

# An individualized, dynamic exchange-based nutrition system may enhance endurance athlete speed improvements regardless of baseline perceived diet quality

The Fuelogics system was provided to a group of 19 elite and sub-elite rowers with a mean age of 20. Individuals were heterogeneous for current and previous work with a dietitian/nutritionist, received a 30-minute nutritionist-led introduction to the system, and had the opportunity to ask a nutritionist questions throughout the duration of the program.

Athlete perceptions of nutrition were assessed before introduction to the Fuelogics system and averaged 3.5 on a 5-point scale (Figure 1).

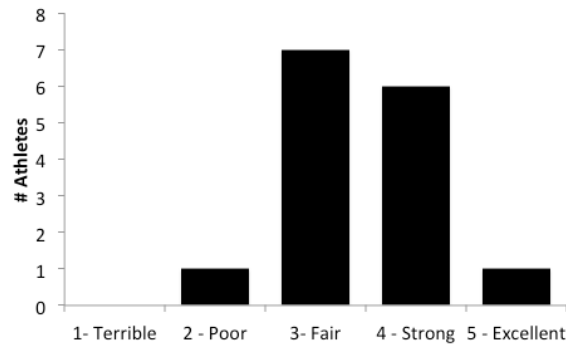


Figure 1: athlete-perceived nutrition at week 0. 15 of 20 participants completed this question.

Despite strong self-perceptions before introduction, after two weeks 100% of participants agreed that they ate better for performance than before using the app and 92% were more aware of how to eat based on different levels of training (not shown). Increased awareness of needs and improved planning behaviors were most often cited as reasons for change (not shown). Most frequently reported alterations were to carbohydrate and post-training intake (Figure 2).

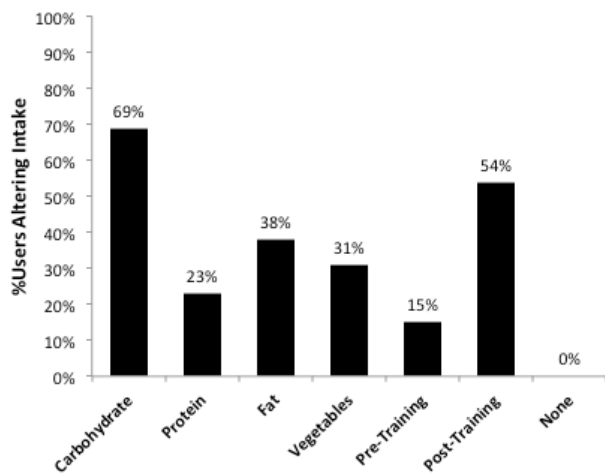


Figure 2: percent of users reporting alterations to intake after 2 weeks of app usage.

Athlete improvement in speed was assessed by the head coach at week six and compared to app usage (Figure 3). The coach did not have access to app usage data for individual athletes through the first six weeks, thus effectively blinding

the coach. Athlete improvement was ranked on a 5-point scale and was relative for each athlete such that a 1-second improvement in splits may confer varying levels of progress. Every additional 7 days of usage per month was associated

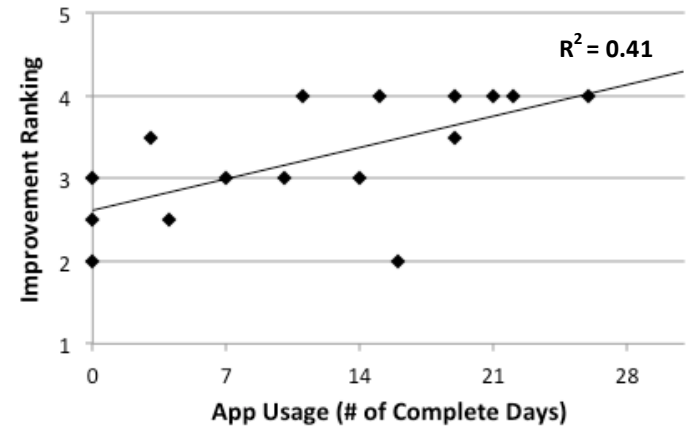


Figure 3: ranked improvement of athletes over the first 6 weeks by the coach vs. app usage adjusted per month. 1 = no progress. 5 = very strong progress.

with a 13% increase in ranking. The upper quartile exhibited a 44% higher ranking on average than the lower quartile ( $p < 0.01$ , 95% CI: 24-64%). Given that other parameters such as sleep, training availability, training volume, and actual food intake were not controlled, explanation of 41% of the variability in speed improvement by app usage is strong ( $R^2 = 0.41$ ). Initial athlete-perceived nutrition was not correlated with improvement ranking ( $R^2 = 0.07$ , data not shown), i.e. better perceived nutrition intake before introduction wasn't associated with improved performance suggesting that app usage may be a mediator of performance improvement.

Perceived strong diet quality in this group was not associated with improvements in performance. Thus, athlete self-evaluation of nutrition may not be sufficient for optimal performance. Usage of the Fuelogics system may have strong impacts on athlete nutrition behaviors and performance regardless of athlete-perceived nutrition.

*This data is retrospective observational data based on Fuelogics system usage provided by Fuelogics, LLC. [www.fuelogics.us](http://www.fuelogics.us)*