3 Long Qualities for Strength & Comfort

We've probably had the experience of how our body can feel long, open, and comfortable when we don't have to do anything. Then, when we need to take action, we can think that we have to sacrifice this comfort, especially when we need strength. Here we will see how the long quality of muscles actually helps physical strength. In other words, it is not a matter of strength *or* comfort, but a matter of strength *and* comfort.

We'll see this in 3 steps by exploring the 3 long qualities at work in action. Each will be explained with simple logic and with most basic physiology and physics. Though simple, by understanding and practicing each long quality, we can experience a substantial effect in terms of increased strength, even as our action feels easier and more comfortable.

1. Not-doing Long

The first long quality we'll look at is the long we can experience when we don't have to do anything. For example, this is the long quality we can feel in our arms when there's no need of muscular engagement. In the case where our arms are loosely hanging down, all the muscles of our arms can be *not-doing long*.

If we need to do something, though, such as lifting an object by bending our arm, we tend to sacrifice this feeling of long quality in the muscles of our arm. We can feel a tightening and shortening in the biceps muscle (at the front of the arm) and also in the triceps muscle (at the back of the arm) to some degree.

Yet do we really need to sacrifice the not-doing long quality in both the biceps *and the triceps* muscle? In the action of bending our arm, it's the biceps muscle that does the bending action by engaging. The triceps muscle cannot help in this action because, when it engages, it actually extends our arm and so works against the bending action of the arm. In other words, our strength as we bend our arm is how much our biceps muscle is working *minus* how much our triceps muscle is working.

As an example, let's say that our biceps muscle is working twice as hard as our triceps muscle as we do a biceps curl. This means that our total strength is actually cut in half by the extra effort of our triceps muscle. If we felt *not-doing long* in the triceps, we would be twice as strong. Our triceps could continue to feel the ease and comfort of not-doing long (as when our arms were just hanging down with "nothing to do"), and, as a result, we could be significantly stronger even with less muscular effort.

This may sound "too good to be true," yet we have seen that there is a simple explanation for how the not-doing long quality and increased strength can arise together. The increased strength is actually the result of more fully relaxing the triceps and feeling the not-doing long quality in that muscle. Below is an exploration that can help us to begin to feel this for ourselves.

Not-doing Long Exploration

For this exploration, you can add weight or can provide resistance by pressing down with your other hand on the forearm that is doing the biceps curl.

1. For comparison, you can start by really trying to fully engage and tighten the muscles of your arm (both biceps and triceps) while doing the biceps curl action. As you tighten as much as possible, assess the strength of your bending arm with added weights or by pressing down more with your other arm.

2. Next, release muscle tension in your arms as much as possible while hanging down loose where all the muscles of the arm don't have to do anything. Notice the not-doing long quality of the triceps muscle in this situation.

3. Now, you can try returning to the biceps curl, while continuing to feel the not-doing long quality of the triceps muscle even in this situation. This may not be easy, so, if you are not noticing a difference yet in terms of increased strength, here's a temporary trick that can help. To keep feeling long in the triceps, try to feel that elbow is "far away" as you bend your arm. Again, assess the strength of your bending arm by adding weight or pressure.

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By sacrificing the long quality in the triceps, we are actually making ourselves weaker. As we can see, it's very simple, in a way. The "not-doing" muscle of the triceps in this case needs to be not-doing. It needs to completely relax. In other words, as much as is feasible for us, the muscle needs to keep the not-doing long quality.

This may seem "backwards" or "counterintuitive" at first. In the midst of action, people can tend to feel as if it's not safe to fully relax because we associate that with sacrificing our performance or being weaker. As a result of this misunderstanding, we may act as if we will be stronger, the more *all* of our muscles engage and do more. Keeping the triceps muscle relaxed—and feeling the not-doing long—is a specific example of how we can understand general relaxation as not-doing interference in our action.

Not-doing and relaxation-in-action (wu-wei)

As we saw in the action of the biceps curl, the biceps muscle needs to be engaging and the triceps muscle needs to be *not-doing* for us to be maximally strong in that action.

Here we'll see this in terms of the simple logic of how general relaxation is a necessary condition for optimal action.

Practically, there are two components of optimal action:
- Doing the correct thing
- Not-doing the incorrect thing

The second component of optimal action (not-doing the incorrect thing or not-doing what is interfering in our own action) can be thought of as relaxation generalized because it always applies. With this understanding of relaxation, more complete relaxation results in better performance no matter what the action or the situation. This relaxation-in-action applies to everything—not only physical action—and can connect to the traditional concept of wu-wei (not-doing).

As we've already seen when applied to physical action, the more completely we relax in this way, the stronger we are. This means we can help ourselves to be maximally strong by feeling the not-doing long quality in all the "not-doing" muscles that are not required for a given action.

Takeaway: Relaxation is a prerequisite for optimal doing together. By keeping—rather than sacrificing—the comfort of the not-doing long quality, our action goes better.

By understanding the role of relaxation-in-action, we've begun to clear up misunderstandings about what really makes us stronger. To be our strongest in a biceps curl, we've seen that it is necessary to feel the not-doing long quality in

the triceps muscle. In this way, we can feel more open, long comfort in our arm and be stronger for it.

We can use the simple feedback of feeling long in the triceps—not sacrificing the long quality—to guide us in practice towards greater strength even as our action feels more comfortable. But what about the muscle that is doing the action? Don't we need to sacrifice the long feeling in the biceps muscle—the *doing* muscle?

2. Doing-together Long

We usually think about muscles becoming *shorter* as they engage to give us strength. On the other hand, if we think about how muscles are a soft tissue (like a rubberband), then muscles must be *lengthened* by the load in order to exert their force. As we'll see, both are at work in our action.

To continue the analogy with rubberbands, we can see that there are two aspects at work: how *thick* a rubberband is in its shape and how much it is *lengthened* by being pulled. As we know from our experience of rubberbands, a thicker rubberband is a stronger rubberband. Yet we also know that a rubberband has to be pull-lengthened in order to have substantial strength. (After all, squeezing a rubberband doesn't really do much.)

Let's see this in an example where our biceps muscle is engaged so that our arm is bent. If we were to add a weight (without changing other factors), then we could see that our biceps muscle has lengthened in order to reach the new equilibrium. As seen in the picture, the position of our arm is lowered because it's pull-lengthened. It's as if we had a rubberband with an added load so that it has been pulled longer in coming to the new equilibrium (where the force of the rubberband and the force of the load are balanced).

This is a demonstration of how muscles are lengthened when they exert more force. We might still wonder: Why, then, in this kind of situation, do we tend to feel that it's the shortening of the muscle that gives the strength?

To see this, let's keep our arm in the same position this time, even as we add more weight. To do this, we're going to need to engage our biceps muscle more. In a way, it is as if we are able to thicken "the rubberband" of the muscle so that it is stronger *even with the same position* for the equilibrium.

We can tend to notice more easily how muscles are engaging, or muscle fibers firing, which corresponds to the thickening and shortening the muscle. At the same time, though, we've seen how the strength always has to come from the muscles being pull-lengthened.

Based on this, we can see how we don't have to sacrifice feeling the lengthening quality in the biceps muscle even as it engages. Even the "doing" muscles can feel long, too, in this way. We don't need to sacrifice the doing-together long quality in our engaging muscles because the force is actually coming from the pull-lengthening of those muscles.

This would apply to all the "doing" muscles, meaning we don't have to sacrifice the long quality comfort in any of the muscles that are doing the action. Straight-forward as this is, this can be especially difficult to feel and apply in action. We are so used to thinking only about our muscles pulling and thickening, causing us to lose the feeling of pull-lengthening in the doing muscle.

How we can actually go about not sacrificing the lengthening quality in our doing muscles? It can help to see how our action is really a matter of action-reaction. By feeling how we are *being pulled* (as well as pulling), it is easier to feel the doing-together long—the pull-lengthening—in our doing muscles.

Action-Reaction & Doing Together

Though we often think only in terms of one side of an action, we can know from physics that action and reaction always go together as one event. This means that we cannot pull without being pulled because Newton's Third Law of action-reaction.

This dynamic can be easier to feel first in terms of pushing. When we push a wall, the wall is also pushing us back with equal and opposite force. When we are pushing the ground downward because of our weight, the ground is also pushing us back upwards by the same amount.

When we are lifting a weight in a biceps curl, we are pulling the burden of the weight and are also being pulled—being lengthened—by the weight. By feeling what the weight is doing to us, it can help us to feel being pull-lengthened by the weight, which is the doing-together long quality.

Takeaway: Because action is always part of interaction (action-reaction), understanding and perceiving this can help us feel the comfort of doing-together. Instead of feeling as if we are carrying the burden alone, with doing-together long we can feel how the burden pull-lengthening the muscle gives the strength in the action.

Because we tend to feel more in terms of "our side" (i.e., our doing of pulling the burden of the weight), it's helpful to balance this by feeling "the other side" of the interaction in terms of the burden of the weight. Instead of trying to carry the burden alone by focusing on our pulling of the burden, we can notice how there is action-reaction so we are actually doing together with the burden. We can indicate this with the phrase "laying down the burden." As we'll see in the exploration below, laying down the burden helps us to feel being pulled and the pull-lengthening of our muscles. This helps us feel the doing-together long of the doing muscle and how that gives rise to our strength.

Doing-together Long Exploration

This exploration is a chance to feel what we've seen already in this example about doing-together long. For this exploration, you can use an object with some weight (or, alternatively, you can just push down with your other arm).

1. With your arm bent with just the weight of your arm, notice the angle of your elbow.
2. While keeping your muscle tone the same, add a weight (or "burden") for that arm to carry, and notice how arm is lowered because of the pull-lengthening of the biceps muscle.
3. Here we can also use "laying down the burden" because the biceps is *being pulled*—that is, it is being lengthened—by the burden of the weight. Feeling "the other side" of the interaction can help you to feel the doing-together long quality in the pull-lengthened biceps muscle as it works.

We tend to think that we have to sacrifice the long quality because of the burdens we carry, yet we've seen how, because of action-reaction, the pulling/being pulled of the burden and our biceps are doing together. So, instead of trying to carry the burden alone in a short and closed way, we can feel how we are doing it together with the burden without sacrificing long and open comfort.

In other words, we don't need to worry that feeling long, open comfort will lessen our strength. We can feel that we are "laying down the burden" in our action because we feel how all our action is interaction. We can understand and feel how the comfort together of doing-together long gives rise to strength in our action.

3. Altogether Long

So far, we've looked at the not-doing long of the "not-doing" muscles and the doing-together long of the "doing" muscles in a given action. We've seen how, whether our muscle is supposed to be not-doing or doing, it is helpful not to sacrifice the long quality comfort of the muscle. What more could we cover? In step 3, we'll look at how long quality connects. For this, let's start with an exploration.

Altogether Long Exploration (not-doing)

While feeling not-doing long, we can also feel how the long quality naturally extends to other muscles. For example, we can feel long in the muscles of the upper arm (biceps and triceps) and also feel how the weight of our arm is helping our shoulder muscles feel long and open. We may even feel this long quality connecting—flowing through—all the way to our neck. This is an example of altogether long.

Next, let's see that this altogether long quality connects for both the not-doing muscles and the doing muscles. In a rubberband, for instance, we can see how pulling on one end has an effect all through the rubberband. (Even if several rubberbands are connected, say, through some sticks, that character is still the same: the lengthening of the pulling propagates through all the rubberbands.) If we are doing a biceps curl, the biceps long quality flows through into shoulder and neck muscles, for example, helping those muscles become long as well.

Because the longs connect in this way, we can feel longer, more whole, altogether long. (Two long parts make a “longer long” whole.) We could call this a “train” of lengthening—an altogether long quality train. In the exploration below, we’ll see how we can feel the long quality propagating through our body as we do a biceps curl.

Altogether Long Exploration (doing-together)

This exploration is the same exercise as the doing-together long exploration, but we will look more globally at the long quality propagating through other muscles as well.

1. Begin by adding a weight and feeling the biceps being pulled by the burden of the weight (so that it’s easier to feel the pull-lengthening of the biceps muscle in action). This may not be easy to feel, but reminding oneself to “lay down burden” can help.
2. While laying down the burden of weight and feeling being pulled, see if you can notice that the weight is lengthening not just biceps but also lengthening shoulder muscles and neck muscles, as well.
3. After feeling the long quality in specific areas (e.g., biceps, shoulder, and neck), see if you can feel how the long qualities connect to give a sense of one longer whole. It is an altogether long train. The “burden” of the weight is flowing through arm, shoulder, and neck, and pull-lengthening all the muscles involved so we can feel all of this as one, whole, altogether longer long.

With these two explorations, we've seen how altogether long can be felt in the whole body for all actions. This last exploration showed how altogether long train propagates through actively engaged muscles. We also saw previously how altogether long flows through muscles that are not engaging. In other words, we've come to see that long quality applies to all the muscles whatever the action.

This is convenient because then we have a simple reminder. We can see the various components of not-doing long and doing-together long and how they propagate. We can also just remind ourselves of altogether long: long everywhere, all the time.

It can be easier to practice feeling altogether long because it is simple and general: just every muscle long, whatever the action. This generality also gives us a clue that there is some additional underlying mechanism going on. Altogether long simply reflects how forces flow through according to Newton's laws, as shown below.

Forces flow through & Altogether

Forces always flow through. As Newton's laws show, a general character of force is that it always goes through boundaries. (We can understand this by considering a counterexample: If a force *didn't* go through a boundary layer, then that layer would have to accelerate with great suddenness.) Because a force cannot be stopped by a boundary, forces always go through, which is how everything connects—altogether. Waves flowing through is an example of this. We can feel this as a long train propagating through our arm, shoulder, and neck.

Takeaway: Everything connects—all parts are parts of an interconnected whole. One way we can feel that is by feeling how various long qualities connect to make whole altogether long. Altogether long can be a way to begin to feel the comfort of all this interconnected doing together.

Altogether Comfort and Strength

In these 3 steps, we've come to see how we don't have to sacrifice the long quality in action. Though it may be easier to feel long, open, comfort quality at first when we don't have to engage in physical action, we can also see that it is not necessary for us to sacrifice this comfort even as we engage and perform. We've even seen how altogether long comfort is actually necessary for optimal strength in action. If we want our action to be optimal, we'll want to learn how we can keep the long comfort quality even as we do what we need to do.

This primer has laid out the understanding so that we can know the role that long comfort quality plays in improving our physical action. With this understanding, we can find ways to practice more fully feeling and keeping the long quality comfort in action.

For example, because it can be harder to keep the long quality comfort when we feel pressure to move quickly or do a lot, we can set aside time for slow, mindful movements in a practice such as tai chi or yoga. This can help us get the feel for what it's like to not sacrifice the long quality comfort even as we move and do. In the martial art of tai chi, there are tests of strength and responsiveness in action that can give us feedback about how we have more optimal action when we feel the long comfort quality. (This can also help us more fully understand how the slow, gentle, moving meditation of tai chi form can help the practical action of the martial arts where strength and speed are paramount.)

Feeling—and keeping—long comfort quality is also something we can practice and start to use in everyday life. "Long" is a simple reminder. We can easily check in and have a clear feeling of whether a muscle is longer or shorter. Perhaps we are walking and let ourselves feel long as our arms swing back and forth. Or we may be working at the computer and can remind ourselves "long" to help us release tension from our wrists, forearms, and shoulders.

With only simple logic and with most basic physiology and physics, we've come to this easy way to help ourselves: just feeling long—just keeping the altogether long comfort quality. In terms of our physical action, we've seen how a substantial increase in strength is possible when we no longer sacrifice altogether long comfort quality. In this way, we've come to what may have seemed quite counterintuitive at first. Long is not only more comfortable. We

can know that long is also stronger. In this way, the understanding and practice of long can help us to see how strength and comfort arise together.

As simple as just not losing the long feeling is in practice, this practice can lead us from stress action towards feeling the altogether comfort in action. We could also say this is being "in the flow" of all that is doing together in our action. In this way, practicing altogether long can serve as a more accessible approach for whole mind and body practice as previewed below.

Practical whole of altogether nowflow: body & mind

This is a preview of how we can extend what we've seen here in terms of our body and physical action to apply to all of self and the whole of being and doing. As we've seen with physical interaction, everything connects because parts are parts of an interconnected whole. The mutual interaction of doing together also can be applied to other parts of us, as well as our muscles and physical structure, including our neuro-endocrine system, awareness, and intention.

For example, we've already seen how long quality helps us feel how the parts of our fingers, hand, arm, and body all connect as a whole in action. Other parts of our action include the sensory-motor nerves firing and also our remembering of our previous movement and planning for our next movement.

When looking at only the changing muscles and structure of our body, it's more evident how all these changing parts are a part of a whole—that they are all flowing altogether now. By practicing this with the help of altogether long comfort quality, we can approach feeling "in the flow" and "in the now."

In this primer, we focused mostly on our physical body. We would need further understanding of now, though, in order to fully practice mind, as well as body, as included in the whole of all that is going on altogether now. By understanding the nature of now, we'll be able to practice how mind—and even "I" and "self"—are part of altogether nowflow, which includes the flow of change and all available information about change.

This is the understanding that is explained in the book Way of Now: Nowflow for meditation, peak performance, and daily life. There is also guidance on how to practice clearer perception of the practical whole of nowflow in the Nowflow Mindfulness Primer, which is a primer for the forthcoming book Mindfulness-in-Action.

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