

## What **Project Evolution ONE** can do!

In the last few months I've seen that not everyone understands what certain dials in PE do, so here is a detailed summary about some of the most important dials and some extra information about her JCMs and her hair.



## Basic Poser tips

Before we begin, here are some very useful keyboard shortcuts that not everyone knows:

**Ctrl+E** = Restores bodypart (or selected prop/object) (use this while testing her bending)

**Ctrl+Shift+F** = Restores the whole (selected) figure

You can also memorize a certain configuration of dials in a figure by pressing **Ctrl+Alt+F**. This way every time you press Ctrl+Shift+F (restore) you get that exact same figure back (watch out, this not only includes all the dials, but also includes the pose). It does translate to the individual bodyparts, so if you press Ctrl+E on some bodypart, it will restore to whatever it was set at when you memorized the whole figure.

**Press Alt+LMB** on a dial to reset it back to its zero (or memorized) position.



## Dials in the body

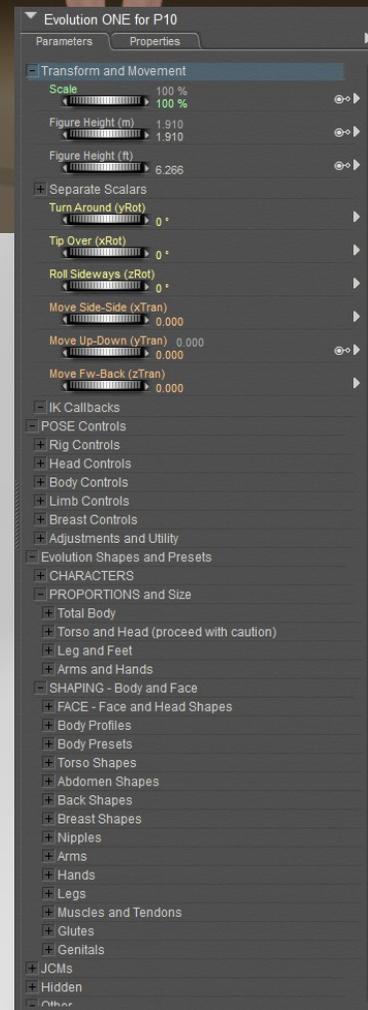
We will kick this off with looking at all the important dials and dial groups in the body.

As a rule, ALL morphs are to be accessed through the body. Since Poser splits the mesh into different bodyparts, and a morph like 'big breasts' is spread out over chest, abdomen and the two collars, there needs to be **one dial** (called 'big breasts') to control them all as one.

Since all morphs in PE were made using GoZ (zBrush), Poser by default stores the main dial of all GoZ results in the body, and therefore all morph controls are in the body. That's how it is.

There is mastersync which allows you to control all morphs of one name from any bodypart, but mastersync has its own issues. Its a long story. Therefore I've switched that all off in the P11 version.

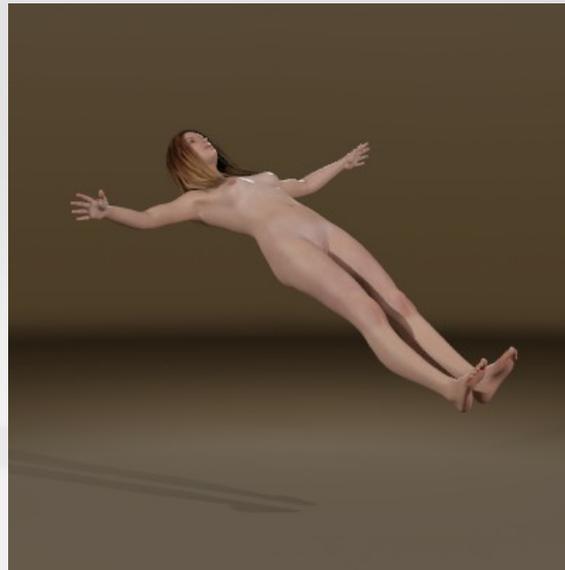
There are some dials in the hands, feet and head, but those are not morphs. Those are **controller dials** that drive either rotations of bodyparts, or morph dials in the body, or both.



## Height and translations

PE has a dial set in metric meters and you can set the figure's height here. Just below it there's a dial that does the same thing but then in feet.

Below that are the usual translate dials. You know the deal there probably.



## Callbacks



The Callbacks group is empty. The idea there is to make a dial to kick off a python script that updates the figure's JCMs when posing in IK. Poser doesn't do this itself (Poser Pro 2012 could for some reason...), so it needs reminding that a figure needs to look realistic.

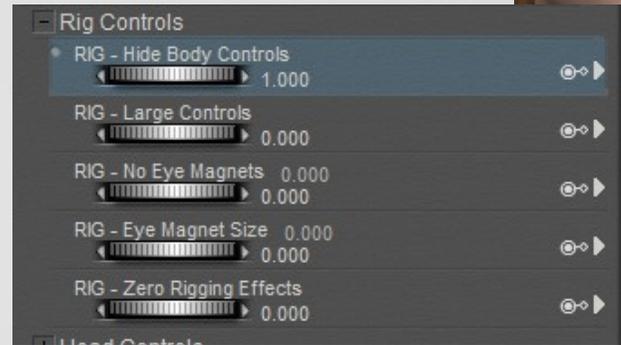
Unfortunately I haven't yet been able to implement this yet. I have the script ready, but I still need to think about how to implement it properly.

It would be great if SM fixes the IK/JCM issue so that this is not needed.

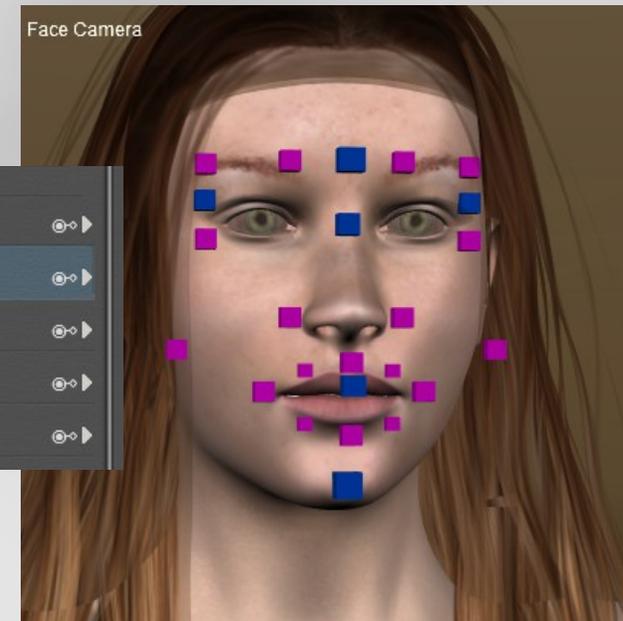
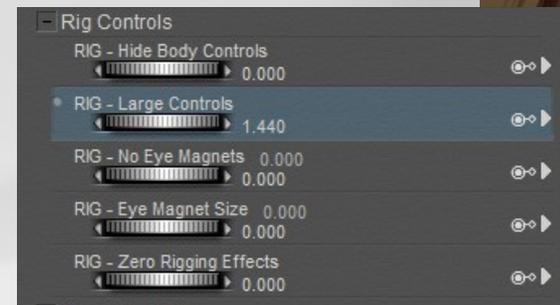


## Rig Controls

In the group Rig Controls you can hide all your handles which is useful for if you want to render in Superfly. The handles are invisible in Firefly, but Superfly for some reason ignores Poser's settings and renders beautiful little pink and blue cubes for you. This way you can avoid that.



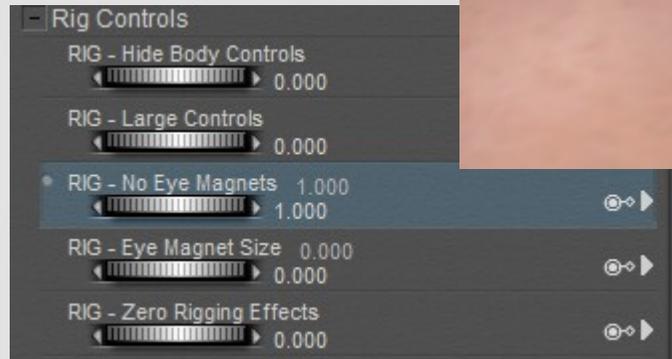
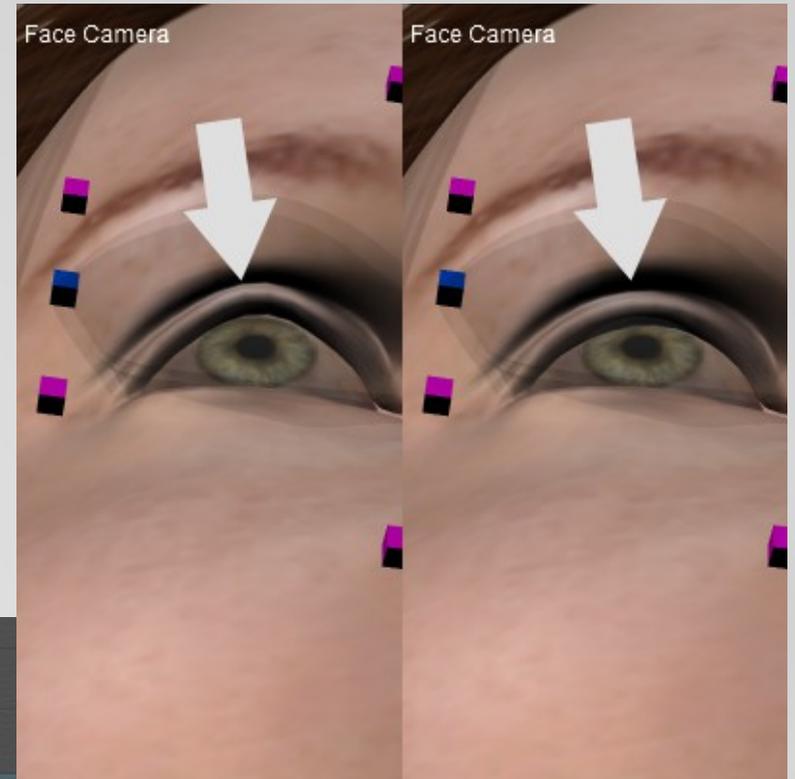
The "large controls" dial makes all the handles larger. This is useful for if you are working on a distant scene and you cannot see the handles clearly.



EVOLUTION

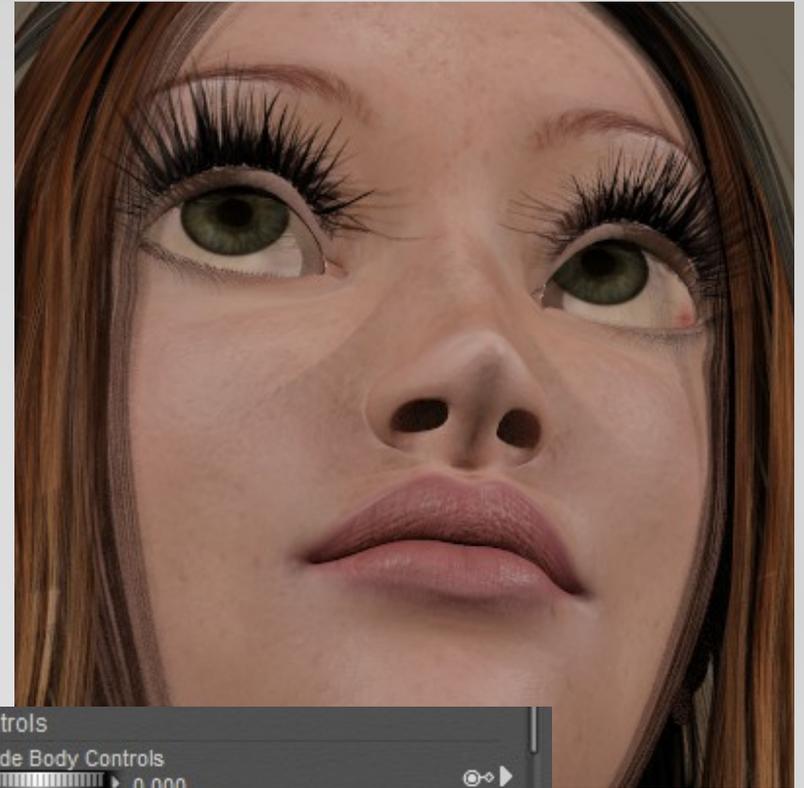
## Eye magnets

PE uses magnets to simulate the bulging effect of the cornea on the eyelid. This effect can be removed by dialing the magnets to zero with the “No Eye Magnets” dial.



## Eye Magnet Size

Similarly the eye magnet's effects can be amplified if you need them to do so. This can be useful if you make an eye morph with a large bulge perhaps.



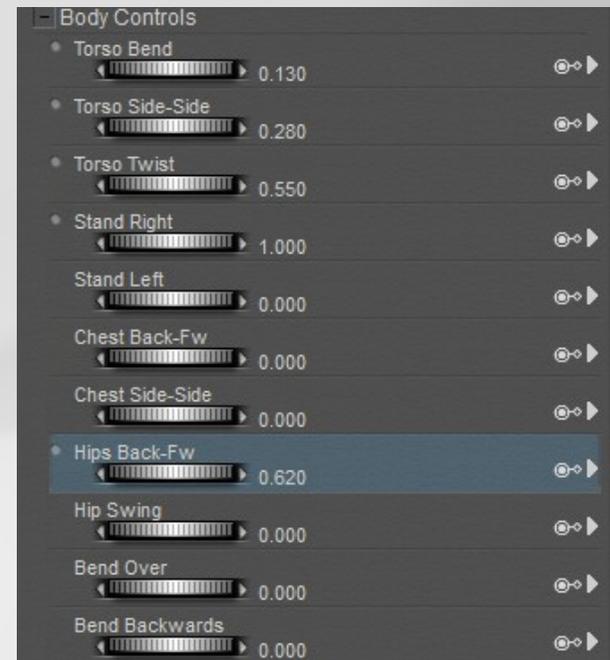
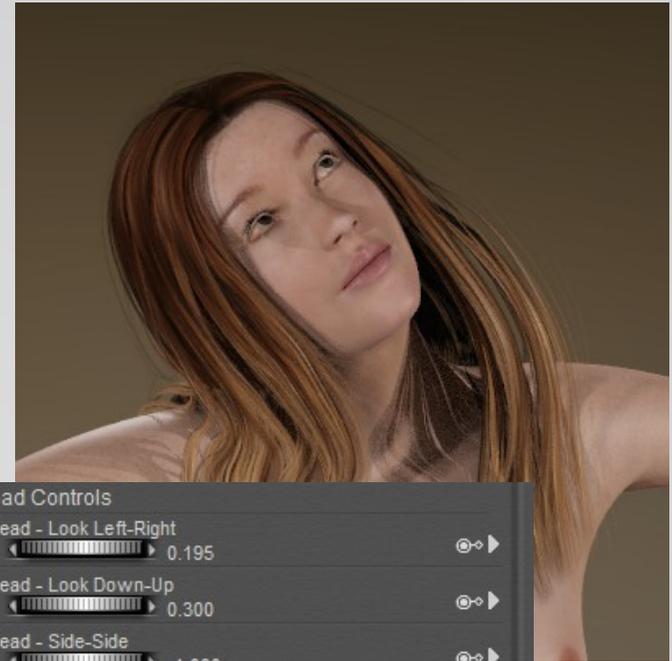
## Zero Rig

Zero rig is a dial that basically undoes any rotation or morph that might deform the mesh from its original shape. PE's mouth is actually permanently open in the base mesh, but the figure is programmed to keep it closed by default. This dial sets that to zero. It could be useful for morphing, or if you have dials that you'd want to have set to a value at the figure's zero pose, you can use this dial to program them back to zero.



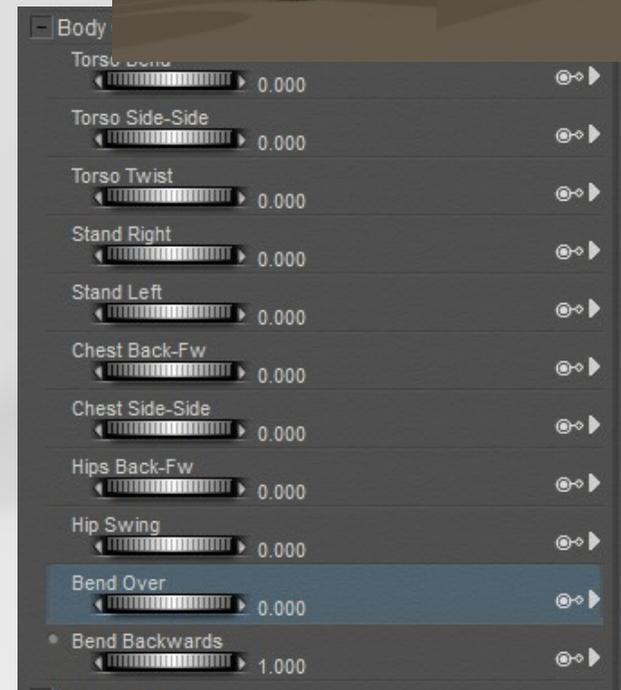
## Head and body controls

These controls should speak for themselves. Watch out though, even though these types of controls have been around for a decade, Poser still does not include them in certain fundamental calculations such as when you cycle IK. Don't ask.



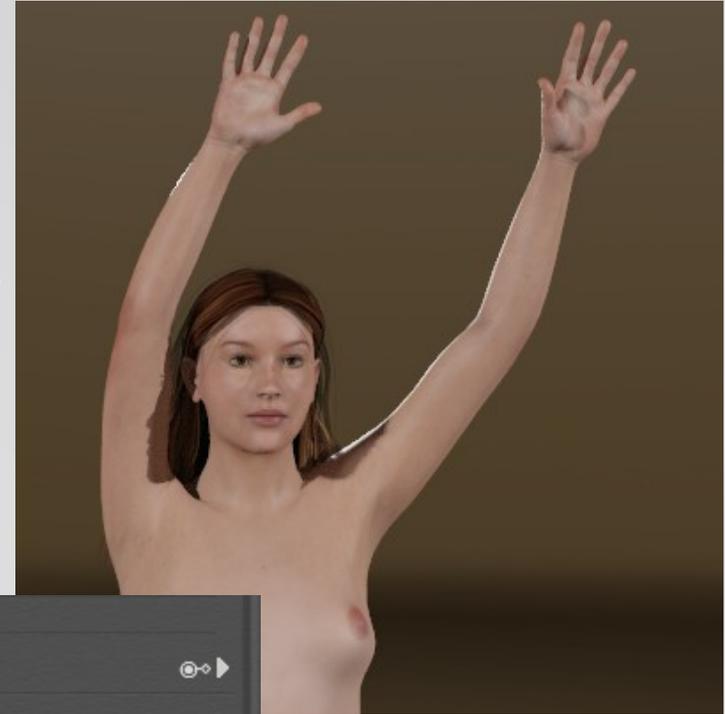
## Cool body controls

The last two dials in the body controls are more just to show off how bendy PE can be. I'm not sure if they would be of any use to anyone really.



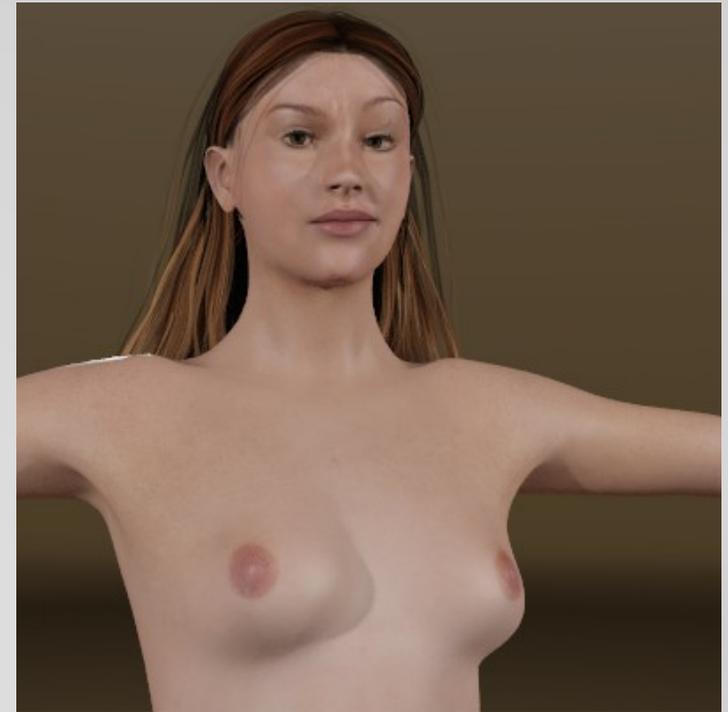
## Arm Controls

If you've checked the Intro Scene (DEMO) and read the manual, you'll know I've bashed you over the head with this a few times. Posing arms with PE is not like V4 but more like a human. Dial it in and check the individual bodyparts for the values I've set them at to understand how that works. The manual also explains a bit.



## Breast Controls

This should speak for itself.....



## Adjustments

The Knee Back Space dial can be used to correct for the mesh collapsing the back of the knee with a fat morph, or maybe if you want to add space between the leg parts for dynamic clothing.



## Character dials

The character dials each dial a bunch of either unique morphs or combinations of the standard morphs, and they also get dialed in by the character files in the library. Character dials could also be used in combination with each other to create unique characters, like the Combo Characters do.

A little side note on the name 'Smexy Layday'. I've received only one complaint about the name so far, but there might be more, I don't know. It was not meant in a bad way, in fact smexy layday actually means 'Smart and Sexy' which I would assume is a good thing. I've had several women agree with me so I'll go along with that. In any case, its just light-hearted fun.



## Proportions

The two proportions dials just make the legs and arms and a little of the abdomen longer/shorter.

I received an odd complaint that it made her fatter thinner. This is not the case here. Stocky is not the same as fat. My girlfriend has the same underwear size as my ex-girlfriend who is nearly two feet taller. The difference between the two is almost literally what you see in the picture here >

BTW: the figure does also scale in response to the length of the legs, just to maintain the height a little. Its handy if you want to create a character that is 5.5foot but you want to adjust the leg length without having to adjust the height all the time.

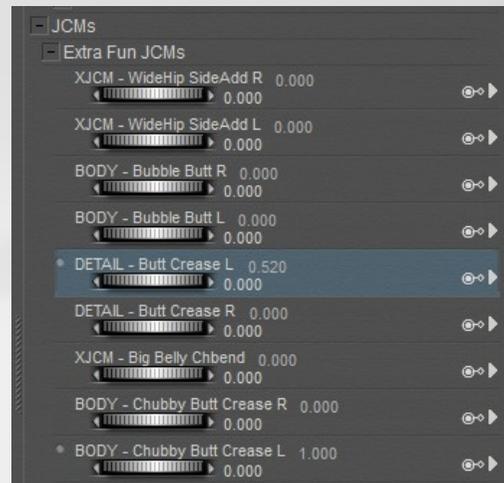
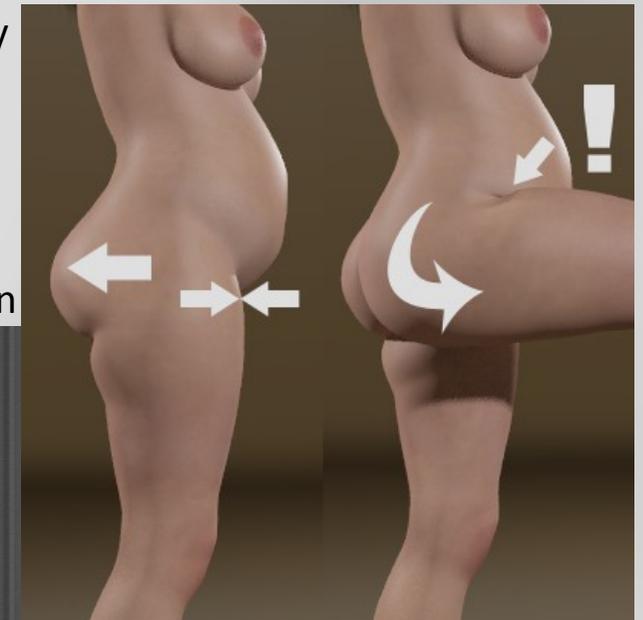


## Big girls

But if you want true voluminous ladies, then you can use either the 'big girl' dial, or the 'chubby variant'. Chubby is almost the same as 'big girl' except it adds a bit more rolls and folds to her shape.

These morphs are actually complex compound morphs designed to work with the rig. The morphs they dial in are called 'profiles' and you'll see them later. But basically they displace vertices away from the areas that usually collapse in on itself when bent, thereby reducing mesh intersection.

It also has its own JCM that correct the side-side rotations of the thighs. Its been designed to dial away some of the chubbiness as the skin is 'stretched'.



## Young morph

For obvious reasons I did not want to add this option to the Early Edition since this kind of thing has no business needing an entire reproductive system working in it. **Therefore this morph ONLY works in PE ONE and NOT in the ONE X Addon.** Please, I beg you, do NOT ask me to add this to ONE X. I will flat out ignore that request.



## Torso and Head scaling

The scaling options in PE are a little tricky, so experiment with them a little first. Pay attention to how the limbs bend if you start scaling the figure and make sure no massive spaced develop under the armpits or at the back of the knees. Remember the 'back of the knee' dial that can help there btw.

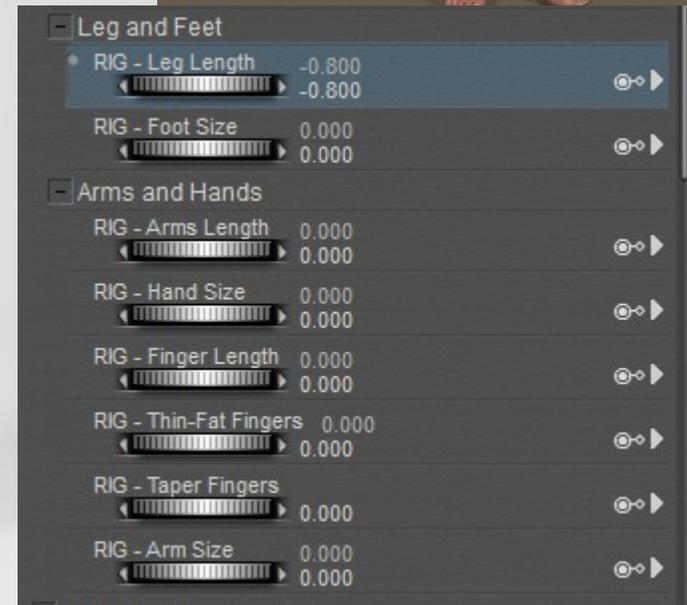


Torso and Head (proceed with caution)

BODY - Thin Neck	0.000	◀ [Progress Bar] ▶	0.000	↔▶
RIG - Neck Length	0.000	◀ [Progress Bar] ▶	0.000	↔▶
RIG - Thin Waist	0.000	◀ [Progress Bar] ▶	0.000	↔▶
RIG - Abdomen Length	0.000	◀ [Progress Bar] ▶	0.000	↔▶
• RIG - Chest Size	-0.400	◀ [Progress Bar] ▶	-0.400	↔▶
• RIG - Shoulder Width	-0.400	◀ [Progress Bar] ▶	-0.400	↔▶

## Arm and leg length

Same as with the proportion dials, the leg lengths also adjust the overall size of the figure to maintain some kind of height. Its not entirely foolproof though. But it kinda works.



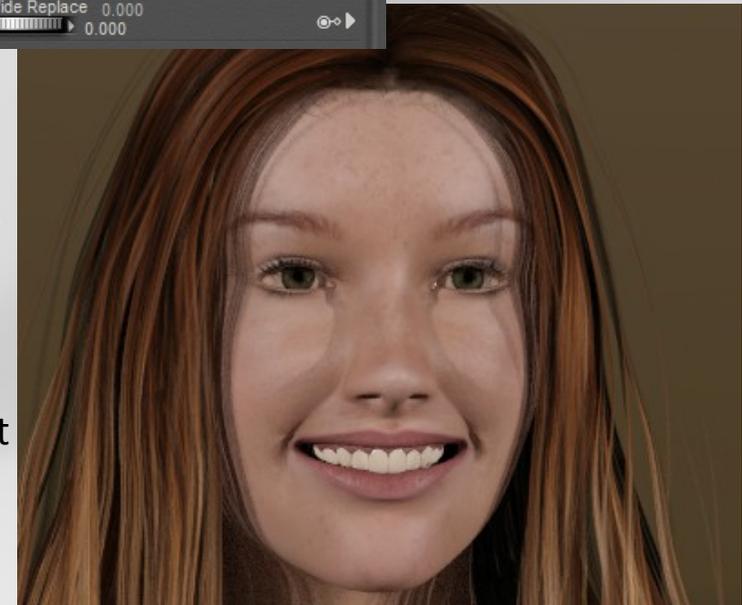
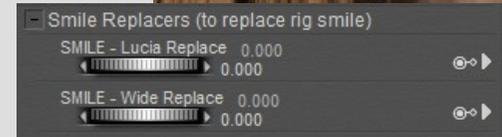
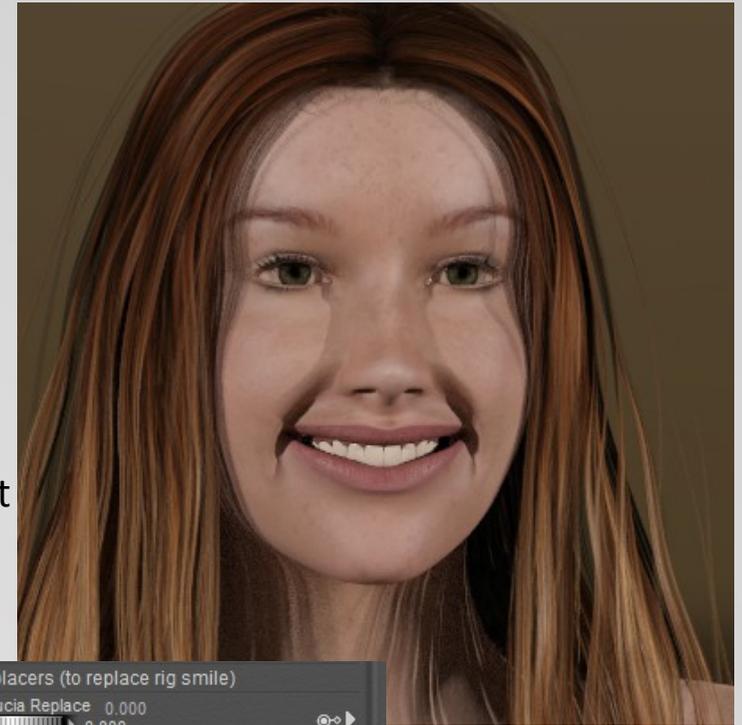
## Smile Replacers

Ok so a lot of folks don't know what the smile replacer does. They don't seem to work, right? Well they won't work until you make the girl smile, then you see what they do: they replace the smile!

So what you can do is for example set the smile replacer to 1, nothing will happen, but its ready to react once you make the girl smile. This way you can make different characters have their own unique smile, but activated using the same rig handle!!!

The trick is that they're programmed to sit at -1 by the smile handle (but Poser's limits stops it at zero), and when the smile handle is pulled up, the smile replacer goes to 0. But if you set the smile replacer dial to 1, then the value goes to zero instead of -1. Then when the smile handle goes up, now it also goes to 1, thereby replacing the smile.

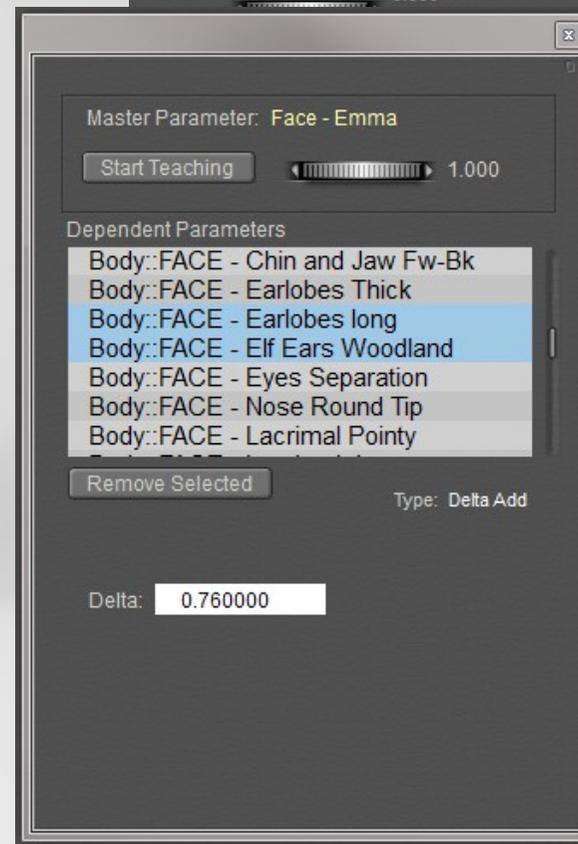
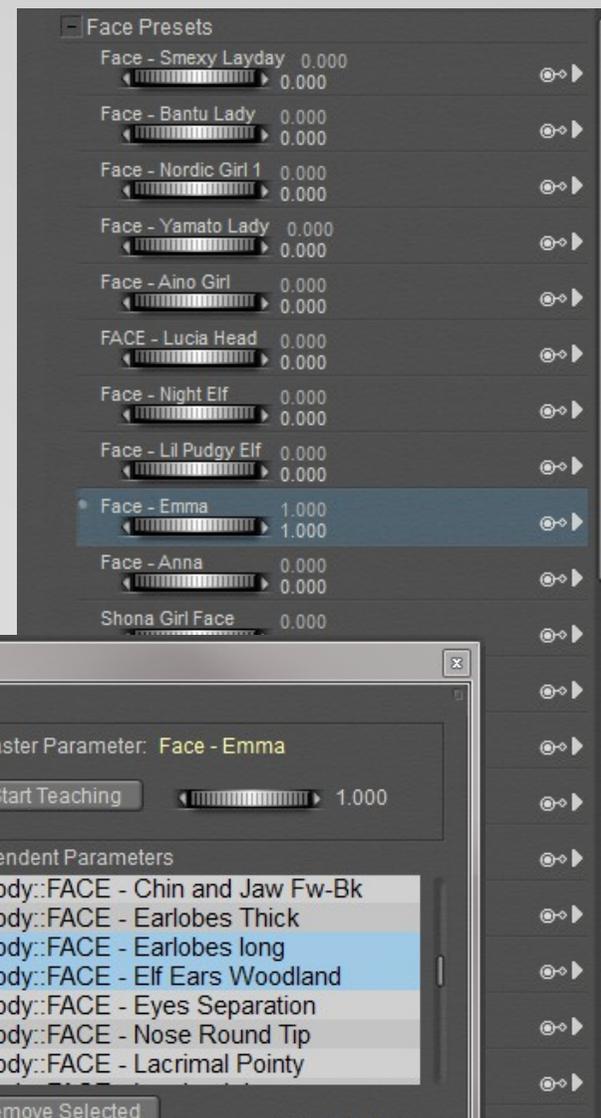
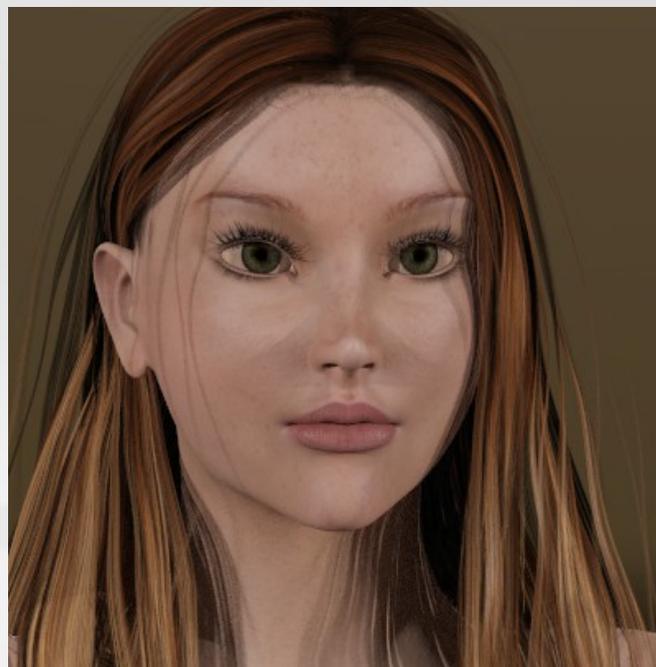
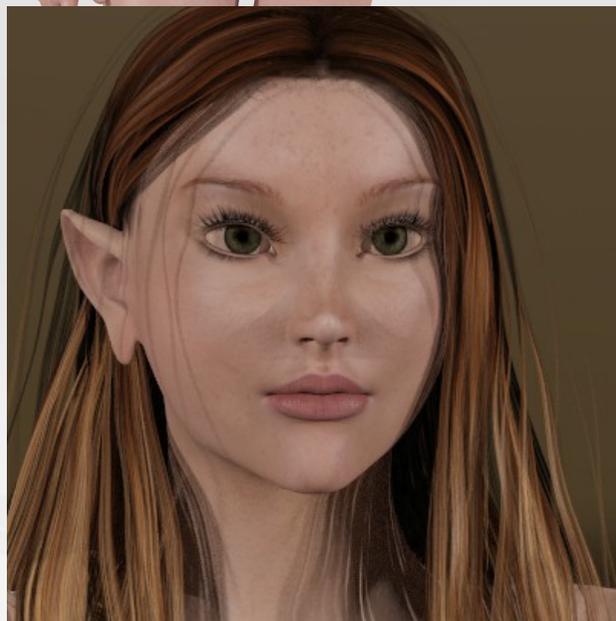
If I have time I'll try to make more smile replacers.



## Face presets

Most of the face presets are just complex dials that dial in a bunch of other dials. The presets are used in the character dials too.

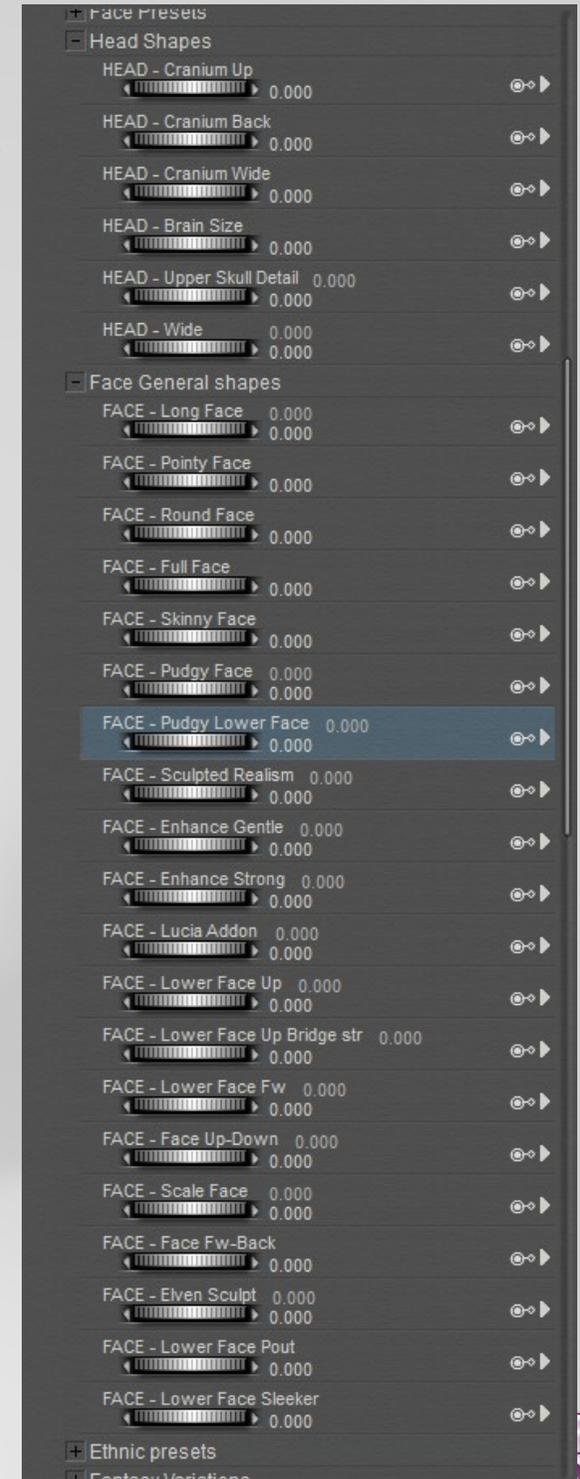
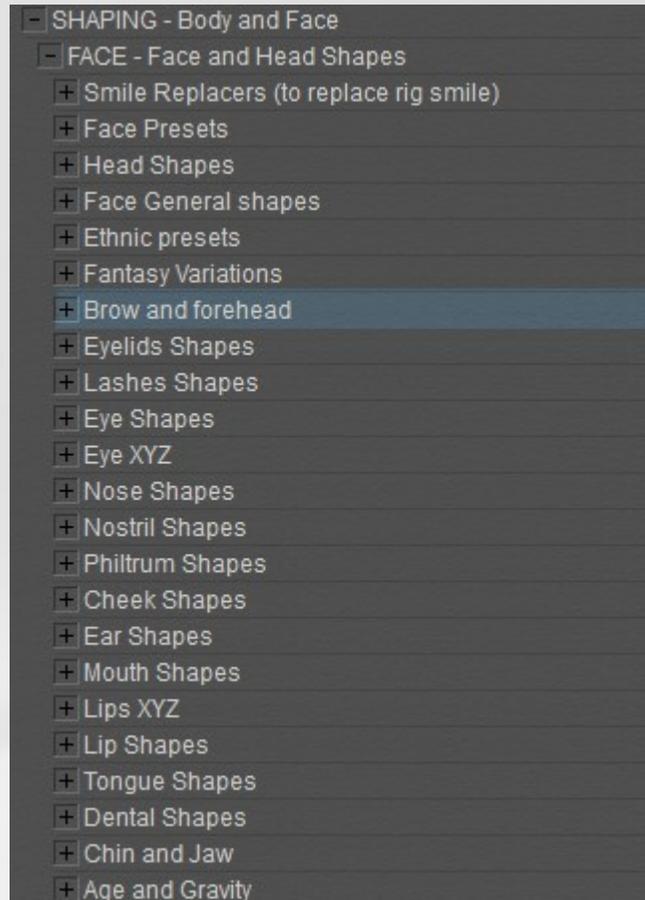
But you can change them if you want. Say for example you don't want Emma to have Elf Ears, you can open the dependency editor by clicking the dot at the end of the parameter dial box, find the elf ear references and then press remove.



## Shaping the face

So now we start going into the shaping dials, and this is where I'll leave you to do your artist thing.

Face and head shapes should speak for themselves.



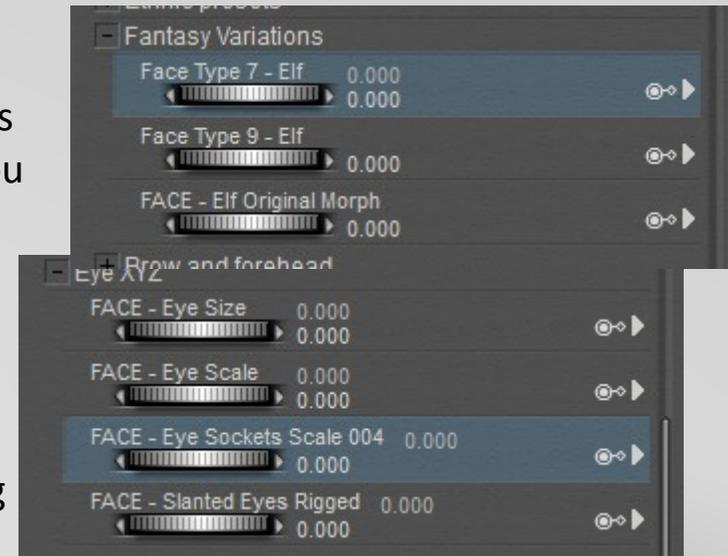
## The chaos of Development

Before we continue, I need to address some of the weird dial names that you might see here and there.

Things got pretty uncertain and chaotic during several development episodes since 2015, and I often had to change my approach when making this figure. Some dials, like the proportions dials are from the very beginning, and some of the face shape dials come from the beginning of 2017. I didn't always follow a strict naming scheme because some of these dials were experiments, and others weren't even supposed to stay. But a lot of dials were made in great haste and by the time I realized that I had spelled something wrong (like Nazal), or still had an experimental number attached to it, it was too late and the project had already gone commercial.

Once a project goes commercial, its best not to change any dial names because it might endanger compatibility with existing content made for PE, or even scenes by individual artists.

So you might see some weird dials and numbering. But that's ok, because art is not an exact science, isn't it? ;)



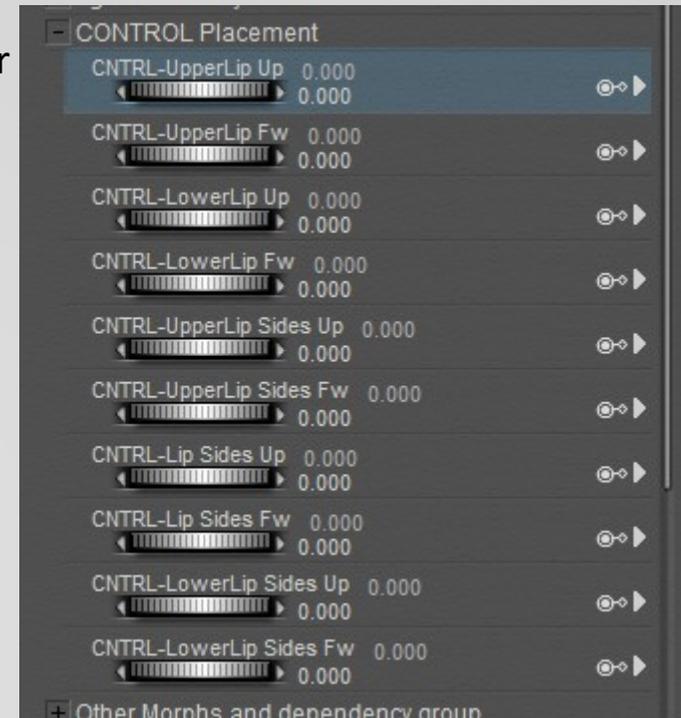
## Control placement

These dials provide a means to let you adjust the position of the face handles for if you make your own FBM that has a unique face shape. It allows you to make them follow the shape so that they don't disappear into the mesh, for example.



## Other Morphs etc

The 'large eyes inner adjust' is used by another dial as a correction. Its not likely you'll use it. Same goes for the other two.

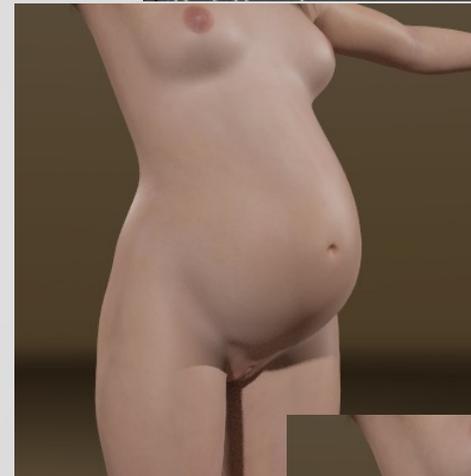
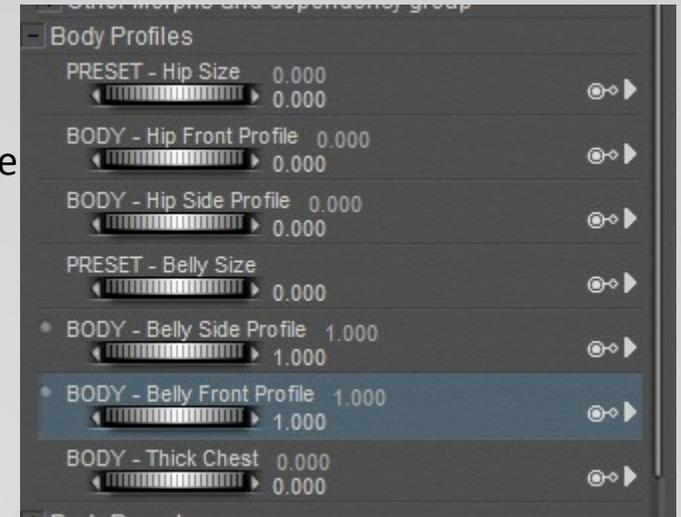


## Body Profiles

The body profile dials is what I was talking about when discussing the 'Big Girl' dial. These allow you to adjust some basic proportions in such a way that the rig is not affected too much. They come in pairs that complement each other in the Z and X directions, and also have a dial that operates the two of them together.

For example, if you dial the “Belly Side Profile”, the profile of the belly from the side grows larger, but from the front it stays the same. This can be used to show a pregnant lady. But when you dial in the “Belly front profile” too, now it looks more like a pot belly.

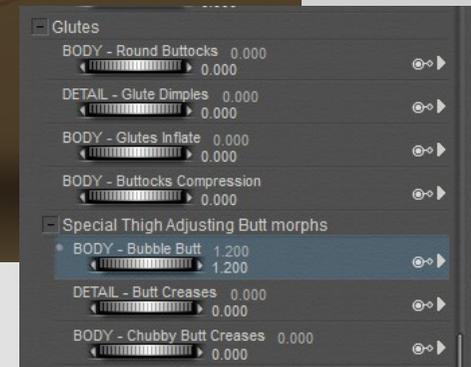
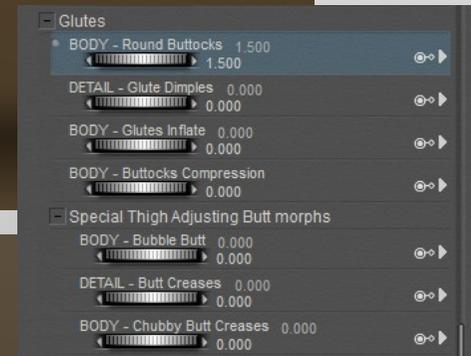
Same with the hips, you can either have wide hips, big glutes, or just a big bum in general.



## Buttock morphs

The bum morphs have two styles of morphs, one set like the typical stuff you get in figures, but another set that actually is split into two sides, of which either side gets automatically dialed away when the thigh is bent. This way the butt morphs don't interfere with the JCMs too much. You can combine the two if you prefer the butt morph to affect the bend too. Your choice.

And btw you might notice that I haven't really gone for the traditional butt morphs with the crease built into it, because that ends up looking ugly when you bend the leg. Creases obviously increase when the thigh is bent, which is why the crease is a separate smart morph, which also undials itself in response to the thigh rotation.



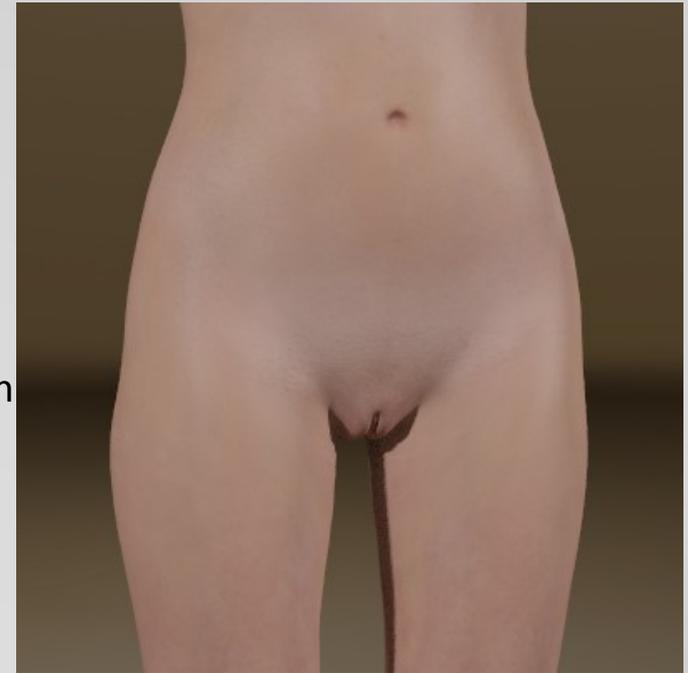
## Genitalia!

In the PE ONE base, the gens are relatively gynecologically featureless compared to the Early Edition and the ONE X Addon. Even so there's enough polygons down there to get some detail going if you really want, and might be enough to be used with some basic sex education if needed. But that's your choice.

But the whole point of ONE is to make it 'family friendly', so whatever is going on there should not be of importance.

However, to keep things compatible with the Early Edition and addons, I had no choice but to leave the basic bodyparts and their names there, but at least its not so 'porny'.

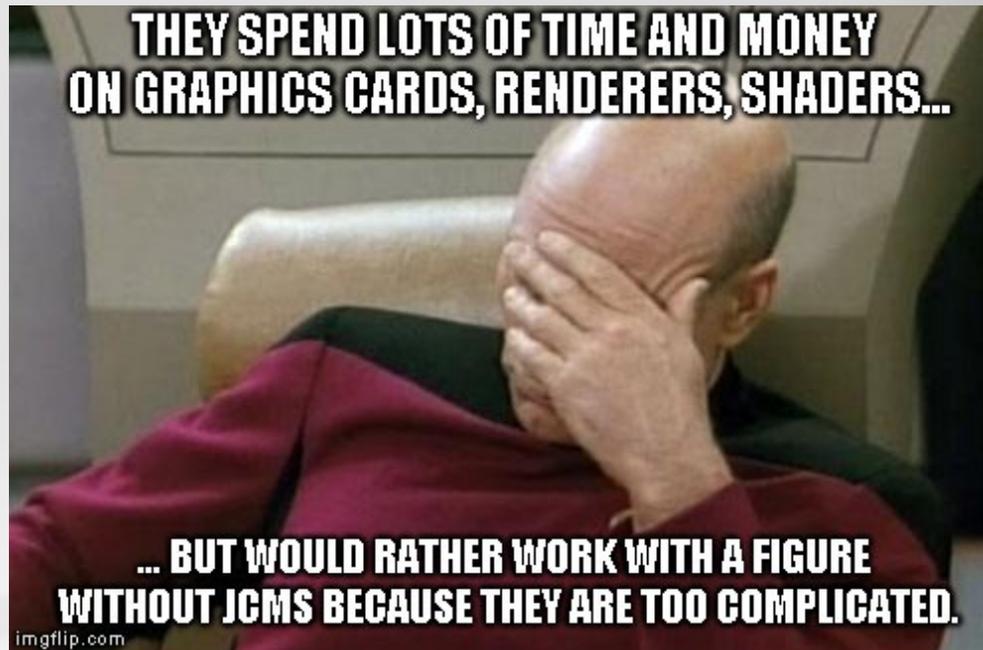
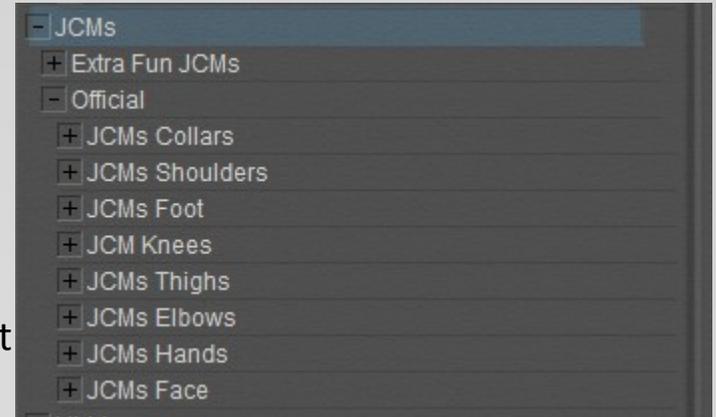
But yeah, this area becomes much busier with the **ONE X Addon**.



## JCMs!

I've said things about this before in the manual but I've seen that there are some people that still don't get the importance, and inevitability, of JCMs in Poser figures. Let me try explain with pictures why we really need to start embracing JCMs and get Smith Micro to refine Poser to work better with them.

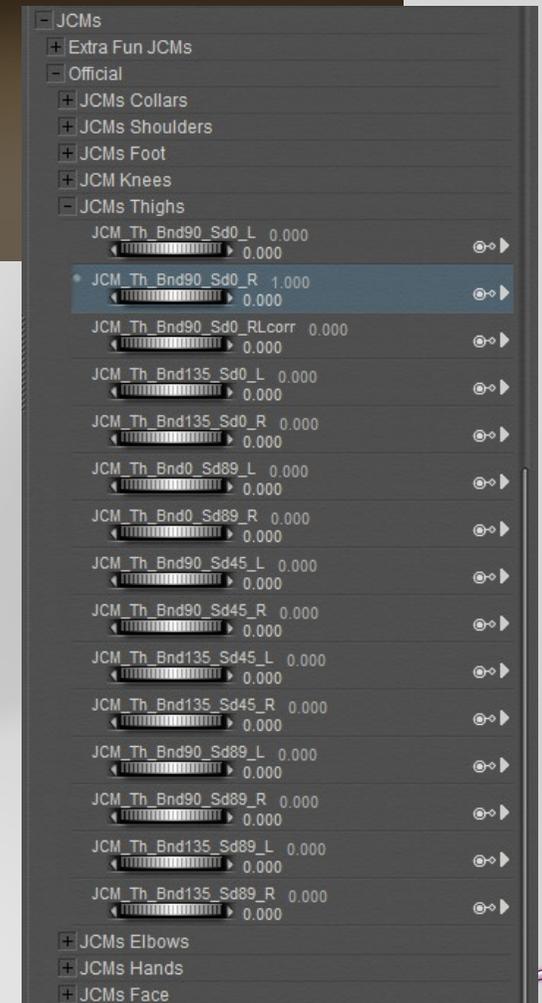
But before I start:



## Thigh JCMs 0-90

Here's a simple example of how a JCM works. When the right thigh is rotated from 0 to -90 degrees, somewhere in the BODY a dial follows it from 0 to 1.

All the “JCM\_Th\_Bnd\_90\_Sd0\_R” morph does is improve the shape of the thigh as it bends. It stops doing that at -90 degrees.



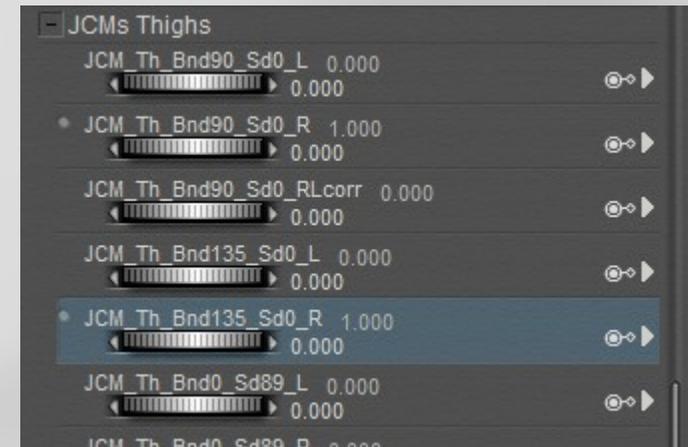
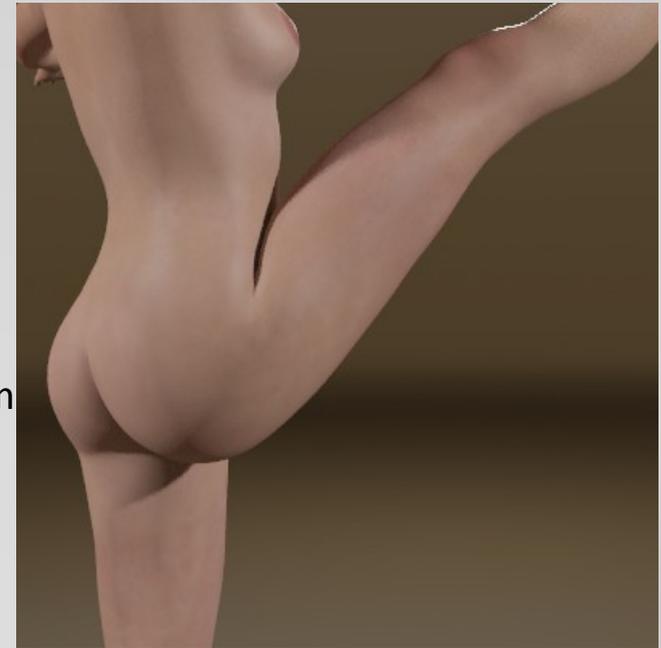
## Thigh JCMs 90-135

But if you continue from -90 to -135, another JCM takes over, "JCM\_Th\_Bnd\_135\_Sd0\_R" leaving the "Bnd\_90" at 1.

Why? Because what happens to the shape of the leg after 90 degrees, is different from what happens to it before it arrives at 90 degrees: it starts to squash up against the hip and abdomen, compressing tissue and fat outwards around the fold, and the buttock now gets stretched over the hip bones (as opposed to just uncreasing from the 0 position).

There is simply no way you can do that using Poser's Weight Mapping only.

Why? Read on:



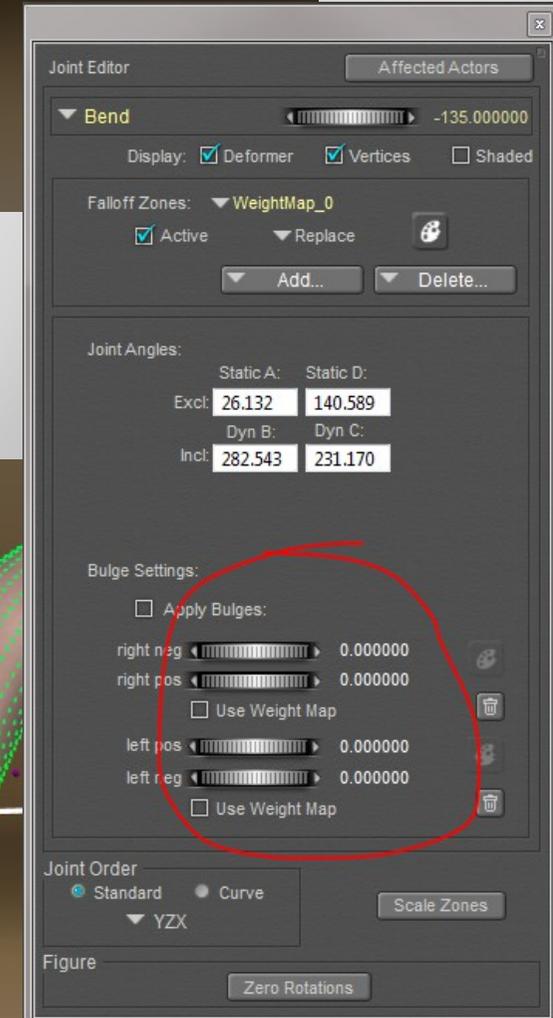
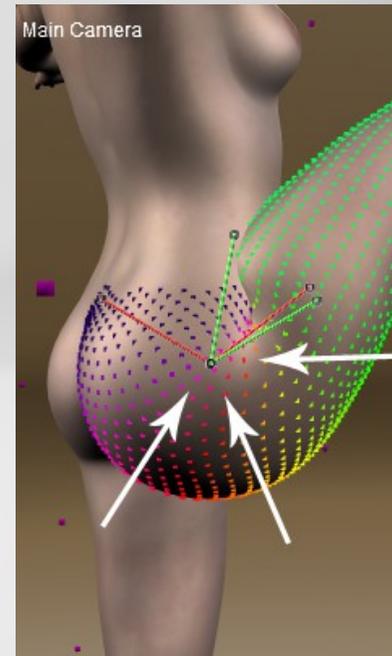
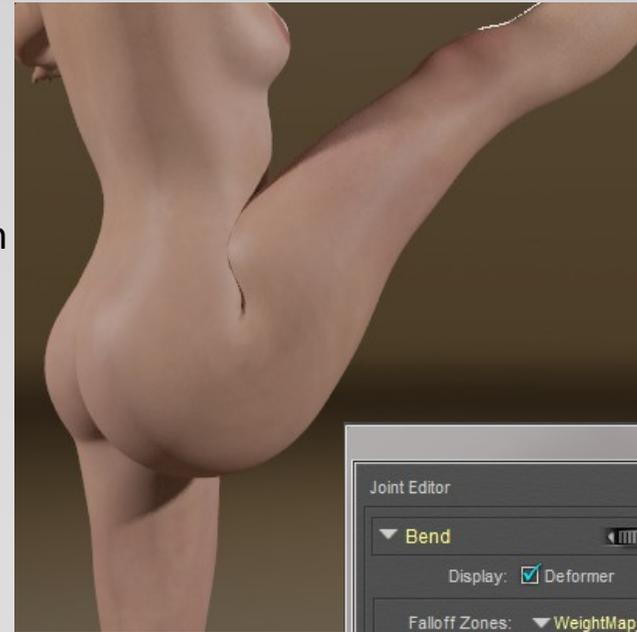
## Poser's Weight Mapping and Bulging



Poser's rigging does provide an option to add bulges to your Weight Maps for rotations, and these bulges either push away, or pull back vertices to and from the center of the joint. That's all they do... and that is the problem. No sideways movement, no fw-back, just back and forth from the center... and this gets awkward when you want to do some deformations down the length of the thigh...

In simple joints like the jaw and perhaps the breasts, bulging can come in handy, but for complex joints you simply cannot rely on bulges alone.

It is theoretically possible to emulate realistic fat compression using ghost bones, and in fact the first prototype of PE did work like that fairly well, but that opened a whole can of worms with regards to scaling., and just having a boatload of extra bones in your figure.



## JCMs can solve a load of problems in one go



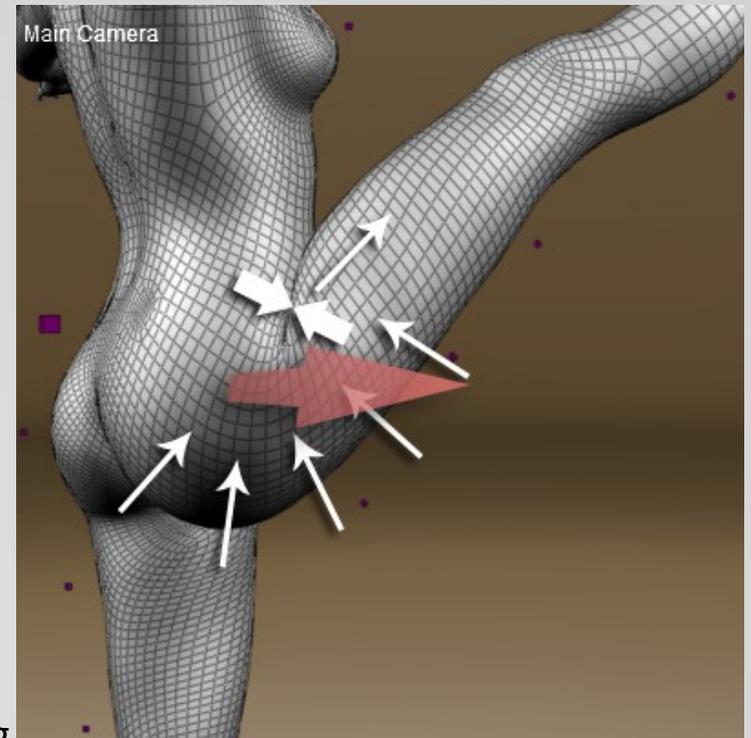
If we now look at what JCMs can do, you're free to move the vertices in any direction you want, and you see that in PE's JCMs. The vertices retract free of any center or axis, can push out in any direction and can even be modeled to make contact when compressed.

Any lover of the shape and form of a moving human being can not afford to ignore, or even downtalk JCMs.

Unless Poser comes up with a new rigging method, which is highly unlikely considering the things they need to do to catch up, **JCMs is the ONLY way** to achieve this kind of realism in an efficient way at the moment. I'm just being honest here.

Yes, transferring JCM data to clothing is complicated, but resorting to WM-only because of that is really unacceptable. We go on and on about shaders in the forums, but stop dead at JCMs. That makes no sense. It becomes P4 quality art. CGI has moved on since then. Poser need to as well. Please help urge SM to refine Poser for this purpose a.s.a.p.

Theoretically you could try this with soft body dynamics... good luck though. In any case it would be entirely impractical for most artists, especially in comics where you need to repeat scenes in short succession of each other.



## One more example of the knee

Here is one more example of why JCMs are much better for Poser figures at the moment.

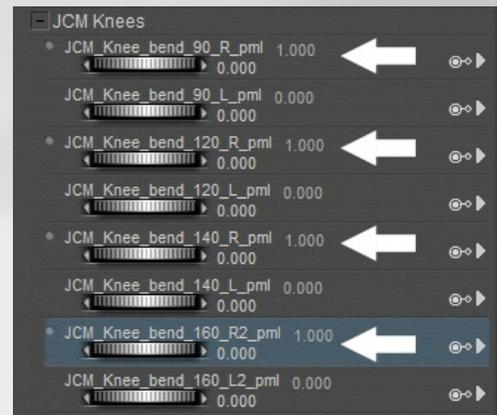
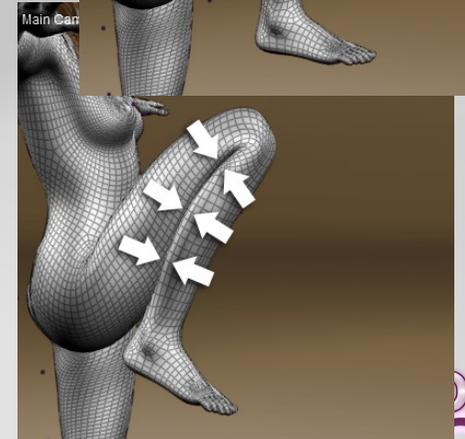
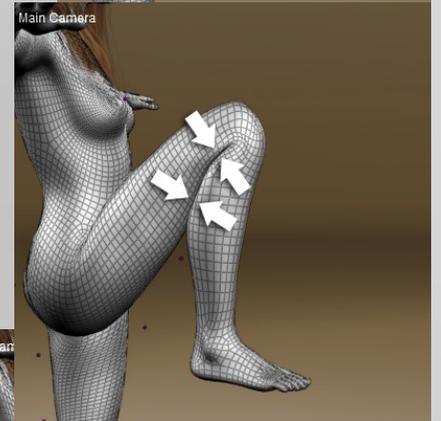
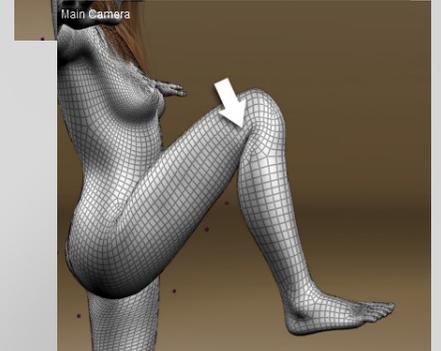
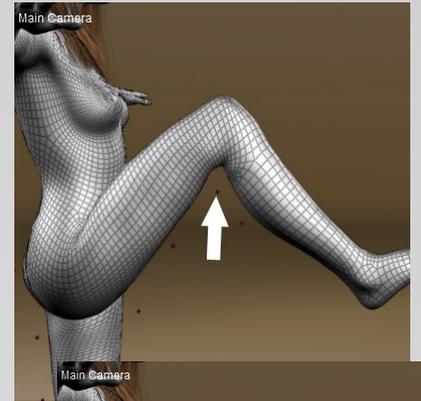
Like shown with the thigh, JCMs allow you to make limbs behave differently at certain angles. The knee JCMs show this perfectly.

When the knee bends from 0 to 160 degrees, it activates four different JCMs from 0-90, 90-120, 120-140 and 140-160. What they do is simulate how the knee bends freely without flesh compression from 0-90, and the other three JCMs simulate how the calf and thigh gradually start squashing into each other from the pit of the knee downwards.

You can not do this with WM. We cannot afford to ignore this if we are serious about our art.

I've sent my recommendations to SM regarding this need for improvement.

Ok moving on.



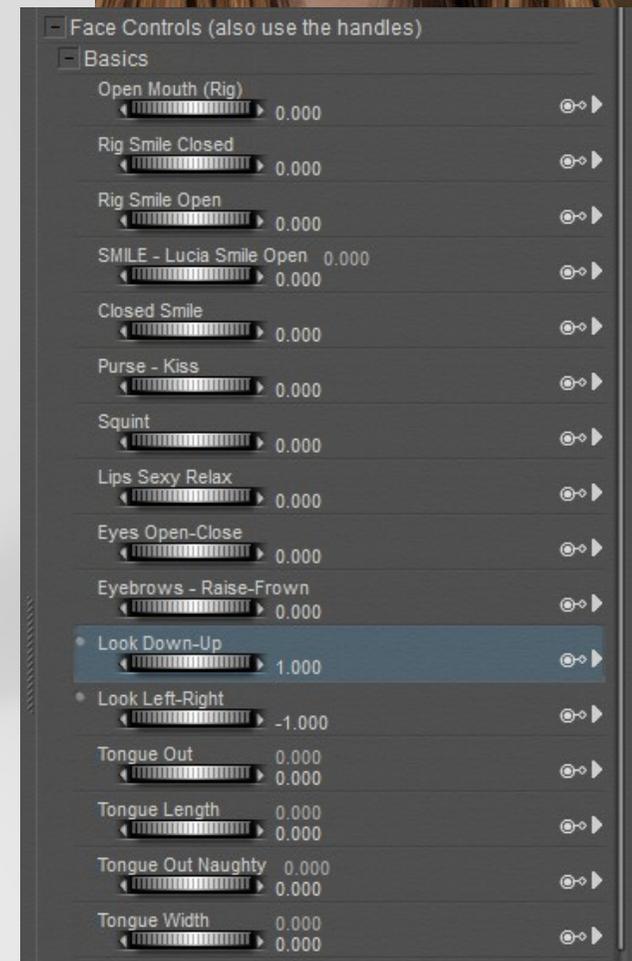
## 'Hidden' groups

When I was working with V4, I hated all those hidden dials. I am a power user of Poser, and I want to have access to everything, and its particularly annoying if you cannot edit a morph if its hidden for example. So rather than actually hiding them, I've dumped all dials that you don't essentially need into these 'Hidden' folders. But they're accessible if you need them.



## The face dials!

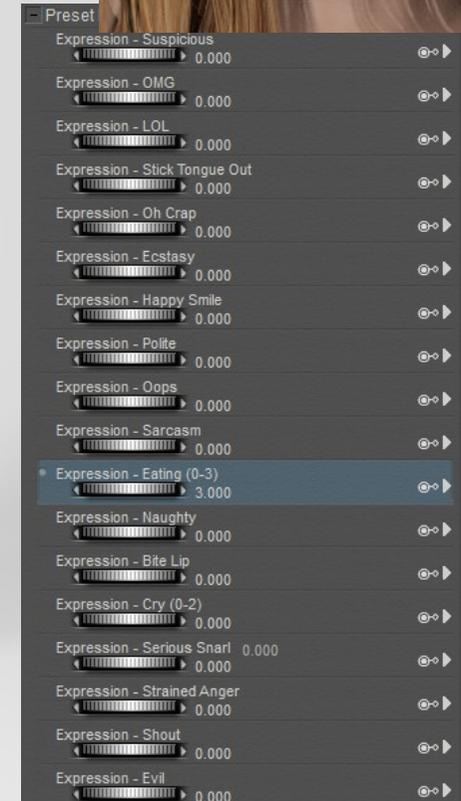
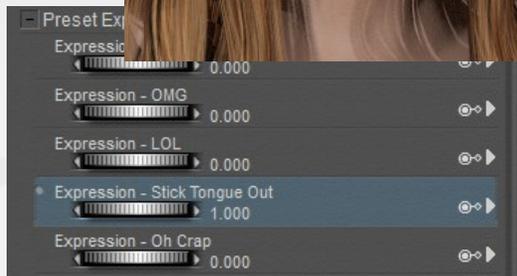
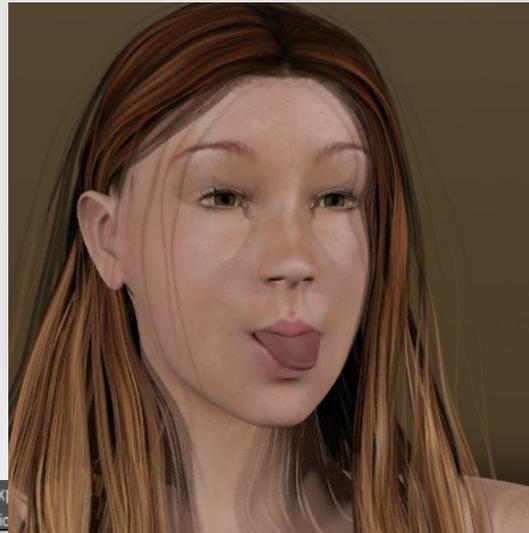
Many of the face dials just tell the actual face handle to do stuff, so also take time to get to know the face rig handles too (more on that later).



## Expressions

Although the expression dials should speak for themselves, some folks might not have noticed that there are dials that can go all the way to 3, and they have some simple inbuilt animations in them, like 'Eating'.

Other dials like sticking out the tongue actually animate the tongue and lips as she proceeds to stick out her tongue, never letting the tongue intersect the mouth.

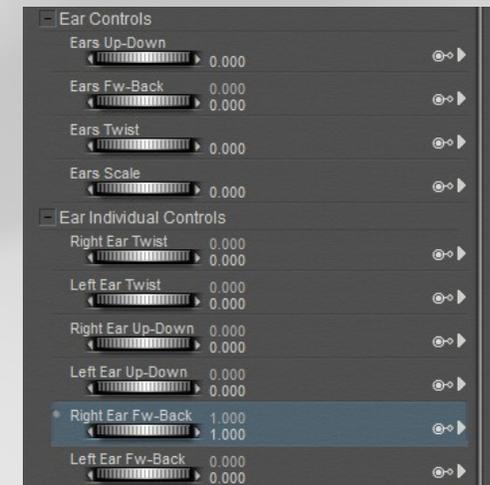
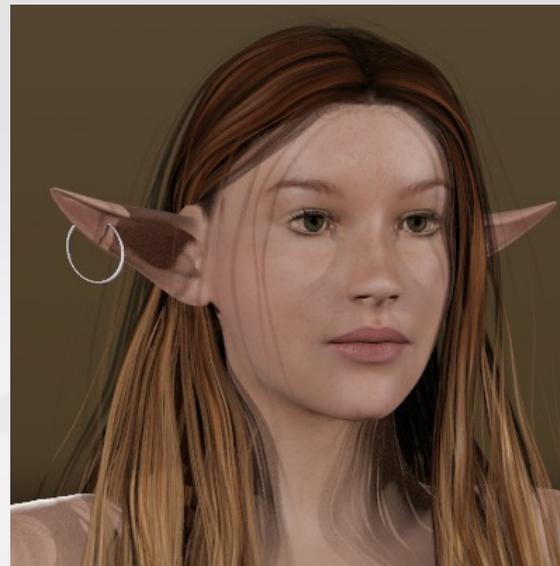
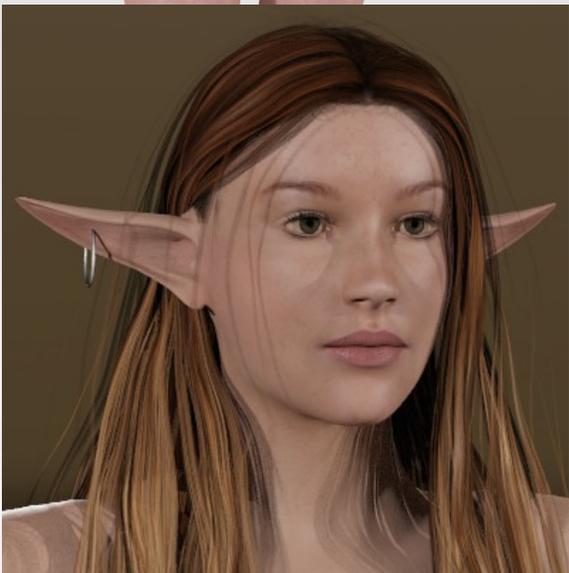
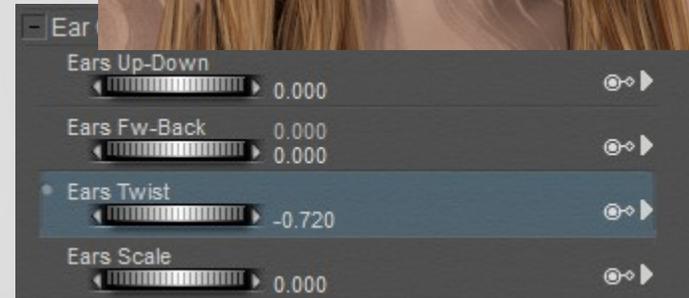


## The ear controls

The ear controls control actual ear bones (the reason they don't have any handles is because I added them at a very late stage).

Some of the rotations were more specifically designed for elf ears like in the picture.

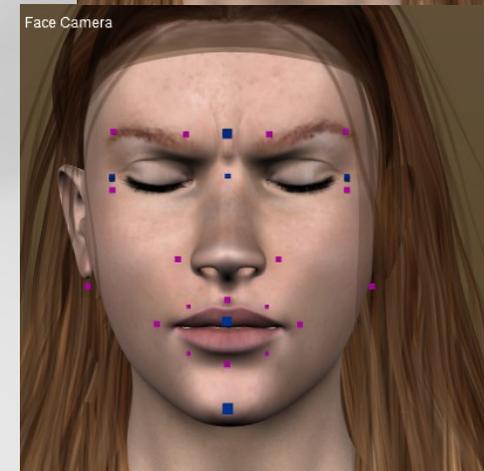
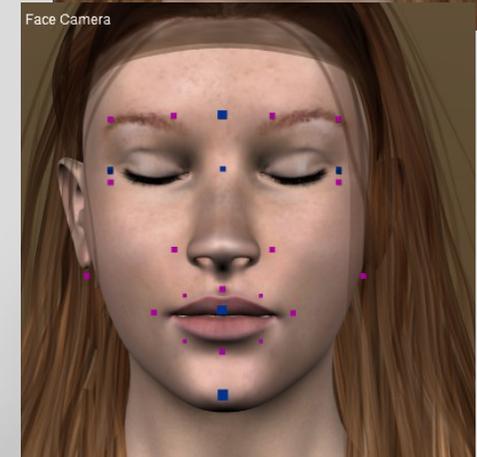
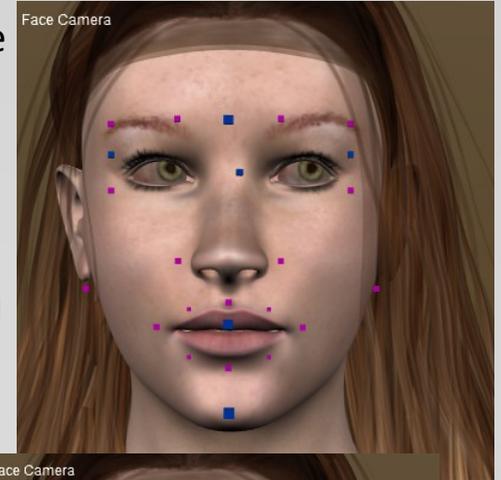
And since they are bones you can also parent an earring to the bone in the hierarchy editor, and it will follow the rotations.



## Face rig

Like with the expressions, the face rig should be simple to use, but I I've seen that some folks have missed the scaling trick.

So for example with the eye control between the eyes, you can rotate it around and the eyes follow, but if you press S (or select scaling in the toolbar), now you can open and close them. If you scale further, they close tight.



## RAW Poses

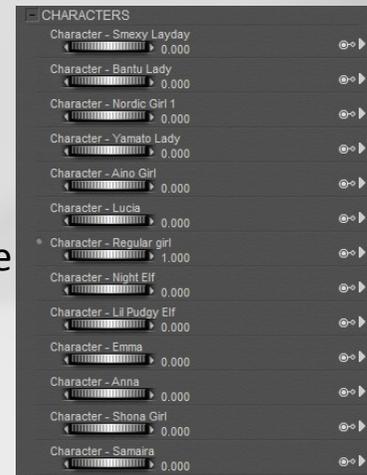
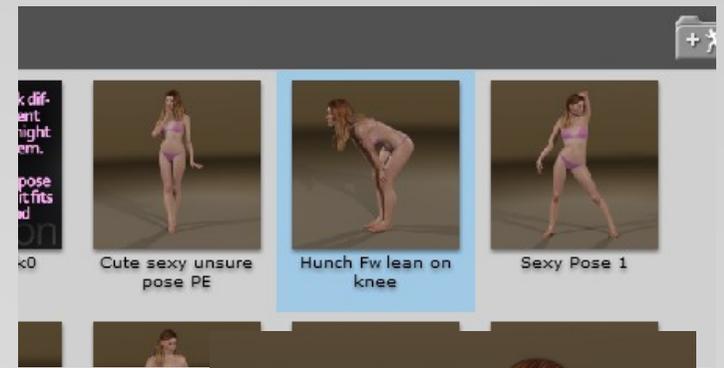
I've received a number of complaints about my poses that some of them don't work. Let me show you why some don't work:

Firstly, they're mostly just there to give you a head start and you refine the rest.

Secondly, PE comes with a load of characters with different proportions, so most of these poses would need adjusting anyway. Here's an example of loading "hunch fw lean on knee" pose.

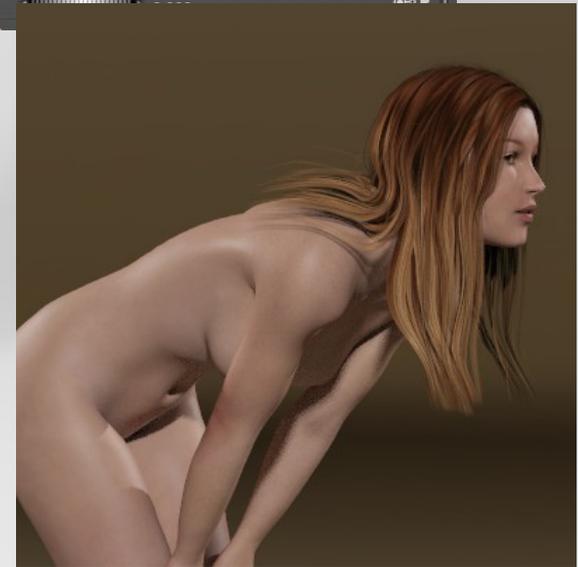
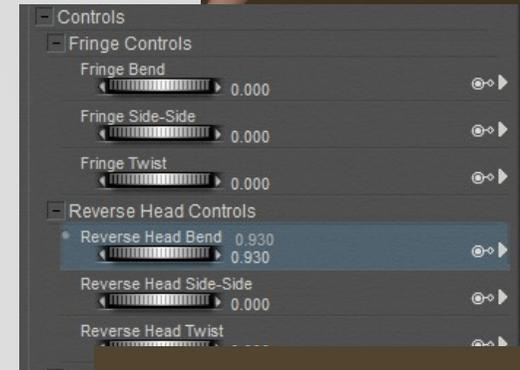
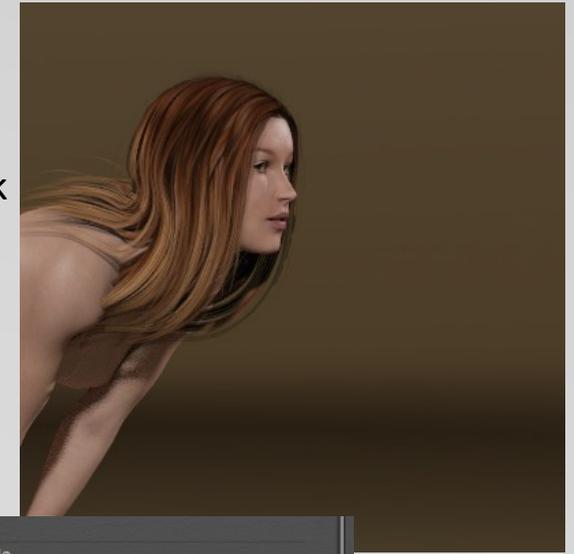
At first it looks bad, the hands poke through the legs. But if you dial in 'Regular Girl', boom it looks much better.

But I will admit that this is one area I principally don't want to spend more time on, besides helping you get the girl in the relative position, because poses can be useful and some poses are definitely tougher than others. But from thereon, this is where you take over. This is after all "Poser" we're talking about ;)



## The hair

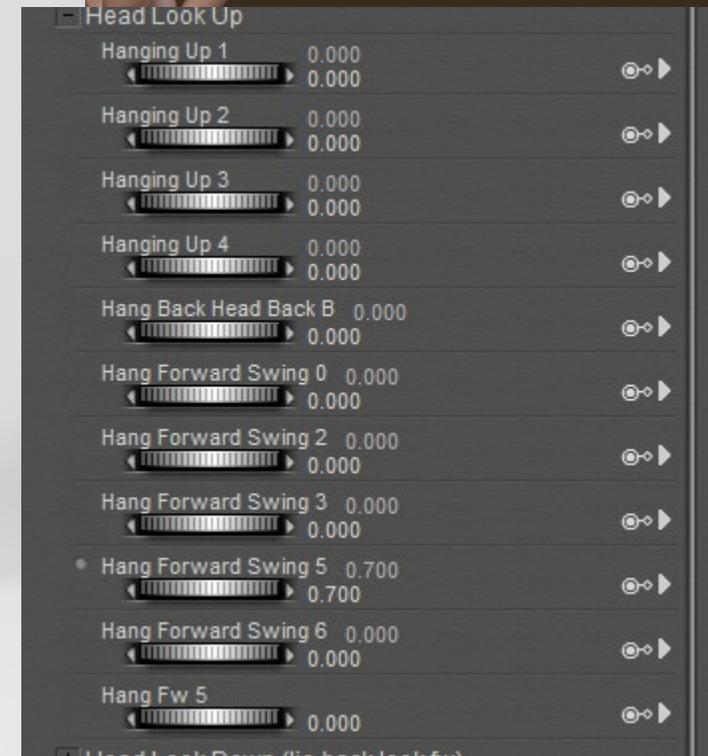
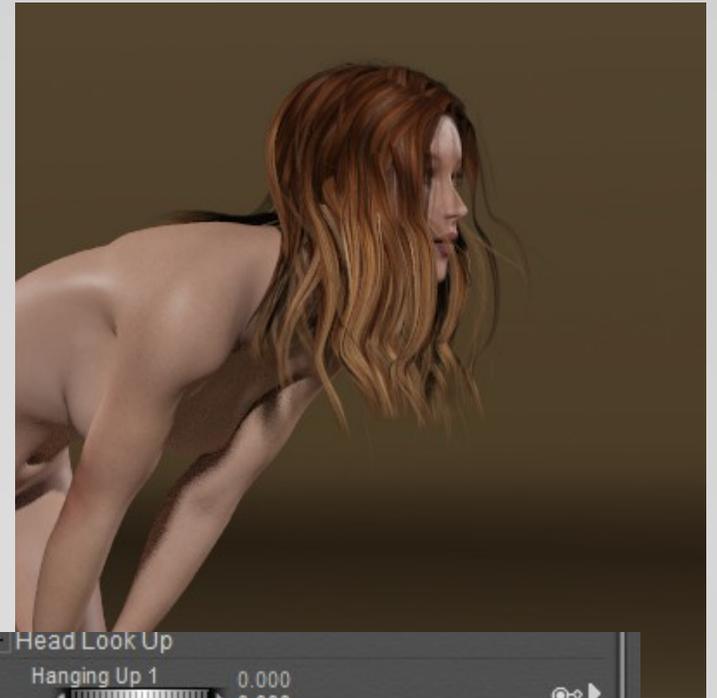
Now that she's posed like that, this is a small reminder that you can adjust the hair to actually look like its subject to gravity without going into the cloth room. The dials basically rotate one of the ghost bones in the hair piece. There's many more options like that.



## Clothesim morphs

But there's more. I used clothesim to make morphs to help with certain rotations. This will be a little touch-and-go, they're not perfect, but they can be fun, and a quick option instead of going through the clothesim. Here's an example.

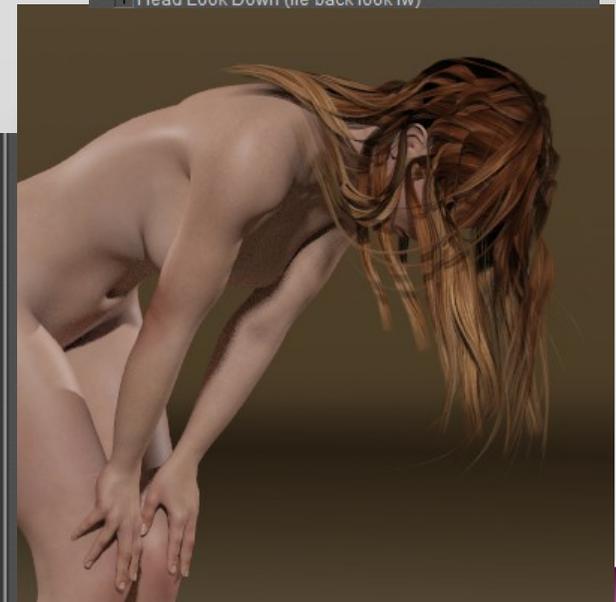
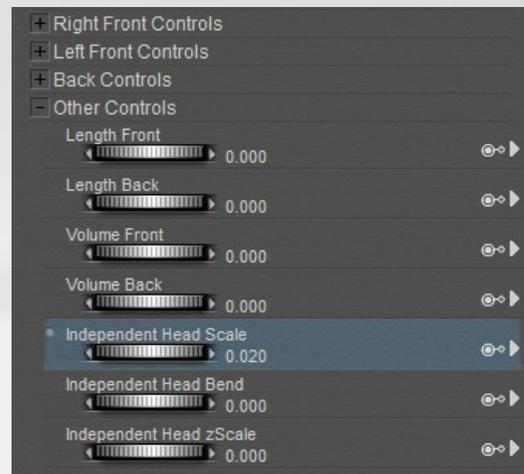
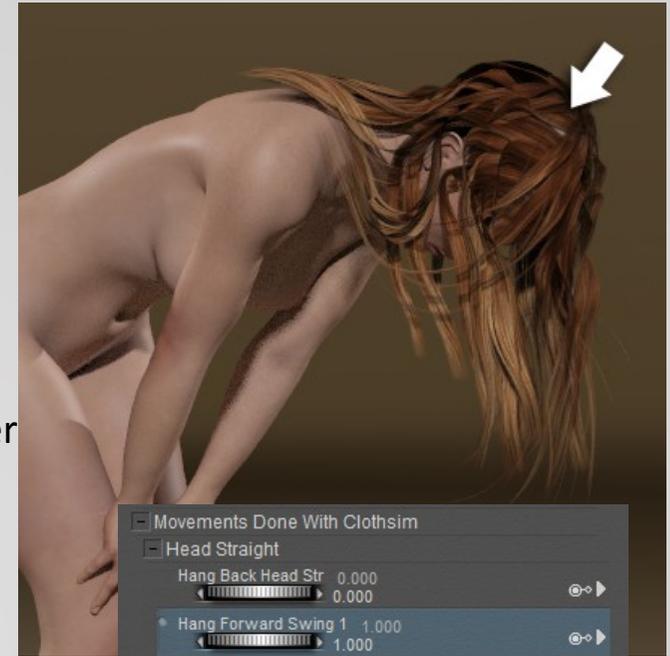
The group names should tell you the intended pose for the morph, like 'head look up' is what she's doing in the picture.



## More hair fun

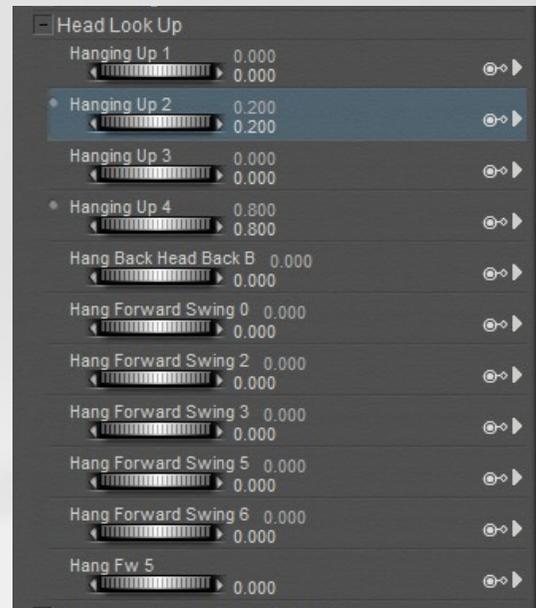
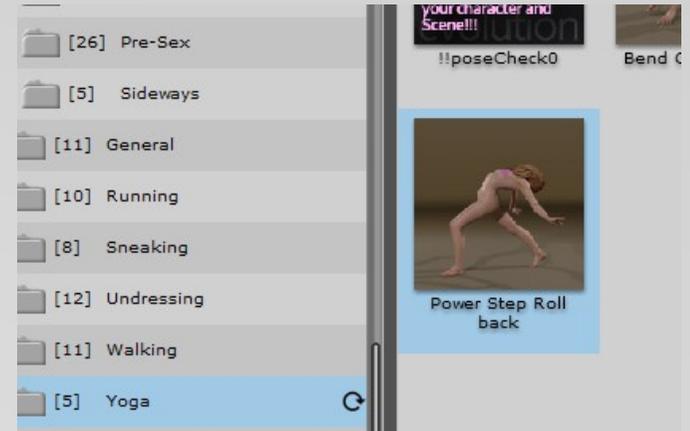
The 'head straight' group is obviously for when the head and neck is straight relative to the body, but maybe the body is at an angle. There are some options for that.

As you can see its not entirely perfect, there's a little poke-through at the top of her head. That can easily be fixed by using the "independent head scale" dial, or you could even adjust it with your own morph if you want?



## Combining the morphs

Here's an example of how you can combine two morphs if the head is not at the exact angle that the morph works with. Just combine two until you get the right angle!



## Extra hair morphs

the new hair piece comes with new morphs, check them out!



Bangs and Strands	
Bang Center R	0.700
Bang Center L	0.100
Bangs Middle Bk	0.000
Bang Lower L	0.000
Bang Lower R	-0.520
Bang Lower L fw	0.000
Bang Lower R fw	0.000
Bang Middle Bk L	0.000
Bang Middle Bk R	0.000
Strands Before Face R	1.180
Strands Before Face L	0.860
Strands Before Face Asym	0.000
Bangs Before Face	0.000
Bangs Before Face R	0.000
Bangs Before Face L	0.000

## Conclusion

That's it for now! Thank you for reading this, I hope it helped. Sorry if I came across a little grumpy when speaking of JCMs, but yeah, I feel its important to start moving on from old times.

I hope more content will come along for this girl, and I hope you have lots of fun!

