



# SENIOR CAPSTONE

## PROCESS DOCUMENTATION

### PROJECT STATEMENT

The rapidly growing esports industry has left us in a place never seen before- one where young players are facing serious hand issues due to long hours, improper stretching, and overuse. To combat this, awareness needs to be brought to the issue, because solutions do exist.

My senior capstone seeks to add a resource that can be easily viewed and digested in a short amount of time. To be impactful the video needs to encourage the viewer to empathize with the concerns of the subject, but also needs to provide crucial information to improve their own hand habits.



## INITIAL SCRIPT

[Introductory Sequence]

-Slow pan in on Brad playing ssbm (over the shoulder, MS into MCU)

-CU on hands as he plays, still over the shoulder- try and emphasize the speed of hand movements

-CU on face while playing, start voiceover (by Brad?) “When you’re doing something that engrosses you, something you love, it’s often easy to lose yourself in the moment.

Time slips away, and before you know it it’s 5 hours later”

-MCU (documentary style, with nameplate below) “At some point, I had to start wearing a wrist brace, and after that, had to quit the game entirely. If I had been taking care of my hands from the beginning, maybe things would have been different.”

-ECU OR screencap of input meter in top left of ssbm screen with cuts to live APM

- “The thing is, most everyone is in the same boat. There are so many players that have hand pain, but they keep playing through it. And a lot of these players won’t even make it far enough for it to be worth it, but they’ll still have to deal with the repercussions years later.”

- “It’s not all bad, though. Ever since I started taking care of my hands, resting when I need to, and doing the right stretches beforehand, I’ve actually been able to play again.”

“The thing about the hands is, they’re made to handle an immense amount of strain and use. There are some pretty awful injuries people have come back from with the proper physical therapy”

-Zoom in on hands while pressing buttons, transition to 3D view-

“After I’ve been playing for hours, I would feel a burn around my wrist. This is pretty common for people with tendonitis.”

-”The best way to deal with this is to rest, rest, rest. You can’t fight through it, it will just get more inflamed.”

-3D cutaway of fingers moving and tendons getting more and more inflamed

-MCU walking through venue to plug into setup, fist bumping opponent

-”Before I play, I always make sure to stretch out. You know that warmth you feel in your forearms after playing for a little bit?

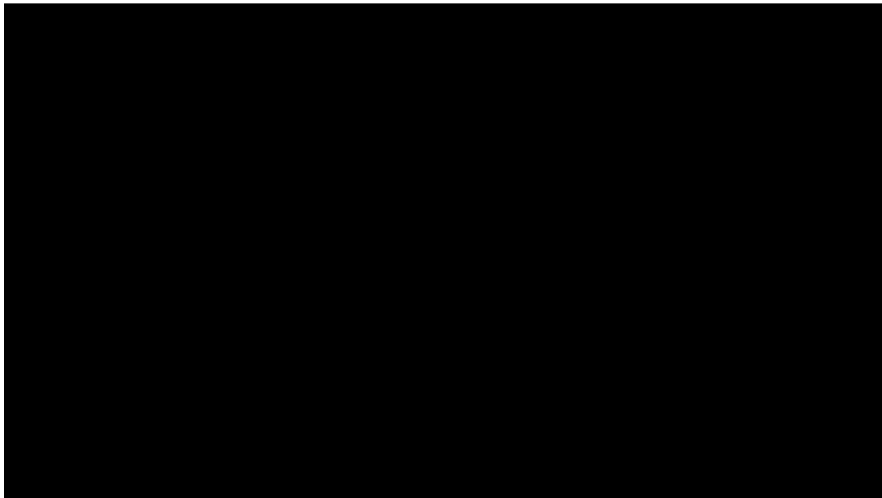
you want to feel that BEFORE you even start to play. It means your hands are warmed up.”

-Demonstrate intro flexing, internals of hand

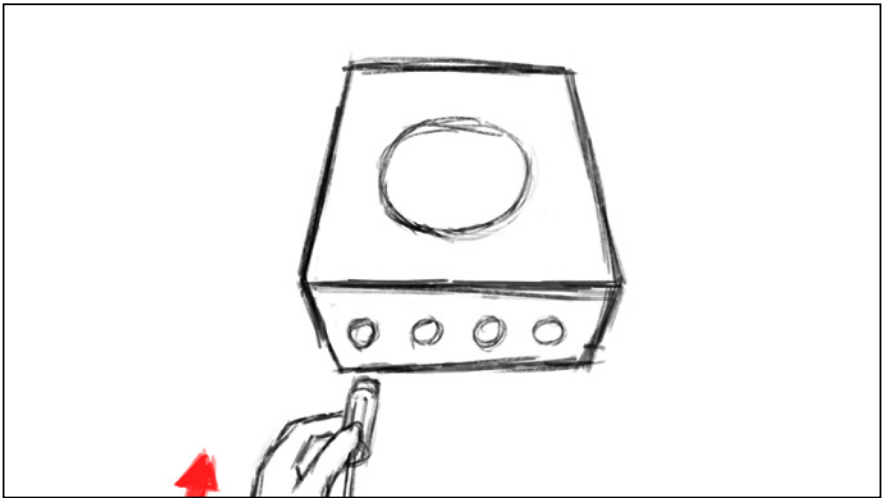
-have more advice on hand health, etc.

STORYBOARDING

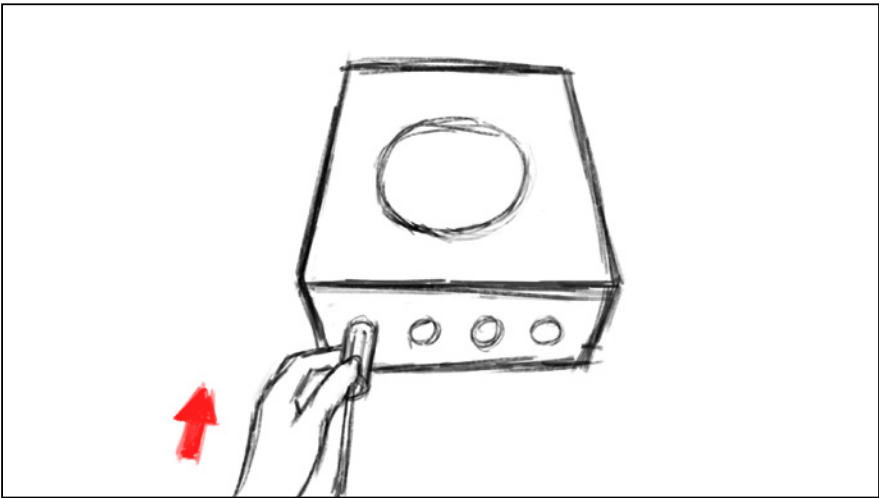
VOICEOVER IN RED



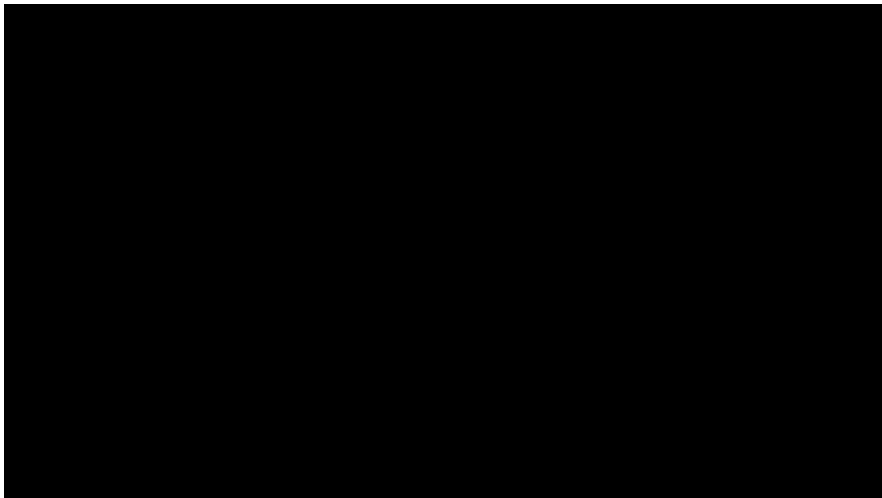
1 -opening transition-  
Open from black



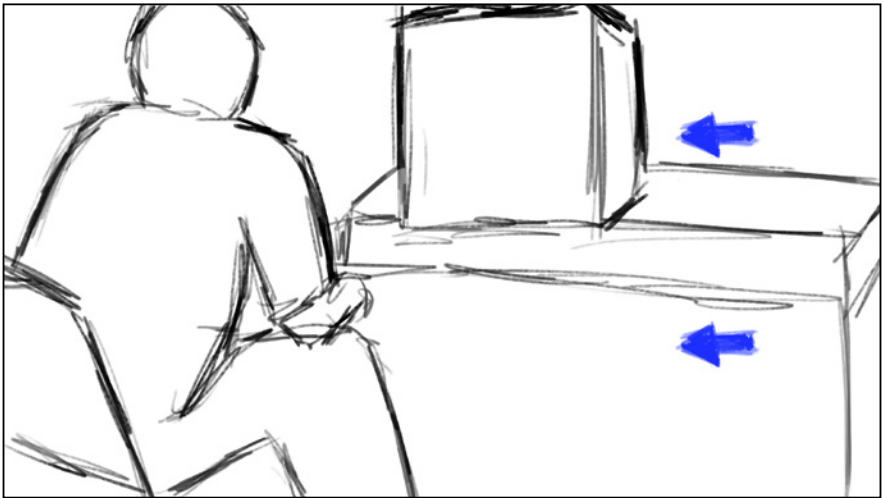
2 -CU of hand plugging in controller-  
we quickly see a hand holding a controller



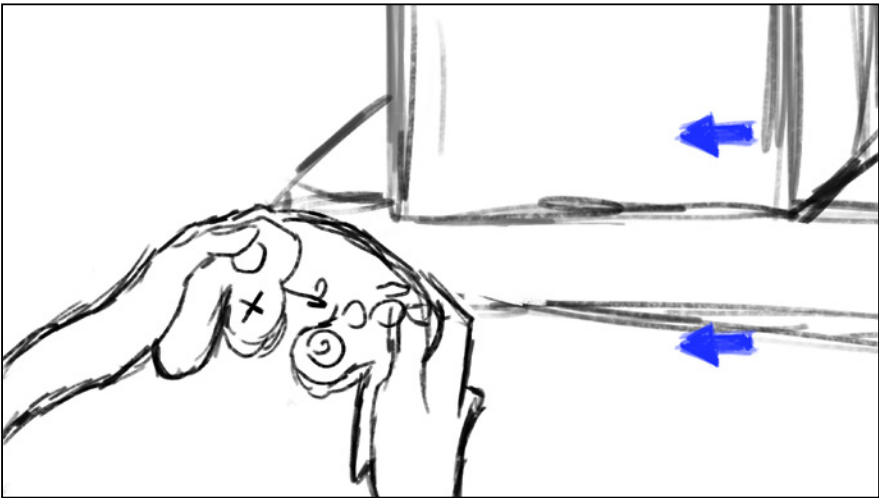
3 -CU of hand plugging in controller-  
the hand plugs in the controller, with a loud click, similar to the Nintendo Direct clicking sound



4 -opening transition-  
Cut to black



5 -over the shoulder, MS into MCU at Brad's House-  
Slow track in on Brad playing super smash bros melee in a dimly lit room with the screen providing a majority of light



6 -CU on Brad's hands, over the shoulder at Brad's House-  
Brad continues to play, his hands moving quickly

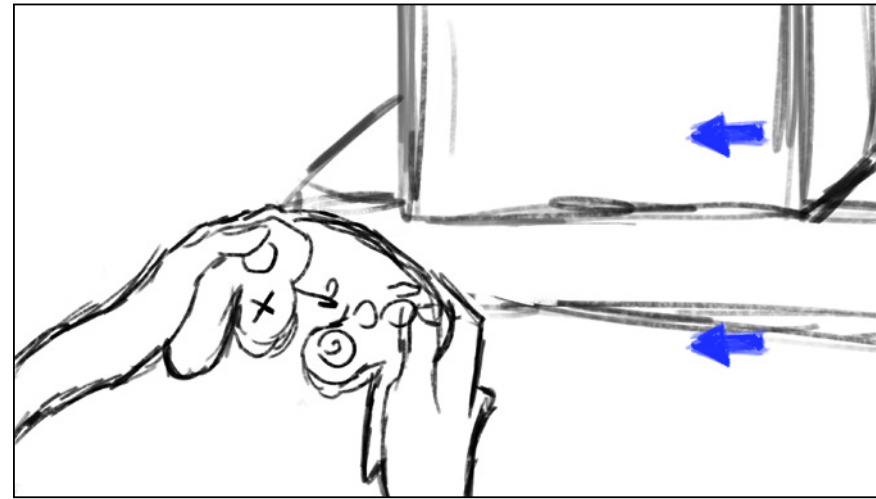
# STORYBOARDING



7 -ECU on Brad's face-

Brad scrunches his face intently, the light of the TV flickering across his face. At the same time, Start the voiceover (by Brad)

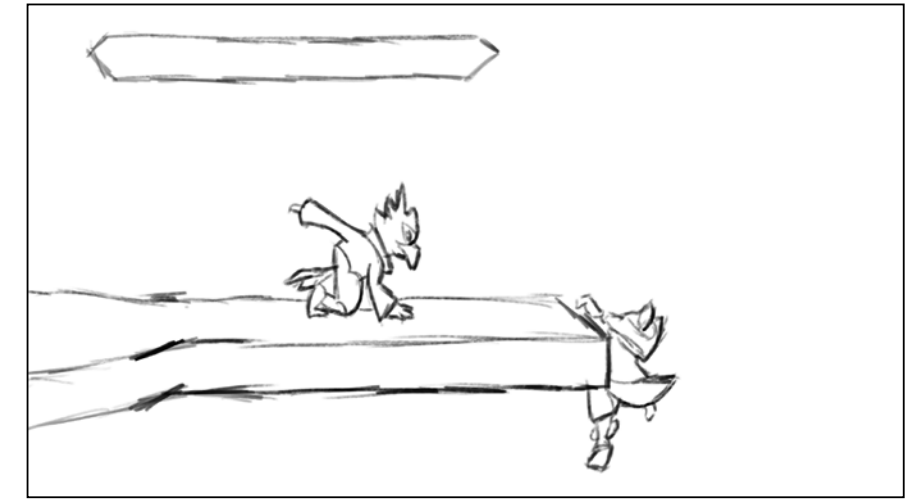
"When you're doing something that engrosses you, something you love,"



8 -CU on Brad's hands, over the shoulder at Brad's House-

Brad continues to play, his hands moving quickly

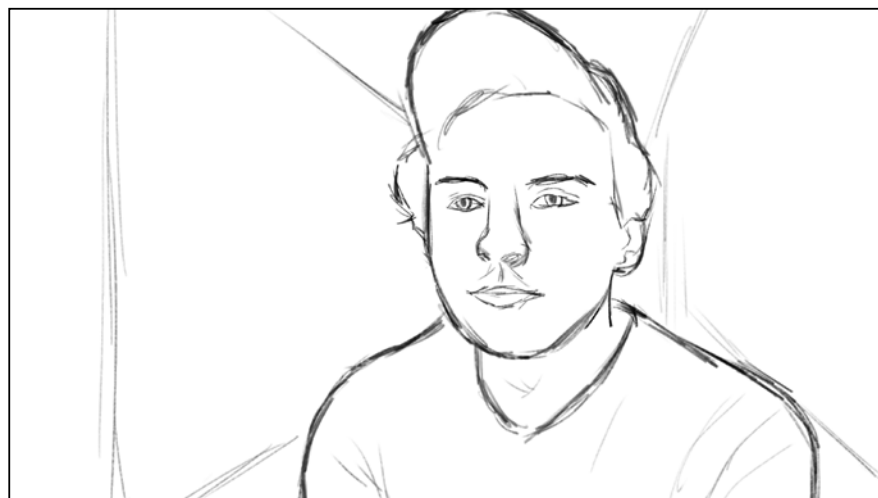
"...it's often easy to lose yourself in the moment. Time slips away..."



9 -ECU on TV screen-

Looking at the screen still, we see Brad's character moving back and forth as Brad speaks

"...and before you know it, it's 5 hours later"



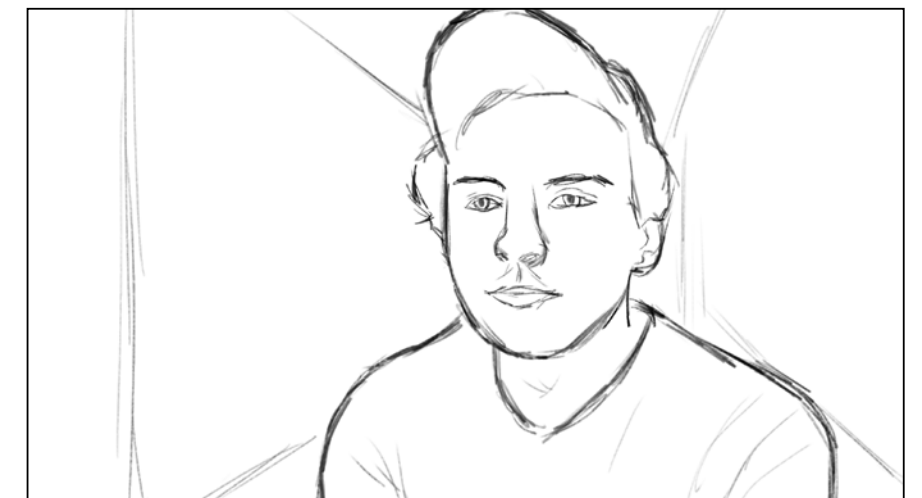
10 -MCU on Brad talking heads, nameplate below-

"At some point, I had to start wearing a wrist brace, and after that, had to quit the game entirely. If I had been taking care of my hands from the beginning, maybe things would have been different."



11 -ECU on TV screen-

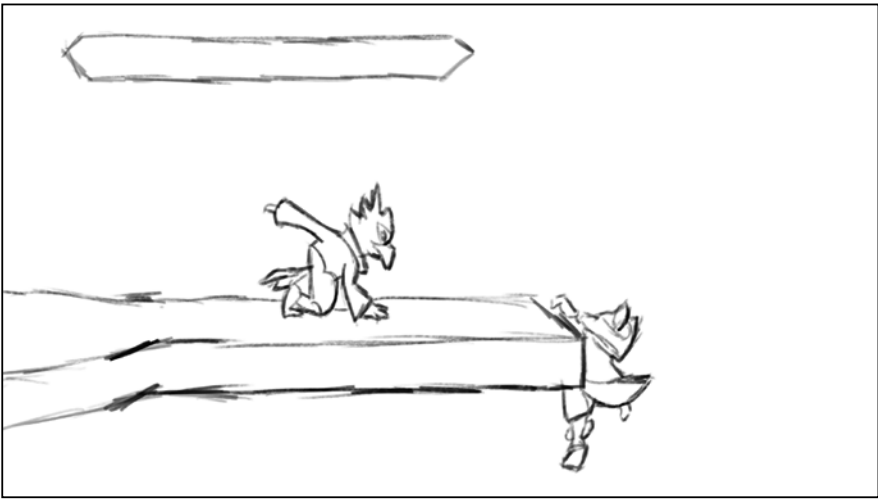
Looking closely at the screen, we see Brad's APM in the corner. It's hovering around 300, emphasizing the speed of his hands



12 -MCU on Brad talking heads, nameplate below-

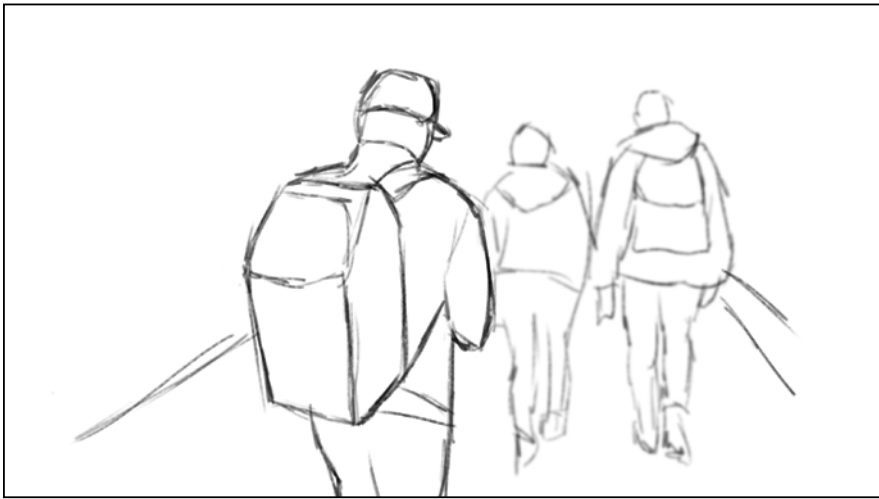
"The thing is, most everyone is in the same boat. There are so many players that have hand pain, but they keep playing through it"

STORYBOARDING



13 -ECU on TV screen-  
Looking at the screen still, we see Brad's character moving

And a lot of these players won't even make it far enough for it to be worth it, but they'll still have to deal with the repercussions years later."

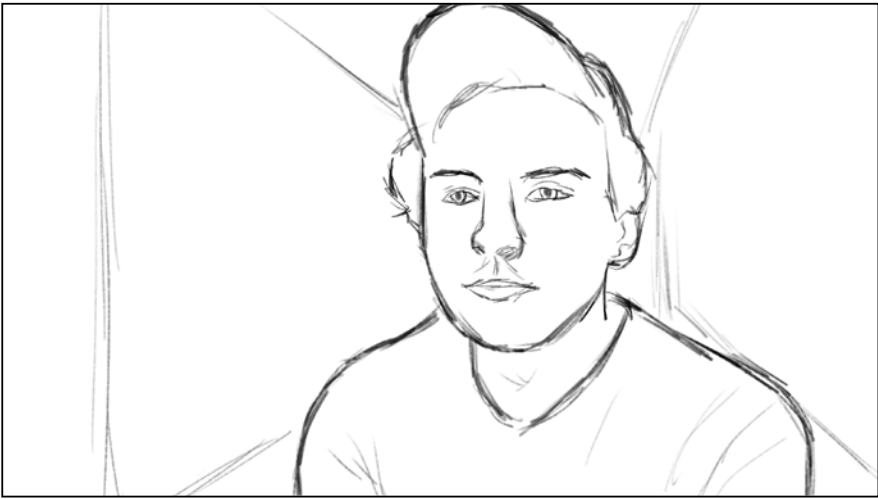


14 -MS of Brad walking to venue, looking focused-  
Walking behind Brad as he walks to the venue



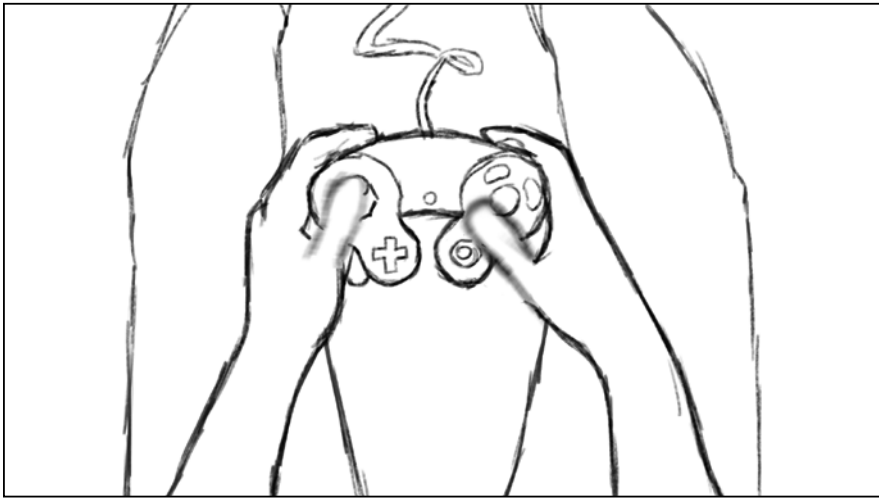
15 -MS of Brad hanging out in a crowd, talking to friends-  
We see Brad from a distance, laughing and joking with his friends.

"It's not all bad, though. Ever since I started taking care of my hands, resting when I need to, and doing the right stretches beforehand, I've actually been able to play again."

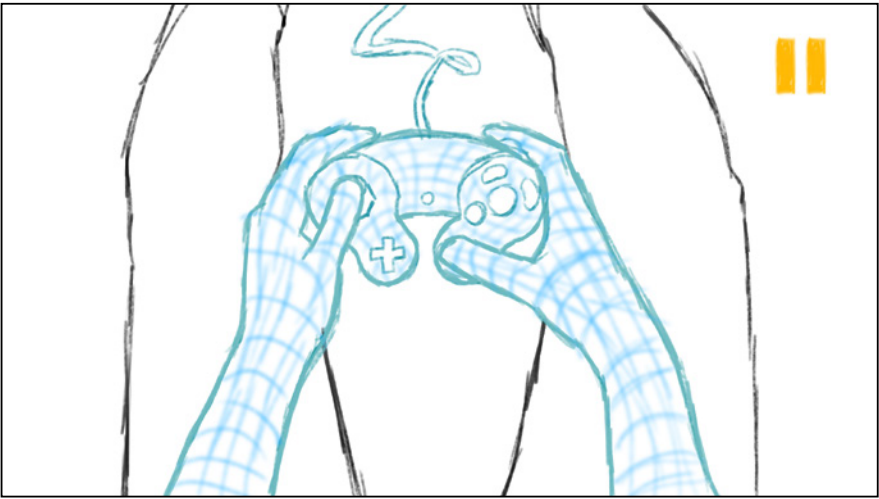


16 -MCU on Brad talking heads, nameplate below-

"The thing about the hands is, they're made to handle an immense amount of strain and use. There are some pretty awful injuries people have come back from..."

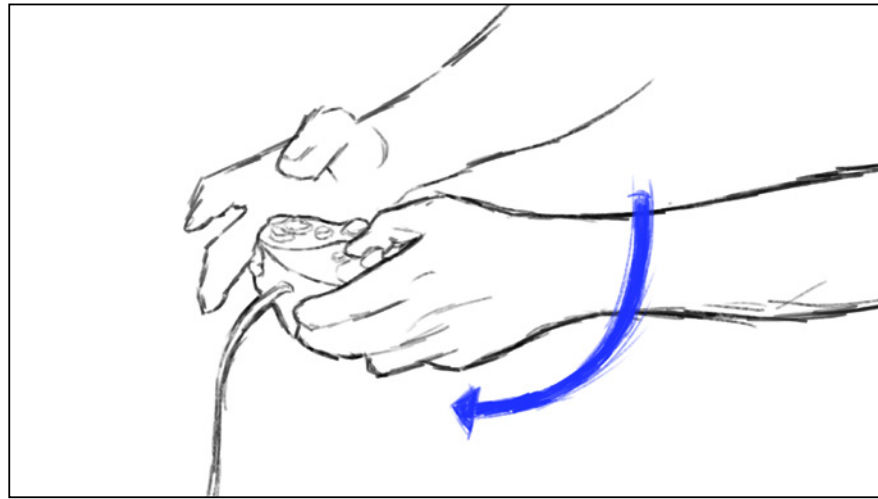


17 -CU on hands-  
We watch as Brad plays, his hands moving quickly  
"...with the proper physical therapy."



18 -CU on hands, zoom to 3D view-  
The footage dramatically slows down to a pause and we zoom in on hands and transition to 3D view

## STORYBOARDING



19 -CU on hands frozen in time-

As the hand flexes, we see a view of the hand from the side

"After playing for hours, I would feel a burn around my wrist."



20 -CU on hands, controller disappears-

The tendons are shown inflamed.

This is pretty common for people with tendonitis."



21 - CU on hands-

We see a cross-section of the hand, showing the inflamed tendons

"The best way to deal with this is to rest, rest, rest. You can't fight through it, it will just get more inflamed."



22 -MCU on Brad-

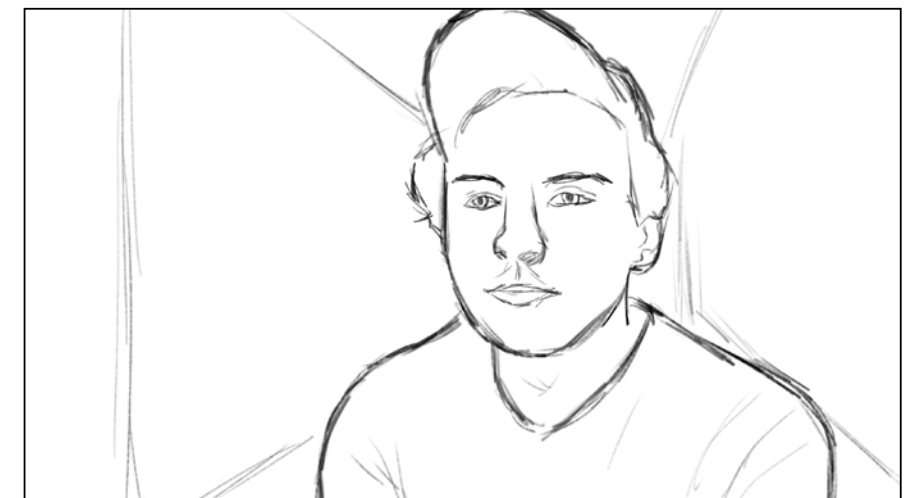
We see Brad walking through the venue, going to plug in his controller into a set-up.



23 -MCU on Brad-

He fist bumps his opponent while the voiceover continues to play.

"Before I play, I want to make sure my hands are warm and moving."

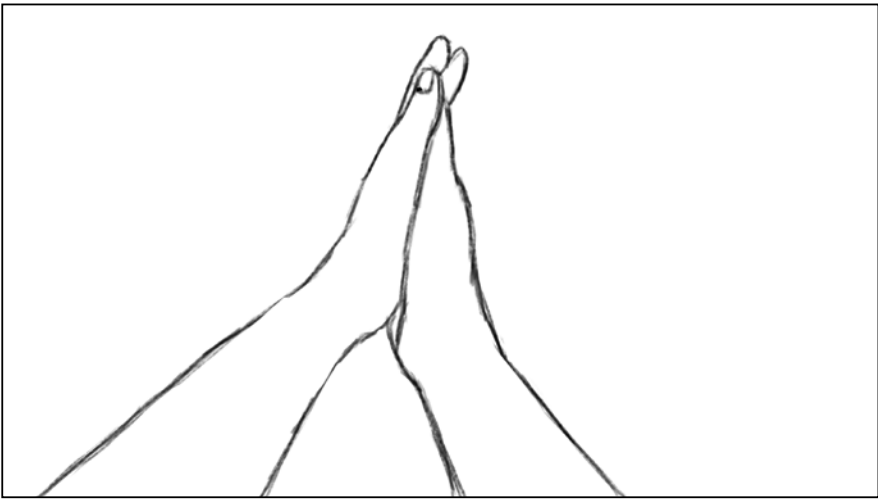


24 -MCU on Brad talking heads, nameplate below-

You know that warmth you feel in your forearms after playing for a little bit?



STORYBOARDING



25 -CU on Brad warming up his hands-

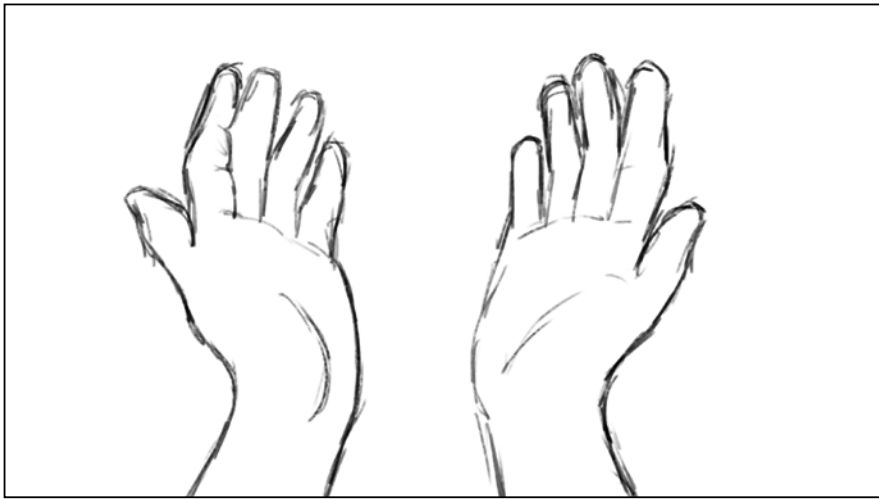
You want to feel that BEFORE you even start to play. It means your wrists ready."



26 -MCU on Brad playing vs his opponent-

we watch as Brad plays a set vs his opponent

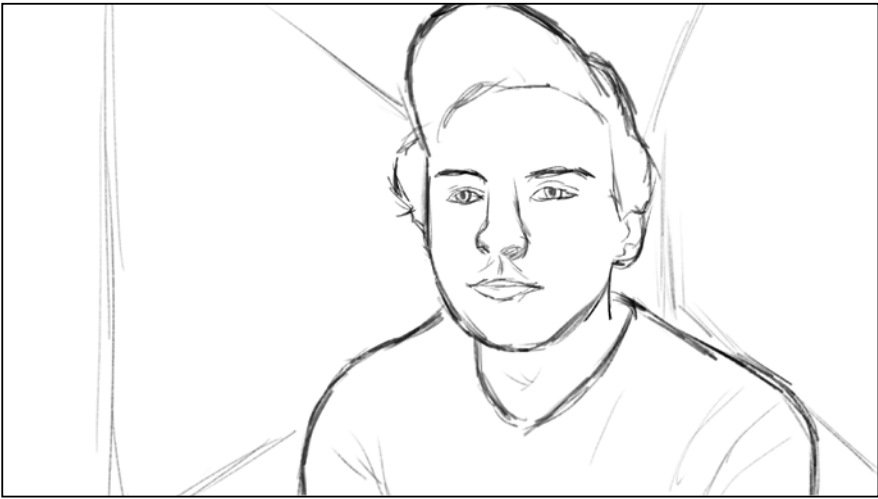
"Another important thing to do is shake out your hands.



27 -CU on Brad's hands-

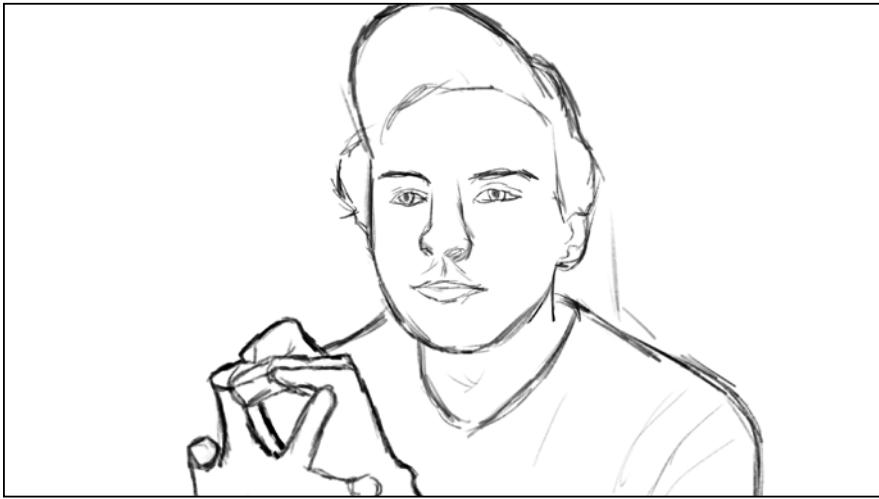
we watch Brad shake out his hands after his set

It's an easy one to remember and perform, so I do this one a lot."



28 -MCU on Brad talking heads, nameplate below-

"You know how athletes always say to stretch after a run and not before, or else you'll injure yourself? It's the exact same with your hands."



29 -MCU on Brad talking heads, showing us exercise 1-

Brad shows us how he stretches his fingers

"I always like to start with a simple finger extension. Just push your fingers back one at a time, like this."



30 -MCU on Brad talking heads, showing us exercise 2-

Brad shows us blocking exercises for his thumb

"The thumb is one of the most used digits and needs to be stretched a lot. Try this one- push your thumb back, forward, back, forward."

# STORYBOARDING



31 -MCU on Brad talking heads, showing us exercise 3-  
Brad shows us piano and reverse piano hand exercises  
"This one's called the piano. Just touch each one of your fingers, like this"



32 -MCU on Brad talking heads, showing us exercise 4-  
Brad shows us closing fist  
"Now make your hand a fist like this"



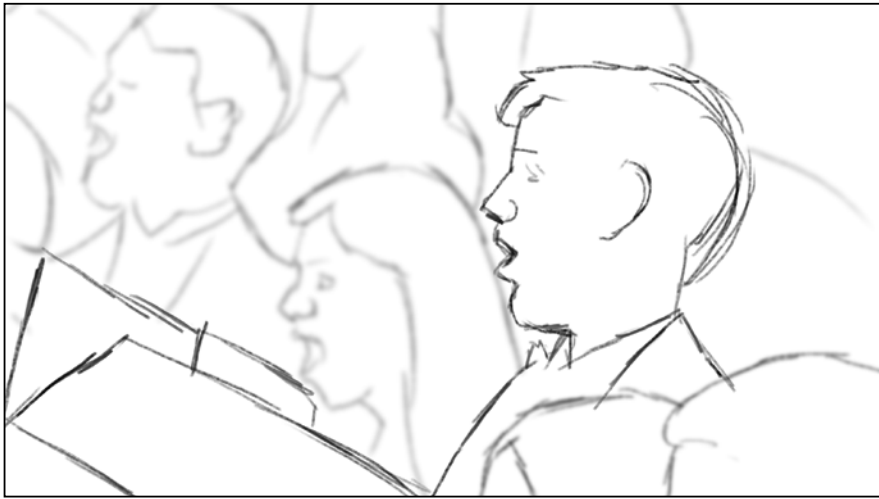
33 -MCU on Brad talking heads, showing us exercise 5-  
Brad shows us opening fist  
"And, open"



34 -MS of Brad hanging out with friends-  
We see Brad hanging out with friends in multiple locations- restaurant first, maybe others  
"I've made a lot of my closest friends through smash and I'm really happy it's been a part of my life."



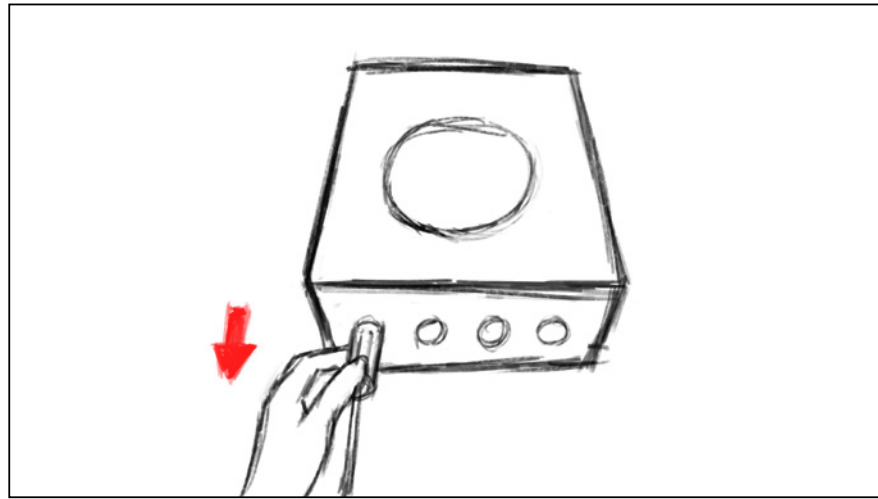
35 -MS of Brad exercising-  
We see Brad exercising, one of his other favorite pasttimes  
"I definitely want to keep playing it as long as I am able to, because it's been such a great experience. I'm not a professional, but I enjoy seeing myself improve,"



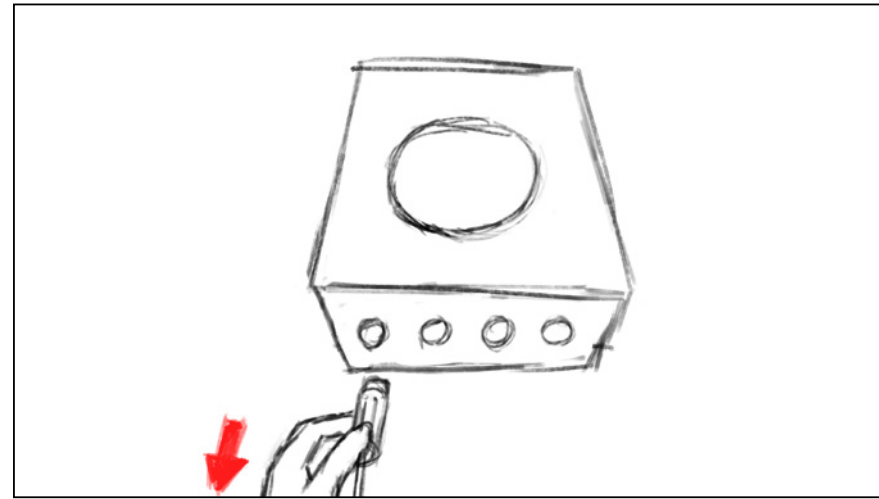
36 -MS of Brad singing-  
We see a candid shot of Brad singing in choir  
"...and I hope to be able to keep playing and I have to take care of myself enough to do so."



## STORYBOARDING



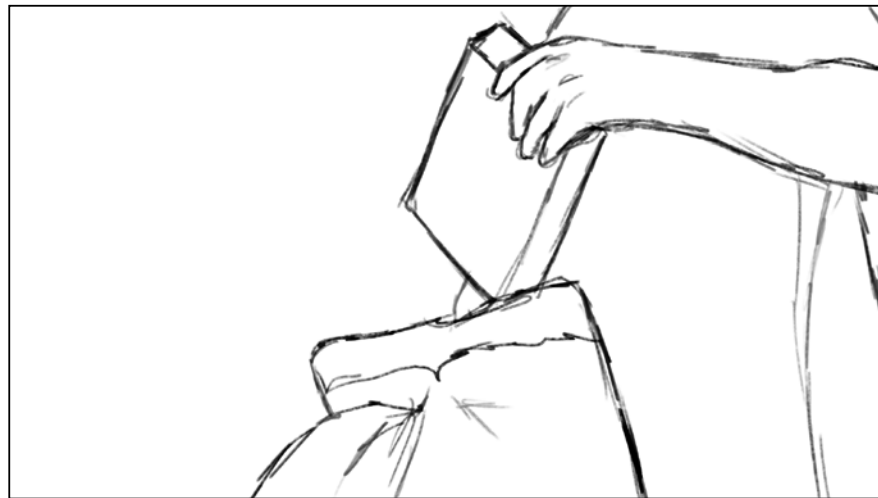
37 -CU of hand unplugging controller-  
Brad grabs his controller cord



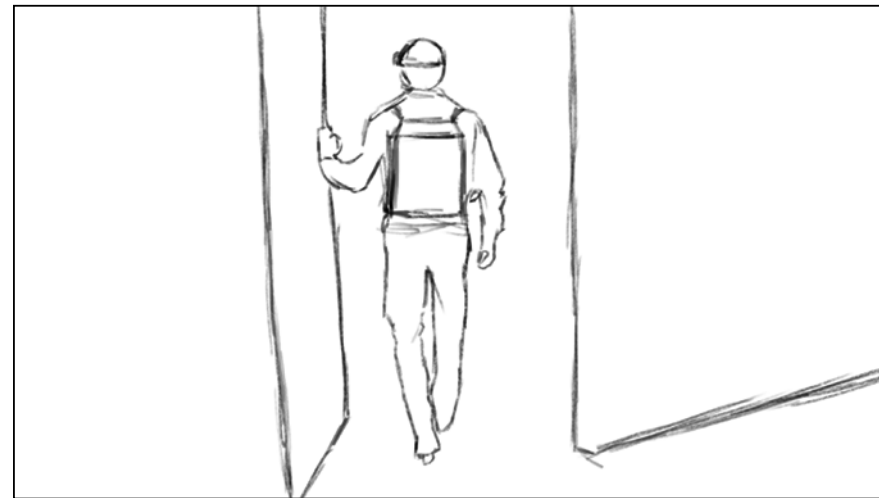
38 -CU of hand unplugging controller-  
Brad unplugs his controller, mirroring the beginning clip



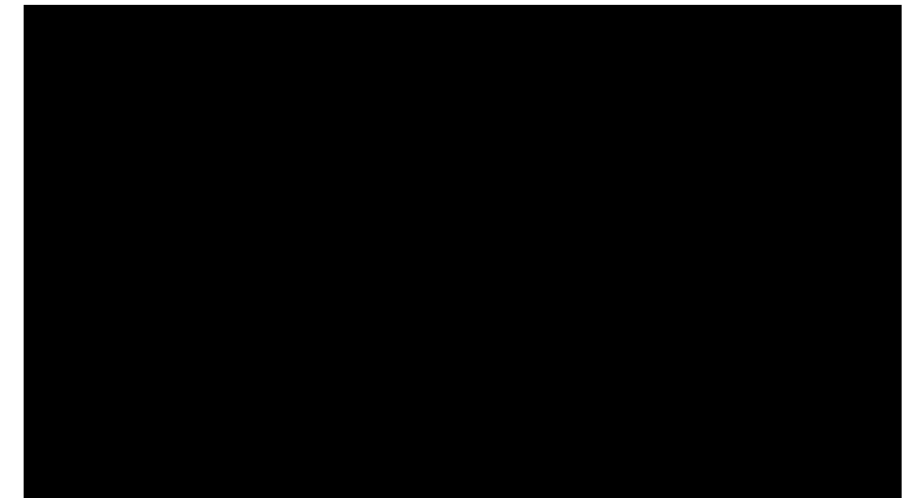
39 -CU of hands wrapping up controller-  
Brad wraps up his gamecube controller



40 -CU of Brad putting his controller away-  
We watch as Brad packs his controller box into his backpack

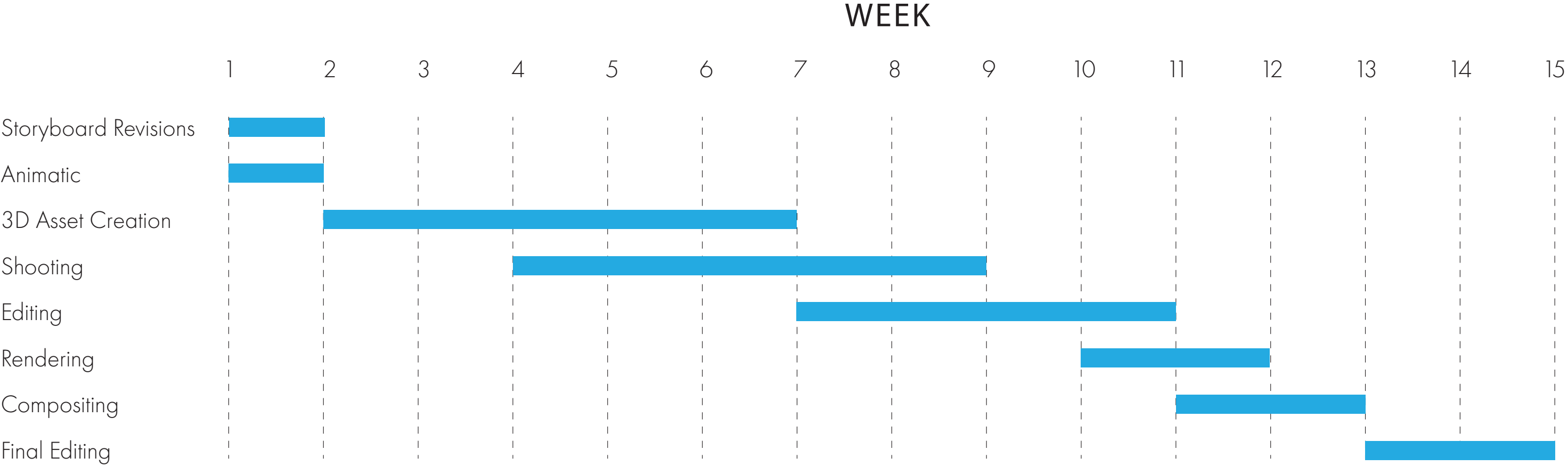


41 -MS of Brad walking out the door from behind-  
Brad walks out the door, closing the door shut behind him

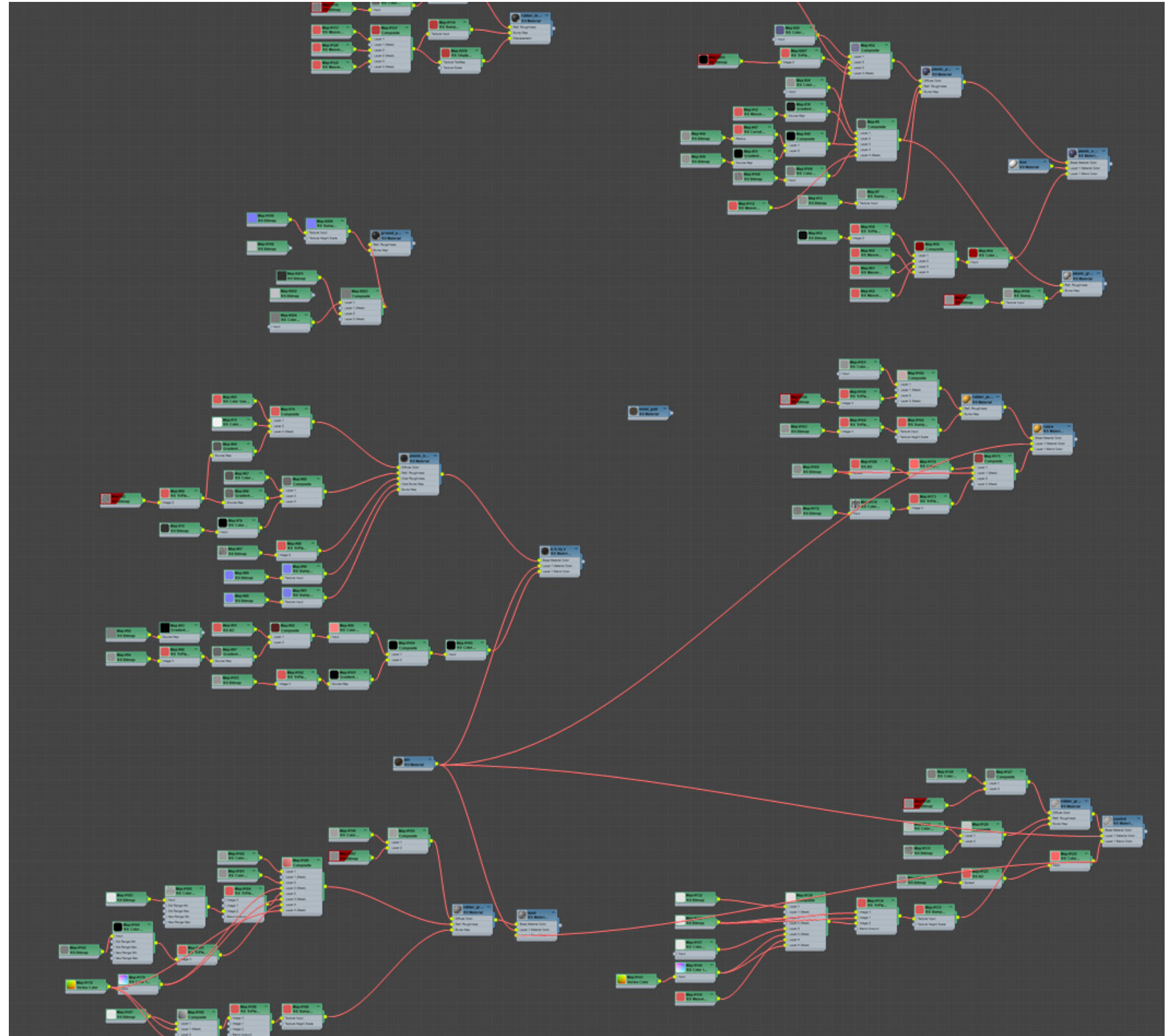


42 -opening transition-  
As the door closes behind brad, we cut to black

INITIAL GANTT CHART



## PROCEDURAL TEXTURING



The gamecube controller asset was purchased from Turbosquid and textured in Redshift procedurally using a mixture of techniques. Triplanar mapping was the primary projection method and vertex mapping was used for minor scratches and cuts on the controllers surface.



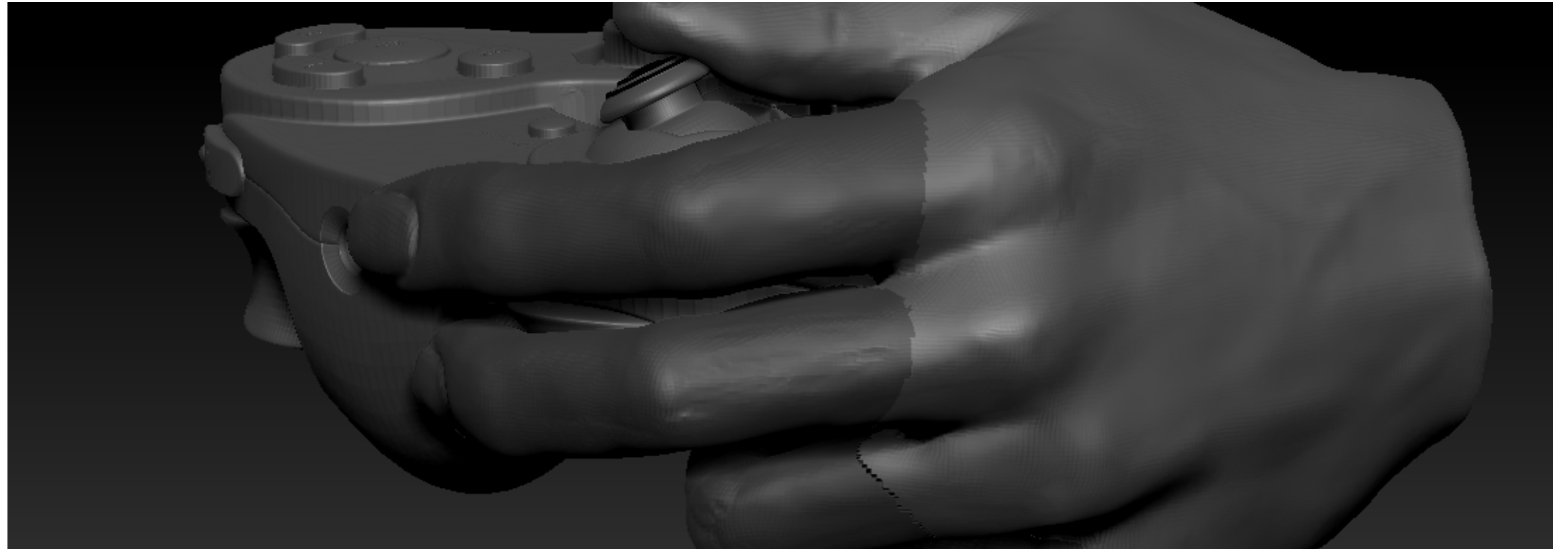
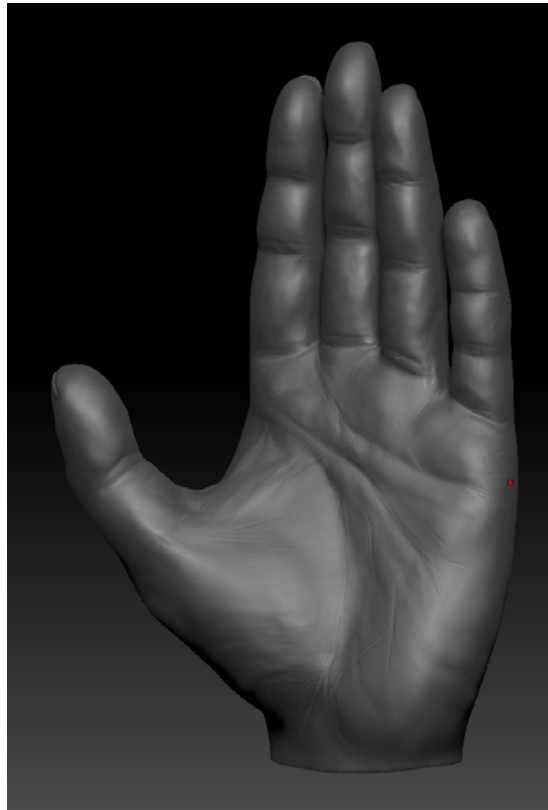
## PROCEDURAL TEXTURING



This still was rendered in Redshift and tone-mapped in-camera. Minor post was work done in Photoshop to add chromatic aberration, sharpening, and a small amount of noise.



## HAND SCULPTING



The initial hand was sculpted in Zbrush with the intention of rigging and animating using a Mocap System. After a change of plans, the hand was formed to more smoothly fit the controller and sculpted carefully so the wrinkles would match the hand position more accurately.

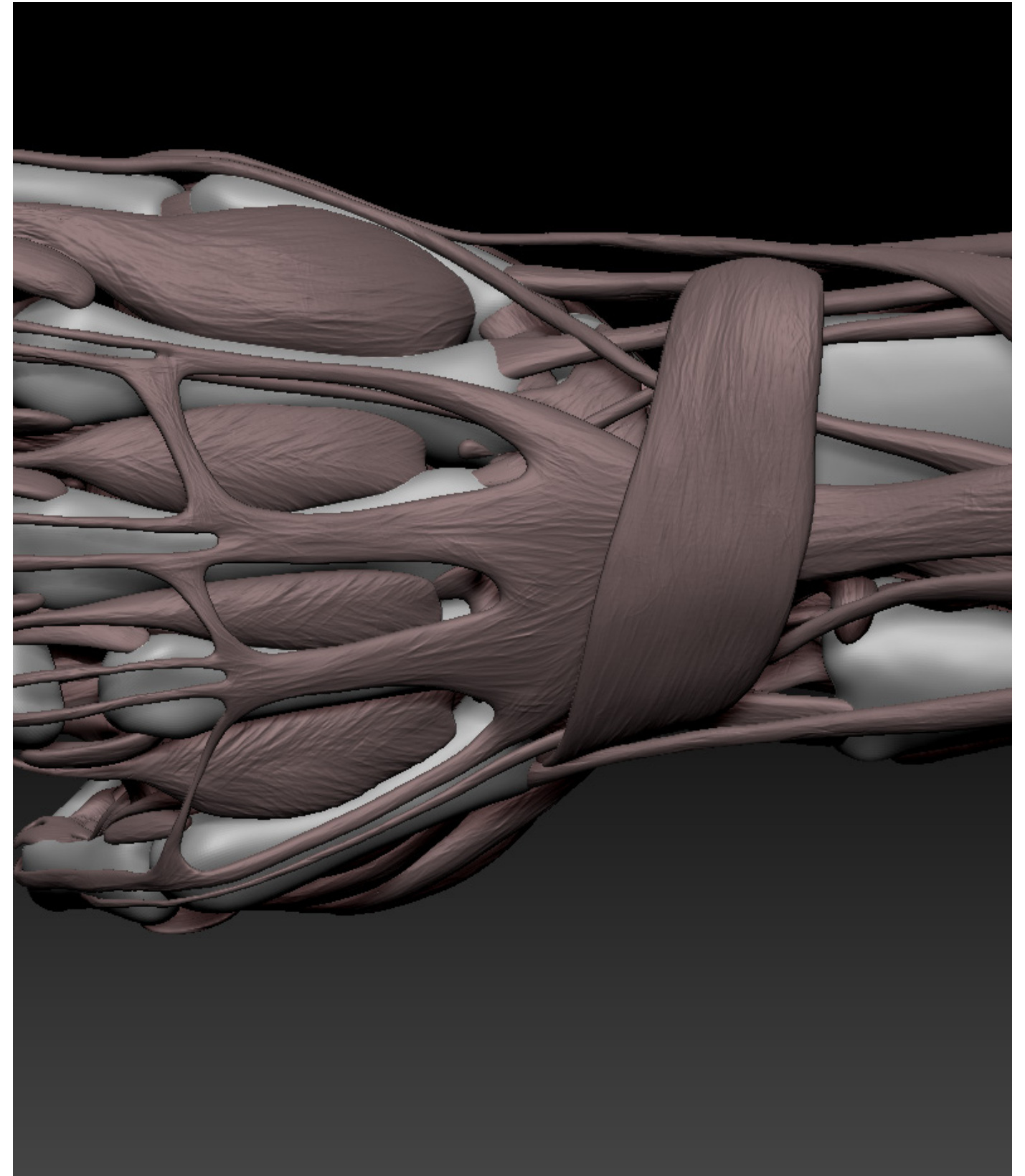
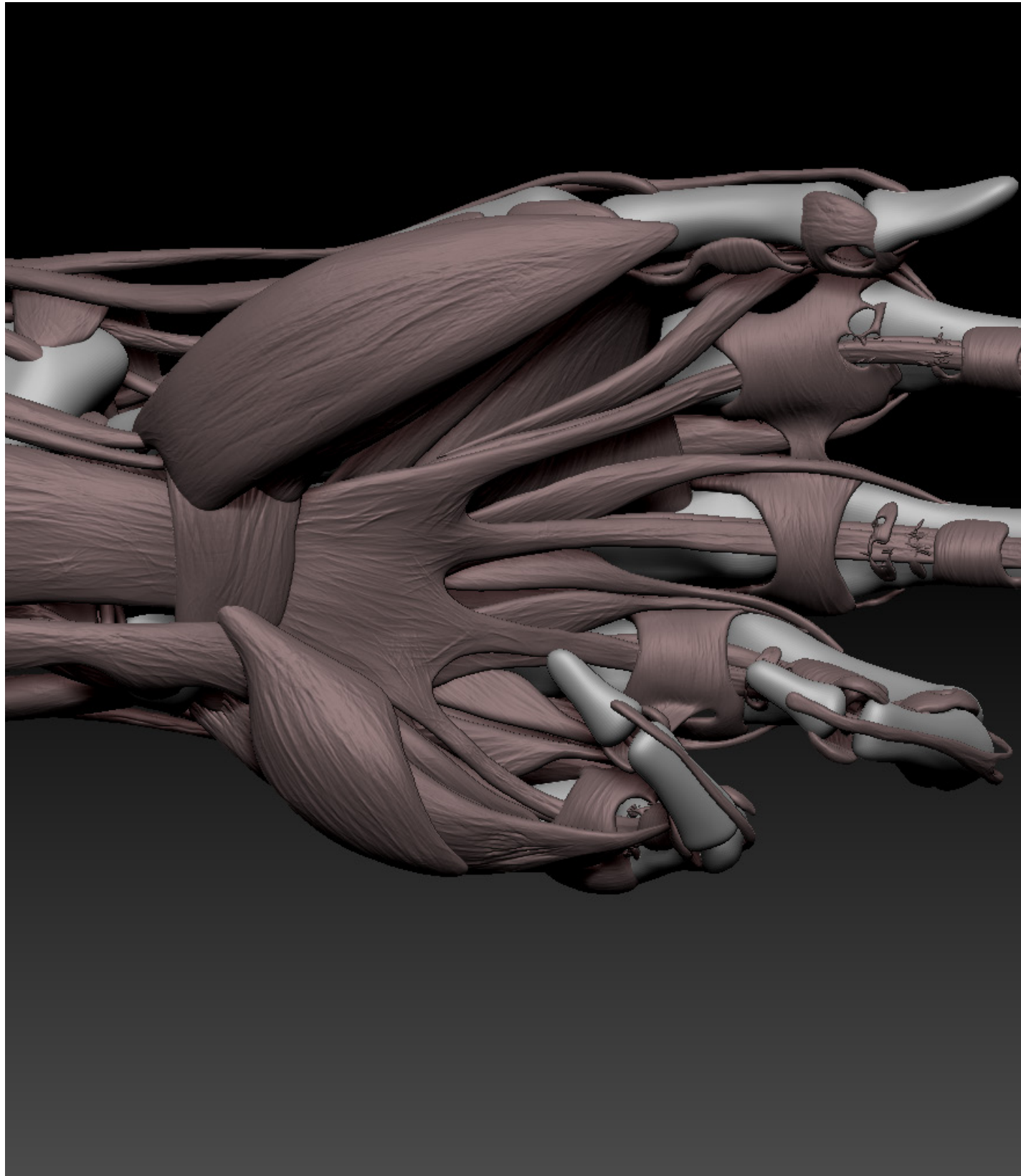
## HAND PAINTING



After auto retopology and UVing within Zbrush, the model was hand painted in substance painter. The base color was painted using a mixture of traditional methods of layering washes combined with procedural methods



## MUSCLE/BONE SCULPTING



The base mesh for musculature was downloaded from sketchfab and resculpted to fit the new hand position. Details were also added and the mesh was retopologized in Zbrush.

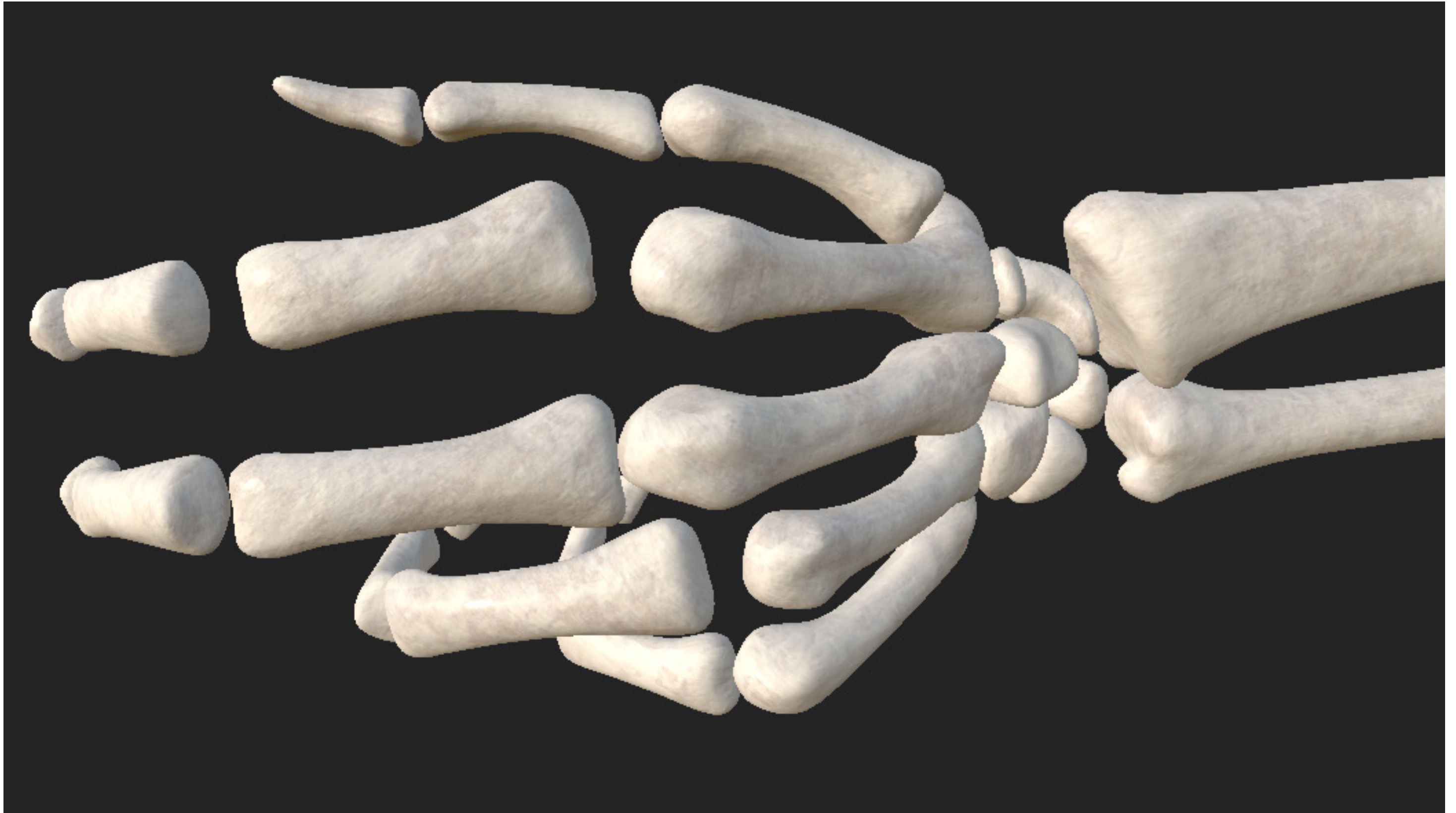


## MUSCLE PAINTING



The musculature was textured similarly in substance painter, mostly using procedural methods with some hand painting to break up repetitive areas.

## BONE PAINTING



To texture the bones, a substance source texture was used for speed and efficiency.



IN PRODUCTION,  
TO BE CONTINUED