



Colostrum Applications for Bone Health

- **Bone Density**
- **Inhibiting Bone Resorption**
- **Osteoporosis**

Colostrum growth factors have the ability to stimulate an increase in bone density and strength and assist with bone tissue repair and maintenance. Growth factors such as TGF- β found in colostrum are naturally produced by bone-building cells called osteoblasts. TGF- β can lead to a reduction of osteoclasts (cells that destroy bone). This suggests that TGF- β could help slow or prevent the development of osteoporosis. Colostrum is the only readily available natural source of these types of growth factors.

Studies suggest that colostrum has several bioactive components, including lactoferrin, osteopontin, epidermal growth factors and insulin-like growth factors, which can have a positive affect on bone health.

One study demonstrated that CBP (colostrum basic protein) increased alkaline phosphatase activity and osteoblastic cells proliferation. Moreover, it found that CBP increases bone weight and density. The authors propose the possibility that the active component in CBP plays an important role in bone formation by activating osteoblast. Therefore, CBP is one of the active components for prevention of bone disease and osteoporosis. (Jeongrai L, et al. 2007)

Significant research has been conducted in animal models for the investigation of whether bovine colostrum and its components are capable of promoting bone formation and inhibiting bone resorption. The findings suggest that colostrum-based dietary supplements may enhance bone growth and development in humans.

Scientific Research & Clinical Studies

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Colostrum Applications for Joint Health

- **Rheumatoid Arthritis**
- **Anti-inflammatory**

Colostrum has numerous regulatory growth factors which can offer anti-inflammatory action and protection against joint related health issues. Growth factors can help repair damage resulting in the joints due to autoimmune diseases like Rheumatoid Arthritis (RA).

Colostrum also contains a component called PRPs (Proline-rich Polypeptides) which have been shown to regulate immune response. PRPs are able to inhibit the over-production of T-cells and lymphocytes stimulate by antigens and mitogens. Colostral PRPs and cytokines can help modulate the body's overly aggressive inflammatory responses and help lessen inflammation.

Colostrum has been shown to modulate the body's natural inflammatory responses (Interleukin-2) to help lessen inflammation. Colostrum has the ability to inhibit the pro-inflammatory biological elements within the body, while at the same time, helps to promote the production of anti-inflammatory agents.

A clinical study conducted on RA patients taking between one and five therapeutic drugs per day found positive results with a daily intake of bovine colostrum-derived infopeptides. Twelve patients, with an average age of 52.5 years, entered the trial. The average time of RA duration was 12.4 years. Patients were given a daily oral dose of 5mL prepared infopeptide solution. If no clinical response was observed after four weeks, the dose was doubled to 5mL two times a day. After a minimum three-month followup, the results were outstanding. Clinical and subjective improvements (i.e. subjective and objective reduction or disappearance of pain, edema and inflammation, improvement in joint mobility and better tolerance of

physical activity) was documented after two to six weeks of treatment in 10 out of 12 RA patients (2 patents were lost to follow-up). An objective reduction of inflammation and local joint edema, usually preceding reduction or disappearance of pain was observed between 7 and 35 days. The average response time was 21.3 days. The results of this clinical trial are very significant, not only because of the high level of clinical response of the patients, but also because of the sustained benefit and improvement on prolonged therapy. Its oral administration, its low cost when compared with other experimental biological response modifiers, and the absence of side effects are remarkable, along with its profound effect on pain relief (Nitsch A. & Nitsch F, 1998).

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Colostrum Applications for Muscle Health

- **Sports Nutrition**
- **Athletic Performance**
- **Muscle Repair & Recovery**

Colostrum is currently being used and promoted as a natural supplement in sports nutrition, aiding in muscle recovery and anaerobic athletic performance.

A study that examined the effect of bovine colostrum supplementation on the tissue composition of resistance trained and untrained limbs found that supplementation with bovine colostrum during 8 weeks of resistance training of the elbow flexor muscles of the non-dominant arm appeared to result in greater increases in limb circumference and cross-sectional area compared with subjects taking whey protein (Brinkworth GD, et al. 2004).

Another study showed that daily bovine colostrum supplementation was beneficial to skeletal muscle to reduce the oxidant-induced damage during muscular exercise (Appukutty M, et al. 2012)

Scientific Research & Clinical Studies

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