



OMEGA-3

EPA / DHA

PRESENTATION



What we will cover:

- ❖ NutraOrigin's Mission
- ❖ NutraOrigin's manufacturing process
- ❖ The Benefit of Concentration
 - NutraOrigin's Fish Oil High Potency – Proven Effective
 - Review of Clinical Trial on Acute & Chronic Sleep Deprivation
- ❖ The Recipe for High Quality Fish Oil
 - How ensuring freshness and purity benefit you
- ❖ Take Away Notes – What You Need to Know

Mission Statement

At NutraOrigin® we believe that each person deserves access to clinically based nutritional supplements that deliver results. Our passion drives us to create supplements of uncompromising quality and potency to help you live a long, healthy and happy life.

NutraOrigin is nutrition without compromise.

Marine based fish oil fatty acids Manufacturing Technology Deconstructed

NutraOrigin Processing Protocol for **Highly Concentrated (above 30%) Fish Oils**



Crude Fish Oil



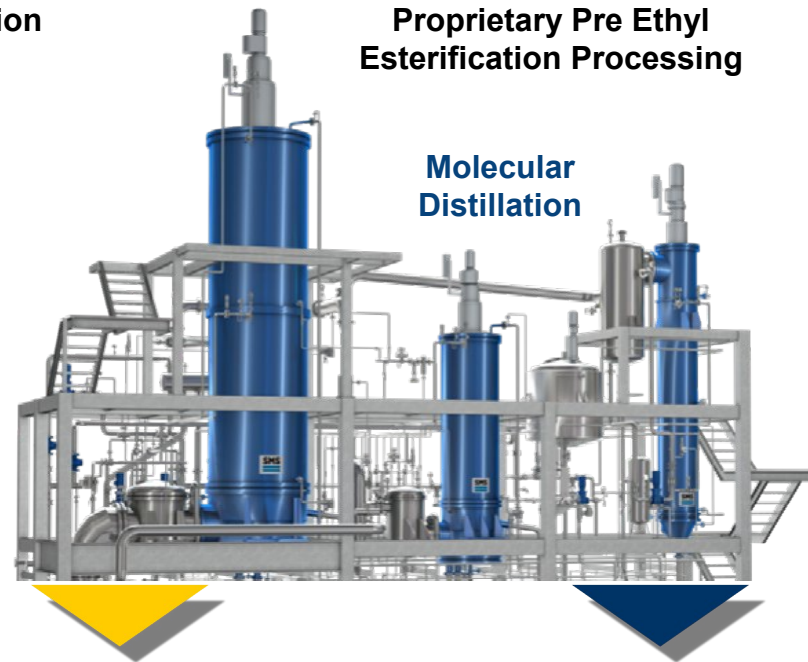
Deacidification



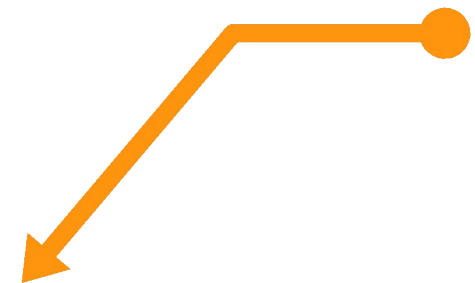
Proprietary Pre Ethyl Esterification Processing

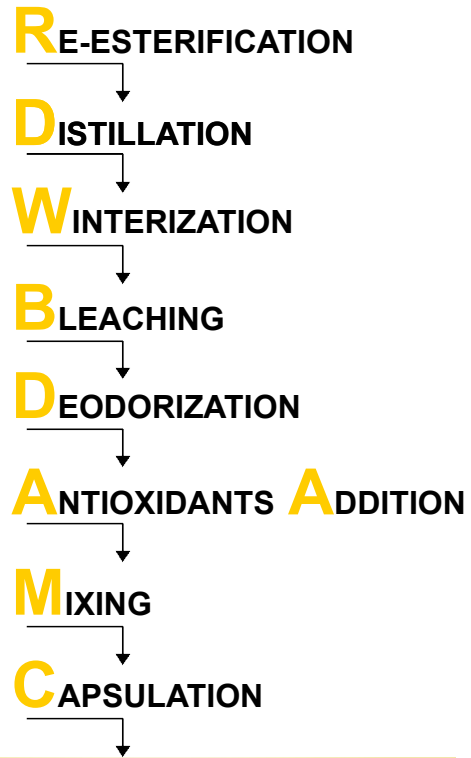


Ethyl Esterification

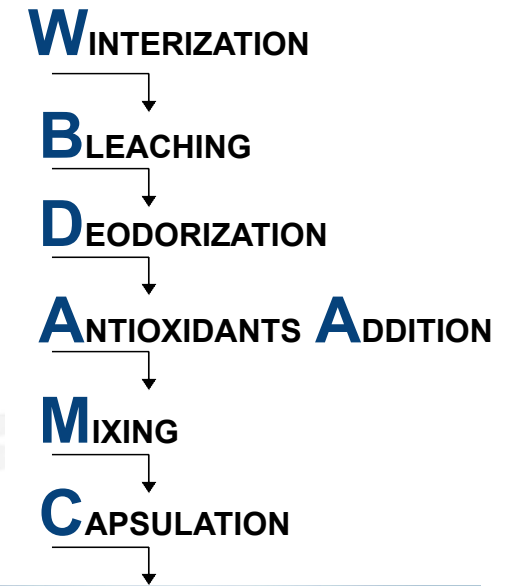


Molecular Distillation





TG Concentrates



EE Concentrates

NutraOrigin Processing Protocol for Fish Oil ($\leq 30\%$)

This process is very similar to the process for concentrated Fish Oils production, except two steps: Ethyl Esterification and Molecular Distillation.

Instead of Molecular Distillation, Oil Refining method is utilized.

Oil Refining

A purification process utilized to remove contaminants, but does not offer concentration options.

Oil refining involves:

- v Steam distillation: a combination of steam and vacuum is employed to remove volatile components responsible for the oil's odor and flavor.
- v Recovering these now distilled fatty acids into a final product with extremely low levels of contaminants.

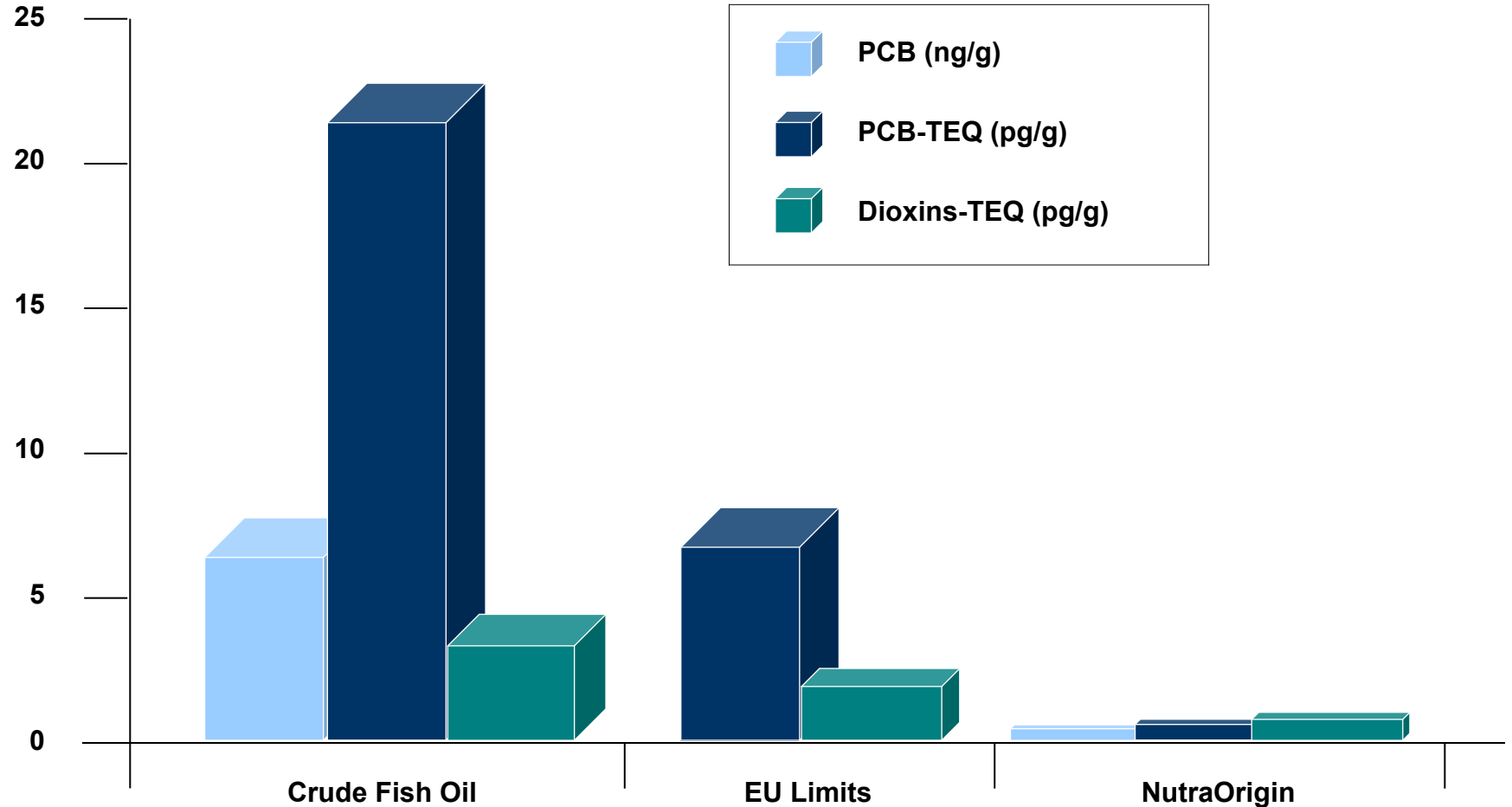
Oil Refining Advantages	Oil Refining Disadvantages
Natural Oils: the starting natural triglyceride form is maintained throughout the process.	Concentration: fatty acid content is dependent on the initial raw material. Concentrations are not possible.

The NutraOrigin Difference

An Additional Purification Step

Proprietary Pre Ethyl Esterification Processing

Our proprietary purification processing protocol ensures levels of purity that exceeds established standards.



Maximum Specification Limits for Oxidation Products

		Ph/Eur	GOED Vol. Monograph	NutraOrigin
Peroxide Value TG/EE	meg/kg	10.0	5.0	<5.0
Anisidine Value				
- Triglyceride		30.0	20	<20 ¹
- Ethyl Ester		20.0	20	<20 ¹
TOTOX		N/A	26	<26
Absorbance				
- Triglyceride		0.73	N/A	<0.73
- Ethyl Ester		0.60	N/A	<0.60
Oligomers				
- Triglyceride	%	3.0	N/A	<3.0
- Ethyl Ester	%	7.0 ²	N/A	<7.0 ²
Trans Fats		N/A	N/A	N/A
Acid Value				
- Triglyceride	mg KOH/g	3.0	3	<3
- Ethyl Ester		2.0	3	<2

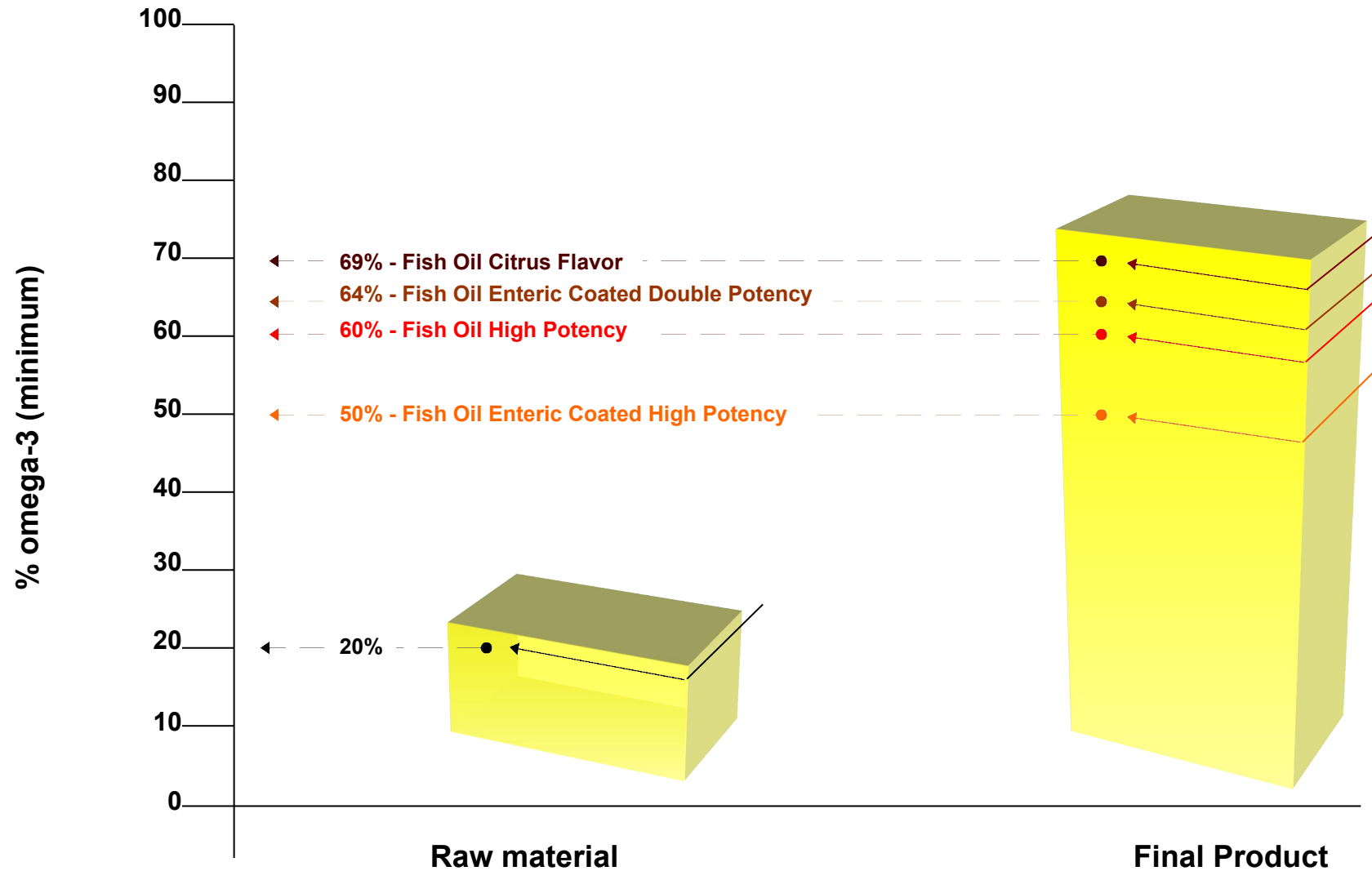
¹ Guaranteed in shelf-life period of two years. Typical initial value <10. See specification for specific NutraOrigin products.

² Oligomers + partial glycerides

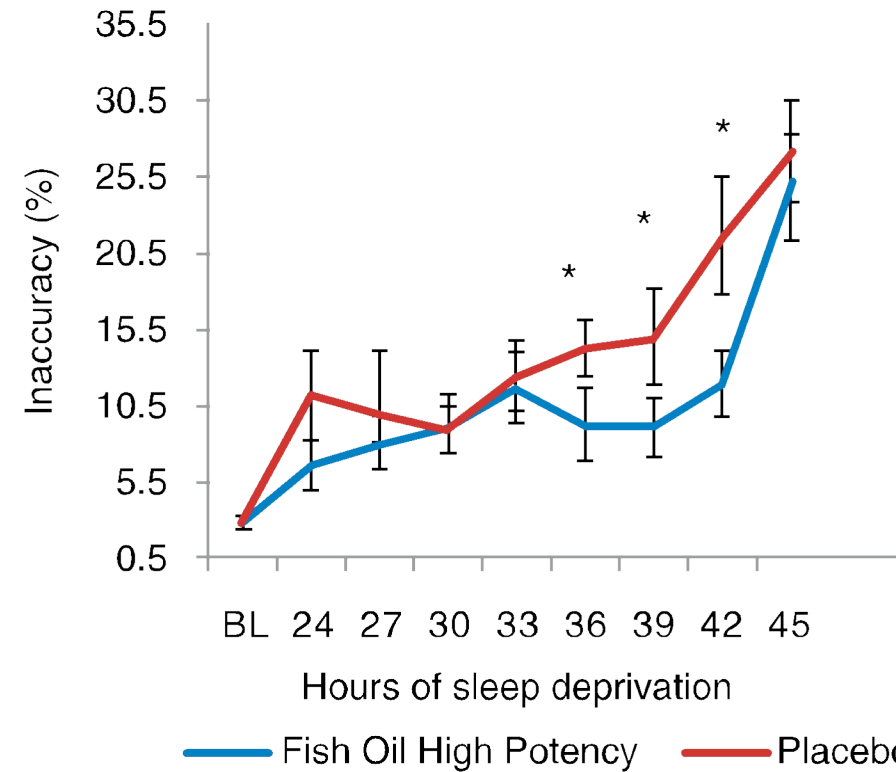
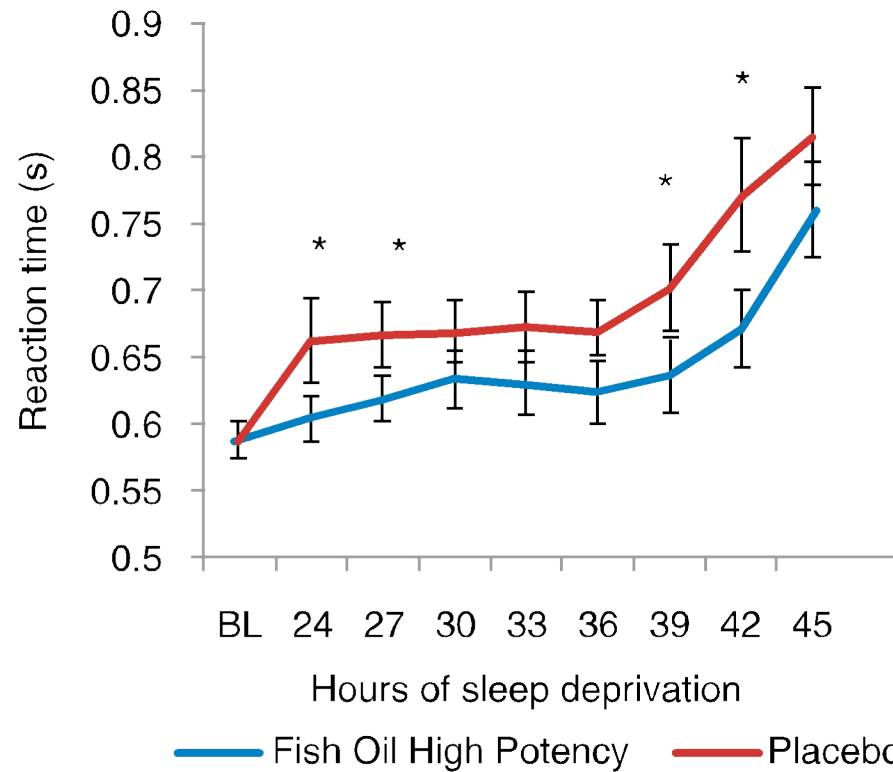
- Low oxidation values means avoiding the formation of free radicals which can damage human cells
- Oxidation parameters are important indicators of the oil's overall quality and impacts shelf-life
- Low oxidation values mean little off-flavor smell and taste.

NutraOrigin Concentrated Benefit

Our Processing Protocol provide impressive increases in Omega -3 fatty acids concentration.

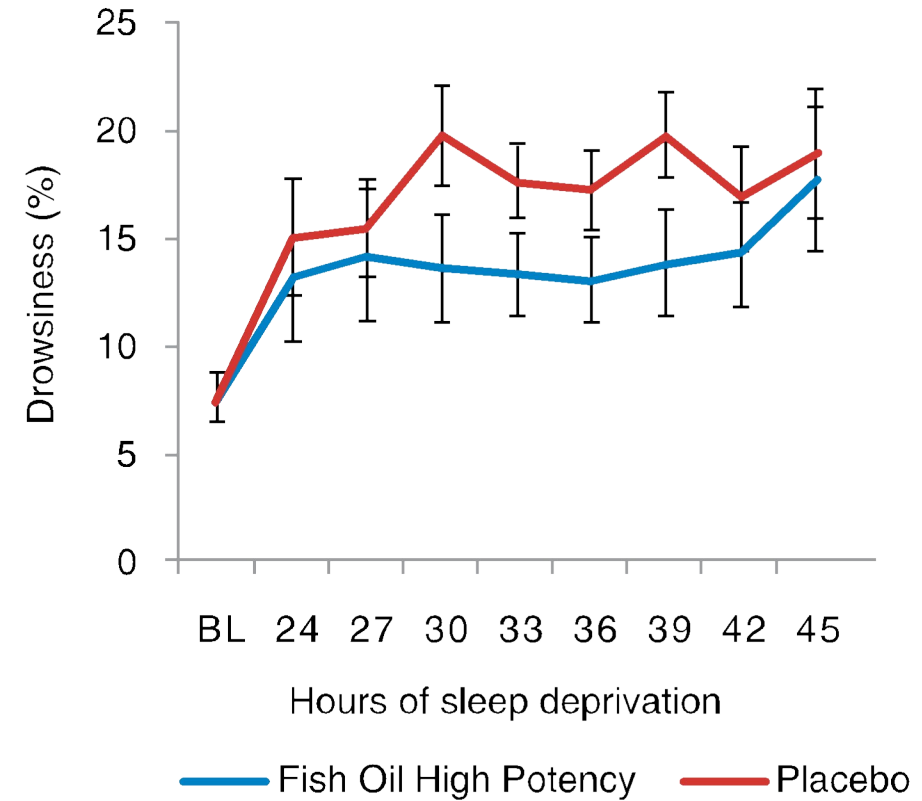
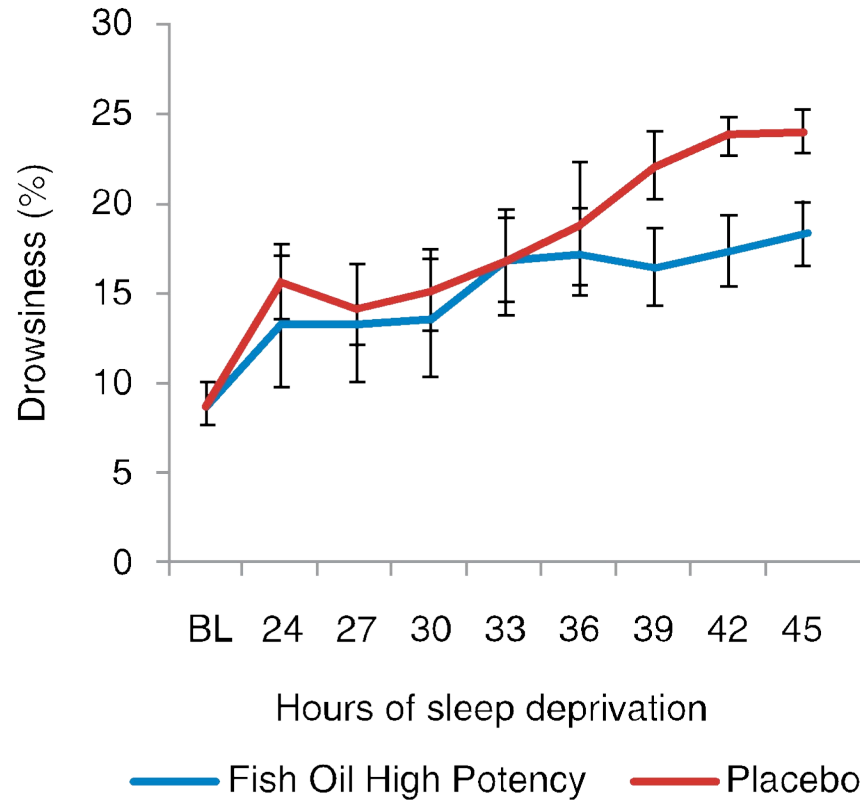


Acute Sleep Deprivation



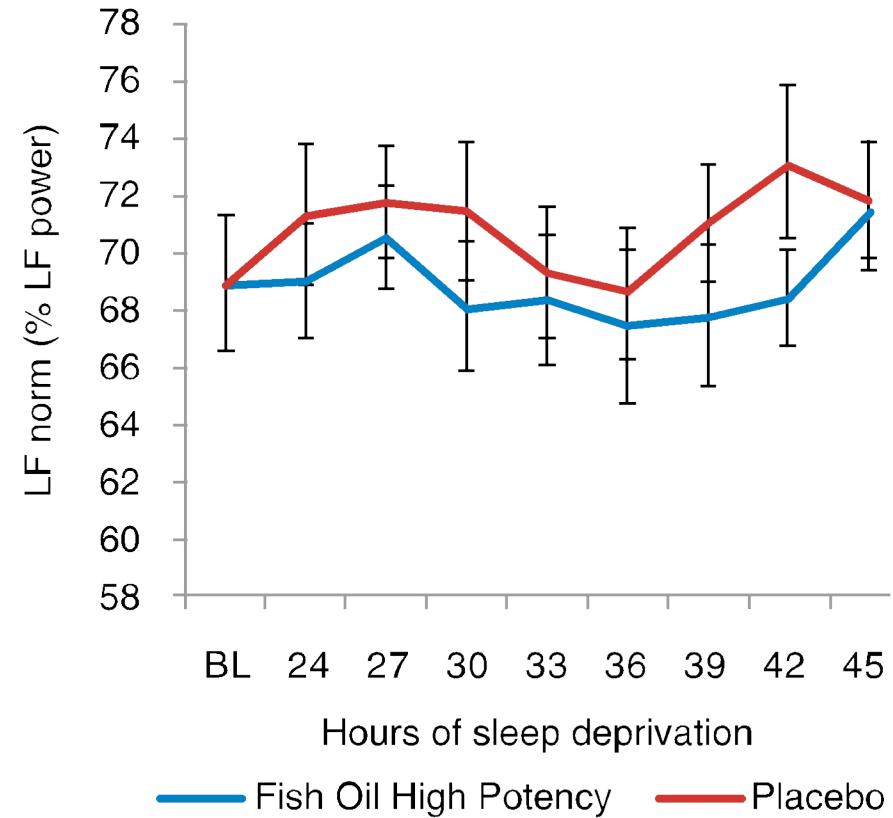
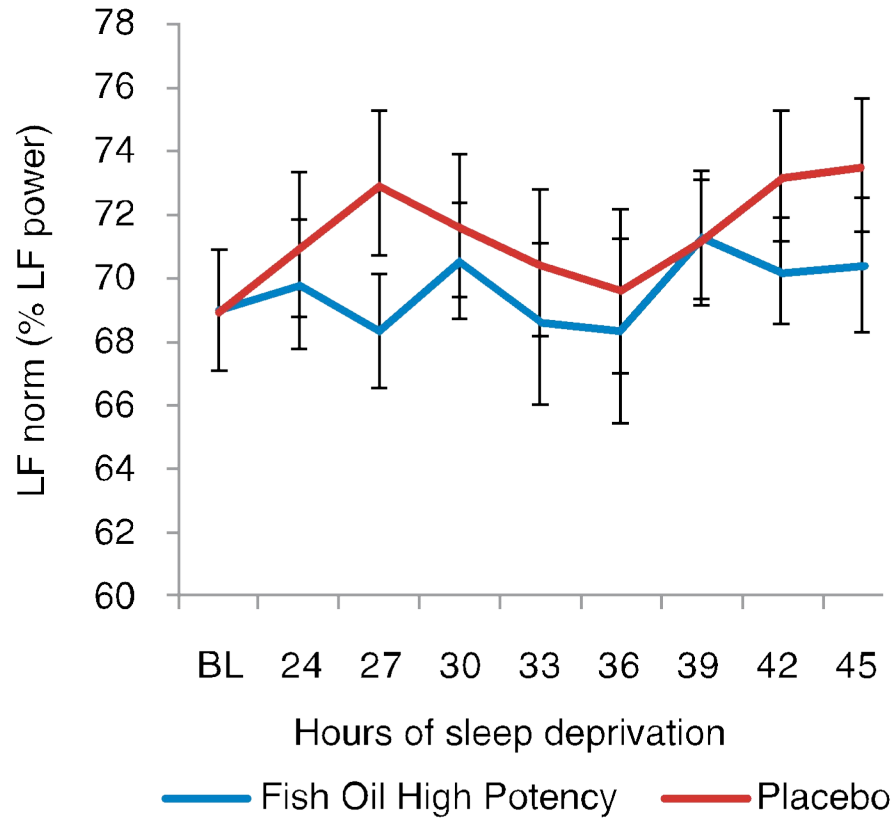
Reaction time and inaccuracy scores on the 3CVT task over time of sleep deprivation. Significant post hoc comparisons are indicated with (*).

Acute Sleep Deprivation



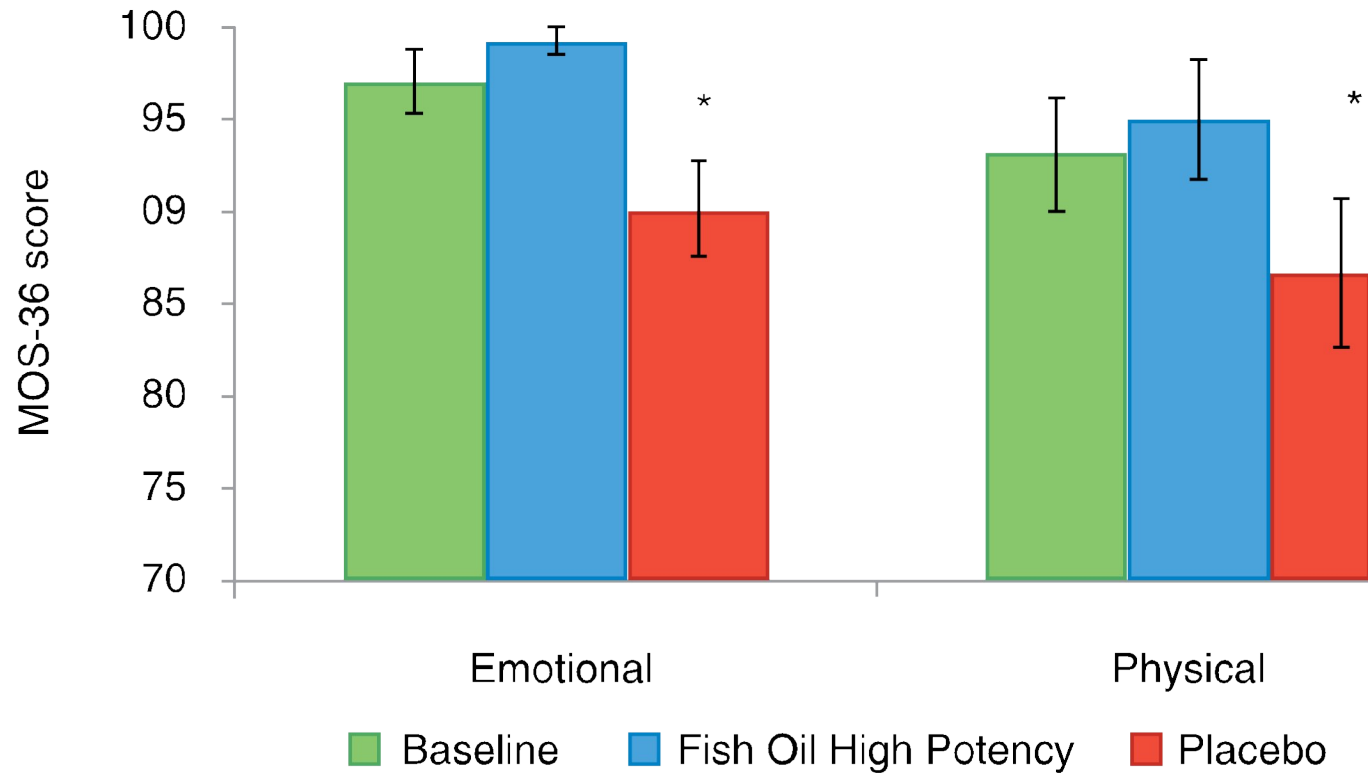
EEG based drowsiness for 3CVT (left) and SIR (right) tasks.

Acute Sleep Deprivation



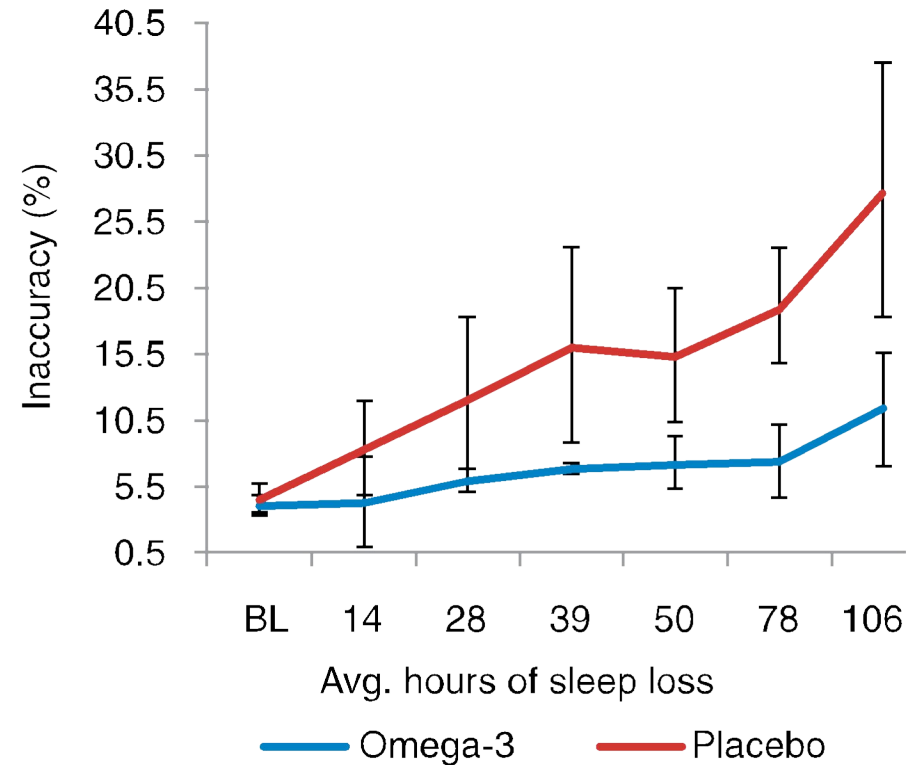
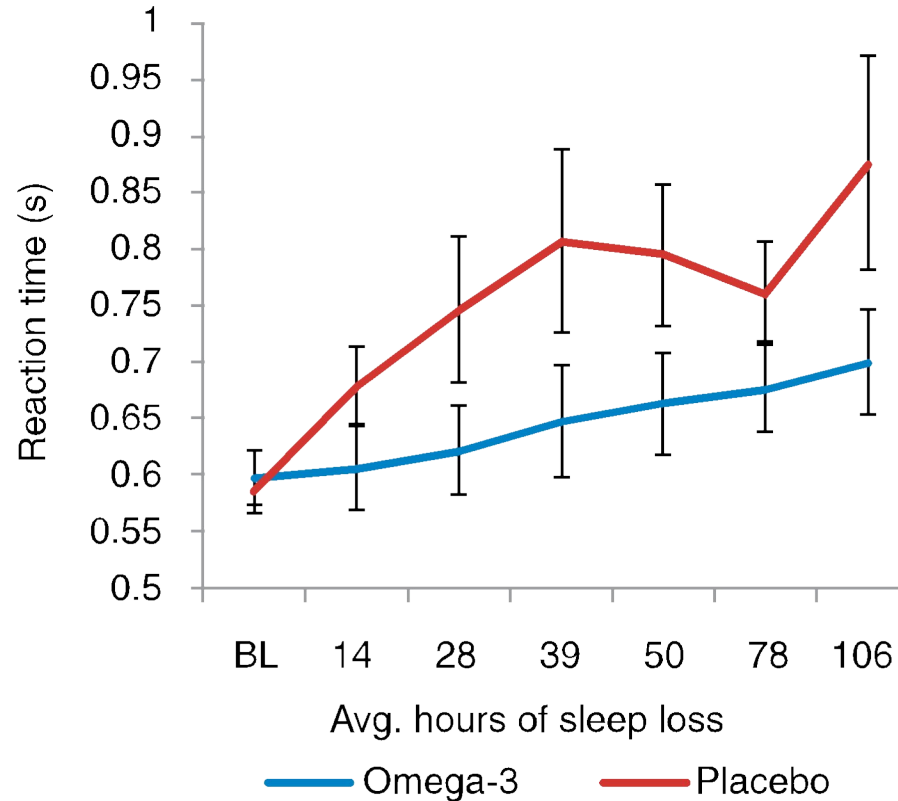
EKG based heart rate variability, low frequency power spectral data analysis for 3CVT (left) and SIR (right) tasks.

Acute Sleep Deprivation



MOS-36 scales for perception of physical and emotional role capability.

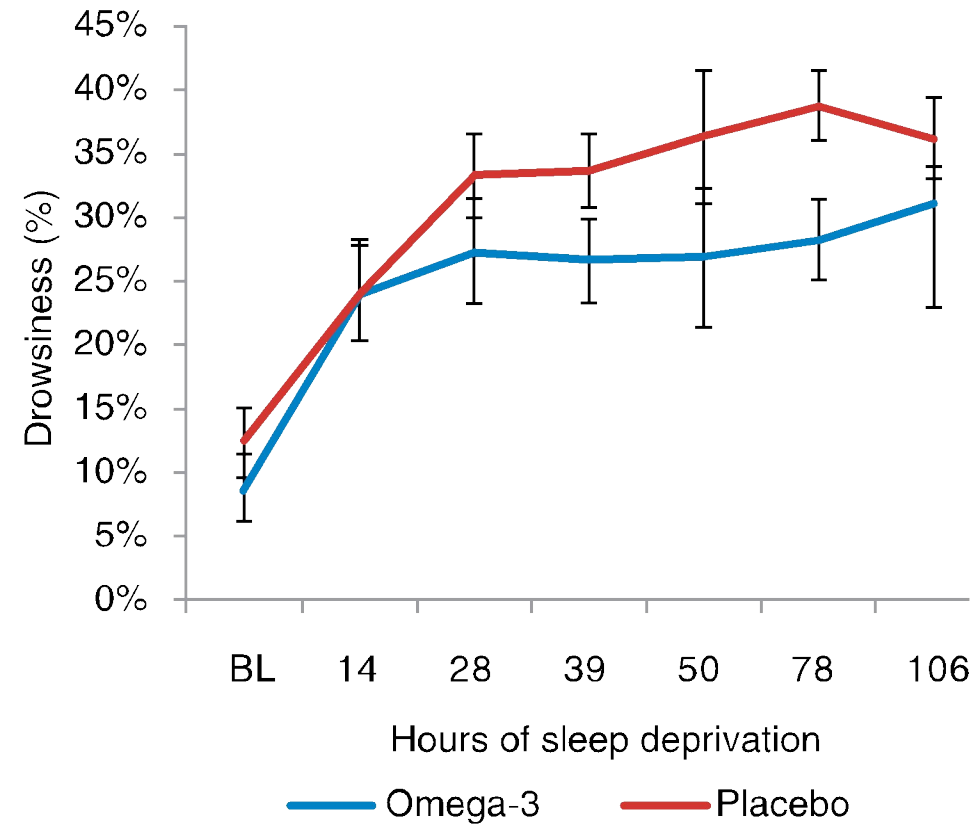
Chronic Sleep Deprivation



Reaction time and inaccuracy scores on the 3CVT task over time of sleep deprivation.

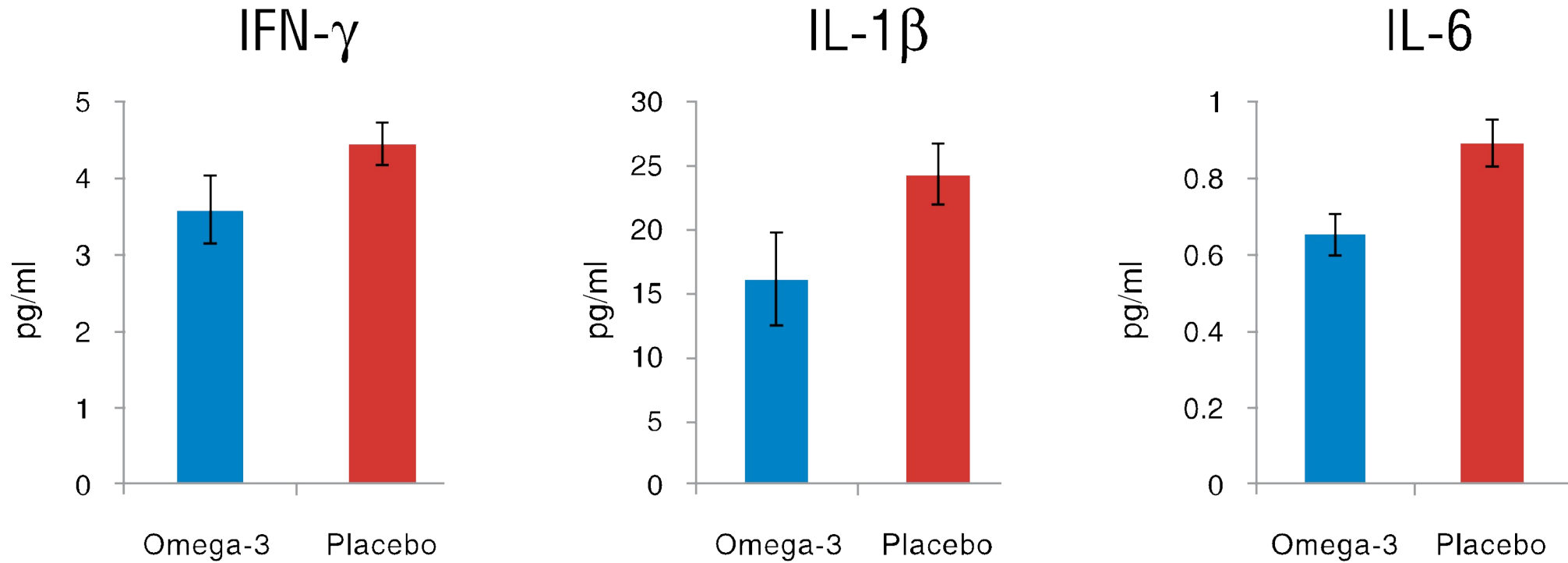
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Chronic Sleep Deprivation



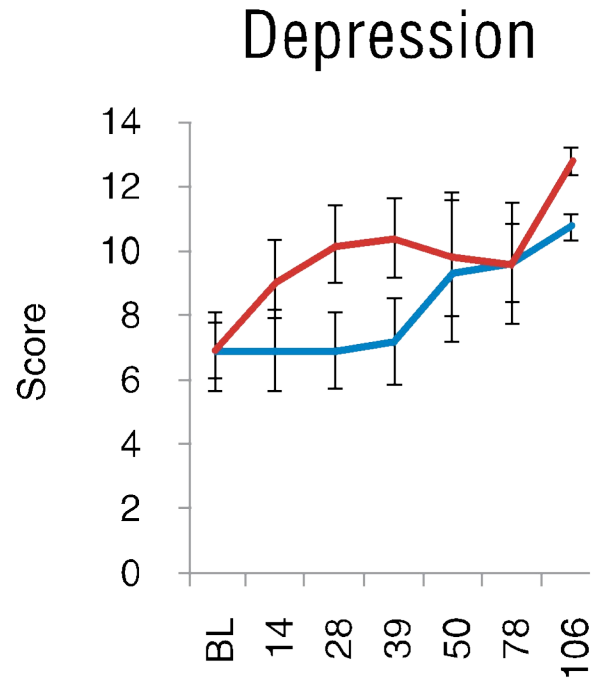
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Chronic Sleep Deprivation

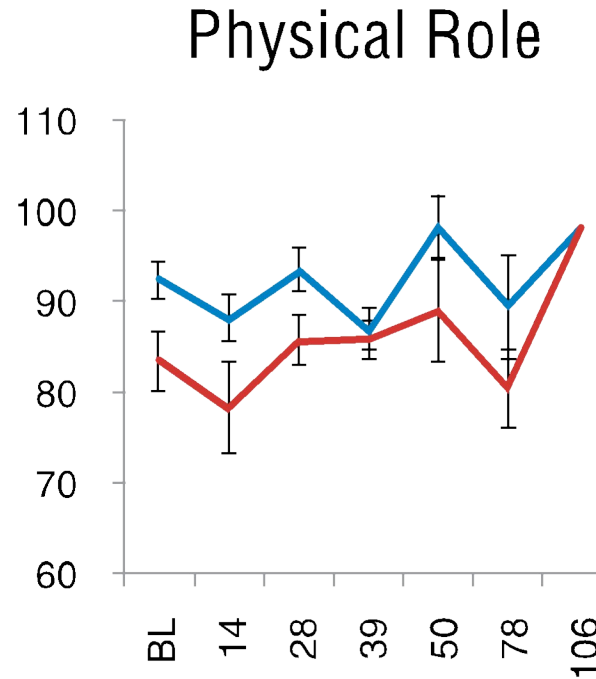


Inflammatory markers across condition after 6 week sleep debt protocol
(up to 106 hr of accumulated sleep loss).

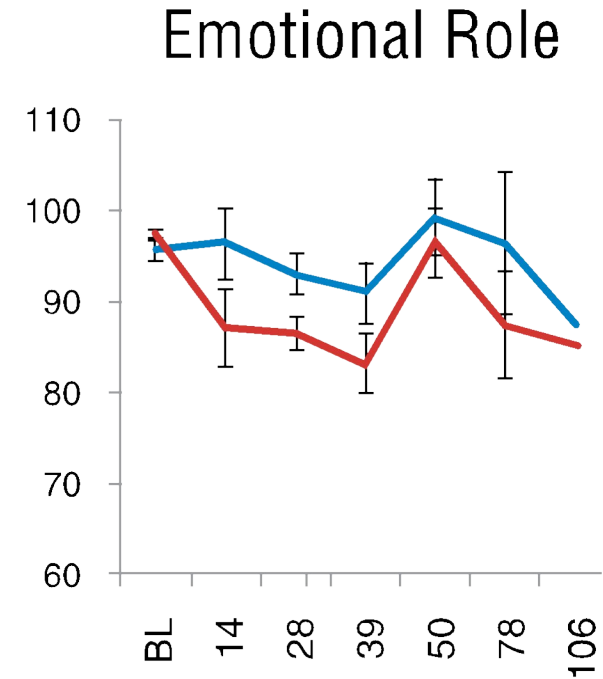
Chronic Sleep Deprivation



— Omega-3 — Placebo



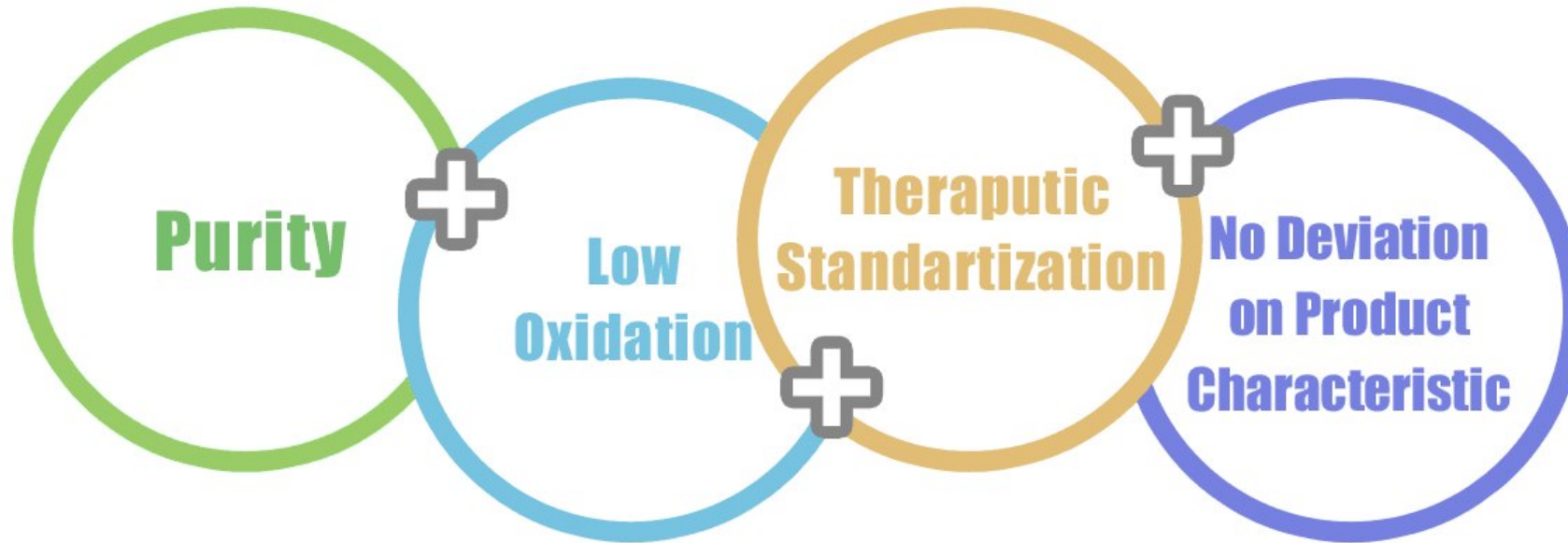
— Omega-3 — Placebo



— Omega-3 — Placebo

Mood/Self report measures. Omega-3 improved self reported mood and efficacy, however all were within normal range.

Quality =



Take Away Notes – What you need to know.

- ❖ All fish oil must be purified to ensure removal of potentially harmful environmental contaminants
 - Molecular distillation is a very effective way of purifying fish oil
- ❖ All fish oil must be fresh to ensure there is no repeat (fish burps) and the omegas therefore reach optimal absorption
- ❖ Fish Oil High Potency was shown to benefit both the mind and body of those who suffer from both chronic and acute sleep deprivation
- ❖ With an uncompromising commitment to product quality, NutraOrigin produces a broad range of Omega Fatty Acid products for all ages – you be the judge