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Kardía: A Choreographic Investigation Utilizing the Human Heart

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Kardía: A Choreographic Investigation Utilizing the Human Heart

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Kardía: A Choreographic Investigation Utilizing the Human Heart

Abstract

The research project, *Kardía; A Choreographic Investigation Utilizing the Human Heart*, examined how findings regarding the study of the heart influences and expands choreographic options for and approaches to dance as a work of art. The heart is a unique and intricate organ that helps sustain life within a human body. Examined for this project were the structure, actions and functions of the human heart. This data informed and inspired the concepts that were applied to my choreography, culminating in the presentation of my original work entitled *Kardía; The Quietest Voice*. The creative process I used for this project provided me with the necessary circumstances and strategies to investigate how I could implement a research-based approach to my composition of movements. By using this new choreographic method as a way of generating movements, I was able to create a strong visually appealing dance that expanded my breathe as an artist.

Introduction

Over the past two years I have lost both of my grandfathers. Loss is a hard concept to comprehend and it leaves many unanswered questions. However, I did not want loss to be an influential aspect of my piece, but rather life. Life is a great gift that can either be embraced or let drift away through the choices made or not made every day. The human heart provides each individual with the opportunities to make those decisions. Martha Graham a famous dancer and choreographer referred to as the “Mother of Modern Dance,” says,

“There is a vitality, a life force, a quickening that is translated through you into action, and because there is only one of you in all time, this expression is unique. And if you block it, it will never exist through any other medium and be lost. The world will not have it. It is not your business to determine how good it is, nor how valuable it is, nor how it compares with other expressions. It is your business to keep it yours clearly and directly, to keep the channel open (DeMille, 1982).”

Dance is one of many avenues that can be used to express this unique vitality. It allows for the communication of something that is solely our own and in addition unites multitudes. With this project, I wanted to challenge myself to create a piece that allowed me to integrate this idea of life and the science surrounding it with the creation of my movement. I was interested in how I could use my research findings to generate the dance vocabulary and related qualities that I would use to create choreography I could share with those around me. Once I started to conduct my research, I found that I was able to discover inspiration for my movements from a place of admiration of the beauty in which the structure, actions and proper functions of the heart serve as a profound sustenance for human life.

The Work: *Kardía; The Quietest Voice*

Kardía; The Quietest Voice is a twelve-minute trio performed by myself and two female college dance students. Within the piece, each dancer is featured in solo passages interspersed throughout the ensemble work. A video of the piece can be found on YouTube using this link: <https://youtu.be/wzW0-Q7AHuY>. The premiere of the completed work was presented during The University of Akron's Spring Into Dance Concert on April 25, 2019 at Daum Theatre in Kolbe Hall. Spring Into Dance is a student directed dance concert that showcases choreographic works created and performed by undergraduates. This opportunity provides developing dancers and choreographers with an avenue to build their portfolio before graduation.

The title of the piece, "*Kardía; The Quietest Voice*," was chosen to mutually reflect the physical and artistic aspects of the project. The term "Kardía" is a direct Greek translation for the word heart (Russell, 2012). According to the Strong's Concordance, Kardía is defined in Greek as, "the affective center of our being' and the capacity of moral preference; 'desire-producer that makes us tick,' i.e. our 'desire-decisions' that establish who we really are (Russell, 2012).'" Nowhere in this definition is the heart referred to as the "hollow muscular organ of vertebrate animals that by its rhythmic contraction acts as a force pump maintaining the circulation of the blood (Heart, 2019)." Both of these definition are accurate even though they appear to be defining two different perceptions surrounding the heart. Through the use of just one word, the title is able to represent more than any one definition can communicate. The second part of the title, "The Quietest Voice," brings to attention the ability for the heart to be heard from infancy to death. "Heart sounds provide valuable information about the mechanical operation of the heart (Tortora, 2016)." By listening to the heart, medical professionals can detect certain illnesses within the body. The heart is not a silent function of the body, but rather a vocal participant who

is not always heard but can provide precious insights when listened to. The title of the work is further meaningful because the combination of these phrases accurately represents the physical research that created the steps within the piece, and the artistic context that surrounds the heart of a person.

The production elements of the piece included the lighting, music and costumes. The lighting for the piece was designed by Christopher Ha, a University of Akron student and a professional stage manager for local dance companies. During the twelve minutes the dancers are on stage, they are lit using specials and contrasting light patterns to highlight key moments within the choreography. As a part of the production process, I also provided Christopher with images of the cardiac muscle to use as an influence on his lighting design specifically for the culminating solo of the piece (See Appendix, Image 1). The music score that accompanies the piece is comprised of a medley of compositions by the artist Olafur Arnalds as well as a recited poem by Edward Cummings and spoken text written by Chad Gleaves. “I Carry Your Heart With Me” is recited twice during the duration of the piece. The narrator during the first presentation of the poem is Edwards and the second time the poem is heard it is spoken by a female. Within this poem, Edwards Cummings addresses the love the narrator has for a person and how he carries that love with him in everything he does and where ever he goes (Cummings, 1952). The text of this poem talks about the heart, but in a more passionate “heartfelt,” emotional manner (See Appendix, Image 2). By communicating the same poem with two different narrators, I hoped to represent how the facts encompassing a heart physically and figuratively do not change based on gender. With that in mind, I also chose to insert a spoken text by Chad Gleaves of a child talking to her mother about the sound of her heart beating (see Appendix, Image 3). I wanted the varying ages of the vocalist to show that age was also not a determining factor when it comes to the

heart. To tie the spoken poem, spoken word and the music compositions together, I interlaced an underlying heart beat that softly appeared throughout the course of the dance. The sound of the heart beat alone bookends the piece to illustrate the repeating cycles that take place within the heart. Because I did not want my motivations to come directly from my music choices, I selected the music after I had created my initial movement vocabulary. The costumes for the piece were black shorts with off-white thin strapped shirts and tan socks. I wanted the costumes to be as minimal as possible in order to become a canvas of sort that highlighted the lines of the dancers and the texture of the movements. These three aspects of the production effectively framed my artistic interpretation of my research.

Research

My research started by targeting the general information surrounding the heart. “The cardiovascular system is one of the first systems to form in an embryo, and the heart is the first functional organ (Tortora, pg 719, 2016).” The development of the heart begins about eighteen days after fertilization and takes about twenty eight days to be completed (Tortora, 2016). This developmental process can be broken up into six stages that slowly merges two endocardial tubes together and eventually forms what is known as the heart.

The human body has three major types of muscular tissues identified as skeletal, cardiac and smooth muscle (Tortora, 2016). These three muscle types all provide a different benefit for the proper function of the human body. Within the heart there are three different muscle layers (Tortora, 2016). “The mature heart may be thought of as consisting of three layers, endocardium, myocardium, and an outer investing tissue called the epicardium (How, 2017).” The main

muscle tissue that forms these layers of the heart is cardiac muscle and it is the only muscle fiber found within the heart (Tortora, 2016). Under the microscope, cardiac muscle fibers can be described as “branched cylindrical fibers with one centrally located nucleus (Tortora, pg 321, 2016).” The fibers contain alternating light and dark bands of protein filaments called actin and myosin that cause what is referred to as striations within the muscle (Tortora, 2016). Cardiac muscles as well as skeletal muscles are both known as part of the striated muscle group even though they perform different functions within the body overall (Shadrin, 2016). “Striated muscles are highly organized tissues that convert chemical energy to physical work. (Shadrin, 2016).” This is represented in the heart’s use of the energy as a way to propel the blood through the body.

Along with cardiac muscle tissue, the walls of the heart include a dense connective tissue that prevents the heart from overstretching (Tortora, 2016). This connective tissue provides the heart a structural framework by encircling the valves and cavities of the heart starting as early as the embryonic development (Lie-Venema, 2008). Because of this supportive attribute, the connective tissue is often described as “the fibrous skeleton of the heart (Tortora, p.g. 696, 2016).” By having this fibrous skeleton, the body has put in place a safety net to help protect the heart from over expanding and tearing like other muscles within the body.

The heart is a fairly small organ within the human body. It is “roughly the same size as your closed fist (Tortora, pg 689, 2016).” Despite the size of this organ, the heart continuously beats throughout the life span of a human. “The heart beats about 1000,000 times every day, which adds up to about 35 million beats a year, and approximately 2.5 billion times in an average lifetime (Tortora, pg 689, 2016).” The actual action of the heart beating is caused by a contraction within the cardiac muscle (Tortora, 2016). The cardiac muscle contraction gains its

electrical initiation from its cardiac muscle fibers called autorhythmic fibers (Tortora, 2016).

These fibers are what make the heart “self-excitabile” causing the involuntary contractions of the heart which pump the blood through the body (Tortora 2016).

“Under normal resting conditions, cardiac muscle tissue contracts and relaxes about 75 times a minute (Tortora, pg 318, 2016).” These contractions are triggered by an initial electrical excitation from the sinoatrial node (Tortora, 2016). From there the action potential is sent along the muscle fibers to the atrioventricular node which then enters the atrioventricular bundle transferring into the Purkinje fibers (Tortora, 2016). The sinoatrial node acts as a pacemaker setting the rhythm of the heartbeat because without the sinoatrial node, the atrioventricular node would trigger around 100 times per minute (Tortora, 2016).

During each of these muscle contractions, the actin and myosin proteins within the muscle fiber work together to cause the physical engagement of the muscle (Tortora, 2016). More specifically, the myosin heads attach to the actin filaments and then pull the actin towards the center of the muscle fiber. As a result, the actin on both sides of the muscle fiber slide inward and meeting or even overlapping at the center (Tortora, 2016). One vital element within this reaction process is calcium. “The cardiac muscle contraction is triggered by calcium binding to troponin (Inchingolo, 2019).” Only after the calcium binds with troponin can the tropomyosin move away from the binding spot for the myosin to bind to the actin (Inchingolo, 2019).

The heart is an “organ of the cardiovascular system responsible for pumping blood throughout the body (Tortora, 2016).” Because of the heart, oxygen rich blood is driven through the entire body in order to maintain life (How, 2017). The heart “pumps more than 14,000 liters of blood in a day,” and does not rest when the body is sleeping (Tortora, 2016). All living organisms require oxygen in order to sustain life and by propelling oxygen rich blood to the body

through arteries such as the main artery called the aorta, the heart is doing its part in maintaining its vessel (Tortora, 2016).

Choreographic Process- Putting Research to Movement

To create this piece, I formulated three core phrases derived from the information I had gathered. From there, I used those three phrases as a vocabulary bank to pull from to create the other sections within the piece. This approach allowed me to generate steps based on my research without having to dilute the dance with too many movement phrases. I was also able to stimulate the work through my research by using research insights I had explored to organize how I structured the sections in addition to the content within them.

As I started to learn about the cardiac muscle, I was enthralled with the image of the muscle. The relationship between the striations and the nucleuses enticed me to focus on the image of the muscle fibers. The first phrase I produced was motivated by the cardiac muscle. I wanted this phrase to focus on the appearance of the cardiac muscle to see how I could use my body to depict the image (See Appendix, Image 4). With this in mind, I looked at the image of the cardiac muscle and then used my artistic interpretation to create steps that correlated with the fact I had learned about within the image of the cardiac muscle. For example, some of the details I wanted to represent with a movement were the striations and nucleuses of the muscle. There are multiple striations within the muscles so I scooped my arm out in front of me while pulling them back towards me to try and grab as many imaginary striations as possible. I then reached my hand stretched out in a stop position to represent the dark circle or nucleus within the muscle fiber.

My next phrase addressed the function of the actin and myosin within the muscle contraction. While learning about this function of the cardiac muscle, I was drawn in by the visualization of the actin and myosin within the muscle contraction. As explained earlier, cardiac muscles contract by sliding the actin over the myosin to shorten the muscle fiber. The shortening of the muscle fiber happens once the myosin head binds to the actin and triggers the power stroke or the contraction of the heart. With the construction of this phrase, I wanted to show the sliding action of the actin and myosin, as well as the attaching of the myosin heads. Both of these concepts left visceral images in my head that I wanted to put into movement. One way I displayed these images with movement was to latch my hands together to create an opposition between my arms before I engage the power stroke (See Appendix, Image 5). I also explored how I could use my body to create lines that would shorten and lengthen to represent the sliding of the filaments.

In the last phrase, I used a somewhat different approach to formulating the movement content. As previously explained, calcium is a very important factor in the ability for the muscle contraction to take place. Before researching the heart, I would have never thought about calcium as a factor in the muscle contraction. This information made a lasting impact on perception of the heart contraction, but I was having a hard time figuring out how to use calcium to create movement. I did not want my movement to be completely random, so I decided to use my body and the movement of my body to physically spell out the word calcium. I broke this exercise up into three sections, each time spelling the entire word calcium. The first time, I spelled calcium with movements that traveled me across the room. After that, I tried to use movements that would never allowed my body to come completely off of the floor and the third time I only used my upper body to spell the word. By using this approach, I was forced to go outside of my

regular movement quality and genre to create a unique movement vocabulary specific to this work.

These three phrases became the sequence of steps I pulled from to complete the work. I allowed myself to gather a variety of steps from this collection that I felt fit together for specific sections. I also repeated sequences throughout the work to create a harmony among all of the segments within the work. To create a culmination of the piece, I coupled all three of the phrases in their entirety together to form a final solo before the last section. This climaxing solo united the sections and allowed the soloist to present all the phrases that had fashioned the work. By approaching the movements this way, I felt as if I was able to draw a line within the work from start to finish.

Along with the use of the three phrases, I also used two overlaying concepts to structure the formation of the piece. The first notion was the way the sinoatrial node triggers the heart beat and the pumping of blood through the body. The sinoatrial node is vital for the initiation of the heartbeat, but its size is minute in comparison to its importance. I found beauty in this differentiation in size. I wanted to show how something so small but precise could cause something so beautiful. During the second sections of the piece, I used one dancer to represent the sinoatrial node. She would dance a minimal section of movement that would act as a trigger for the other two dancers to walk through pathways as if they were the blood being pumped through the heart and into the body (See Appendix, Image 6). As the soloist would complete her movement phrase and return to her starting location on the stage, the other two dancers would finish their pathway and switch routes just as the soloist started another section of movement. For me, this reflected how the oxygen rich blood and the oxygen poor blood are activated by the sinoatrial node to circulate through the veins and arteries of the body.

The next overarching concept I used to influence the structure of this piece pertained to the heart's cyclical nature. "Events in the heart occur in cycles that repeat for as long as you live (Tortora, pg 708, 2016)." When I began to engulf myself in the researching of the human heart, I was very intrigued with how the heart completed so many of its actions in sequences. I found myself looking at the beauty of the precision and accuracy of each cycle. I wanted to see how I could reflect that beauty in my movement. From here, I experimented with how I could use this idea as an over laying motif throughout my piece. I investigated how I was able to use the same sequencing of steps with different tempo patterns and rhythm arrangements in order to frame it in another manner during each section. In the beginning of the piece, a solo was performed and was then repeated as an ensemble by all three dancers towards the end of the piece to different music. Another cycle within the composition was the starting and ending eight counts. The piece started with a dancer stepping out into a pool of light as the sound of a heart beating reverberated through the speakers. This image was referenced at the close of the piece when another dancer stepped out into the same pool of light while the heart beat began again in the distance. As a choreographer, I found that this use of repeating cycles helped me create a stronger sense of cohesiveness throughout the work.

Reflection

As a choreographer, the progress of creating this piece stretched me further than I had initially expected. I feel that it is up to the individual artist to find their source of inspiration and then share this inspiration with others. However, at the beginning of this process, I found myself struggling to gain the creativity I desired from my research results. Once I organized my findings to target more specific concepts relating to the heart, I was able to visualize the ideas I was

aiming to use for the inspiration relating to my core phrases. However, even with these phrases fashioned, I did not feel that I was going to be able to find the artistic inspiration I was looking for within this movement vocabulary. Pushing these hesitations aside, I began to create sections by pulling from the movement vocabulary of the core phrases. Out of this approach came a sense of coherence between the sections within the piece.

My primary goal for this project was to find a way to use my research to fuel my creativity. As I explored this strategy, I felt as if there were so many unique avenues of completing this task that I was not able to explore completely. I hope that in the future I will be able to continue my exploration of this approach to movement creation with other research concepts.

Before I started this project, my personal approach to choreography had always been centered on an emotional inspiration that I would then allow to influence my stream of consciousness as it pertained to my movements. I would often create a specific story line that my movements would follow along the journey from start to finish. To transition from this sensation driven approach to a research driven approach proved to be very challenging as an artist, but exceptionally rewarding. The research-based approach I used during this project forced me to create movement based on a specific set of details surrounding a single concept. At first, this seemed as if it was going to diminish the flow of the composition and hinder my ability to meet my desired length. Looking back, I feel that this sense of insecurity was rooted in a longing for a driving emotional component within the piece. My uncertainty made me feel as if the piece was lacking a major element, when in actuality the piece itself created the expressive elements that allowed me to solidify the dance.

Donald Woods Winnicott, an English psychoanalyst and pediatrician, said that “Artists are driven by the tension between the desire to communicate and the desire to hide (Donald, n.d.)” The tension Winnicott speaks of is why art is not a perfect equation, but rather clay that needs to be molded. Being an artist is not limited to dance. Instead, we must find how to be an artist in every task at hand and see the beauty in all that is around us. In life, there is no formula that will guarantee success; it is mistakes and experiences that build masterpieces. Keeping this in mind, I was able to use my experiences during this process to grow as an individual and an artist. This project required me to go outside of the role of the performer and become the composer. Because I was forced to leave my comfort zone, I was able to gain a better understanding of how I can apply myself to the creative as well as the performing process and how this can in turn create a deeper meaning for the impact of my work.

Conclusion

Growing up, my mom would always tell me that life is not about waiting for the storm to pass, but rather about learning to dance in the rain. When I started this project, I had no idea where it would take me, but what I knew was that I had to find a way to dance in the rain even through the pain of losing the ones I loved. I was able to use this project as a way to both grieve and find new life in the midst of this loss. By not using my emotion surrounding my situation as the driving force behind my piece, I was able to look at the memories encompassing my grandfathers’ lives and remember them for what they gave me not what I lost.

Over the duration of this project, I, as an artist, have discovered much about myself and my choreographic process. By using research as my movement inspiration, I was able to add a

uniqueness to my movements and create a cohesiveness that could be seen throughout the length of my piece. Due to the infinite opportunities surrounding this process, I am interested in continuing to explore this type of approach to my choreography as I continue to grow my artistry. My hope is that my continued exploration of this infusion between dance and research will allow me to add a strength to the quality of my choreography as well as a depth to the impact I can have on the public. I feel that having this ability to connect the world we live in to the art that is produced and placed on stage will create a source of harmony within the community. I want to continue to investigate this relationship with the purpose of gathering a better understanding of how dance and research can create something that can carry a deeper importance.

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Appendix

Image 1

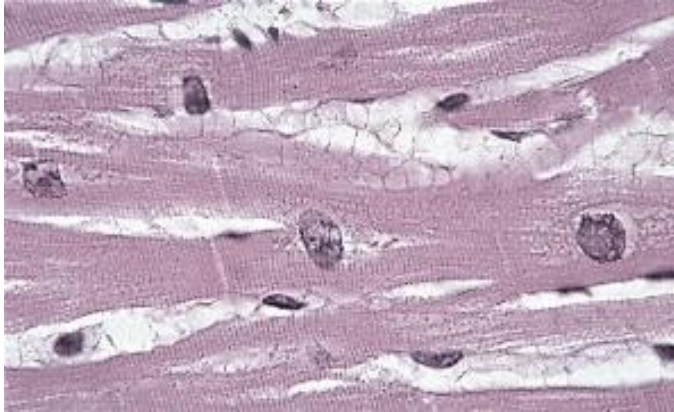


Image 2

I carry your heart with me

I carry your heart with me (I carry it in
my heart) i am never without it (anywhere
I go you go, my dear; and whatever is done
by only me is your doing, my darling)
i fear
no fate (for you are my fate, my sweet) i want
no world (for beautiful you are my world, my true)
and it's you are whatever a moon has always meant
and whatever a sun will always sing is you

here is the deepest secret nobody knows
(here is the root of the root and the bud of the bud
and the sky of the sky of a tree called life; which grows
higher than the soul can hope or mind can hide)
and this is the wonder that's keeping the stars apart

I carry your heart (I carry it in my heart)

-Edwards E. Cummings

Image 3

I want to share a secret with you.

My favorite lullaby is the sound of your heart beat.

I know its mushy,

But I look forward to holding your hand.

I love you.

-Chad Gleaves

Image 4

Cardiac

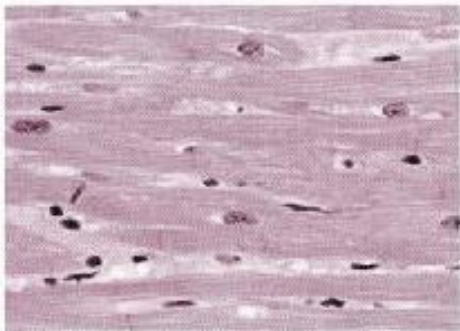


Image 5

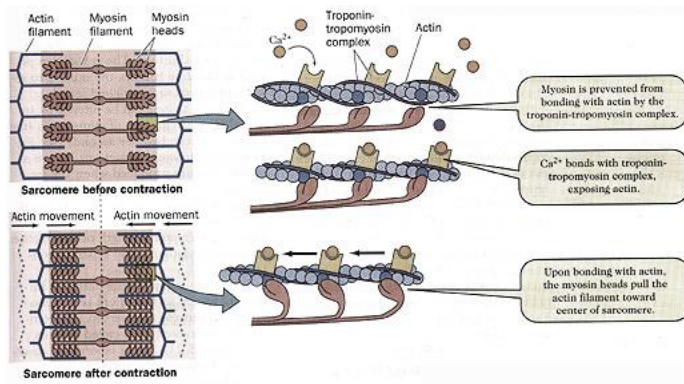


Image 6

