

## UW Medicine

SPORTS, SPINE &  
ORTHOPEDIC HEALTH

### Complications of Anti-Inflammatory Medications: What You Need To Know

It hurts now and boy it is going to hurt in another few hours! How about taking a few more ibuprofen, or better yet maybe my doctor will give me some more long acting anti-inflammatory medications to prevent my suffering after the big race. Be careful what you ask for, it may cause more harm than good.

#### **THINK BEFORE YOU REACH**

Non-steroidal medications (NSAI's – such as Advil/ibuprofen, Aleve/naproxen, Indocin/indomethacin) that are so effective in preventing inflammation, muscle and joint pain after extreme physical exertion also cause problems in kidneys and the gastrointestinal tract. So before you reach for that medicine bottle, think about why you are taking them and what you need to do to reduce your risk. The dangers of NSAI's are stomach bleeding, general increased bleeding and decreased kidney function. Kidney function is lower after a race in those who use NSAI compared to those who do not. Also of concern, especially for race day, is the association of NSAI's with low blood sodium (hyponatremia). This side effect is pronounced if you drink too much water during the race and is seen in up to 13% of marathon runners. The older you are the higher the risk for all side effects. Smaller people also seem to be at increased risk for hyponatremia. Finally, although heart attacks have definitely been associated with the use of more selective NSAI's (such as celecoxib/Celebrex and rofecoxib/Vioxx) this risk may also occur with nonselective NSAI's such as diclofenac (Voltaren). It is possible this is true for other non-selective NSAI's but to date has not been proven for ibuprofen and naproxen.

#### **CALCULATE YOUR RISKS**

Kidney damage is caused by NSAI's. First NSAI's may cause an allergic reaction in the kidney's filtering and/or processing unit. Either of these events may cause permanent kidney failure. The only treatment is to stop NSAI use. The way you would know such a reaction had developed is through the onset of swelling in feet and ankles and/or blood and urine tests. Rarely you might develop a rash and fever.

Second, NSAI's may cause kidney dysfunction by decreasing kidney blood flow. This happens when people are dehydrated, during extreme exercise or have kidney, liver or heart problems. One in five people taking several days of a NSAI will have a decrease in their kidney function. Third, people with high blood pressure

who take NSAIDs may have major problems with blood pressure control even if they are treated with blood pressure medications. And fourth, hyponatremia or low blood sodium is increased in runners using NSAIDs. It is particularly common if someone drinks too much water because NSAIDs decrease your kidney's ability to get rid of excess water. It does this by increasing the kidney's ability to reabsorb water. Low serum sodium levels may lead to headache, nausea, vomiting, confusion, seizures, weakness, problems breathing and collapse.

With long-term use of NSAIDs the risk of permanent kidney failure that requires hemodialysis treatment may be up to 0.8%. This is over eight times the risk of the general population.

### **SUMMARY**

The best way to protect yourself is to not use NSAID but if pain is so severe then the best thing to do is take NSAID with food, a medicine that decreases stomach acid production (heart burn medication such as pantoprazole (Protonix) omeprazole (Prilosec), esomeprazole (Nexium), lansoprazole (Prevacid) or misoprostol (Cytotec)), hydrate only as advised by the race hydration sheet and use for a limited time, up to two days. Repeated doses and prolonged use of NSAID should be avoided especially if using the long acting products.

Alternatively you may take acetaminophen (Tylenol) but no more than 4gm per day and preferably not every day and not in conjunction with alcohol for fear of liver injury. If you have high blood pressure, take blood thinners or have a bleeding disorder, liver problems or kidney disease NSAIDs should not be used. Concomitant use with diuretics (water pills) is not advised. Lastly, realize that if you develop a stress fracture or a complete break, healing may be delayed if you use NSAID. Running through the pain with the aid of NSAID is something that you should discuss with your doctor as you may be hiding a significant injury.

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