

aXivite: Connecting the Gut with Weight Management and Muscle Health

The amount of research on gut health has grown significantly in the past decade. The connection between the gut and other health conditions is often called the Gut___-Axis. The "blank" includes areas such as metabolic, brain, joint, skin, immune, muscle health and many more. The new and cutting-edge nutraceutical ingredient aXivite has shown in clinical studies to impact three specific areas of gut, metabolic and muscle health. When we look at these three, we can see that they may even form a health triangle where each may be connected.

Gut Health

Several factors play a role in gut health and its connection to the Gut___-axis. Examples would be having enough good or beneficial microorganisms, helping to suppress or eliminate harmful microorganisms, decreasing gut inflammation, and improving the strength of the intestinal lining (intestinal permeability). A recent [study](#) with aXivite showed that it influences two primary areas which have an impact on reducing harmful microorganisms by inhibiting quorum-sensing, and intestinal permeability.

For those unfamiliar with quorum-sensing, it is best characterized as a means of communication within a bacterial species. In contrast, competitive or cooperative signaling can occur between groups of bacteria or between bacteria and the host. Quorum-sensing plays a significant role in the virulence of pathogenic bacteria and yeast (*Candida albicans*, for example).ⁱ The ability to inhibit the communication between harmful microorganisms plays an essential role in the microbiome.

Intestinal permeability is not necessarily bad unless the connection (tight junctions) between cells becomes too large, leading to a leaky gut condition. The lining of the small and large intestine is designed to be permeable to let nutrients, water, etc., into the bloodstream and to allow for waste and other toxins to flow into the digestive tract for elimination. When these junctions hold the cells together, they become weakened, allowing particles that do not belong there into the bloodstream. This can trigger other more serious health concerns in the gut, skin, immune system, fatigue, weight gain, joint discomfort, and more.ⁱⁱ

The study observed aXivite's ability to inhibit quorum-sensing and to decrease the protein Zonulin. The impact of inhibiting quorum-sensing and how it positively impacts gut health was described above. Elevated zonulin levels are associated with increased intestinal permeability. By decreasing zonulin levels, we can see the benefits to gut health.

Gut-Metabolic-Axis

The link between the gut and metabolic health is well documented. An example is the link between dysbiosis (unhealthy balance of good and bad microorganisms) and intestinal permeability on metabolic health (weight management).ⁱⁱⁱ We saw earlier that aXivite

positively impacts both gut health concerns linked to weight. The same study mentioned throughout this blog also showed that aXivite influences weight by reducing the BMI (Body Mass Index). This result may be due to the gut-metabolic axis or by the thermogenic properties associated with aXivite, regardless of why or how aXivite is an excellent nutraceutical for the gut-metabolic axis.

Gut-Muscle-Axis

The gut-muscle-axis is relatively new to most. Recent studies have demonstrated the existence of a gut-muscle axis, i.e., that muscle function and metabolism are primarily dependent on the quantity and composition of the gut microbiota and that the gut microbiota is expected to be a potential biological target for the prevention and treatment of muscle-related diseases such as sarcopenia and muscular dystrophy. The gut microbiota profoundly affects skeletal muscle function and mass, and intervening in this axis may reverse the decline in skeletal muscle function and mass.^{iv}

Like the gut-metabolic-axis rationale for why aXivite plays a role in metabolism and weight management, we can see from the above quotes regarding the gut-muscle-axis why aXivite may have positively impacted muscle health and strength. A recent study showed that aXivite reduced muscle fatigue, improved recovery, improved performance, and decreased muscle damage.^v

Summary

As more research is directed towards gut health and the microbiome, we see the immergence of new and innovative ingredients for various health concerns. aXivite is a perfect example of this. While the exact mechanism of action hasn't explicitly identified this connection, it can be simply extrapolated that at least one of aXivite's mechanisms of action is due to its multifaceted impact on gut health. For those seeking to create innovative products with an "outside the box feel," adding aXivite to your formulation will cast a broader net and appeal to the consumer on multiple interest levels.

ⁱ Costi D. Sifri, Quorum Sensing: Bacteria Talk Sense, *Clinical Infectious Diseases*, Volume 47, Issue 8, October 15 2008, Pages 1070–1076, <https://doi.org/10.1086/592072>

ⁱⁱ Camilleri M. Leaky gut: mechanisms, measurement and clinical implications in humans. *Gut*. 2019 Aug;68(8):1516-1526. doi: 10.1136/gutjnl-2019-318427. Epub 2019 May 10. PMID: 31076401; PMCID: PMC6790068.

ⁱⁱⁱ Nagpal R, Newman TM, Wang S, Jain S, Lovato JF, Yadav H. Obesity-Linked Gut Microbiome Dysbiosis Associated with Derangements in Gut Permeability and Intestinal Cellular Homeostasis Independent of Diet. *J Diabetes Res*. 2018 Sep 3;2018:3462092. Doi: 10.1155/2018/3462092. PMID: 30250849; PMCID: PMC6140100.

^{iv} Li G, Jin B, Fan Z. Mechanisms Involved in Gut Microbiota Regulation of Skeletal Muscle. *Oxid Med Cell Longev*. 2022 May 18;2022:2151191. Doi: 10.1155/2022/2151191. PMID: 35633886; PMCID: PMC9132697.

^v Pablo Jiménez-Martínez, Pedro Jesús Cornejo-Daza, Juan Sánchez-Valdepeñas, Iván Asín-Izquierdo, Clara Cano-Castillo, Carlos Alix-Fages, Fernando Pareja-Blanco & Juan C. Colado (2023) Effects of different phenylcapsaicin doses on resistance training performance, muscle damage, protein breakdown, metabolic response, ratings of perceived exertion, and recovery: a randomized, triple-blinded, placebo-

controlled, crossover trial, Journal of the International Society of Sports
Nutrition, 20:1, DOI: [10.1080/15502783.2023.2204083](https://doi.org/10.1080/15502783.2023.2204083)