



The Great Ape Volleyball Tournament



Prologue: The Arrival

Walking off the bus, I gaze upon the field before me. Western Africa. A place I knew well but nothing I had seen in this light. The nets being drawn up by players, the trees blowing in the wind. This was it. The Great Ape Annual Volleyball tournament. While we were slated to be here every year, my team never actually made it. *Pan troglodytes* were always scheduled but never known to show up. We fought too much on the bus which is why Coach Carl recruited a group of *Pan paniscus*, the bonobos, to help calm us down. Surprisingly, it worked. As we all slowly grabbed out gear, amazement was written over my teammate's faces. We did it. I, Frank, finally made it to the tournament in my last year eligible before my mom would start making me scout with the other males. Our amazement, however,

was short lived as I butted into a tall, dark figure. I looked up and saw the silver sheen on the back. There's no way I just bumped in the Gary the Gorilla, the silverback and star setter of the "Grizzly Gorillas". They've never lost a tournament! He gazed down on me before bringing his hands up to his chest and beating them rapidly. My entire team scattered, including myself, as we shuffled off to a corner and held our volleyballs closely. While my team practiced, I snuffed out the fellow competition as they exited their buses. The "Outstanding Orangutans", the "Gallant Gibbons", and Gary walked back to his team. This wasn't going to be easy. Tossing, setting, leaping, spiking the ball. All these simple moves were what I needed to see to know we were about to be absolutely crushed. We were nowhere near

prepared for this. My thoughts were interrupted by Coach Carl's holler, summoning us around him as he held a sheet of white paper. The bracket. Who would we be playing first? "The Gallant Gibbons vs. the Crazy Chimpanzees" was all we needed to read before we set off. We finally made it, and we weren't ready to lose our first match.

Chapter I: The Gallant Gibbons

First, the lineup and shaking your teammates hands. Possibly the first and most obvious thing that could get us disqualified. As my team approached, I could see the fear on Bonnie the Bonobos' face. She knew that if she didn't control this situation, we would be right back on the bus home. After she kicked us around, the handshake went smoothly. I also got to size up the opponent who was smaller, stood more awkwardly, long arms which must mean they are lanky. It gave me some hope, we may move on to the second match. Putting the two weakest teams together seems smart, as whoever loses here must play the loser of the Orangutan and Gorilla match which just looked... scary on the court next to us. I placed myself in

front, middle blocker position. *P. troglodytes* in offensive positions, *P. paniscus* in defensive positions is what Coach Carl set up and the *Hylobates lar* were up first to serve. The match was on.

The whistle blew, and the *H. lar* sent us their first serve. Simple, smooth, getting the job done kind of serve. Nothing too risky or flashy so I assumed they were playing it safe and returned the ball in the same fashion. Boy was I wrong about that “playing it safe” notion. The spike in return flashed before my eyes as the *H. lar* smoothly brachiate across the trees in a flash, sending the ball back before we had any time to react. The ball hit the ground and I stood there in complete shock. The way the gibbons were able to move their arms, flexing and extending abducting and adducting them in fashions I couldn’t even

comprehend. This match wasn't going to be a free win, this was going to take effort. Before I could process anymore the next serve came quickly with the same smooth and effort, so strength wasn't their strong suit. I took the time to analyze my opponent as they moved along the trees to receive the ball, their arms. As their biceps flexed, they looked distinctly different than ours. The flow when they went to go hit it only showed movement in maybe one joint. They were monoarticular unlike us common chimpanzees, where we used many joints. They moved so differently, their muscles seeming to stretch only to their humerus rather than more towards the scapula like ours. Maybe that's why we can stand straighter? Either way they had their own flow. Even their brachioradialis is so much different, originating somewhere from the proximal part of

their radii and their ulnas and the insertion being somewhere on their metacarpals. They had less muscle mass than us if I were to estimate maybe a measly 641 grams of muscle per forelimb. Even looking at their wrists they are so complex. You never see it unless you are analyzing it in real time, but the prominence of tendons in every muscle, especially around the wrists assists them with the swinging in the trees. All the muscles in their shoulders, extensors, rotator cuff and elbow have such a high power to store the energy to send them between branches, a feat that is not easy, but they sure make it look easy. All of these are good notes for the match with the Orangutans.

I snapped out of it when the coach started yelling for line up as I looked over to the score board. “25-23”. We won?! What was I doing this

whole game, how did no one snap me out of it. How did we win? I missed everything my team was doing; I didn't even get to note our advantages! I suppose it's for the best, in case one of the "Grizzly Gorillas" picks up this journal and sees all our moves. It doesn't matter now though, next game I will be in it and play to see our victory I don't even think my eyes were on the ball once unless it was in a Gibbons hand. I looked to my right to check on the match, so far, the Gorillas were up, as expected, so I looked to my team and we all seemed to agree. We needed to prepare for our next match: the "Outstanding Orangutans".

Chapter II: The Outstanding Orangutans

While taking a lunch break, the team might have gotten a little excited and seen a few Red Colobus Monkey's in the stand. I don't want to go into detail on what happened following the rush of a win, but let's just say we were well fueled for the next match. The meal did not settle my nerves, however. Sure, the last match went great, but I was in the starting line up and I had no clue what happened last game because I was too focused on the defined arm muscles and outstanding movement of our opponents. I couldn't let it happen again. I felt the looming fear of the *Pongo abelii* staring at us from the other side of the field, sizing us up. We caught a few seconds of the match with the Gorillas and the Orangutans and the fact that

Orangutans could even hold themselves up was proof enough that we stood no chance. But I was going to give it my all in the game, no matter what. Just like the last match, Coach Carl lined us up for the handshake. This one felt different, the mass of the Orangutans arm as it shook mine. That's when the nerves came in, but I was going to lay it all on the line.

We were up first to serve. A change of pace from the last match that made me feel confident that I wouldn't get lost in the anatomy of the *P. abelii*. My teammate hit them with a powerful serve, slapping the ball with everything he had to try and throw them off. That was when I, once again, got lost in the match. The "Outstanding Orangutans" while not fast, were able to adjust with ease. When I tried to see what happened, I noticed no one moved, but extended

their arms. That's when it stood out to me, their arms are so long! What was it about those arms that were able to receive a ball with that much ease, power, and control? They are arboreal just like gibbons, but while the gibbons found their power in their strides among the trees, the orangutans can get that power without the trees. Is that maybe from their size. I began looking at their structure. Obviously, their arms were so much longer than ours.

Anyone who has looked at an Orangutan and a Common Chimpanzee can tell the arm length difference, about an eight-to-ten-centimeter difference to be exact. With that, I began deducing what could be the source of their strength. Could the extra length make a substantial muscle difference? Well, they too are brachiators, like the *Hylobates lar* so how much more muscle weight could

they possibly carry on their arms and maintain efficiency in locomotion? I think Coach Carl saw me zoning out and swapped me off the court and onto the bench, but I wasn't mad I was in the middle of staring down my opponent's arm muscles. I started with the shoulder joint, seeing how much definition there could clue me in to how much power goes behind their swing. Whenever they moved their arms away from their body, their shoulder protractors stood out defined, way more than mine. One point Orangutan. Their back, however, seemed less defined than mine. One point Chimp. I moved down towards the elbows, with the biceps and brachioradialis and elbow where I noticed the most differences with the Gibbons. I was curious if these adaptations carried over and if my team could use that to their advantage.

Again, when they were going for the ball I saw the biceps, brachioradialis and muscles of the elbow joint flex their muscles showed extreme definition. Brachiation gave them such strength in their arms and forearms and such an advantage in muscle mass against us. Two points Orangutans, they way outcompete us in muscle mass of their arm muscles. In *P. abelii* however, their wrists and fingers also contributed to the power, they have strong and complex muscles of their own to carry weight and grab something tightly with one hand while the other side of the body and launch itself. Three points Orangutans.

The whistle blew and while I accepted defeat fully, the scoreboard said otherwise. 32-30. We won again! I missed. Everything. My team did. Again. I'm such an awful teammate. I couldn't dwell on it though, it was 2

hours until the final match. The “Grizzly Gorillas” versus the “Crazy Chimpanzees” a match no one saw coming. We made it this far and I’m ready to fight with everything I have. It will not be easy, but nothing has been. It’s time to destroy Gary and the Gorillas.

Chapter III: The Grizzly Gorillas

Normally after you win there's this rush. This confidence that you could do anything right now and the team is riled up and crazy. I can confidently say right now that my team is none of the above. We are huddling in a corner because Gary is dragged a chunk of a tree across his side of the court. Why are we the "Crazy Chimpanzees". Gary is the crazy one. Coach says line up needs to happen, but all the *Gorilla gorilla* players are beating their chests at us how is that supposed to be inviting to handshake. Our captain, however, began flashing his teeth at Gary and running around. A way to encourage us to be strong. Looking at my team, we knew it was time. The final round and this time we are playing the champions, it's all or nothing. We are facing off with our

neighbors. The whistle blew, our serve first. The game was on.

I know what you're expecting from this journal entry. I say something like "oh there's NO way I'm getting distracted I'm NOT looking at the muscle structure in my opponents' arms". I know myself better than that now. I was on the bench with the coach for this round, but for a good reason. I decided to use my inquiry of our opponents to an advantage. Analyze the *G. gorilla* structure, analyze our structure and then give my team tips on how to play with advantage against the Gorillas. That's right, I was finally going to see what my team was able to do to win and make it make sense. The first serve was sent from my team, and I watched how the Gorillas received. Unlike our previous opponents, Gorillas were not arboreal. They had

no advantage of swinging through the trees and slamming balls down on us, so I had to see their terrestrial work. Gorillas are knuckle-walkers, pure arboreal knuckle-walkers which is like our locomotion. Our first advantage is that we are more mobile with bipedalism and a little bit of arborealism we can play around with that in our match to throw them off. I noticed with the first hit back from the gorillas, this wasn't a game of having to receive quick returns from our opponents, but to be able to withstand the power of the ball when it smacks against your arms. As Gary swung for the ball, his shoulder and back muscles really showed off. You could have told me that Gary's deltoids were the weight of a Pygmy Marmoset and I would've said no it would be roughly five he could squeeze in there. The *G. gorillas* were able to raise their arms

and smack the ball with the power you could get from swinging through the air without having brachiate. So, was that their power, was the shoulder and back where the Gorillas held their power? I looked towards their clavicle, acromion and the supraspinatus and infraspinatus for more information. Obviously, all their muscles were huge in both mass and length that was unquestionable but in terms of movement, what could they do because of this muscle? Their deltoid relationship with their clavicle seems to assist them in pulling their humerus upward in an abducting fashion, along with their infraspinatus. Their acromion, however, seemed to do most of the work when pulling their humerus back to their body in an adducting fashion. However, there was a limit to how far they could move, and even if it's a little bit their range of

motion is slightly lower than my teams and that's a small advantage we will need to take. The game was in the Gorillas favor right now, but we were holding out ground strong, and it was time for me to get in there and use my knowledge for the best.

Now, it was time to play. No more staring at the bulging muscles of my opponents, but to focus on how my own muscles were working in tandem to help my team soar to victory. Coach put me in, and I looked at the score board. "16-12". We had a chance to come back, being 4 points behind is still recoverable if your team can take the pace. That is what the "Crazy Chimpanzees" do best. We an advantage not in being more muscular than our opponents in this match, but having our own power. Us *Pan troglodytes* have a high ratio of fast-twitch muscle fibres that allow us to

burst insane amounts of strength into a throw. And while the Gorillas can stand and raise their arms above their head, they are slower when they do that. They are powerful but slower on the court. We are powerful and quick. With that, it was my time to serve. As I went to set up my serve, I squeezed my shoulder blades together and felt the mass of muscles in my body involved in shoulder retraction. That power stored in those muscles pushed us through the orangutans as we were stronger than them. As I rotated my shoulder, I felt the muscles move, like any of our opponents, we are strong too. We have our own muscles. And we have the power. I threw the ball up in the air and released every fast-twitch fibre in my muscles and sent the ball soaring, too fast and powerful for the gorillas to react. And that was what started the roll of points coming in for

us. When the gorillas would retrieve the ball my teammates would use their biarticular elbow flexors with an insane ratio of muscle to send the ball right back on the ground. While we were not the most proficient in swinging among the trees, in being scary terrestrial figures we were diverse. We were capable of many things in the sport of volleyball due to our musculature and strength. We were able to stand our ground and send the ball flying back every time.

We did not win against the *G. gorillas*. Gary decided it would be funny to drag the log around us during a time out and the *P. paniscus* really didn't recover from that one. Without mediation we kind of lost our cool. We lost 28-20.

Epilogue

As we boarded the bus, and I looked through this journal I couldn't help but laugh at the fact that I thought of myself and my team as losers. We went from never being able to survive the bus ride over to the tournament to being able to stand our ground against every single team. Except... for the Gorillas but that's a unique circumstance. Anyways, it was a day of winners. Were our forearms, hands, and wrists as dense with muscle as the *Hylobates lar* and *Pongo abelii*? Absolutely not, they spend their whole lives in the trees. Were we as looming or scary as the *Gorilla gorillas* in sheer size, showing off our extreme power and muscle by just sitting on the ground? No, that's why Gary could scare off all the *Pan paniscus*. But we were strong, powerful, and full of muscles. We could hit the ball the

hardest out of all the opponents with our fast-twitch fibres. We could send a set up into space with our musculature in our back and shoulders. And, we have enough muscles in our hands to use real tools, so we don't need to show off in volleyball. We can show off with our extreme dexterity and eat our termites too. "The Crazy Chimpanzees" will be back next year, with a vengeance.

