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## MOVEMENT ANALYSIS ON THE PHILIPPINE KAPAMPANGAN CREATIVE FOLK DANCE MANGAMARU

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### ABSTRACT

*The research was aimed to describe the actual dance movements of Mangamaru through types of human muscle contractions, muscles producing the movement, range of movements, joints, planes and axis of the human body in which the movement occurs. The results of the study revealed that the prominent steps in the Philippine creative local folk dance Mangamaru are the chain steps, crawling, digging, jumping, leaping, stomping and wiggling. The types of muscle contractions, muscles producing the movement, range of movements, joints, planes and axis of the human body that in the dance are in the normal human range of motion, which are safe to perform and less injury prone to execute. Also, as analyzed, the movements in the dance may improve the health and skill related fitness of the performers. Thus, the creative local folk dance Mangamaru is a viable dance that may promote the health and skill related fitness of the performers.*

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**Keywords:** Philippine, Kapampangan, Mangamaru, Dance, Health and Skill Related Fitness.

### Introduction

Scholarly studies explore dance from many points of view. They may focus on the historical development of a dance form, examine the context in which a particular dance event occurs, explore the background of those who dance and how this relates to social structure, or explore the movement process itself - the dancing. While all approaches to the study of dance provide potentially meaningful data and insights relating to the role of dance in its socio-cultural context, the heart of the dance is the movement (Bartenieff et al., 1984)

All the types of dancing provide the ways in which one can gain a healthy life, one is folk dance. The Philippines is very rich in folk dances found in every group of people in the different regions of the country where traditions, customs and culture may be traced and preserved. One creative folkdance which shows the custom and culture of the locality of Pampanga is Mangamaru. According to Santos (2010), "Mangamaru" is a creative occupational Kapampangan dance that depicts the lively manner of catching "kamaru" (mole cricket) and are then cooked as it is considered as one of the favorite exotic dish of Pampanga.

The very agile movements in the dance represent the excitement and challenge a mole cricket catcher feels while running after the elusive "kamaru". The kamaru tunnels into the soil using its enlarged forelegs. It feeds on seeds resulting in loss of plant stand or poor crop stands.

Dance as a communicative bodily movement can also be analyzed not only in terms of characters or imageries portrayed within the presentation or dance routine, but also in terms of how we approach dance as a form of physical activity promoting our skill and health related fitness. Rodman (2012) mentioned that most non traumatic athletic injuries are due to the repetitive overuse and strain of synergistic muscles asked to perform a task they cannot tolerate for prolonged periods of time. Functional movement testing identifies movement compensations so a plan can be developed to correct them and avoid musculoskeletal injuries.

The purpose of this study is to examine the created dance movements of Mangamaru to ensure that it will not inflict pain and injuries to the performers, rather it will promote development in skill and health related fitness of the individual. The study could also aid future dance researchers, teachers and

choreographers in analyzing their own dances without the use of expensive equipment and laboratory thus making their dances beneficial to their performers.

### Methods

The study is descriptive in nature since it aimed to describe and analyze the nature and movements of Mangamaru in relation to its potential benefit to the health and skill related fitness. The researchers adopted the movement analysis method similar to that of MacKenzie (2007). Detailed analysis of movement is a complex activity requiring sophisticated equipment. However, according to MacKenzie (2007) basic analysis of movement can be done visually and should involve the following:

- A description of the actual movements which occur at the joints involved
- The plane(s) in which the movement occurs
- The muscles producing the movement
- The function of the muscles involved (agonists, antagonists, synergists & fixators)
- The type of contraction (isotonic - concentric or eccentric, isometric)
- The range of the muscle action (inner, middle, outer)

### Results and Discussion

#### Movement Analysis of the Kapampangan Dance Mangamaru

##### *Analysis of Wiggling*

Table 1 shows the movement analysis of wiggling. As shown in the table, most actions are rotational in the transverse plane and longitudinal axis and the three joints concerned are the shoulders, elbows, and wrist. Muscular contractions involved in wiggling are isometric, concentric, and eccentric. The range of muscular action of the agonist muscles includes inner, middle, and outer parts of the muscle.

##### *Analysis of Chain Steps*

Table 2 shows the movement analysis of chain steps. As shown in the table, the action takes place in a sagittal plane about a transverse axis and involves the hip, knee and ankle joints. Muscular contractions involved in chain steps are concentric and eccentric. The range of muscular action of the agonist muscles includes inner, middle, and outer parts of the muscle.

##### *Analysis of Digging*

Table 3 shows the movement analysis of digging. As shown in the table, the arm action in digging is one that takes place in a lateral plane about a frontal axis and the three joints included are elbows, wrists, knees, and trunk. Muscular contractions involved in digging are isometric, concentric, and eccentric. The range of muscular action of the agonist muscles includes inner, middle, and outer parts of the muscle.

##### *Analysis of Jump and Turn in the Air*

Table 4 shows the movement analysis of jump and turn in the air. As shown in the table, most actions are rotational in the transverse plane and longitudinal axis and the three joints concerned are the neck, hips, and knees. Muscular contractions involved in jumping and turning are concentric and eccentric. The range of muscular action of the agonist muscles includes inner, middle, and outer parts of the muscle.

##### *Analysis of Stomping*

Table 5 shows the movement analysis of stomping. As shown in the table, the action in stomping takes place in a lateral plane about a frontal axis and involves the hip, knee and ankle joints. Muscular contractions involved in stomping are concentric and eccentric. The range of muscular action of the agonist muscles includes inner, middle, and outer parts of the muscle.

##### *Analysis of Leaping*

Table 6 shows the movement analysis of leaping. As shown in the table, the action in

stomping takes place in a lateral plane about a frontal axis and involves the hip, knee and ankle joints. Muscular contractions involved in stomping are concentric and eccentric. The range of muscular action of the agonist muscles includes inner, middle, and outer parts of the muscle.

**Analysis of Crawling**

Table 7 shows the movement analysis of crawling. As shown in the table, the action in crawling takes place in a sagittal plane about a transverse axis and involves the spinal, shoulder and knee joints. Muscular contractions involved in crawling are isometric, concentric and eccentric. The range of muscular action of the agonist muscles includes inner, middle, and outer parts of the muscle.

Table 1: Movement analysis of wiggling.

Joints Involved	Articulating Bones	Action	Agonist Muscle	Physical Fitness	Physical Fitness
				Component	Effects
Shoulder	Scapula	Elevation and Outward	Posterior Deltoids	Muscular	Health Related
		Medial Rotation		Endurance	Fitness
Elbow	Humerus	Flexion and	Triceps	Muscular	Health Related
		Pronation		Endurance	Fitness
Wrist	Carpals	Flexion and	Flexor Carpi	Muscular	Health Related
		Adduction		Endurance	Fitness

Table 2: Movement analysis of chain steps.

Joints Involved	Articulating Bones	Action	Agonist Muscle	Physical Fitness	Physical Fitness
				Component	Effects
Hip	Femur	Lateral Rotation	Gluteus Maximus, Semitendinosus	Muscular	Health Related
		and Abduction		Strength	Fitness
Knee	Patella	Flexion and	Quadriceps	Muscular	Health Related
		Extension		Strength	Fitness
Ankle	Talus and	Eversion and Inversion	Gastrocnemius and Soleus	Muscular	Health Related
	Calcaneus			Strength	Fitness

Table 3. Movement analysis of digging.

Joints Involved	Articulating Bones	Action	Agonist Muscle	Physical Fitness	Physical Fitness
				Component	Effects
Elbow	Ulna and	Pronation and Flexion	Flexor Carpi Radialis	Muscular	Health Related
	Radius			Strength	Fitness
	Humerus	Flexion	Triceps	Muscular	Health Related
Wrist	Carpals	Flexion and	Lubrical	Muscular	Health Related
		Adduction		Strength	Fitness
Knee	Femur, Patella,	Flexion	Rectus Femoris	Balance and	Skill Related
	Fibula and Tibia			Coordination	Fitness
Trunk			External	Muscular	Health Related
			Oblique	Endurance	Fitness

Table 4: Movement analysis of jump and turn in the air.

Joints Involved	Articulating Bones	Action	Agonist Muscle	Physical Fitness	Physical Fitness
				Component	Effects
Neck	Cervical Vertebrae	Rotation	Sternocleidomastoid	Flexibility	Health Related Fitness
Hip	Pelvis	Abduction	Gluteus Maximus	Power	Skill Related Fitness
Knee	Femur, Patella, and Tibia	Flexion	Rectus Femoris	Balance and Coordination	Skill Related Fitness

Table 5: Movement analysis of chain steps

Joints Involved	Articulating Bones	Action	Agonist Muscle	Physical Fitness	Physical Fitness
				Component	Effects
Hip	Pelvis	Flexion	Gluteus Maximus	Power	Skill Related Fitness
Knee	Femur, Patella, and Fibula	Flexion Extension	Quadriceps	Power	Skill Related Fitness
Ankle	Talus and Calcaneus	Dorsi Flexion	Tibialis Anterior Gastrocnemius	Muscular Strength	Health Related Fitness

Table 6: Movement analysis of leaping.

Joints Involved	Articulating Bones	Action	Agonist Muscle	Physical Fitness	Physical Fitness
				Component	Effects
Hip	Pelvis	Flexion	Gluteus Maximus	Speed	Skill Related Fitness
Knee	Femur, Patella, and Fibula	Flexion Extension	Biceps Femoris Seminembranosus	Balance	Skill Related Fitness
Ankle	Talus and Calcaneus	Dorsi and Plantar Flexion	Gastrocnemius	Muscular Strength	Health Related Fitness

Table 7. Movement analysis of crawling.

Joints Involved	Articulating Bones	Action	Agonist Muscle	Physical Fitness	Physical Fitness
				Component	Effects
Spinal Column	Vertebrae	Flexion	Latissimus Dorsi Trapezius	Muscular Endurance	Health Related Fitness
Shoulder	Clavicle and Scapula	Flexion	Pectoralis Major	Muscular Strength	Health Related Fitness
Knee	Patella	Flexion	Rectus Femoris	Muscular Endurance	Health Related Fitness

### Conclusion

The prominent steps in the Philippine local dance Mangamaru are the chain steps, crawling, digging, jumping, leaping, stomping and wiggling. The types of muscle contractions, muscles producing the movement, range of movements, joints, planes and axis of the human body that were analyzed are in the normal human range of

motion. This means that the movements are safe to perform and less injury prone to the dancers. Furthermore, as analyzed, the movements in the dance may improve the health and skill related fitness of the performers. Thus, the local dance Mangamaru is a viable dance that may promote the health and skill related fitness of the performers.

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