Proposal for alternatives in treating pain and inflammatory in the light of pharmacological abuse.

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**Introduction.**

Statistics calculated on the data gathered from the 13 patients among whom most of them have been struggling with chronic pain triggered by afflictions such as arthritis, osteoarthritis, joint pain, and fibromyalgia as well as other maladies suggest that in a majority of the cases the painkillers do not work as they meant to be. This led 80% of the participant (Figure 1) to abuse usage of them, the very similar result to the research done in 2009 in the US[[1]](#footnote-2). Desperate in pain and unaware of the possible alternatives, without proper supervision, 15% of them had been risking a further complication by taking too big dosages i.e. Dicloflenac 100mg even 8 times per day, whereas the daily dosage is between 2 and 3 times per day[[2]](#footnote-3)and 30% of them were mixing it with contraindicative medicines for other illness such as hypertension[[3]](#footnote-4)as well as had been taking a Co-codamol while suffering from chronic fatigue, related to the adrenal glands’ problem, which in such circumstances should not be used.[[4]](#footnote-5)Another 7% had been using Diosminex®, Ketonal®, Ibuprofen, and Codeine as well as Oxycodone altogether, latter both without prescription. Their conditions were not changing and the level of pain remained the same as well as the quality of the sleep and the level of the stress. Whereas few of them considered the surgical intervention, for which waiting time is very long, in the meantime they decided to look for the support from the alternative treatments the holistic approach can offer. However, this practice should be carefully chosen and accordingly monitored[[5]](#footnote-6) and is not still very popular it can be advocated by GP.[[6]](#footnote-7)

Figure 1 – Drug Abuse

Patients were also taking a variety of the vitamins, minerals and other supplements to support their healing process. The majority, as 85% of them, were not using a proper combination, dosages and good quality of these products. The reason behind this occurrence is not investigated and thus not covered in this report, as the emphasis is focused on the research and the suggestions of the selected alternative methods to deal with pain and inflammation in the front of the alarming results.

Although modern pharmacy is focused on a particularised molecule, an active ingredient[[7]](#footnote-8), it cannot deny it herbalist origins. Hence this report tries to summon this forgotten knowledge. The selected examples are being elaborated and illustrating the range of the possibilities and not been chosen by any order of importance. This is just a modest and abstemious exploration through the vast field of the discussed topic. The aim is not the promote alternative medicine but to encourage a holistic approach.

Whereas the core of the report where the alternatives are elaborated was coined based on the other researchers' findings, the initial data results are formed on the mentioned findings and statistics. To achieve the mentioned the Google search along with a study of the appropriate literature was conducted. The further conclusion has been based on findings and supported with monitored results.

*“The important thing is not to stop questioning.”
Albert Einstein.*

**The world of possibilities and the alternatives presented.**

It is worth**,**to begin with, the report from 2013[[8]](#footnote-9) elaborating benefits of *curcumin* and among others, it is said that this the spice which has been used for the millennia as an addition to the food as well as for the medicinal purposes should also lower risk of the heart disease, improve brain function or even help prevent cancer.[[9]](#footnote-10) As a very strong antioxidant, fat and water-soluble its effectiveness it is comparable to the antioxidant activity of vitamin C and E.[[10]](#footnote-11)Additionally, curcumin is a bioactive substance that fights inflammation at the molecular level.[[11]](#footnote-12),[[12]](#footnote-13),[[13]](#footnote-14)

In the “*Therapeutic Effects of Curcumin—(...) Clinical Applications*”[[14]](#footnote-15) Prof. Dr Beatrice E. Bachmeier, of the Competence Center for Complementary Medicine and Naturopathy in Munich, Germany along with Prof. Dieter Melchart, also CCCMN described a number of the potential usages of the curcumin among which there is a section about inflammatory disorders. They suggested that curcumin could accelerate the healing by the apoptosis of inflammatory cells it induces. Claims suggest that it can also facilitate collagen synthesis and whereas collagen is the main protein of the fascia[[15]](#footnote-16), suggests that mobility during healing could be also improved hence less painful. They are studies suggesting that curcumin can also suppress degradation of joint cartilage in arthritis as well as improves the mobility during the inflammation of the joints [[16]](#footnote-17). Research conducted in China investigated the effect of the curcumin in the osteoarthritis and joint destruction also supports given findings.[[17]](#footnote-18),[[18]](#footnote-19)

Another argument advocating curcumin shows its effectiveness in treating gastrointestinal disorders, such as flatulence diarrhoea or even duodenal ulcers. Other researches, also mentioned in the report, summarised protective effects of the curcumin against oesophageal and gastric disorders. This leads to the conclusion that among other benefits it is, therefore, less toxic to an organism, able to decrease the inflammatory without irritation of the gastric area.

The downside of the curcumin is that even though research has been done, still results are not sufficient. Therefore, it is very difficult to determinate the accurate dosage. Absorption into the bloodstream is poor and even if mixed with piperine, the bioactive compound found in pepper and natural curcumin absorption enhancer, the bioavailability is increased by 2%.[[19]](#footnote-20) Additionally, curcumin increases the release of the nitric oxide, therefore decreases the blood pressure thus leads to the vasodilatation. Consequently, it should not be used by patients with low blood pressure or taking medicines for hypertension. It also contains around 2% oxalate and can lead to the kidney stones, if consumed at high dosages.[[20]](#footnote-21)There is also a problem with the good quality of the product as it is not regulated, therefore it can be contaminated and occur with allergic reactions.

Another powerful yet not widely known anti-inflammatory painkiller is the *Oregano Oil***.**
It contains the thymol, the compound protecting against toxins and fights fungal infections, as well as carvacrol and phenol, the antioxidant. The carvacrol has been found to be effective fighting with *Staphylococcus aureus* and *Staphylococcus epidermidis* bacteria, both commonly known for causing infection.[[21]](#footnote-22) It can be taken orally as well as rubbed on the skin. Oregano oil can also be a powerful antibiotic and antioxidant. The research “*Essential Oils of Oregano: Biological Activity beyond Their Antimicrobial Properties*” from 2017[[22]](#footnote-23) shows that in animal models as well as in-vitro studies carvacrol had an anti-inflammatory effect.  In another study, it was found that Oregano Oil, similarly to the *Ginkgo Biloba*, some strains of *CBD* and *Devil’s Claw*, is effective against neuropathic pain.[[23]](#footnote-24) The investigation focused on the effect of the oregano oil on the bacteria, clearly showed its effectiveness.[[24]](#footnote-25) Therefore, could substitute rather controversial propose to treat this type of pain with anti-depressants.[[25]](#footnote-26)

However, it seems to be the wonderful remedy it has adverse effects and contraindications and therefore it should not be used while pregnant or breastfeeding, is unsuitable for children, and patients with severe diabetes.

Going further, there is important to mention *magnesium*. Especially nowadays, when many of our nutrients are washed out due to environmental pollution and thus supporting absorption is required.
Apart to the mention, the list of benefits[[26]](#footnote-27), as well as the maladies[[27]](#footnote-28) related to this mineral is exceptional, to just select the few, such as removes toxins and is responsible for metabolism and the proper absorption of calcium hence essential for bones and teeth.
Lack of this mineral can lead to the increased formation of osteoclasts, which can result in osteoporosis.[[28]](#footnote-29),[[29]](#footnote-30)

Furthermore, for the purpose of this report, is mandatory to mention its muscle relaxing and anti-inflammatory attributes.[[30]](#footnote-31) Besides, it can decrease the depression symptoms, also triggered by inflammation.[[31]](#footnote-32)
They are various types of magnesium, and the magnesium glycinate and bisglycinate, as well as L-threonate, has the best bioavailability when administered orally, whereas Epson Salt when added to a bath, with the addition of the Soda Bicarbonate to induce detoxification[[32]](#footnote-33). Although its beneficial properties have been widely reported[[33]](#footnote-34),[[34]](#footnote-35) and yet some research has been conducted[[35]](#footnote-36),[[36]](#footnote-37) there is still not enough of the proper academic research which could sufficiently determinate whereas the said claims are significantly proven.

Further research also suggests the *sodium carbonate*, used to tackle malady such as swelling. Due to the process of osmosis,[[37]](#footnote-38)it can drain fluids through the skin. Hence, consequently brings relief.
There were some studies conducted and based on them coined the conclusion that drinking soda can decrease the inflammation of autoimmune diseases like rheumatoid arthritis. It also decreases the pH [[38]](#footnote-39) which is very important during the inflammation as such is acidic.[[39]](#footnote-40)
Speaking about lowering pH and promotion on the alkaline environment,  nota bene, a part of the controversial theory claiming that it could kill the illness by starving it is, however, worth to consider as another approach to the inflammation.

The good, healthy, low-fat, high fibre diet has been suggested to protect against cancer, the report from 2011 in the British Journal of Cancer claims, an important factor to mention as many types of cancer are a result of the inflammation.[[40]](#footnote-41) Dr Douglas N. Graham, the author of “*80/10/10 diet: (...)*”[[41]](#footnote-42), has extensively elaborated this topic.

Lower pH can also be achieved with a good dosage of vitamin C, required to produce collagen, the main protein of various connective tissues. The rich amount of it can be found in lemon, which itself is very effective to support organism when fighting a disease such as arthritis[[42]](#footnote-43) and helps to reduce swellings. It promotes hydration, nota bene, itself important for proper nutrition,[[43]](#footnote-44) therefore, supports and increases the function of the kidneys and helps to prevent kidney stones, thanks to citric acid, which makes the urine less acidic and thus is able to break up small obstacles. Additionally, it supports thyroid and adrenal glands. The latter ones are responsible for producing the stress hormone, cortisol. Prolonged stress, such as disease and chronic pain, raises its level.  As the body heals, inflammation becomes a response to stress, and if stress becomes chronic, then it can gradually lead to the breakdown of tissue and consequently impair the immune system. [[44]](#footnote-45)
Along with raising the temperature, blood vessels are wider and thus the blood pressure is increased. Therefore, it is beneficial to drink warm but not over 30°C as than starts to denature[[45]](#footnote-46), water with lemon. Ergo, this modality could also be a great alternative.

As well as many other substances, such as a supplement of the diet *GABA* helping to relax and regenerates the nervous system as well as improves the quality of sleep, *CoQ10* known in cosmetics and skin ointments with its cell regeneration abilities and pain relief for patients suffering from fibromyalgia or diabetic neuropathy. Even migraine can be addressed with Coenzyme-Q10, and it is reported that more than half of patients taking it experienced a 50% decrease in the number of headaches they had.[[46]](#footnote-47)  The list continues with *gingerol*, found in ginger, *bromelain* in pineapple as well as apple cider vinegar and many more[[47]](#footnote-48).

**The findings concluded and what happens next.**

The question arises, why in spite of such rich deposits of natural medicine there are still obstacles in practical usage? Is this the lack of the academic background, consequently leading to the malpractice and questionable quality as well as vague and thus uncontrolled standards about dosages? Is it about various contraindications and adverse effects?

When, in fact, their toxicity cannot be compared to widely abused pharmaceuticals which lead to drastic results and many deaths[[48]](#footnote-49). Moreover, all but one patient of the research which motivated the presented here investigation were able to decrease their symptoms using the alternative modality (Figure 2).

Figure 2 – Overall results based on the monitored level of pain.

Only the fair promotion along with proper and stainless from influences education, concluded on the clinical trials and underway experiments could lead to the wider and deeper investigation and such should be continued.[[49]](#footnote-50)  As without them, the effectiveness of natural anti-inflammatory agents cannot be classified academically. Yet, the question developed, why is this taking so long?

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