

Joint disorders and Cognitive Functions

As your dog ages, their cartilage levels decrease, which can sometimes result in stiff, inflamed, and painful joints. Cartilage is made up of "chondrocytes," a specialised cell type found in the cartilage tissue responsible for cartilage formation. They help produce a matrix of collagen, proteoglycans, and other non-collagenous proteins that help to create a low-friction environment and cushion at the joint surface. The process of aging and general wear and tear can cause the cartilage to gradually deteriorate.

Dogs over the age of 7 years make up 1/3 of the total canine population! Dogs are considered a senior citizen from approximately 7 years of age. While this may seem young, for most breeds this is equivalent to roughly 50 human years. Large breeds such as Great Danes and German Shepard's will fall into the senior category earlier and smaller breeds like Jack Russell Terriers a little later.

As your dog ages, energy metabolism – the process of making energy from nutrients, is altered. In particular, the brain is unable to metabolise glucose as effectively as when your dog was younger. The brain is especially vulnerable to oxidative damage due to a high rate of oxygen consumption, and naturally low levels of antioxidants.

In dogs, overall brain metabolism and regional metabolic reductions as severe as 25% have been detected by 6 years of age. Additionally, studies show that 50% of dogs over the age of 8 show signs of brain aging, and this percentage only increases with age. It is always better to try and get ahead and prevent deterioration earlier.

What can we do?

We understand it can be hard to see your furry friend, who was once fearless and full of energy, now struggle to walk up and down the street - let alone chase the ball they used to be obsessed with. They might be interacting with you less, seeming a little disorientated, or not sleeping through the night.

The good news is that the right nutrition, along with low-impact exercise and enrichment, can help to alleviate pain, keep them moving comfortably, and their brain sharp!

Glucosamine and chondroitin are the two most commonly used nutraceuticals (food that provides health benefits) to alleviate pain associated with joint disorders. These nutrients are abundant in New Zealand Green Mussels (a key ingredient in all our wet and dry food) and have natural anti-inflammatory properties.

Omega-3 fatty acids (particularly EPA and DHA) are also found in these mussels and are widely recognised to provide benefits against an array of canine conditions and disorders. The anti-inflammatory affect that omega-3 produces can be helpful when managing aging joints.

Dietary omega-3 fatty acids play a role in the prevention of some disorders including cognitive dysfunction. A diet deficient in omega-3's can prevent the renewal of membranes, and thus accelerate cerebral ageing. A diet rich in omega-3 fatty acids can help protect the brain against free radical damage, and support a healthy immune system.

Antioxidants can assist joint and brain wellbeing. The brain uses a lot of oxygen, and has low levels of antioxidants, and so is vulnerable to oxidative damage and free radicals. Antioxidants work by "donating" electrons to free radicals in the body to prevent damage. Vitamin C, Vitamin E, and Green Lipped Mussels are all examples of antioxidants!

ZIWI Peak for the senior pet.



Tips & Tricks!

If your senior dog has slowed down and you're looking to make life a little easier for them, make sure you're feeding them a diet rich in all of these nutrients.

There are lots of supplements out there, and your vet will advise you when or if your dog ever needs some extra support. But as a general rule, a preventative approach to joint care is best! Remember to:

- Feed your dog a high-quality diet with natural sources of glucosamine, chondroitin, omega-3, antioxidants, calcium, and phosphorus.
- Train, motivate and reward them with natural, high value treats rich in meat and other superfoods. There is a common saying regarding cognitive function, "If you don't use it, you lose it!" Training your pet and providing them with enrichment will help them work their brain to keep it sharp.
- Watch their weight - a healthy dog is a happy dog!

A balanced lifestyle with good nutrition, brain games, adequate exercise, and lots of love will save you time, money and stress down the track.

Which Recipe Should We Choose?

All of ZIWI peaks recipes contain good natural sources of glucosamine, chondroitin and omega 3 with our inclusion of 3% NZ Green Lipped Mussel in every recipe, however, ZIWI's Mackerel & Lamb air-dried recipe contains the highest amount of Omega 3 within our range. It is present in the most bio-available form for dogs and cats (EPA & DHA). Other foods often state they contain omega 3, but this is often from a plant-based source (Alpha linoleic Acid or ALA), which is poorly converted by dogs and cats to be utilised in the body.

Essential fatty acids and human brain:

<https://pubmed.ncbi.nlm.nih.gov/15812120/>

Essential fatty acids, DHA and human brain:

<https://pubmed.ncbi.nlm.nih.gov/20329590/>

Roles of unsaturated fatty acids (especially omega-3 fatty acids) in the brain at various ages and during ageing:

<https://pubmed.ncbi.nlm.nih.gov/15129302/>

Dietary omega-3 Fatty acids and psychiatry: mood, behaviour, stress, depression, dementia and aging:

<https://pubmed.ncbi.nlm.nih.gov/15750663/>

Antioxidant Activity Derived from Marine Green-Lipped Mussel Perna canaliculus Extracts in Mice:

<https://www.hindawi.com/journals/bmri/2021/1622270/>

Furan fatty acid as an anti-inflammatory component from the green-lipped mussel Perna canaliculus:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3198329/>

London ED, Ohata M, Takei H, et al. Regional cerebral metabolic rate for glucose in Beagle dogs of different ages. Neurobiol Aging: 1983;4:121-126.