

# Peak Bodywork's Wellness Journal

Summer 2007

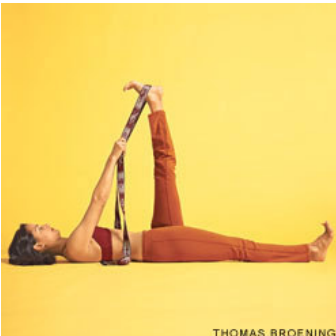
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## PNF Stretching: Proprioceptive Neuromuscular Facilitation

Brad Walker

Proprioceptive Neuromuscular Facilitation (PNF) is a more advanced form of flexibility training that involves both the stretching and contraction of the muscle group being targeted. PNF stretching was originally developed as a form of rehabilitation, and to that effect it is very effective. It is also excellent for targeting specific muscle groups, and as well as increasing flexibility, (and range of movement) it also improves muscular strength.

*Variation: use a yoga strap if a partner is not available.*



THOMAS BROENING

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### Warning!

Certain precautions need to be taken when performing PNF stretches as they can put added stress on the targeted muscle group, which can increase the risk of soft tissue injury. To help reduce this risk, it is important to include a conditioning phase before a maximum, or intense effort is used.

Also, before undertaking any form of stretching it is **vitaly important that a thorough warm up be completed.** Warming up prior to stretching does a number of beneficial things, but primarily its purpose is to prepare the body and mind for more strenuous activity. One of the ways it achieves this is by helping to increase the body's core temperature while also increasing the body's muscle temperature. This is essential to ensure the maximum benefit is gained from your stretching.

### How to perform a PNF stretch

The process of performing a PNF stretch involves the following. The muscle group to be stretched is positioned so that the muscles are stretched and under gentle tension. The individual then contracts the stretched muscle group for 5 - 10 seconds while a partner, immovable object, or yoga strap applies sufficient resistance to inhibit movement. Please note; the effort of contraction should be relevant to the level of conditioning and/or flexibility. Using *less half your strength* is a good place to start.

The contracted muscle group is then relaxed and a controlled stretch is applied for about 30 seconds. The process is then repeated 2 - 4 times. Refer to the diagrams below for a visual example.

Information differs slightly about timing recommendations for PNF

stretching depending on who you are talking to. Although there are conflicting responses to the question of *how long should I contract the muscle group for* and *how long should I rest for between each stretch*, I believe (through a study of research literature and personal experience) that the above timing recommendations

provide the maximum benefits from PNF stretching.

Stretching is one of the most under-utilized techniques for improving athletic performance, preventing sports injury and properly rehabilitating sprain and strain injury. Don't make the mistake of thinking that something as simple as stretching won't be effective.

### The PNF Stretching Sequence

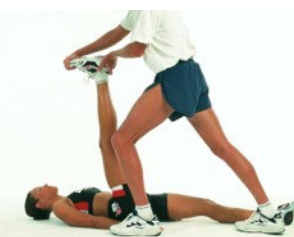


*Step 1: The athlete and partner assume the position for the stretch, and then the partner extends the body limb until the muscle is gently stretched and tension is felt.*



*Step 2: The athlete then gently contracts the stretched muscle for 5 - 10 seconds and the partner (wall, strap etc) must inhibit all movement. (The force of the contraction*

*should be relevant to the condition of the muscle. For example, if the muscle has been injured, do not apply a maximum contraction).*



*Step 3: The muscle group is relaxed, then immediately and cautiously taken into a deeper stretch and held for 30 seconds. Repeat the process of contracting the target muscle*

*for 5-10 second, followed by relaxing the muscles and moving into a deeper stretch, 2-4 times. You will immediately notice an increase in your range of motion and flexibility.*

## Mindfulness: Why Not Now?

### *Waiting For Someday*

The time we are blessed with is limited and tends to be used up all too quickly. How we utilize that time is consequently one of the most important decisions we make. Yet it is far too easy to put off until tomorrow what we are dreaming of today. The hectic pace of modern existence affords us an easy out; we shelve our aspirations so we can cope more effectively with the challenges of the present, ostensibly to have more time and leisure to realize our purpose in the future. Or we tell ourselves that we will chase our dreams someday once we have accomplished other lesser goals. In truth, it is our fear that keeps us from seeking fulfillment in the here and now—because we view failure as a possibility, our reasons for delaying our inevitable

success seem sound and rational. If we ask ourselves what we are really waiting for, however, we discover that there is no truly compelling reason why we should put off the pursuit of the dreams that sustain us.

When regarded as a question, "Why not now?" drains us of our power to realize our ambitions. We are so concerned with the notion that we are somehow undeserving of happiness that we cannot see that there is much we can do in the present to begin courting it. Yet when we look decisively at our existence and state, "Why not now, indeed!" we are empowered to begin changing our lives this very moment. We procrastinate for many reasons, from a perceived lack of time to a legitimate lack of

self-belief, but the truth of the matter is that there is no time like the present and no time but the present. Whatever we aim to accomplish, we will achieve it more quickly and with a greater degree of efficiency when we seize the day and make the most of the resources we have at our disposal presently.

All the joy, passion, and contentment you can envision can be yours right now, rather than in some far-flung point in time. You need only remind yourself that there is nothing standing between you and fulfillment. If you decide that today is the day you will take your destiny into your hands, you will soon discover that you hold the keys of fate



## Food For Thought: Ethiopian Spicy Tomato Lentil Stew

### Ingredients

1 cup brown lentils  
1 large yellow onion, diced small  
2 carrots, peeled and diced  
4 cloves garlic, minced  
2 tablespoons fresh ginger, grated  
1/4 cup peanut oil (vegetable oil will do)  
10 plum tomatoes, chopped  
1/2 cup tomato paste  
1 cup vegetable stock or 1 cup water+  
2 veg boullion cubes  
1 cup frozen green peas

### Spice Blend:

2 tsp ground cumin  
2 teaspoons hungarian paprika  
1 teaspoon ground fenugreek  
1/2 teaspoon dried thyme  
1/4 teaspoon ground cardomom  
1/4 teaspoon ground coriander  
1/8 teaspoon ground allspice  
1/8 teaspoon ground cloves  
1/8 teaspoon ground cinnamon  
1/8 teaspoon cayenne pepper  
1/2 teaspoon salt (or more to taste)

### Directions

Boil the lentils for about 45 minutes or until tender.

In a large pot, over med heat saute the onions and carrots for 10 minutes. Add the garlic, ginger and spice blend. Saute 5 more minutes. Add the chopped tomatoes, cook 5 more minutes. Add tomato paste and mix, then add the water. Simmer Until bubbling. Add the cooked lentils and green peas, simmer 15 more minutes. Serve with rice, polenta or injera bread.

Recipe from the Post Punk Kitchen

## Snacks That Give Back



### Peaceworks Kind Fruit+Nut

Each Handmade bar is a good source of fiber and contains no added preservatives. Try: Almond Coconut

**Middle East Peace**> Peaceworks donates 5% of proceeds to OneVoice Movement, an organization that promotes peaceful interactions between Isrealis and Palestinians.

## Summer Reading:

### Three Cups of Tea: One Man's Mission to Promote Peace...One School at a Time

By Greg Mortenson & David Oliver Relin

"Three Cups of Tea is one of the most remarkable adventure stories of our time. Greg Mortenson's dangerous and difficult quest to build schools in the wildest parts of Pakistan and Afghanistan is not only a thrill to read, it's proof that one ordinary person, with the right combination of character and determination really can change the world." Tom Brokaw

# Keeping Hydrated With Sports Drinks

by Brian Mackenzie  
UK Athletics Senior Coach

Depletion of the body's carbohydrate stores and dehydration are two factors that will limit prolonged exercise.

## Dehydration

Sweating is the way in which the body maintains its core temperature at 37 degrees centigrade. This results in the loss of body fluid and electrolytes (minerals such as chloride, calcium, phosphate, magnesium, sodium and potassium) and if unchecked will lead to dehydration and eventually circulatory collapse

% of body weight lost as sweat	Physiological Effect
2%	Impaired performance
4%	Capacity for muscular work declines
5%	Heat exhaustion
7%	Hallucinations
10%	Circulatory collapse and heat stroke

and heat stroke. The effect of fluid loss on the body is as follows:

## Electrolytes

Electrolytes serve three general functions in the body:

1. many are essential minerals
2. they control osmosis of water between body compartments
3. they help maintain the acid-base balance required for normal cellular activities

The sweat that evaporates from the skin contains a variety of electrolytes. The electrolyte composition of sweat is variable but comprises of the following components:

Sodium Potassium  
Calcium Magnesium  
Chloride Bicarbonate  
Sulphate Phosphate

## Carbohydrate

Carbohydrate is stored as glucose in the liver and muscles and is the most efficient source of energy as it requires less oxygen to be burnt

than either protein or fat. The normal body stores of carbohydrate in a typical athlete are:

- 70kg male athlete - Liver glycogen 90g and muscle glycogen 400g
- 60kg female athlete - Liver glycogen 70g and muscle glycogen 300g

During hard exercise, carbohydrate can be depleted at a rate of 3-4 grams per minute. If this is sustained for 2 hours or more, a very large fraction of the total body carbohydrate stores will be exhausted and if not checked will result in reduced performance. Recovery of

the muscle and liver glycogen stores after exercise will normally require 24-48 hours for complete recovery.

During exercise there is an increased uptake of blood glucose by the muscles and to prevent blood glucose levels falling, the liver produces glucose from the liver stores and lactate.

Consuming carbohydrate before, during and after exercise will help prevent blood

glucose levels falling too low and also help maintain the body's glycogen stores. Many athletes cannot consume food before or during exercise and therefore a formulated drink that will provide carbohydrate is required.

## Fluid absorption

There are two main factors that affect the speed at which fluid from a drink gets into the body:

1. the speed at which it is emptied from the stomach
2. the rate at which it is absorbed through the walls of the small intestine

The higher the carbohydrate levels in a drink the slower the rate of stomach emptying. Isotonic drinks with a carbohydrate level of between 6 and 8% are emptied from the stomach at a rate similar to water. Electrolytes, especially sodium and potassium, in a drink will reduce urine output, enable the fluid to empty quickly from the stomach,

promote absorption from the intestine and encourage fluid retention.

## What's wrong with water?

Drinking plain water causes bloating, suppresses thirst and thus further drinking. It stimulates urine output and therefore is inefficiently retained. A poor choice where high fluid intake is required. Water contains no carbohydrates or electrolytes.

## Sports Drinks

There are three types of Sports drink all of which contain various levels of fluid, electrolytes and carbohydrate.

The osmolality of a fluid is a measure of the number of particles in a solution. In a drink these particles will comprise of carbohydrate, electrolytes, sweeteners and preservatives. In blood plasma the particles will comprise of sodium, proteins and glucose. Blood has an osmolality of 280-330mOsm/kg. Drinks with an osmolality of 270-330mOsm/kg are said to be in balance with the body's fluid and are called Isotonic. Hypotonic fluids have fewer particles than blood and Hypertonic have more particles than blood.

Consuming fluids with a low osmolality, e.g. water, results in a fall in the blood plasma osmolality and reduces the drive to drink well before sufficient fluid has been consumed to replace losses.

## Which is most suitable?

**Isotonic** - quickly replaces fluids lost by sweating and supplies a boost of carbohydrate. This drink is the choice for most athletes - middle and long distance running or team sports. Glucose is the

body's preferred source of energy therefore it may be appropriate to consume Isotonic drinks where the carbohydrate source is glucose in a concentration of 6% to 8% - e.g. Gatorade, Gu2o, Hammer Heed.

**Hypotonic** - quickly replaces fluids lost by sweating. Suitable for athletes who need fluid without the boost of carbohydrate - jockeys and gymnasts.

**Hypertonic** - used to supplement daily carbohydrate intake normally after exercise to top up muscle glycogen stores. In ultra distance events high levels of energy are required and Hypertonic drinks can be taken during exercise to meet the energy requirements. If used during exercise Hypertonic drinks need to be used in conjunction with Isotonic drinks to replace fluids.

## Want to make your own?

**Isotonic** - 200ml of orange squash (concentrated orange), 1 liter of water and a pinch of salt (1g). Mix all the ingredients together and keep chilled.

**Hypotonic** - 100ml of orange squash (concentrated orange), 1 liter of water and a pinch of salt (1g). Mix all the ingredients together and keep chilled.

**Hypertonic** - 400ml of orange squash (concentrated orange), 1 liter of water and a pinch of salt (1g). Mix all the ingredients together and keep chilled.

## Food for thought

In a trial conducted by scientists in the city of Aberdeen it was determined that a 2% carbohydrate-electrolyte drink provided a more effective combat to exercise fatigue in a hot climate when compared to a 15% carbohydrate-electrolyte mixture.

Type	Content
Isotonic	Fluid, electrolytes and 6-8% carbohydrate
Hypotonic	Fluids, electrolytes and a low level of carbohydrate
Hypertonic	High level of carbohydrate

[Galloway SDR & Maughan RJ, The effects of substrate and fluid provision on ermeregulatory and metabolic responses to prolonged exercise in a hot environment. Journal of Sports Sciences, Vol 18, No5, pp339-351].



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## Chronic Pain: Massage Therapy provides hope for those suffering from chronic pain.

Sylvia Carlson

Everyone probably knows at least one person who suffers from some form of chronic pain. It is a very debilitating and isolating experience because you can not actually see the pain. But massage therapy can be effective in reducing pain.

### Pain Statistics

In Canada, one in ten people suffer from chronic pain, according to the 2002 IPSOS Reid National Canadian Pain Study, that figure is about 31% of all Canadians. In the US, the American Pain Association estimated that chronic pain affected 86 million Americans. (2001).

### Can Massage Relieve Pain?

Pain is noted to be the most frequent complaint brought to physicians in North America. Medical authorities define pain as a subjective feeling that cannot be observed or even measured directly, and it is often explained away by the stress concept or as a result of mental stress. It comes to no sur-

prise than, why so many people seek alternative ways to deal with their pain. In 1997, A US health survey showed that consumers spent between 4 and 6 billion dollars on massage. The American Massage Therapy Association noted that 47% of consumers polled used massage therapy to relieve and manage their pain, and **91% said massage therapy was effective in reducing pain.**



### Pain Relief

In ancient Greece and Rome, it was actually physicians who utilized massage as one of the primary methods to treat pain. Today,

Massage Therapists are some of the best trained people to deal with myofascial and musculoskeletal pain syndromes. Why? Because they are trained in anatomy, physiology, pathology and they spend hours physically palpating and manipulating the muscles and soft tissue of the body. Whether it is lower back pain, arthritis or fibromyalgia massage may be able to relieve the associated pain.

### What Massage Research Says

The Touch Research Institute has conducted over 90 clinical studies on the beneficial effects of massage therapy on a variety of conditions. The following are summaries of just a few of the studies conducted on the

effects of massage therapy on pain.

**Juvenile Arthritis-** Parents were taught how to massage their arthritic children and reported their

children experienced less pain and had less morning stiffness following massage (Field et al, 1997)

**Labor Pain-** Massage Therapy was given to pregnant women during labor and they demonstrated a decrease in anxiety and pain as well as had shorter hospital stays (Field et al, 1997)

**Fibromyalgia-** Patients with fibromyalgia slept better and had less pain following a month of biweekly massages (Field et al 2002)

**Back Pain-** Participants with low back pain were found to have a reduction in pain and an increase in their mobility after massage therapy (Hernandez-Reif et al, 2001)

The exciting part about all of this research is that it gives a renewed sense of hope for chronic pain sufferers. There is something that can be done for pain. Research has clearly shown that massage therapy is one way to alleviate pain, either alone, or in conjunction with another form of therapy. As there are always differences in individual experiences of pain, it is always advisable to consult with your physician for diagnosis and