Butt Jiggle Tutorial using Displacements

Author: **choirbox**

Mod/Program/Other Requirements:

-Vanilla+ Shaders by xukmi (v1.2 or higher)
-RendererEditor by Joan6694
-Timeline Plugin and basic knowledge of how it works
-Any image editing software (Photoshop, GIMP, etc. I use GIMP)
-Basic image editing knowledge (search tutorials to learn if you must)

This is a guide on how to create a "rippling" effect on the butt in Koikatsu Character Studio using an animated displacement texture. You can apply the concept to any other body part as well.

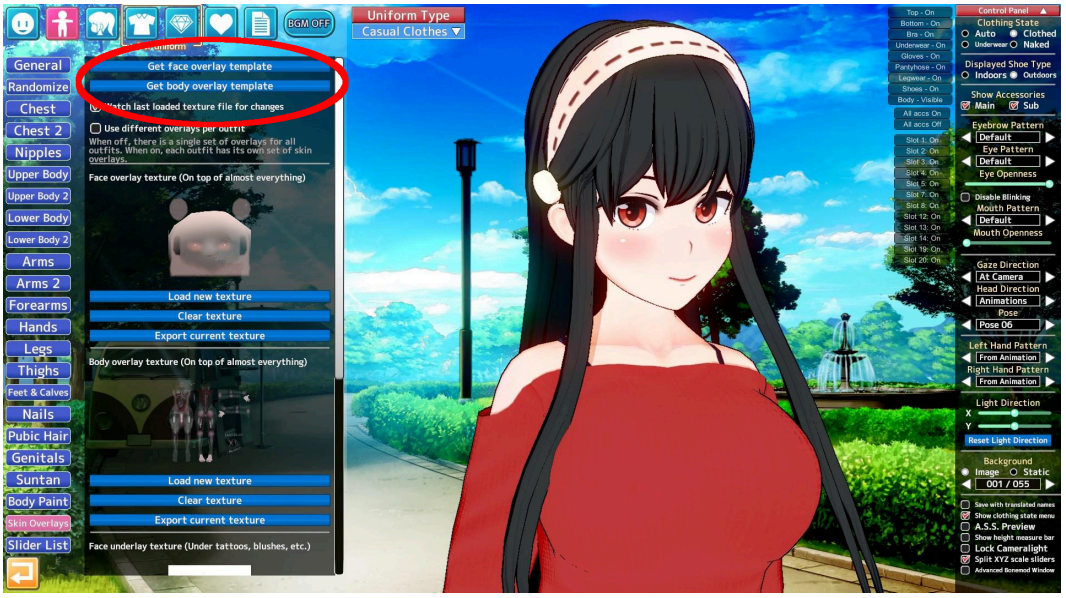
The guide is meant to be as simple as possible. I will detail the methods I personally use–you may know/find better ones!

While it may seem daunting at first, I assure you it's quite easy once you learn what to do. I hope this introductory guide helps!

plap plap plap

CHAPTER I: Displacement Texture Basics

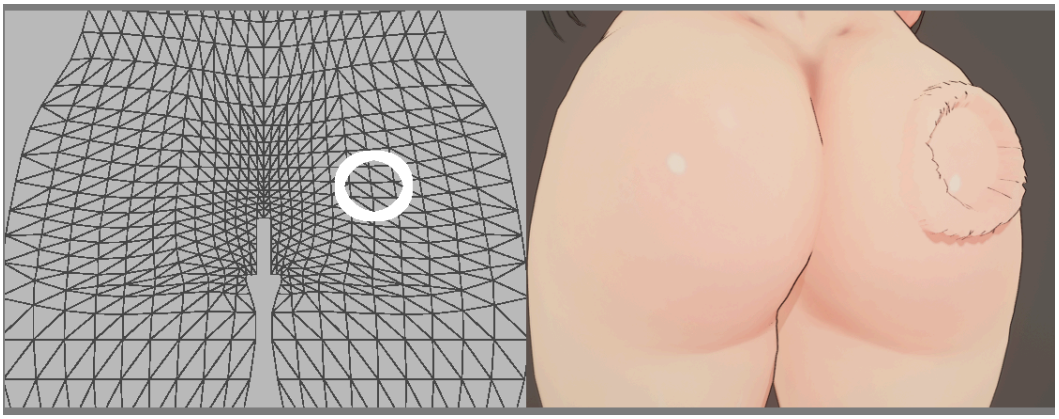
Open up a body texture map in your image editor of choice. You can get the template from the Character Creator by going here.



Make a new layer in your image editing software and fill the canvas with gray (#7f7f7f). The way displacements work is simple:

Gray/Transparent = no displacement effect
White = outward displacement effect
Black = inward displacement effect

So a big, ugly white circle on the butt will pop out like this:



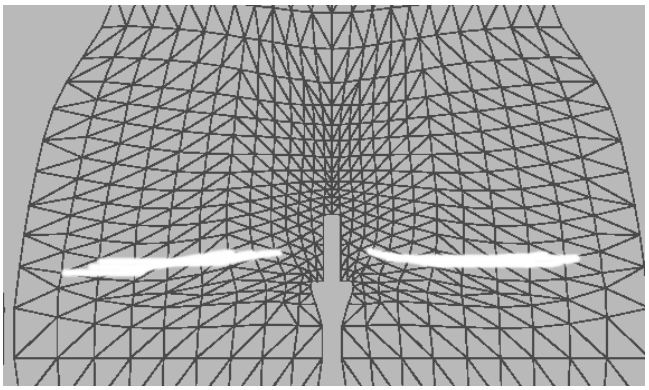
The body texture is overlaid so you can see exactly where the circle is on the map.

CHAPTER II: Making a Displacement Texture

Let's say our goal is to emulate butt ripples when the butt is impacted during a rear entry position.

1.) Draw some white lines under the butt crease. It can be rugged lines or a clean curve. It doesn't have to be perfectly symmetrical, either. Thick or thin. Don't overthink this part, it can be changed later.

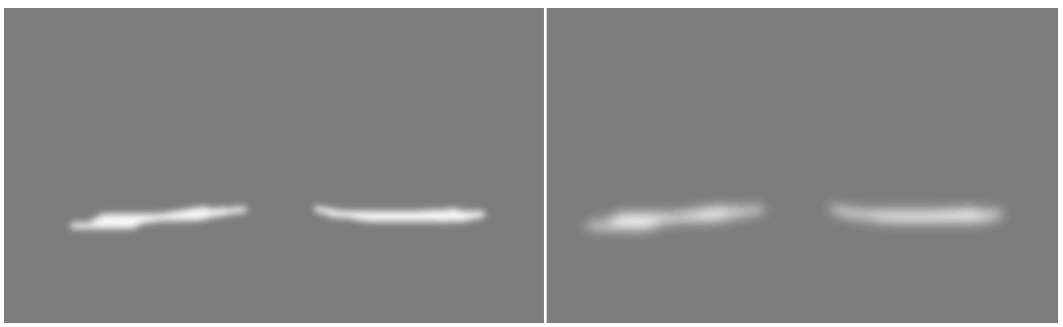
Here, I just used a size 10 circle brush and did a couple random mouse strokes. Draw mainly on the cheeks, leave the middle mostly empty. Again, the body texture is overlaid in this example as a reference:



2.) Blur the line layer you created.

How much you blur it will determine how smooth or jagged the displacement is. If you want a really smooth ripple, blur your displacement multiple times. I typically use a gaussian blur at size 7~15.

Here’s a zoom-in of my result. Left is blurred once; right 3 times.
Make sure the displacement isn’t spilling outside the target area!

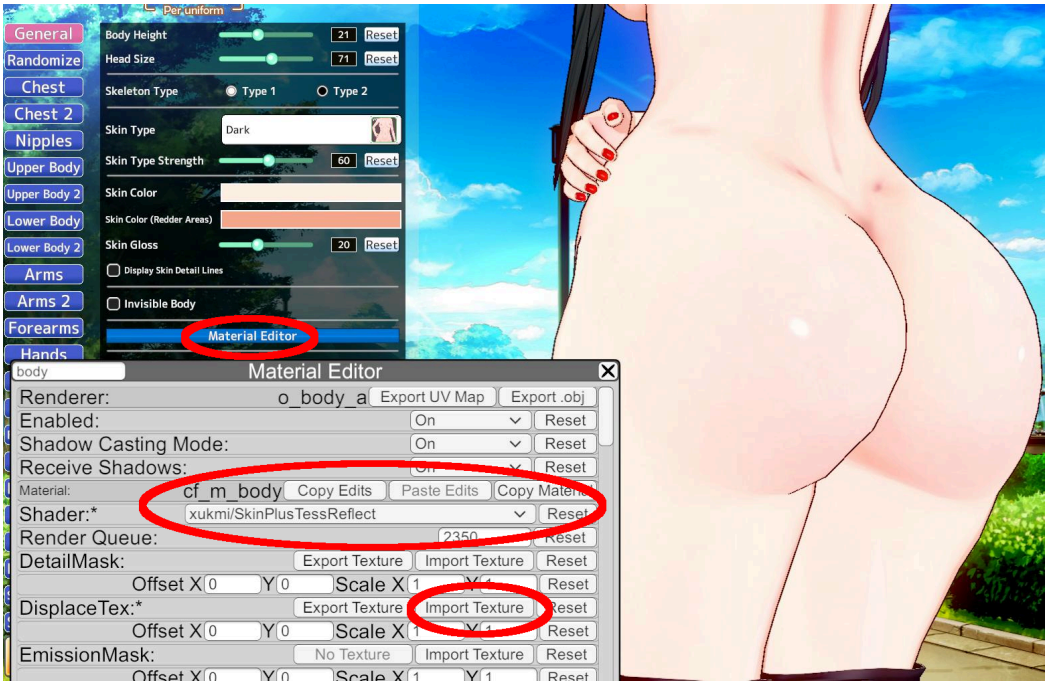


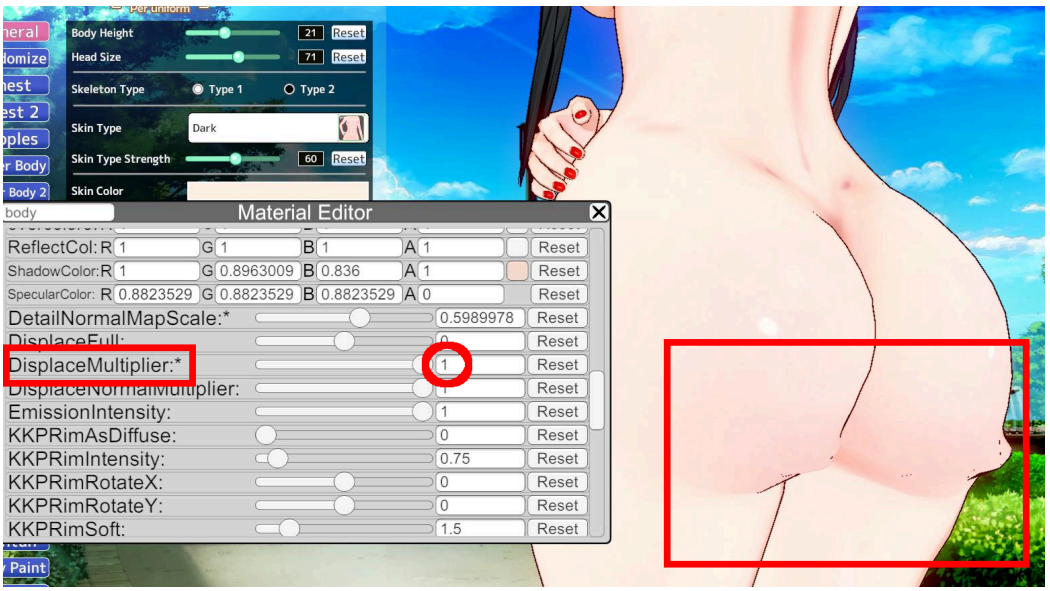
Save your texture and that's it! Simple enough, right? 😎

CHAPTER III: Applying the Texture

If you are making a personal card that will be using displacements often, you can do this in the Character Maker.
Displacement textures can be fully edited within Character Studio, so it doesn't make a difference.

1.) Set your character to use a VanillaPlus body shader in Mat. Editor
2.) Import your Displacement Texture
3.) Set the DisplacementMultiplier to 1 or any value you prefer
4.) You should see the displacement you made take effect!



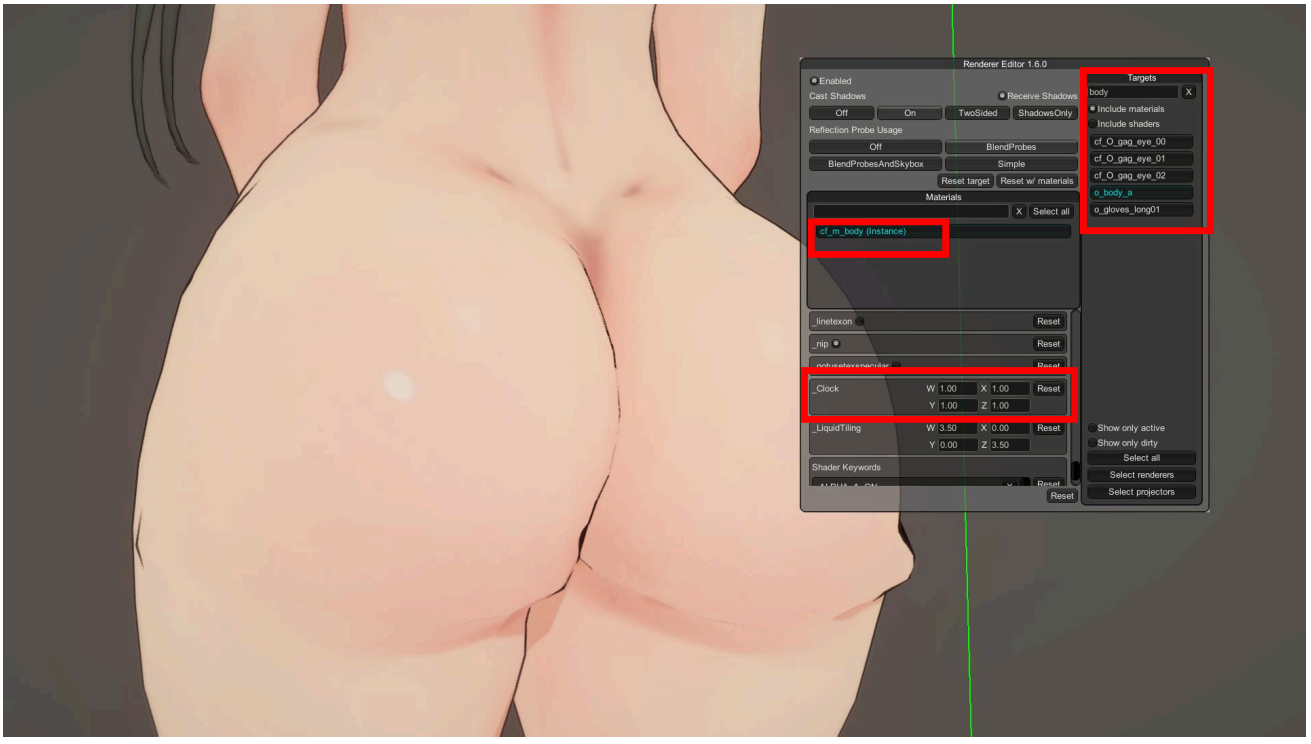


CHAPTER IV: Animating Displacement Textures

(Note: from here on, the guide is going to assume you have some idea of how the Timeline plugin works. If you don't, consider reading some guides first before continuing.)

So you're in Character Studio and you have your character loaded with the displacement texture you made visible. Let's learn how to control it! The key to everything is **RendererEditor.**

1.) Select your character in workspace
2.) Open RendererEditor (default keybind is CTRL + R)
3.) Search for "body" in the top-right text field under "Targets"
4.) "o_body" should appear. Click it, then click "cf_m_body"
5.) Scroll all the way down until you see the "_Clock" section



I'm using the displacement texture that was only blurred once here, by the way!

The Clock interpolable has direct control over the character's displacement texture.

Change the value under W to 0 and observe what happens.
The displacement will disappear entirely!

Here is what each value does:

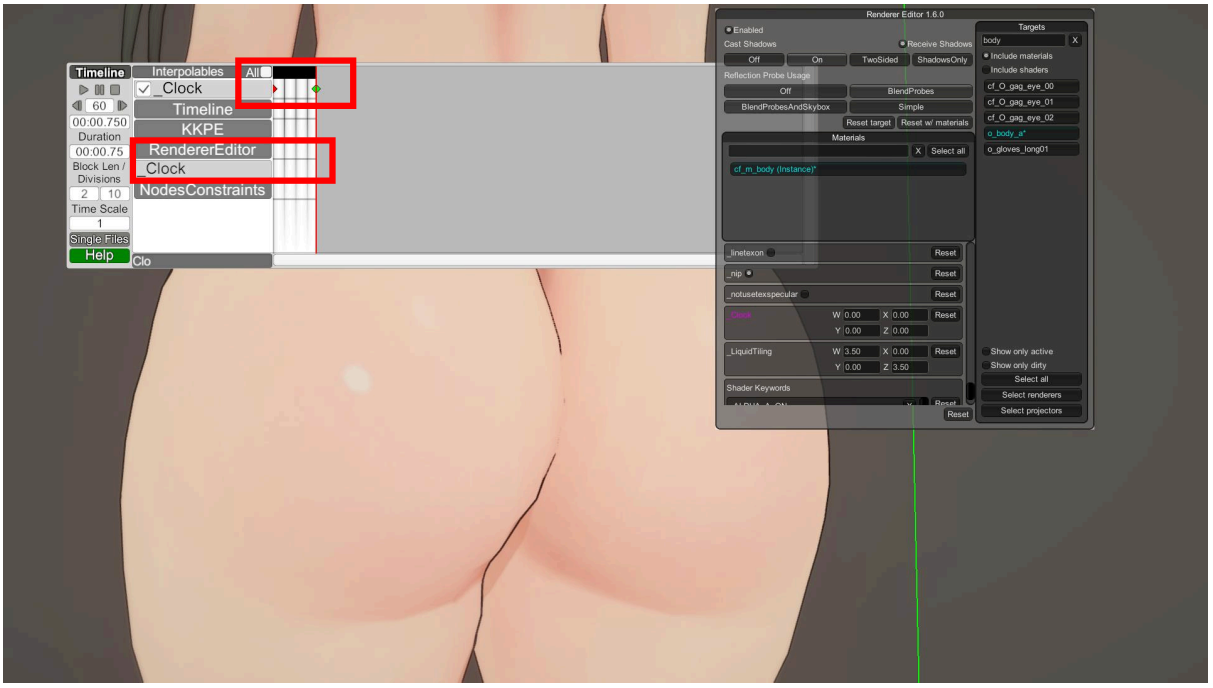
W: The depth/overall strength of the displacement
X: The horizontal position of the displacement
Y: The vertical position of the displacement
Z: I honestly don't know what this is used for, so I will be ignoring it

When starting an animation, **I always set each value to 0 just to keep things simple.**

Now, open up Timeline (default bind: CTRL + T) while the RendererEditor is open and "cf_m_body" is still selected in it.

Search "Clock" in the interpolable field, and "_Clock" will appear. Make a keyframe for this interpolable. Copy it, and then paste it later on down the timeline. This value (0,0,0,0) will serve as our starting point and "reset point" for the displacement animation.

(Note: you may have to check the "All" box to see the _Clock interpolable without RendererEditor open)

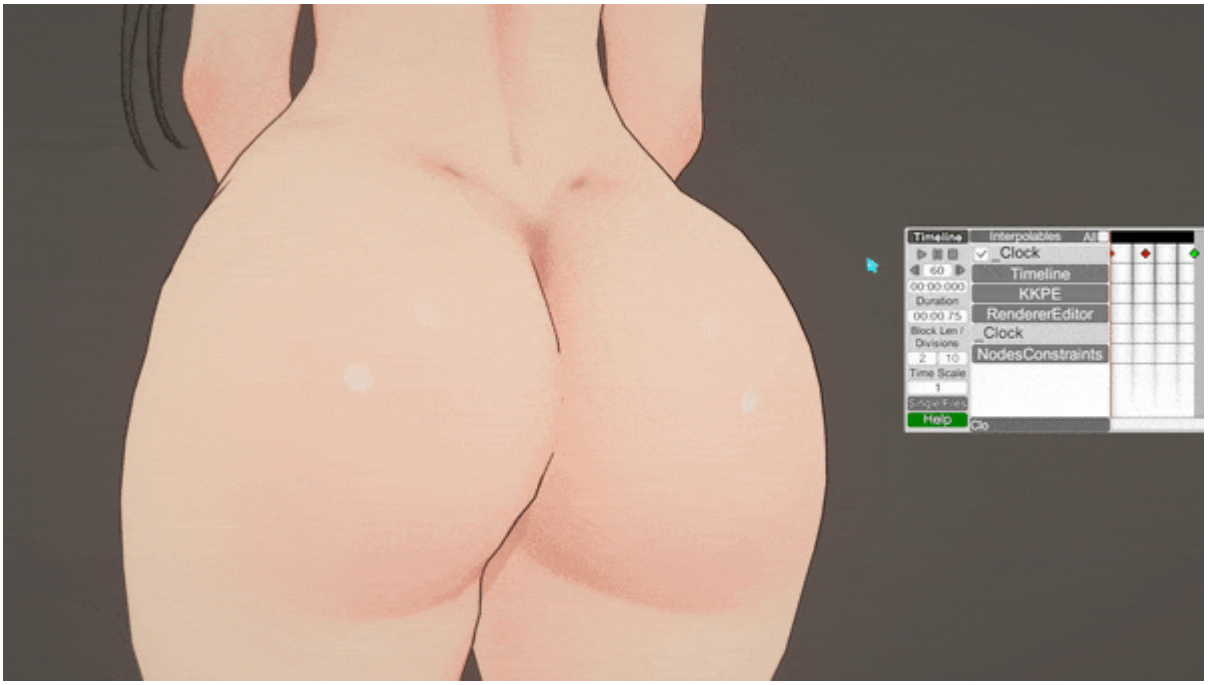


Now, let's key a basic movement path for the displacement.

Make a keyframe near the starting keyframe with these values. You can change them however you wish. Find something that works for you!

What I used:
W: 0.60
Y: -0.04
X: 0

Here's what it looks like:

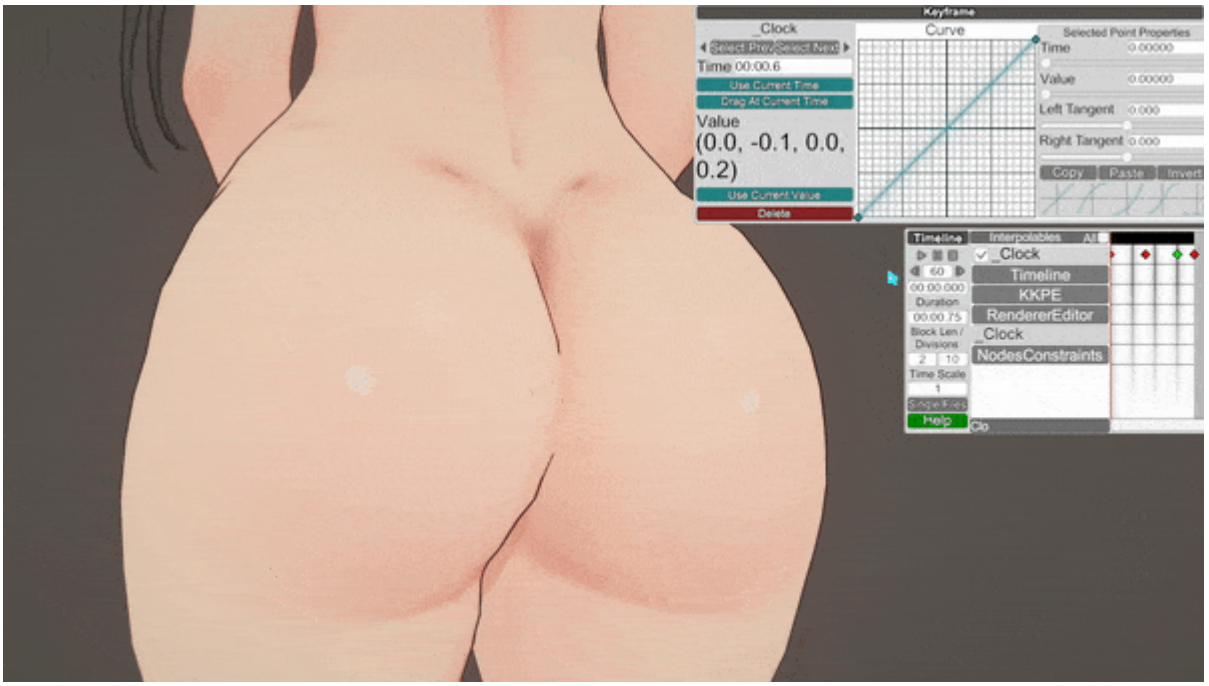


Increasing the W value will make the displacement effect appear. Negative Y values will move the displacement upwards across the butt since we positioned it below the crease.

We need to put a keyframe near the end with a lower Y value than -0.04 to move it entirely up the butt. We'll also lower the W value so the displacement lessens as it travels over the cheeks.

W: 0.2
Y: -0.10
X: 0

Now, it looks like this:



We're getting somewhere, but there's a few things we can fix up.

1.) The ending. Let's add another keyframe after the selected one. This value will serve as the "endpoint" for the displacement path.

I'll be using these values:
W: 0.00
Y: -.12 (so it travels up further while the W value shrinks to 0)
X: 0.00

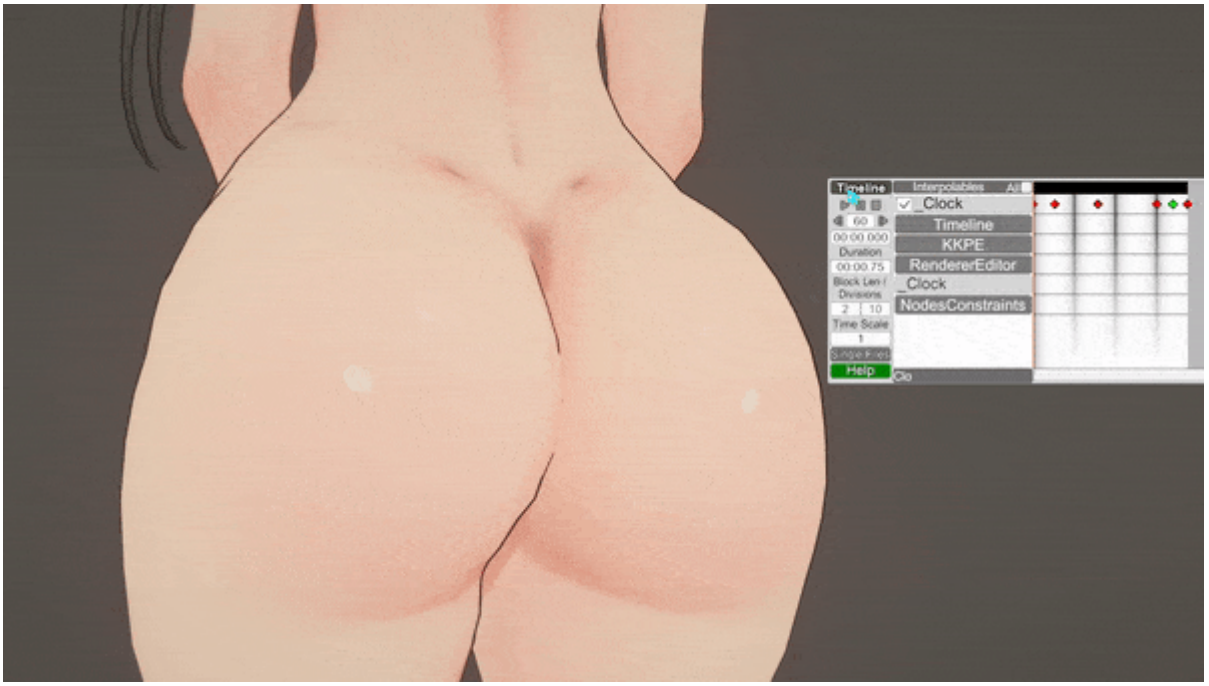
I will place this keyframe **very close** to the final keyframe. Essentially, this keyframe will hide the displacement so that you can adjust the position of the displacement while it's invisible. When the displacement effect begins on the next loop, it'll just appear from the starting point instead of visibly rushing downwards like the above.

2.) I'll lower the second keyframe's W value a bit (0.6 -> 0.4).

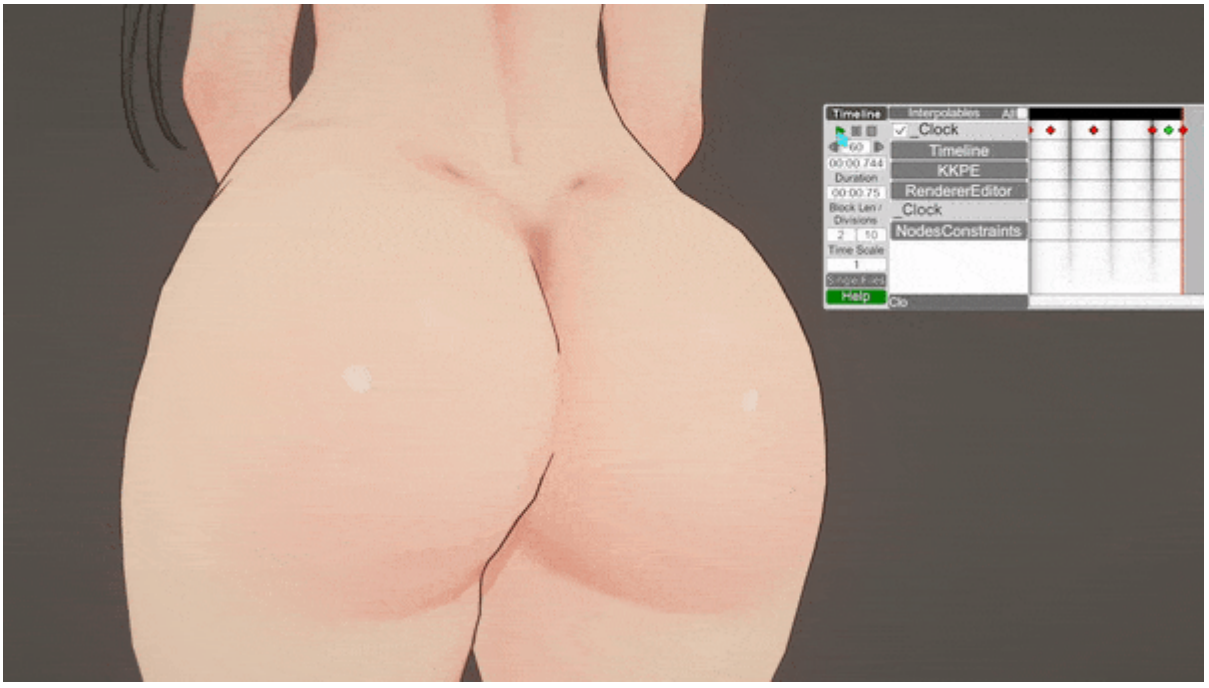
3.) Lastly, I'll adjust the start/initial keyframe's Y value so it starts lower on the butt by increasing it from 0.0 -> 0.02. I also will add a small transitional keyframe between the start and the peak 0.4 W keyframe. This is so it'll inch towards the peak rather than jumping it. You can simply use a keyframe curve to accomplish this instead if you'd like.

My transition keyframe values are:
W: 0.08
Y: 0.00
X: 0.00

And the final result…



Now we have something we can work with!



And this is with the texture that was blurred three times instead of once. As you can see, it's a bit smoother and doesn't bulge out as much.

CHAPTER V: Other General Notes/Advice

Here's a bunch of random advice, comments, and tips I have.

⭐ Workflow order

My personal workflow with animating butts is as follows:

1.) Choose/make the displacement texture
2.) Get your basic animation motion done
3.) Animate the _Clock interpolable for the ripple effect
4.) Animate everything else butt related (mostly KKPE siri bones)
5.) Adjust as necessary (even the displacement texture if needed)

⭐ Swapping characters

Displacement jiggle is not friendly to character swapping. If you swap a character with a displacement texture to a character without one, then the effect is gone. Fortunately, there are some ways around this.

The crude but easiest way is to simply copy the entire body shader from Material Editor from one character, then paste it to another. This is great if neither characters are using any major body shader edits (ex: largely different skin colouring or something). **Don't do this otherwise.**

The cleanest way is to manually apply the texture the same way mentioned in Chapter III. If the target character is already using Vanilla+ shaders, this becomes easy. This also means that if you regularly work with Vanilla+ shaders, you will have no problem whatsoever switching textures to new characters!

(You should totally use Vanilla+ shaders, by the way. V1.3+ is downright amazing.)

⭐ Clipping with clothing and such

There are no collision bones/detectors on a displacement texture.
It's just an animated texture, so it will fully clip through anything in its way. Practically speaking, small underwear is the only thing that can avoid this, and even that can still end up clipping.

However, there is a workaround using skin overlays. Anything that's a part of a body overlay will be displaced instead of clipped, so you can

make clothing a part of a body overlay and it will no longer clip. This only works for nonintrusive garments (think leggings, pantyhoses/stockings, thongs, anything skintight, etc).

You can also use a Vanilla+ shader on a piece of clothing, then increase the ShrinkVal to avoid clipping entirely. Great for POV shots!


Left: Mona's leggings are a part of her body overlay, so the displacement affects it.
Right: Sadako's panties use a ~1.08 ShrinkVal to "float" above the displacement.

⭐ Using the Clock interpolable's X value

The X value is essential when the butt is receiving impact from one side specifically. The X value can also make the ripple effect appear more natural to the viewer from certain angles.

For simplicity's sake, I didn't mention it too much in this tutorial, but definitely mess with it once you understand the basics!

The X value positions the jiggle so it begins on the cheek being slapped.

⭐ The importance of angles

Try moving the camera around to find an angle that shows off your displacement most naturally. A POV view might look better with different values than a side view.

Search for angles that work best for the specific scene you're creating, and go from there.

The X value + angle further exaggerates the jiggle on Kiara's left cheek.

⭐ Keyframe curving

The Clock interpolable is the one area where I still find myself using the default straight line often. Generally speaking, the shorter the travel time of the displacement path is, the more heavy-handed a curve will be. At most, I like to use a very small curve near the endpoint of the time-curve… I might just be stuck in my old ways here, though. Find what works best for you!

⭐ Tessellation Smoothing

Using tessellation on the body will affect the displacement effect as well! The benefit of this is that it will smooth out the skin even further, so sharp points in the displacement will naturally disappear.

⭐ Experiment, experiment, experiment

This technique is still new to Koikatsu, as animated displacements were just introduced in February 2022 by Vanilla+ 1.2. There may be better, more advanced ways to go about things than what I've detailed here. And there are definitely some crazier applications of the technique.

This should give you a good enough starting point to understand the basics of displacement animating!

That’s all I have. I hope this guide will bring some amazing 🍑-centric content out of Koikatsu for all of us to enjoy!

Contact me if you have any questions and thank you for reading!