PEA-Palmitoylethanolamide 600mg

Code: FE3092 – 60 vegetable capsules

Each capsule of **New Roots Herbal PEA** contains **600 mg of palmitoylethanolamide (PEA)** extracted from safflower oil. It is then micronised to improve absorption and bioavailability. Palmitoylethanolamide (PEA) is a fatty acid amide found throughout the body, and is produced endogenously in situations of cellular injury as a protective response. It was first identified in egg yolk, soybean and peanut oil in the 1950s, and was later found to be present in mammals as well.
No adverse effects and no drug interactions have been reported.

Ingredients: Palmitoylethanolamide (PEA), anticaking agents: (magnesium salts of fatty acids and silicon dioxide), vegetable capsule (glazing agent: hydroxypropylmethylcellulose; purified water).

Nutritional information:	**1 capsule (730 mg)**
Micronized palmitoylethanolamide (from safflower seed oil)	600 mg

Size and format:
60 vegetable capsules

Recommended daily dose:
1–2 capsules daily. Consult a health-care practitioner for use beyond 3 months.

Do not exceed the stated recommended daily dose.

Indications and uses:

- Chronic pain
- Migraine
- Glaucoma
- Autism
- Parkinson's disease
- Sciatica
- Carpal tunnel syndrome
- Burning mouth syndrome
- Myasthenia gravis
- Cold and flu
- Osteoarthritis
- Chemotherapy-induced neuropathy
- Major depressive disorder
- Temporomandibular joint pain

Cautions:
Consult a health-care practitioner prior to use if you are pregnant or breast-feeding.

Palmitoylethanolamide (PEA) is a well-researched compound of natural origin and proven efficacy in relieving many types of **chronic pain**, as well as in reducing **inflammation**. It was first identified by Czech researchers in the 1950s and was extensively studied by Dr. Rita Levi Montalcini, winner of the Nobel Prize for her work in neurobiology and her discovery of nerve growth factor (NGF).

Palmitoylethanolamide inhibits the release of inflammatory cytokines such as interleukins IL-1β and IL-6, as well as tumour necrosis factor alpha (TNF-α), which helps reduce stress and pain. It also acts upon the receptors of the innate cannabinoid system of the body, producing analgesic effects. **Palmitoylethanolamide is an alternative to cannabidiol (CBD),** it since it acts upon the same receptor system, indirectly activating the cannabinoid receptors. Its main benefits cover a broad spectrum of types of chronic pain, making PEA a versatile option for different types of pain, from joint pain to gastric pain.

New Roots Herbal PEA is obtained naturally from non-genetically modified safflower oil. Once extracted, this highly therapeutic compound is micronised. This physical milling process produces microscopic particles that improve PEA tissue accessibility. Each capsule of plant origin contains **600 mg of palmitoylethanolamide** of validated potency to easily achieve the recommended therapeutic doses.

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PALMITOYLETHANOLAMIDE (PEA): Palmitoylethanolamide (PEA, N-hexadecanoylethanolamide) is an endocannabinoid lipid mediator belonging to the N-acylethanolamine (NAE) family [1]. Palmitoylethanolamide was first identified in egg yolk, soybean and peanut oil in the 1950s and was later found to be present in mammals, as it is produced on demand from the lipid bilayer [1,2]. The first studies using egg yolk PEA demonstrated efficacy in patients with rheumatoid arthritis, and since then the compound been shown to have antiinflammatory and analgesic properties [1]. Although PEA is found in food sources such as black beans, apples, lentils, roasted coffee and potatoes, the optimal therapeutic doses range between 300 and 1200 mg/d; supplementation is therefore required [1]. Palmitoylethanolamide supplementation is well tolerated and has been shown to provide benefits in relation to immunity, allergies, joint pain, sleep, muscle recovery and brain health, to name a few conditions [2].

Palmitoylethanolamide is a fatty acid amide found throughout the body, and is produced endogenously in situations of cellular injury as a protective response [3]. Under chronic conditions, the body does not produce enough PEA, and supplementation is then needed. Interestingly, PEA was first marketed in the 1960s as a prophylactic treatment for influenza and the common cold, as it was found to increase innate resistance of the body to both bacteria and viruses [2].

Palmitoylethanolamide reduces inflammation and affords pain relief. This is due to the ability of PEA to bind to peroxisome proliferator-activated receptor alpha (PPAR-α), which can transport to the cell nucleus and reduce the transcription of proinflammatory genes and the transcription of factors such as NF-κB [1,2]. This in turn leads to inhibition of the release of inflammatory cytokines such as interleukins IL-1β and IL-6, as well as tumour necrosis factor alpha (TNF-α), which helps reduce stress and pain [2]. In addition, PEA targets G-protein-coupled receptor 55 (GPR55) and G-protein-coupled receptor 119 (GPR119) [4]. These receptors are activated by the main psychoactive component of *Cannabis sativa*, and may be responsible for the observed analgesic, neuroprotective and antiinflammatory effects [4].

Furthermore, there is evidence that N-acylethanolamines such as PEA can cross the blood-brain barrier and exert neuroprotective effects [2]. Palmitoylethanolamide not only inhibits the formation of proinflammatory cytokines in the brain, thereby reducing neuroinflammation, but has also been found to increase neurogenesis and neuroplasticity in the hippocampus [2]. In relation to mood disorders, PEA was found to prevent the reduction of brain-derived neurotrophic factor (BDNF), which is implicated in disorders such as depression, bipolar disorder, addictions, schizophrenia and eating disorders [2].

Palmitoylethanolamide, through inhibition of the expression of fatty acid amide hydrolase (FAAH) - an enzyme responsible for degradation of the endocannabinoid receptor ligand anandamide (AEA) and arachidonylglycerol (2-AG) - can indirectly activate the CB2 and CB1 receptors. It can also indirectly activate transient receptor potential vanilloid type 1 (TRPV1) channels, which are also targets of endocannabinoids [5].

In vitro and *in vivo* studies have shown palmitoylethanolamide to possess antiinflammatory, analgesic, antimicrobial, anticonvulsant, antipyretic, immunomodulatory and neuroprotective effects [1]. Studies have combined PEA with a range of chemical compounds such as luteolin and cannabidiol, administered orally, topically, sublingually and in eye drops [4]. Clinical trials suggest that PEA may be useful in patients with sciatica, chemotherapy-induced neuropathy, generalised pain, migraine, glaucoma, burning mouth syndrome, major depressive disorder (MDD), autism, myasthenia gravis, carpal tunnel syndrome, temporomandibular joint (TMJ) pain and osteoarthritis of the knee. Palmitoylethanolamide is available as a micronised product to afford better dissolution and greater absorption in the body [1]. It has been used safely at doses of up to 1400 mg/d for as long as three months, and there are currently no known interactions with drugs or food supplements [1]. Preliminary studies are currently underway indicating that PEA could play a role in the near future in the treatment of conditions such as Alzheimer's disease, endometriosis, irritable bowel syndrome and multiple sclerosis [2].

Human clinical trials on palmitoylethanolamide (PEA)

Study design	Results	Recommended dose	Ref.
Sciatica			
636 patients with sacrolumbar pain (sciatica) were treated with micronised PEA at a dose of 300 mg/day or 600 mg/day. A placebo group was also included.	Both 300 mg/d and 600 mg/d of PEA exerted a positive effect on both pain and the functional parameters. The effect was assessed using the Roland Morris Questionnaire and the Pain Visual Analogue Scale. The greatest improvements were seen with the dose of 600 mg/d. No such improvements were seen in the placebo group.	600 mg/day	6
Generalised pain relief			
610 subjects subjected to standard of care pain control were given 600 mg PEA twice daily for 3 weeks, followed by a single daily dose for 4 weeks. PEA was administered as monotherapy or together with standard analgesic treatments.	Treatment with PEA significantly reduced the mean pain intensity score, independently of the disease condition associated with the pain. This decrease in pain intensity was also evident in patients receiving PEA as monotherapy.	600 mg 2 times a day Maintenance 600 mg/day	7
Chemotherapy-induced neuropathy			
20 patients with chemotherapy-induced painful neuropathy received 300 mg PEA twice daily for two months or placebo.	The pain and all the neurophysiological parameters assessing the myelinated nerve fibres improved significantly. Heat perception thresholds remained unchanged.	300 mg 2 times a day	8
Migraine			
70 paediatric patients (5-17 years of age) diagnosed with migraine without aura received 600 mg/d of micronised PEA as treatment for the prevention of migraine during 3 months.	After 3 months of treatment, the frequency of headaches decreased > 50% in more than 60% of the patients. The number of monthly attacks decreased significantly, the average intensity of the attacks also decreased, and the percentage of patients with severe attacks likewise decreased after treatment. The use of pain relief medication was also reduced after treatment.	600 mg/day	9
Glaucoma			
40 patients with stable glaucoma subjected to topical monotherapy maintained their topical treatment or added 600 mg/d of PEA.	The treatment resulted in significantly greater P50 wave amplitude, significantly lower intraocular pressure (IOP), and a higher quality of life score.	600 mg/day	10
32 patients with normal tension glaucoma received 300 mg of micronised PEA twice daily or placebo for 6 months.	After 6 months of treatment, the patients receiving PEA showed a significant reduction of IOP, with improved visual field indices.	300 mg 2 times a day	11
Burning mouth syndrome			
35 patients with burning mouth syndrome received placebo or micronised PEA (600 mg twice daily) for 60 days.	At the end of the 60 days of treatment, a statistically significant decrease in burning mouth sensation was recorded in the group of patients who received PEA. There were no apparent treatment side effects.	600 mg 2 times a day	12
Major depressive disorder			
54 participants with major depressive disorder received 600 mg twice daily of PEA or placebo in addition to citalopram for 6 weeks.	After 2 weeks of treatment, those receiving PEA showed a significantly greater reduction in HAM-D score versus placebo. The active treatment group also showed a higher response rate than the placebo group, with significantly greater improvement of the depressive symptoms.	600 mg 2 times a day	13

Autism			
70 children (4-12 years of age) with autism and irritability symptoms (moderate to severe) were recruited for this study. The children received a combination of PEA and risperidone, or a combination of risperidone and placebo, for 10 weeks.	After 10 weeks of treatment, the combination of PEA and risperidone was found to be superior to risperidone with placebo in improving the symptoms of irritability and hyperactivity / non-compliance with the aberrant behaviour checklist (ABC). Inappropriate speech also improved in the treatment group during the course of the study.	600 mg 2 times a day	14
Myasthenia gravis			
22 participants with myasthenia gravis (MG) received 600 mg of PEA twice daily during a one-week trial period.	PEA supplementation had a significant effect upon the quantitative myasthenia gravis score (QMG) and repetitive nerve stimulation (RNS) test of the masseter nerve. This indicates that PEA reduces the level of disability and decreasing muscle response in patients with MG.	600 mg 2 times a day	15
Carpal tunnel syndrome			
Patients with moderate carpal tunnel syndrome received 600 mg/d or 1200 mg/d of PEA or placebo for 30 days.	Treatment with PEA resulted in dose-dependent improvement of the reduction of median nerve latency time induced by carpal tunnel syndrome. The symptoms of malaise as well as Tinel's sign were also reduced with the treatment.	600 mg 2 times a day	16
42 patients scheduled for carpal tunnel syndrome surgery and with sleep disorders and painful symptoms were randomised to two groups. One group received 600 mg of PEA twice daily before and after surgery, while the other group underwent surgery only.	After the period prior to surgery, PEA supplementation was seen to significantly improve overall sleep quality and increase continuous sleep time. In addition, PEA helped to reduce latency and sleep disturbances, and contributed to significantly lessen the pain symptoms.	600 mg 2 times a day	17
Temporomandibular joint (TMJ) pain			
24 patients with arthralgia or osteoarthritis of the TMJ were randomly assigned to 300 mg of PEA in the morning and 600 mg of PEA in the evening for one week, followed by 300 mg twice daily for 7 more days. The second group received 600 mg of ibuprofen 3 times a day for 2 weeks.	The patients administered PEA experienced significantly greater pain reduction versus the ibuprofen group. In addition, maximum mouth opening improved more in the PEA group than the ibuprofen group.	300 mg morning and 600 mg at night	18
Osteoarthritis			
111 adults with mild to moderate osteoarthritis of the knee were randomised to receive 300 mg of PEA, 600 mg of PEA or placebo every day in twice-daily divided doses for 8 weeks.	There were significant reductions in the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) total score, WOMAC pain score, WOMAC stiffness score, and WOMAC function score in the PEA groups versus placebo. The patients treated with PEA also experienced significant reduction of pain and anxiety.	300 mg 2 times a day	19
Parkinson's disease			
30 patients with Parkinson's disease receiving levodopa were included in the study.	Coadjuvant treatment with PEA resulted in a significant reduction of most motor and non-motor symptoms. The number of patients with baseline symptoms decreased after one year of treatment with PEA.	600 mg/day	20
Cold and flu			
A meta-analysis of 6 clinical trials including a total of 3627 patients assessed the safety and efficacy of PEA against colds and the flu.	No relevant side effects were reported, and the trials conducted during the influenza season in particular demonstrated effective treatment as well as a prophylactic effect.	From 600 mg to 1800 mg/day	21

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