

Background

- Creatine supplements are a quick source of getting healthy
- Many claim it can increase muscle mass and growth
- Dark side to creatine: hair loss & kidney damage
- Purpose of this study it to find evidence of safety, benefits and effectiveness of creatine supplementation.

Objectives

Determine appropriate indication, safety, dosing and monitoring parameters for pharmaceutical science students and pharmacists to use in the event a patient asks for information regarding creatine use.

Methods

- Literature review conducted using PubMed
- MeSH terms: “creatine” & “dietary supplements”
- Research filters: “Meta Analysis” & “Randomized Controlled Trials”
- Articles from 2022-2024
- 62 articles: 53 of articles were excluded & 9 articles were included
- Inclusion criteria:
 - physiological effects of creatine on muscle mass or possible side effects
- Exclusion criteria:
 - studies that looked at other uses for creatine
 - studies that only looked at one gender
 - studies that included other supplements
 - review articles that were deemed “poor” with having little statistical evidence to back claims

Results

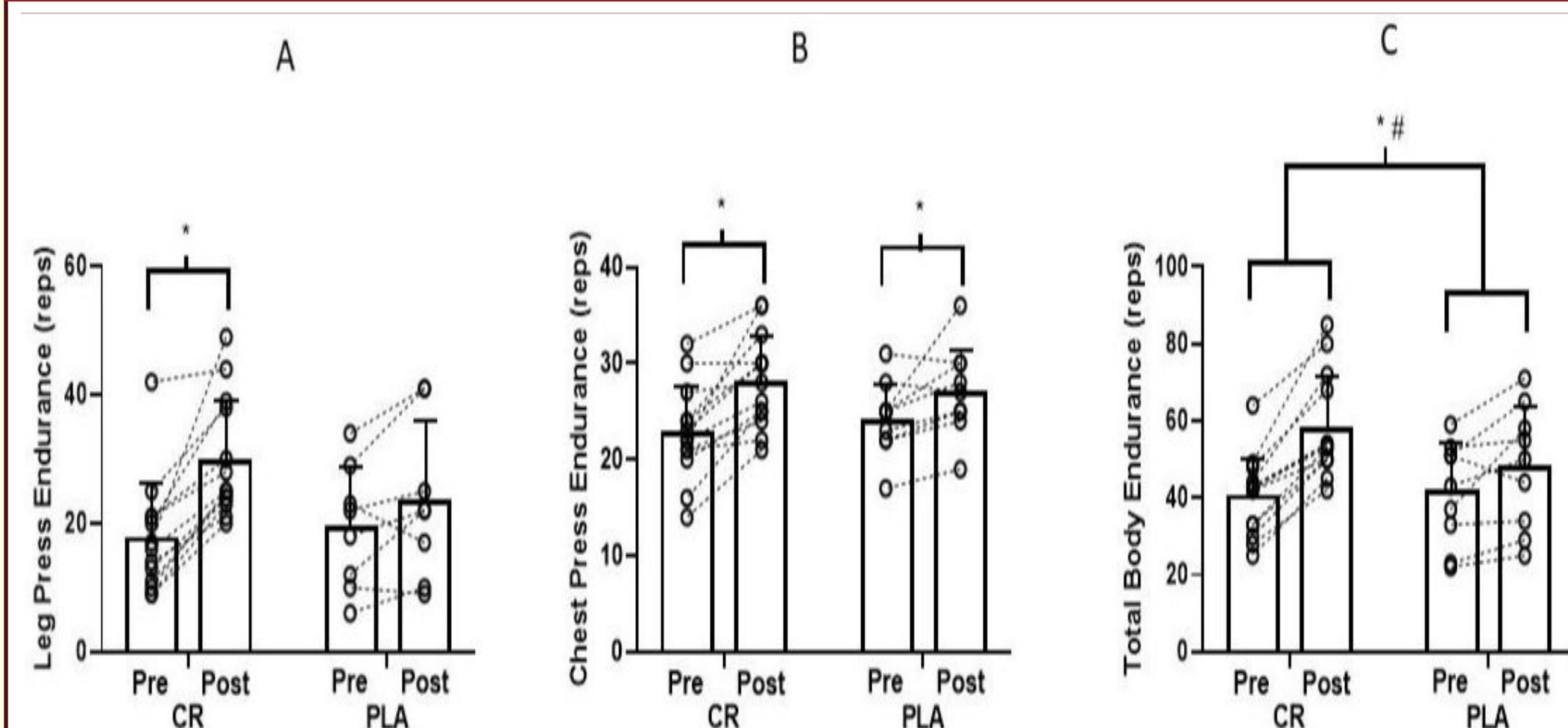


Figure 1
The figure above shows data collected regarding creatine and placebo and endurance. The muscles in question were the legs, chest, and total body. It shows that there is greater improvement in the creatine group after training than in the placebo group.

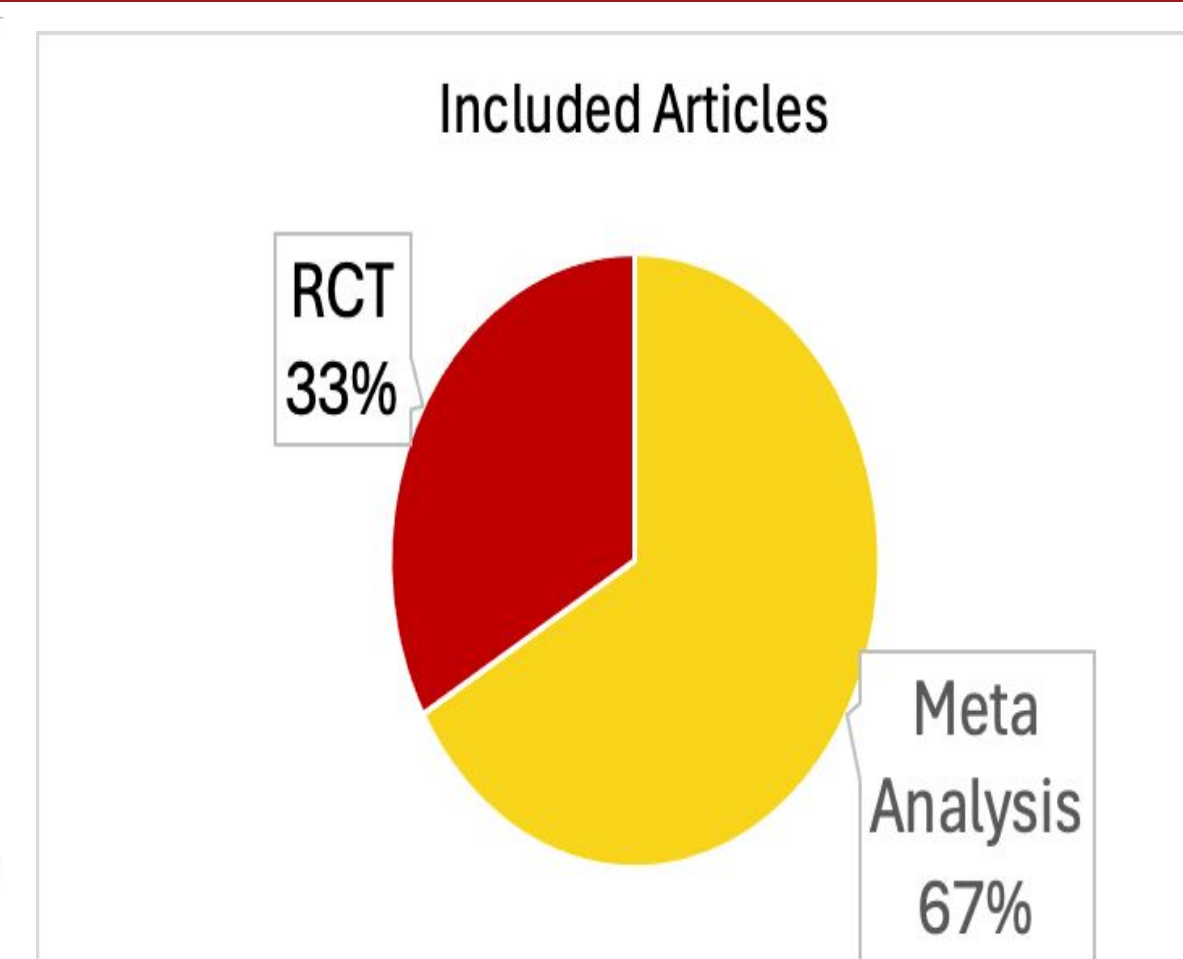


Figure 2: The figure above shows the number of studies used. A third (3) studies were RCTs. the rest (6) were Meta Analysis

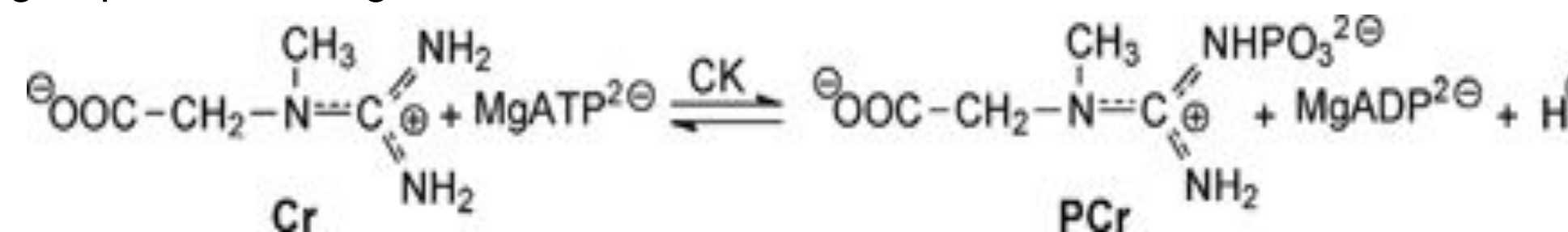
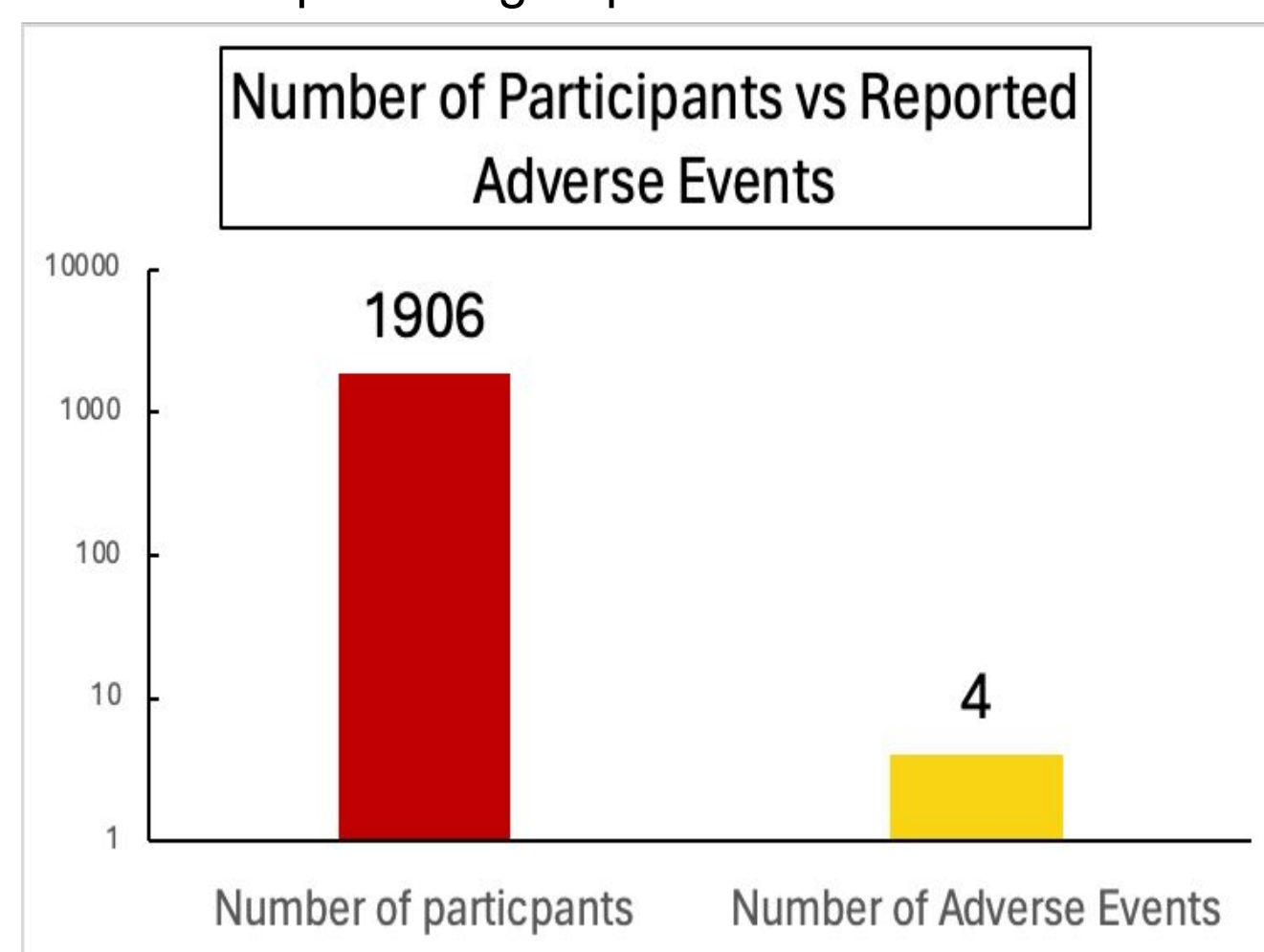


Figure 4
The figure above shows the reaction happening between creatine, ADP, and ATP

Figure 3
The figure to the left shows the amount of adverse events reported in the articles. There were 1906 participants in the trails and only 4 reported adverse events. From the events reported there were only GI events as well as muscle cramping reported

- PubMed search produced 62 articles
- 9 articles met the inclusion criteria
- 53 articles were excluded
 - 1 study looked at another use for creatine
 - 15 articles looked at one gender
 - 18 included other supplements in their study
 - 19 had “poor” statistical evidence
- Creatine is an important part of catalyzing the reaction from ADP to ATP
- 6 studies showed increase of lean muscle mass of 0.5-1.5kg after a year
- 1.19% increase in fat loss when using creatine
- No link to kidney injury
- No Significant change other than fatigue and exhaustion in athletes
- Loading dose is not required

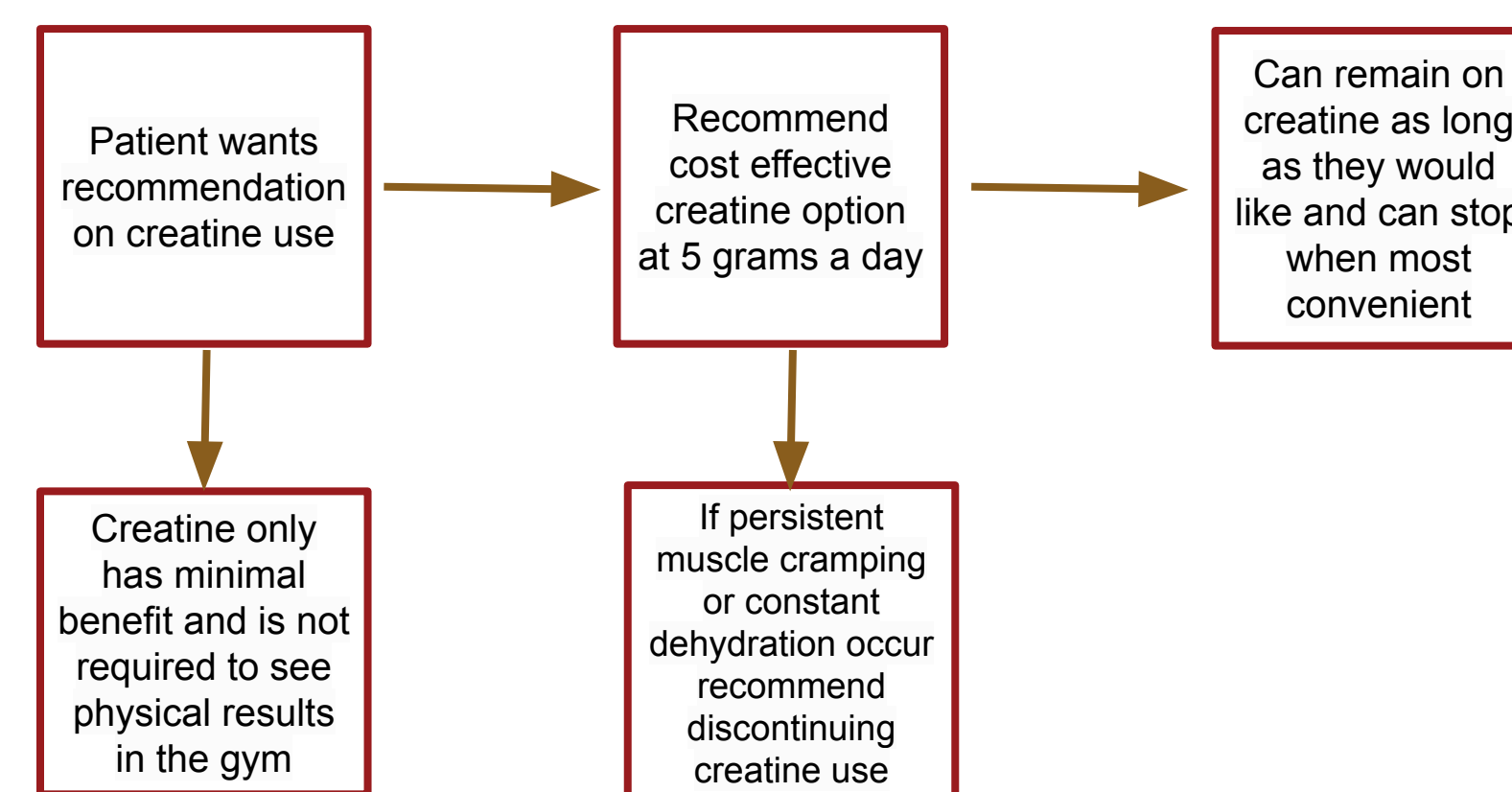


Figure 5
The figure above is possible dosing recommendations possible if a patient asks if they can take creatine. It included when and if they would need to stop as well.

Discussion

- Recommended to use 5 grams of creatine/day for gaining muscle mass
- Loading dose can be used but it is not required
- Hydration is key while using creatine supplements
- Side effects:
 - dehydration
 - muscle cramps
 - gastrointestinal problems
- Stay consistent but can still see benefits if taken only on training days
- There is an average of 1kg increase in lean muscle mass after one year of taking creatine over placebo

Conclusion

- Studies showed benefits to using creatine supplementation
- Promotes greater muscle mass with an increase in fat loss
- No study indicated any major adverse reactions

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