon</li> <li>• Polymetric canon</li> <li>• Sectioned canon</li> <li>• Double canon</li> <li>• Increased &amp; Decreased canon</li> </ul> <p><b>8. SPEAKING DISSOCIATION (Typologies 4=3 5=4)</b></p>	<p><b>9. METER (Typologies)</b></p> <ul style="list-style-type: none"> <li>• Horizontal Meter</li> <li>• Vertical Meter</li> </ul> <p><b>10. PSYCHOMOTOR MELODIES (Typologies)</b></p> <p><b>11. PSYCHOMOTOR TEXTS (Typologies)</b></p> <p><b>12. WAYS OF LEARNING (TYPOLOGIES 4)</b></p> <p><b>13. DRAW A GEOMETRIC FIGURE (Typologies)</b></p> <p><b>14. NAMES/OBJECTS (Typologies)</b></p> <p><b>15. SINGING BAPNE / VOICE BAPNE</b></p> <p><b>16. FINE MOTOR SKILLS (Typologies - 7)</b></p> <p><b>17. CROSSED RHYTHM (Typologies)</b></p> <p><b>18. SPECIFIC FREE MOVEMENT (Simple/Double)</b></p> <p><b>19. ETHNOMUSICOLOGY (Movement in different cultures)</b></p> <p><b>20. ASYMMETRICAL RHYTHMS</b></p> <p><b>21. VERSATILE MOVEMENT (POLYVALENT MOVEMENT) - Typologies</b></p> <p><b>22. WORDS &amp; NUMBERS &amp; CLAP (Typologies)</b></p> <p><b>23. BODYLINGUISTICS (Typologies)</b></p> <p><b>24. HANDS BALL CHANGE (Typologies)</b></p> <p><b>25. AFRICAN MUSIC MOTOR CONTROL (Typologies)</b></p> <p><b>26. BAPNEPERCUSSION (Typologies)</b></p> <p><b>27. BODYPERCUSSION TECHNIQUE</b></p> <p><b>28. STRETCHING</b></p> <p><b>29. NEUROMETRICITY</b></p> <p><b>30. LOGBOOK</b></p> <p><b>31. HANDS MEASURE</b></p> <p><b>32. ORGANIZATION CHART</b></p> <p><b>33. ORGANIZATION AND GROUP MANAGEMENT</b></p> <p><b>34. COGNITIVE SOLFAGE (Typologies)</b></p> <p><b>35. BAPNE FIT (Typologies)</b></p>	<p><b>Attention</b></p> <ul style="list-style-type: none"> <li>- Concentration</li> <li>- Planning</li> <li>- Reasoning</li> <li>- Working Memory</li> <li>- Inhibition</li> <li>- Impulse control</li> <li>- Decision making</li> <li>- Problem solving</li> <li>- Task Flexibility</li> <li>- Executive Functions</li> <li>- Laterality</li> <li>- Dissociation</li> <li>- Fine motor Skills</li> <li>- Gross motor Skills</li> <li>- Multiple Intelligences</li> <li>- Learning theories</li> <li>- Body &amp; Social Psychology</li> <li>- Proprioception System</li> <li>- Vestibular System</li> <li>- Improvisation</li> <li>- Brain &amp; Motor Control (Libet, Brass y Haggard...)</li> </ul>
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**Fig.4.** BAPNE Glossary

Under this activity protocol, an evaluation with a control and experimental group for several weeks with validated motivation tests can be proposed for the future.

### 3. Conclusion

By way of conclusion, we can argue that dual task work where we involve both a motor task with a cognitive task can help cognitive stimulation following the latest neurological publications [11-14].

The purpose of the Bapne method is to implement practical and novel resources along these lines, with the aim of providing all practitioners with as many practical tools as possible. The Bapne method, since its inception, has always focused on providing resources for possible cognitive stimulation, based on the dual task where the lower limbs perform a very different task to the upper limbs while implementing arithmetic or other tasks at a cognitive level. To do this, we rely on musical structures to have the correct sequencing and above all does not generate frustration learning.

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