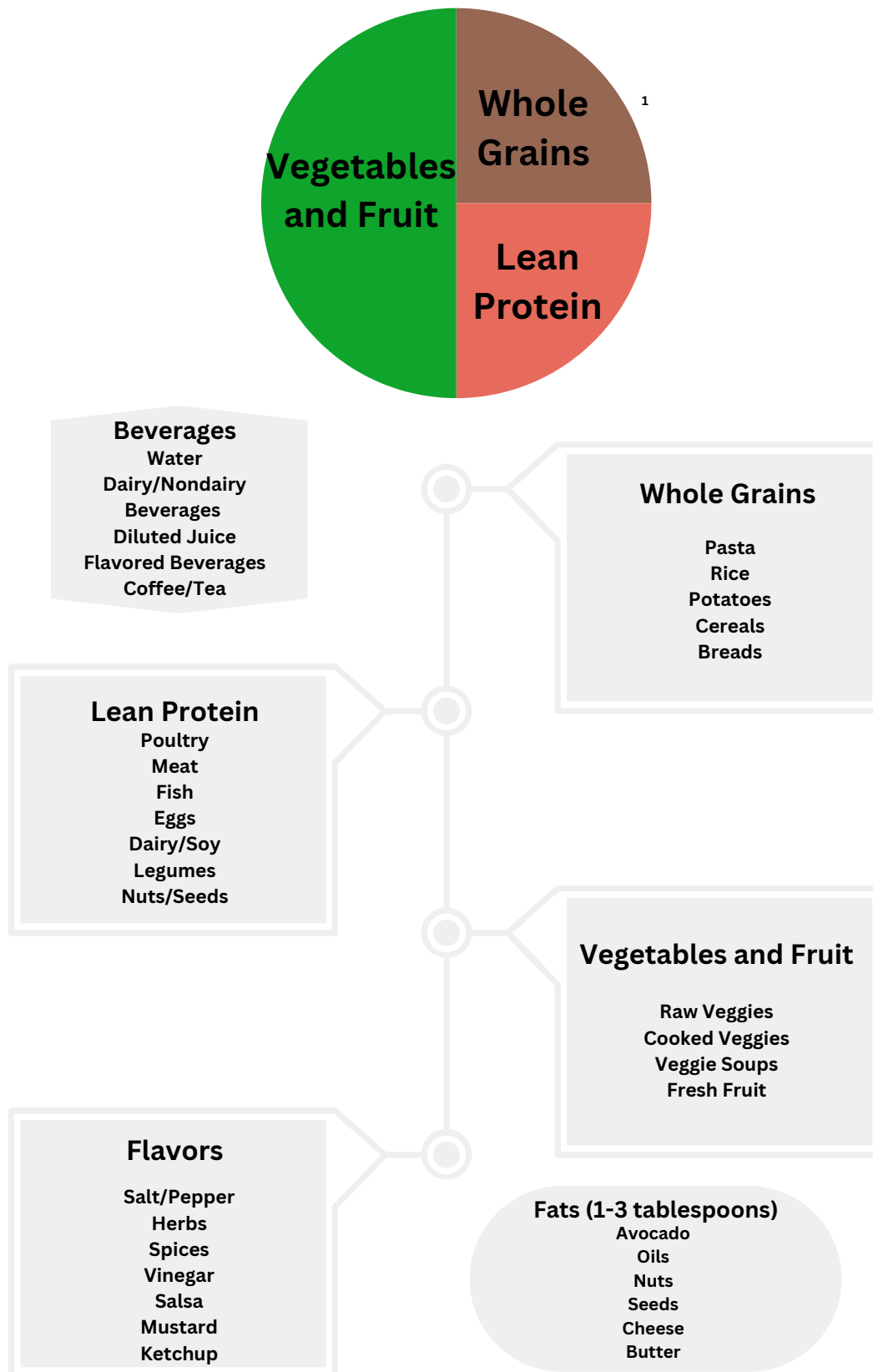


# Nutritional Information

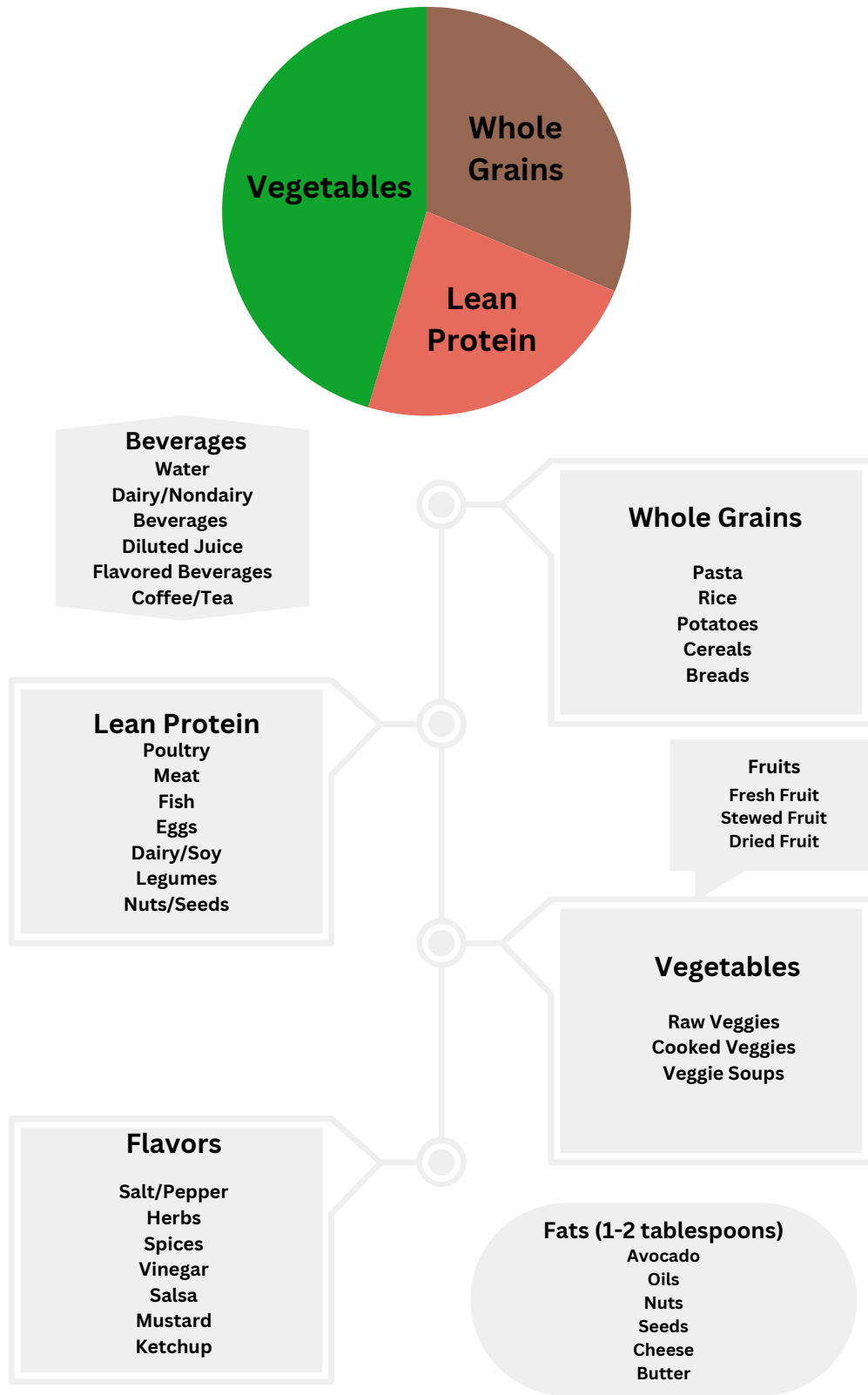
1

**Periodized nutrition (or nutritional training) refers to methods that use nutrition (in the presence or absence of training) to improve long-term performance. These methods include manipulations of nutrient availability before, during, and after training, but could also include practices that prepare other organs for competition through nutritional manipulation. The definition of nutritional training is not restricted to adaptations of the muscle and could relate to adaptations in all organs, but will always have long-term performance improvements as the main goal.**

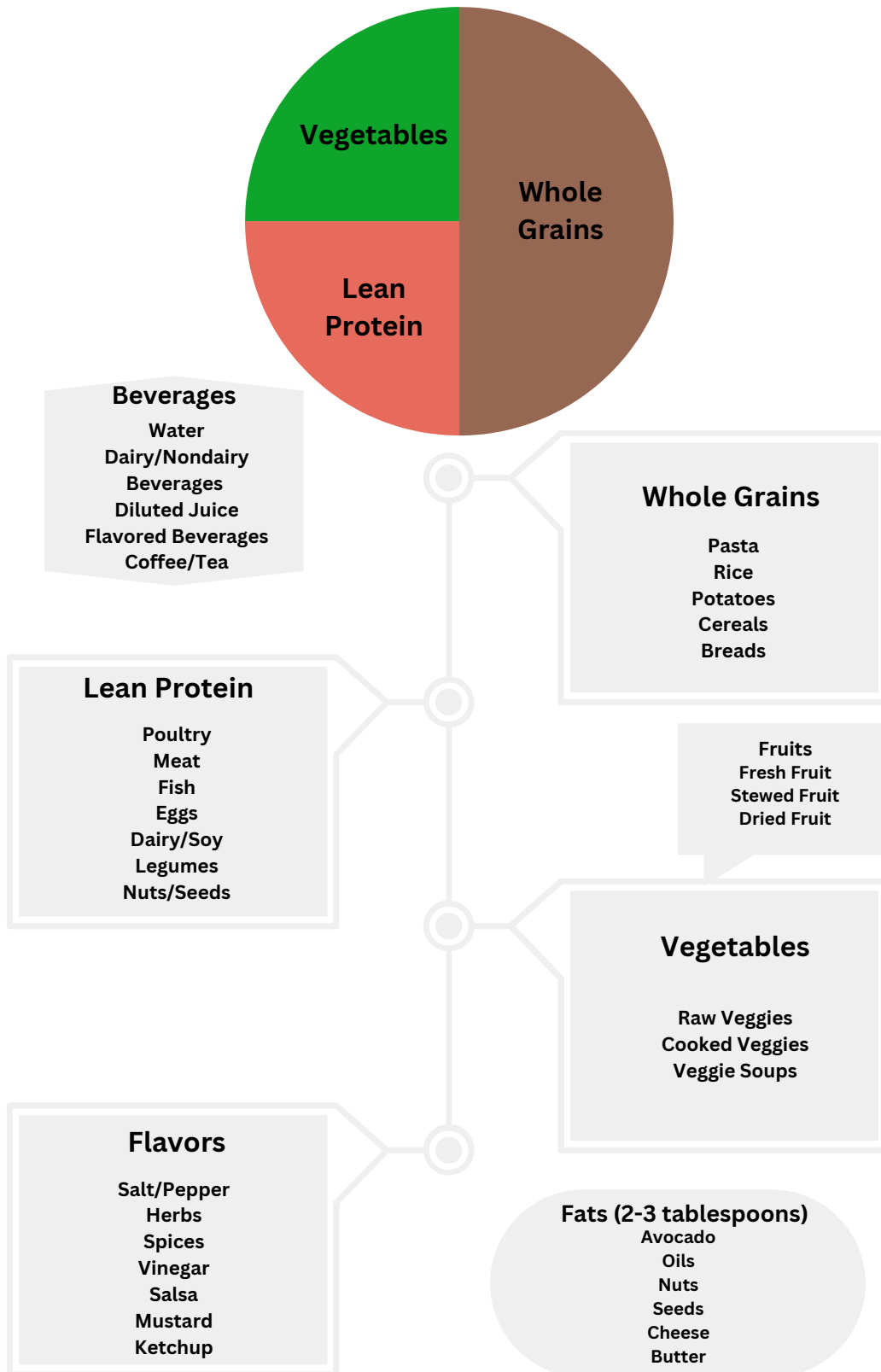
# Light Training/ Weight Management



# Moderate Training



# Intense Training



# Timeline for Periodized Nutrition

Months		Weeks	
<b>Carbohydrate (CHO)</b>	Daily CHO adjustments to match several month training phase.	Focus of CHO based fueling during training sessions to adapt the GI over several weeks for gameday fueling	
<b>Protein (PRO)</b>	Adjust daily protein intake to training demands on a given phase	Increase daily protein intake to minimize skeletal muscle mass loss	
<b>Iron</b>	Adequate dietary iron intake linked to the stress/demands of training and individual profile	Increase in iron intake by supplementation/nutrition while in training camps/pre-season training	
<b>Creatine</b>	Normal recommended use during a 2-month hypertrophy/high training block	Acute loading phase of creatine to enhance anaerobic factors	

Adapted from International Journal of Sport Nutrition and Exercise Metabolism<sup>3</sup>

## Supplements

### Categories of supplements suggested to promote training adaptations based on their mechanism of action

Supplements that may allow more training to be performed	Caffeine, Bicarbonate, Creatine, Nitrates (beetroot)
Supplements that may initiate or increase protein synthesis and/or increase myofibrillar protein synthesis	Essential amino acids, Leucine, Branched-chain amino acids
Supplements with the potential to increase mitochondrial biogenesis	Epigallocatechin gallate and green tea extracts, (-)Epicatechins, Resveratrol, Quercetin, Conjugated linoleic acid

Adapted from Sports Medicine<sup>1</sup>

**Nutritional training methods: while some methods have more supporting evidence than others, these are the potential nutritional training tools that athletes and coaches can use to periodize the athlete's nutrition**

<b>Train Low</b>	Training twice a day	Limited or no carbohydrate intake between the two sessions. The first training will lower muscle glycogen so that the second training is performed in a low-glycogen state. This may increase the expression of relevant genes
	Training fasted	Training is performed after an overnight fast. Muscle glycogen may be normal or even high but liver glycogen is low
	Training with low external carbohydrate availability	No or very little carbohydrate is ingested during prolonged exercise. This may exaggerate the stress response
	Low-carbohydrate availability during recovery	No or very little carbohydrate is ingested post-exercise. This may prolong the stress response
	Sleep low	Train late in the day and go to bed with carbohydrate intake restricted. Essentially the same idea as low-carbohydrate availability after training but the period post-exercise is extended. Muscle and liver glycogen will be low for several hours during sleep
	Low-carbohydrate/high-fat/ketogenic diets	Long-term low-carbohydrate stores
<b>Train High</b>	Training with high muscle and liver glycogen	Carbohydrate intake is high before training when glycogen is important and there is a focus on glycogen restoration post-exercise
	Training with a high-carbohydrate diet	Carbohydrate intake is high on a daily basis independent of training, but may be especially high around training (during and after)
<b>Training the gut</b>	Training of stomach comfort	Increasing volume of intake with or without exercise
	Training gastric emptying	Repeated use of meals to increase/improve gastric emptying of fluids or nutrients (carbohydrate) and reduce stomach discomfort
	Training absorption	Increasing daily carbohydrate intake and/or intake during exercise to improve absorptive capacity of the gut and reduce intestinal discomfort
	Training performance nutrition	Training all aspects of a nutrition strategy as on performance day
<b>Training dehydrated</b>	Training in a dehydrated state	Training with limited/no fluid intake to allow dehydration

Adapted from Sports Medicine <sup>1</sup>

**Informative Video Links**

**Nutrition is the key**  
**The Power of Nutrition**

## References

1. Jeukendrup AE. Periodized nutrition for athletes. *Sports Medicine*. 2017;47(S1):51-63.
2. Reguant-Closa A, Roesch A, Lansche J, Nemecek T, Lohman TG, Meyer NL. The environmental impact of the athlete's Plate Nutrition Education Tool. *Nutrients*. 2020;12(8):2484. doi:10.3390/nu12082484
3. Stellingwerff T, Morton JP, Burke LM. A framework for periodized nutrition for Athletics. *International Journal of Sport Nutrition and Exercise Metabolism*. 2019;29(2):141-151. doi:10.1123/ijsnem.2018-0305
4. Vavrek K. Nutrition is key to sports performance | Ohio State Medical Center. YouTube. January 23, 2018. Accessed February 10, 2024. <https://www.youtube.com/watch?v=3XMh6f0xB7A>.
5. Corey L. The power of nutrition | Luke Corey, RD, LDN | UCLAMDChat. YouTube. November 19, 2018. Accessed February 10, 2024. <https://www.youtube.com/watch?v=krIgKr3IC7s>.