NPHR instruction: For this workout it is very important to warm up before starting the actual workout. Your muscles typically require about 3.1 liters blood/min but during this workout your muscles can use up to 21 liters blood/min. A good warm-up should take about 20-40 minutes to accomplish. You can ride from UCI to the top of Newport Coast (from Culver side) at ‘can speak’ pace slowly increasing your effort only after you pass San Joaquin shopping center until you feel ready to tackle your 1st climb – don’t go hard up the hill. If you need to stretch only stretch AFTER you have warmed up but it is not necessary or essential. These are best done Tue and Thu.

For this NPHR workout ride to the top of Newport Coast (warming up as instructed) and turn right at Pelican. You will be using Newport Coast Drive off PCH (on the ocean side from Pelican to Pelican) for your workout making a loop starting near the bottom of the hill Pelican South and then coming back down at the Pelican North light (very important to turn right into the gated community entrance at the top of the hill and make a U-Turn and use the light to go straight across Newport Coast down Pelican Hill North). Use the light again at Newport Coast to cross the road for your next interval;

Once you have warmed up and you are ready for your 1st climb starting at the bottom of the hill at Pelican and Newport Coast approaching the hill time prepare yourself mentally to achieve a controlled RELAXED state of body and mind that is going to be essential for a good session. The relaxation (while climbing) technique is fully explained in this paper;

Your 1st climb is a ‘test’ session (every time you do this work out). For your test climb select a gear that will carry you all the way to the top of the hill without having to breath heavily. You will not be changing gears so be conservative. Use a 39 or Compact front chain ring and 25 or easier rear cog (count the teeth). Your 1st climb must be really easy physically (but you will be pedaling at 80rpm) so that you can concentrate on getting into a smooth and steady relaxed rhythm. You should NOT be breathing heavily the 1st time up. Here is what you are going to concentrate on;

At the bottom of the hill physically demand your entire body (especially your thighs) to RELAX. Shrug your shoulders and play the piano with your fingers, keep your body and bike rock steady i.e. there is no movement at all from your hips up. Breathe deep into your lungs by pushing out your stomach each time you breath in i.e. your shoulders do not move up or expand when you breath in (practice this at home on the couch). Spin easy and relaxed. Aim for a steady, calm and smooth power train rhythm cadence of between over 80 to a Maximum 95 rpm. Let the spin take over the climb - there will be no pounding upper legwork ever during these repeats. Produce a personal relaxation checklist in your head e.g.:

<table>
<thead>
<tr>
<th>Spin, Spin, Spin, Relax Thighs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Don't pant, breathe deep, and Push out stomach</td>
</tr>
<tr>
<td>No stomping, Power from the hips, Steady upper body</td>
</tr>
<tr>
<td>Soft grip, Relax, Shake Shoulders/Neck/Hands</td>
</tr>
</tbody>
</table>

You can print that out and tape it onto your handlebar if it helps. NPHR is neuromuscular memory training session so you are not trying to get fit or strong. Your goal is to teach your muscles how to fire correctly. These climbs are NOT easy -- on the contrary you are working very hard by the end of the prescribed sessions BUT the work is more mental than physical.
Try to maintain excellent form, relaxed pedaling technique and controlled breathing (all the while trying to climb). The harder it gets physically the more you have to demand (mentally) that you relax into the technique.

Extra (advanced) techniques: At the bottom of each pedal stroke simulate scraping mud off the bottom of your shoe. Concentrate on one foot at a time until you achieve a smooth action coordinated with your pedal stroke - then concentrate on opposite foot. Repeat until coordinated. Alternatively try to ‘float’ your feet over the pedals i.e. reduce contact of your feet off the bottom of your shoes.

At the top of the hill turn around and soft pedal in recovery mode down to the bottom of the hill (no speeding, sit up but keep legs turning slowly). If you use the recommended route you should be fully recovered by the time you get back to Newport Coast. If your heart rate is not fully recovered to low 100s - make a short flat loop before starting the next climb.

Now that you have completed a test climb you can start the 1st real climb. Before starting begin with mentally envisioning a controlled relaxed state of mind essential for a good climb. Use the same gearing that you used for the test session but this time there you must achieve over 80rpm all the way and be completely relaxed.

For your 2nd climb: add 1 gear to the previous hill repeat gear and then start 2nd climb
For your 3rd climb: add 1 gear to the previous hill repeat gear and then start 3rd climb
For your 4th climb: add 1 gear to the previous hill repeat gear and then start 4th climb

The goal of this session is to achieve failure somewhere on your 3rd or 4th climb. Now for the final instruction & the most difficult part of this workout: Immediately you are unable to hold a cadence of +80 rpm or lose your smooth power train rhythm - GO HOME! Choose gearing that allows you to fail on the 3rd or 4th climb. But you must fail.

Allow at least 48 hours recovery before your next session. Start in a gear that will allow only 3 + part of 4th climb. For example if you completed 39/25, 39/23, 39/21, 39/19 (fail half way up), start in 39/25 again. As soon as you can complete the 39/19 and do part of 39/17 (i.e. 5th climb), start the next repeat day in 39/23.

The best response to this series is to do them twice a week for 6-weeks.