

STRUCTURED LIPIDS

Structured lipids are dietary triglycerides that have had their fatty acids ‘restructured’ for therapeutic benefits.

HOW ARE THEY MADE?

- STEP 1** Medium- and long-chain fatty acids (MCFAs and LCFAs) are each attached to a glycerol backbone.
- STEP 2** Enzymes and chemical processes (de-esterification) liberate the fatty acids from their glycerol backbone.
- STEP 3** These fatty acids are then randomly rejoined (random re-esterification) to create lipids containing MCFAs and LCFAs on the same glycerol backbone.



WHAT ARE THE BENEFITS?

Structured lipids also serve as a readily available energy source.²

PHYSIOLOGIC BENEFITS



Increased fatty acid uptake³



Enhanced fat-soluble vitamin and antioxidant absorption (30%–40%)³



Improved delivery of total fat and essential fatty acids to peripheral tissues (40%–50%)⁴

PHYSIOLOGIC OUTCOMES



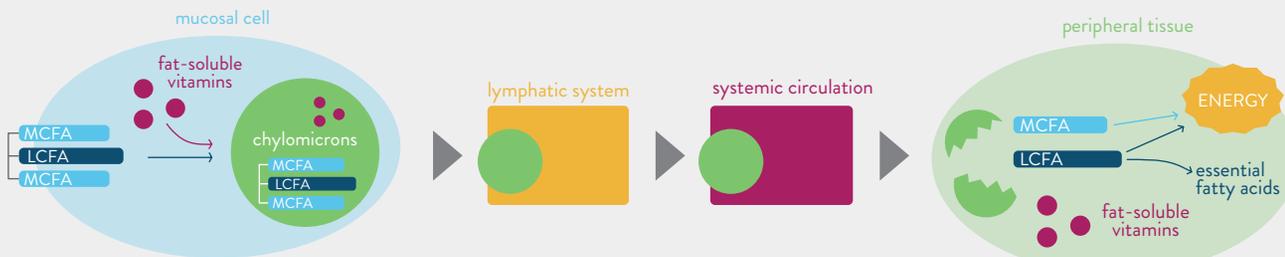
Improved nitrogen balance during metabolic stress⁵⁻⁹



Reduced muscle catabolism⁵⁻⁹

HOW DO THEY WORK?

Structured lipids combine the benefits of both MCFAs and LCFAs on the same molecule.



STEP 1

Once ingested, structured lipids are absorbed by the intestinal lumen into the mucosal cell.

STEP 2

Within the mucosal cell, they are packaged into chylomicrons with fat-soluble vitamins.

STEP 3

These chylomicrons enter the lymphatic system and pass into the systemic circulation, where they are transported to peripheral tissues.

STEP 4

Peripheral tissues take up contents of the chylomicron, which includes MCFAs, LCFAs, and fat-soluble vitamins. MCFAs are an alternative fuel source for peripheral tissues, which help reduce the loss of lean body mass.¹ LCFAs can be stored and used during times of tissue repair, since MCFAs are supplying tissues with immediate energy.

⚠ When lipids are unstructured, MCFAs rarely reach the general circulation and therefore do not provide energy to peripheral tissues.

STRUCTURED LIPIDS REFERENCES

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