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- Over 50,000 fitness professionals
- Trusted & Used by MILLIONS of Households
- Largest provider of 3rd party tested nutrition programs and products in the sport and fitness channels including collegiate and professional sports





CHIEFS

SVG - PNG DESIGN HIGH QUALITY

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Supporting Over 250 College & Pro Sport Teams

dotFIT Custom Group Previous Supplements of the Month -all available in your dotFIT U-TUBE Channel

Note: all products have extended video education found in your trainer console and dotFIT U-TUBE

- Feb 18 (2022), Intro, history, why nutrition, dF diff, play-span (Baseline supp)
- Mar 18 – All Proteins, Protein Intro, Updated Stats FAQs & Summaries
- April 8 – AminoFormula - Perf Cat 2, Updated Practitioner Notes/FAQs,
- May 6 – Fat loss intro review, ea. product sum w script & pack script
- June 3 – Essentials (MVM [Ca, V-D], SO-3, Protein) in Play-span
- July 8 – JointFlexPlus with Collagen intro & Photo-aging/skin Note
- Aug 5 – All Nutrition Bars, FAQs, Updated
- Sept 2 – Family Essential Packs (MVM, SO3, Ca, Protein)
- Oct 14 – UltraProbiotic Full; Scripts/collaterals, FAQs
- Nov 4 – MR Powders & Bars, Save Calories for The Holiday – LeanMR
- Dec 9 – Immune Bundles, Presentations, Collaterals & Holiday displays
- Jan 6 – (2023)Popular Diets and New Year Resolution Bundles
- Feb 3 – Popular Gym-Goer Products for The New Year with all collaterals
- Mar 3 – Playspan®, Self-Care & Future of Fitness
- Oct 6 –Alln1 SuperBlend™ Launch:
- Nov 10 – Holiday/New Year weight solution & Nutrition Hack with SB with protein
- Dec 8 – Optimizing BodyComp Part 1 - Weight Loss vs. Fat Loss, Beyond Calorie
- Jan 5 – Optimizing body comp Part 2 – Maximizing Gainz, Minimizing Bodyfat
- Feb 2 (2024) – Part 3 Opt Body Comp, Recap 1&2, monitoring, myths & Contest Prep
- April 19 – dotFIT difference review and product price comparisons
- May 24 – Weight loss drugs (GLP-1RAs, Ozempic, Wegovy, Zepbound, etc..) nutrition companion and more

Sept 20 – CreatineMonohydrate Beyond Muscle, in Brain/Mental Health/Concussions, Aging & Females

Support Recordings containing the full science of all products is in your trainer console under [“dotFIT Tools”](#) then [“Supplement Education”](#)



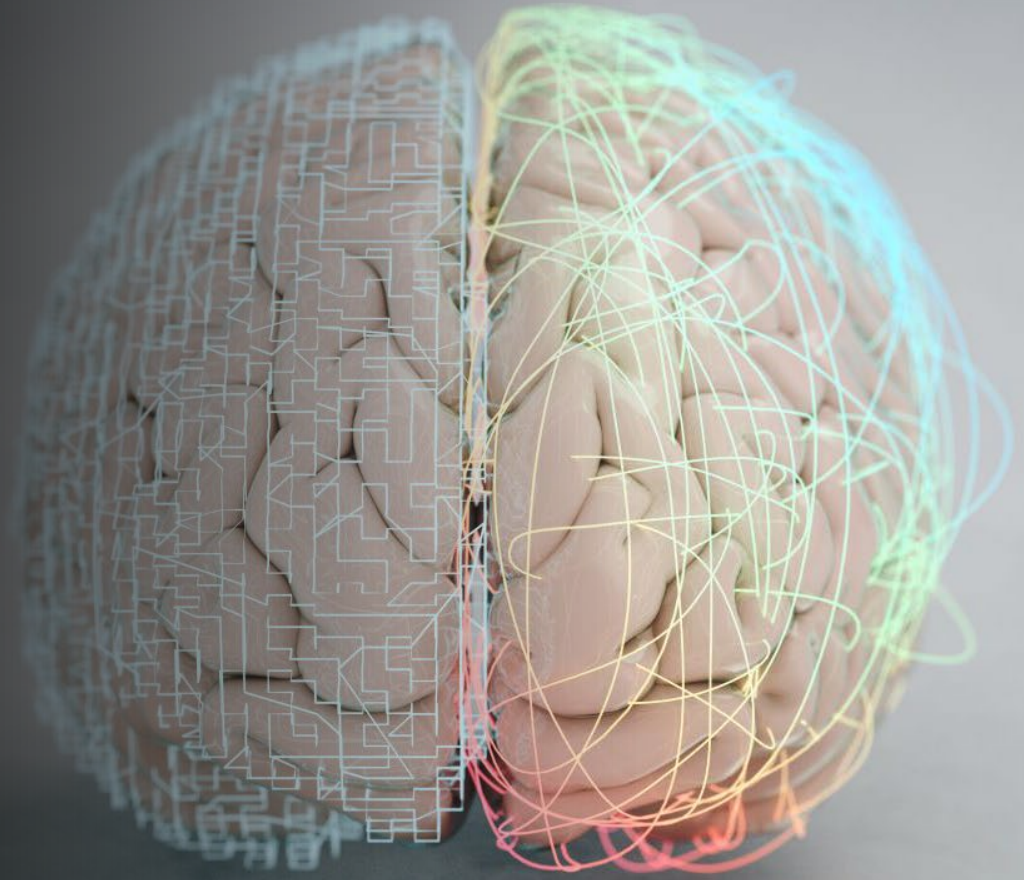
BEYOND MUSCLES

- **CREATINE IN BRAIN/MENTAL HEALTH AND INJURY**
 - Cognitive function, mood/neurological disorders, aging brain, Traumatic brain injury (e.g., concussion)
- **CREATINE IN AGING**
 - Muscle, bone, frailty, sarcopenia



Creatine in the Brain

**Cognitive function,
mood/neurological disorders, aging
brain, traumatic brain injury (e.g.,
concussion)**



CREATINE & THE BRAIN



What is creatine

- Creatine (Cr) is naturally occurring amino compound found in skeletal (SM), cardiac, smooth muscle and brain that plays an indispensable role in energy metabolism in almost all tissues.
- The phosphorylated form (PCr), **provides an immediate energy source for brain & muscles (ATP buffer*)**, thus the primary rationales for **supplementation is to increase, replete and prolong this energy source to improve muscle & brain performance/health**
 - ✓ **Cr supplementation (CS) can increase SM total creatine content >15% and up to 24%, and >9% in the brain^{1,15,17,18}**

*

PCr functions as a high-energy molecule capable of resynthesizing ATP significantly faster than oxidative phosphorylation and glycolytic processes

Increasing Cr/PCr availability in respective tissues to enhance their related activities, to also translate to the “active task (or field of play)”



CREATINE AND BRAIN



Cr in the brain

- Creatine plays a critical role in the optimal functioning of the human brain by **maintaining intracellular levels of ATP during energy demanding cerebral activities**, which account for about 20% of the body's energy consumption*
- Brain Cr (BCr) & PCr levels remain very constant. **Impairments in brain creatine homeostasis** lead to poor brain functioning and development
- BCr sources: endogenous production (liver & brain cells); diet (red meat/seafood)
 - ✓ **When BCr levels are low/limited, CS can positively affect Cr levels in specific neurological conditions**
 - ✓ CS \geq 20g/d over weeks can increase BCr levels to possibly overcome genetic (synthesis, BBB transport, etc.,) or diet Cr shortcomings – help establish “a homeostasis”
 - Guanidinoacetic acid (GAA), a Cr precursor may, improve brain uptake/synthesis
 - Cyclocreatine, another Cr analog, may also increase BCr by bypassing BBB CrT1 transporters (passive entry)

When Cr brain homeostasis/bioenergetics is compromised, CS can help to overcome

*Human brain uses between 400–500cal/d, or ~20% of body's total energy needs, despite the brain only making up 2% of body weight

CREATINE AND BRAIN



Cr and cognitive function

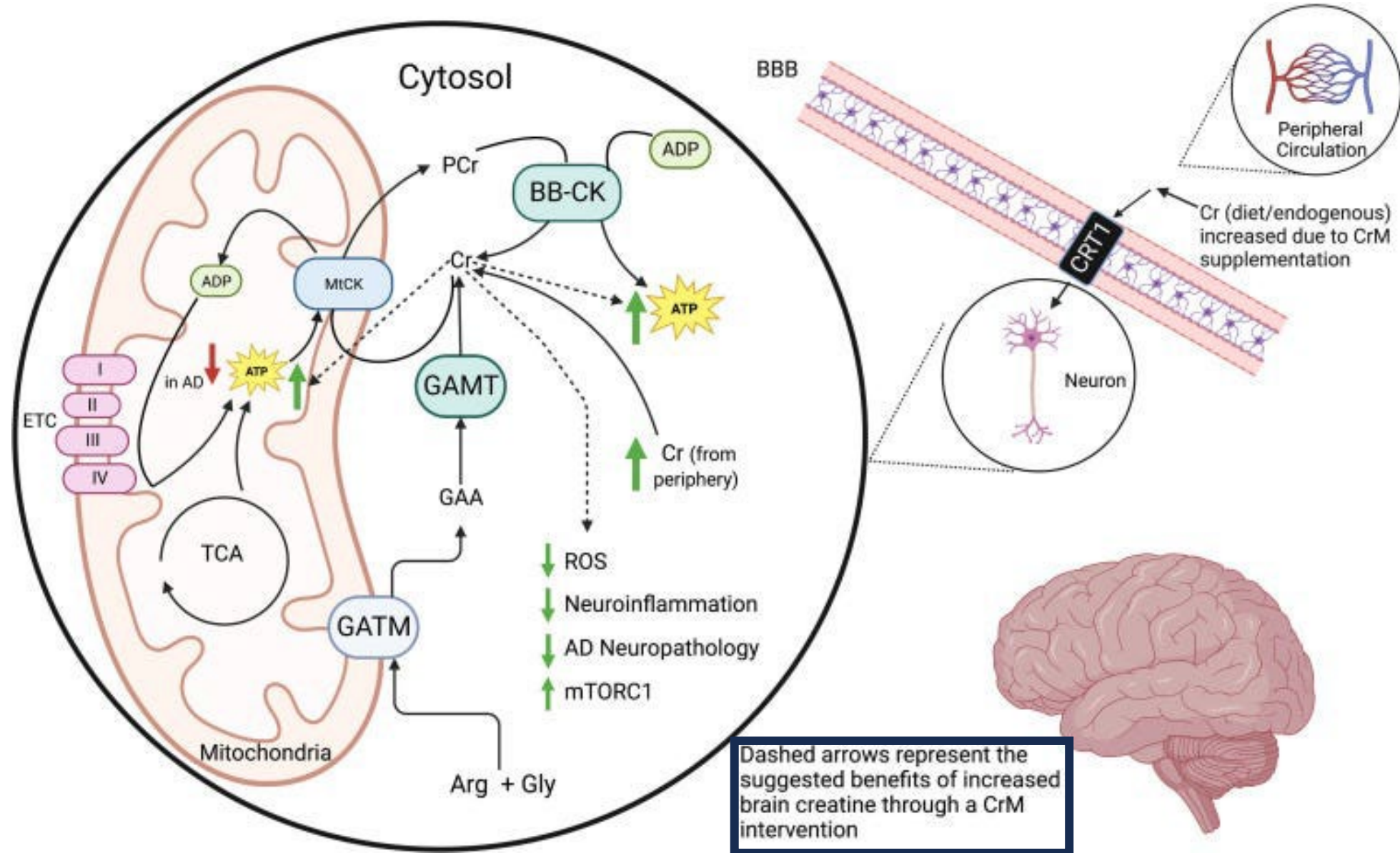
- Cr is shown to play an **important role in energetically demanding cognitive tasks** involving learning and memory.
 - ✓ **CS mechanisms are related to maximizing BCr's levels** and thus subsequent improved neuroprotective & behavioral activities including upregulation in genes involved in all aspects of neuronal health and ATP buffer in brain energy
- CS (especially in aging) has demonstrated improvements in
 - ✓ **Memory** (spatial [objects related to other objects] and numbers)
 - ✓ **Managing stress** (stress alters brain energetics) from hypoxia, sleep deprivation, mental fatigue
 - Attenuated omission errors in continued performance tests; enhanced executive function (working memory, flexible thinking, self-control); reduced mental fatigue (Cr may mediate hemoglobin oxygenation in brain); enhanced recall, mood, choice reaction time (stimulus to response; CRT-multiple stimuli choices)



➤ Summary

- ✓ Evidence supports CS improving cognitive function when brain energetics are challenged (sleep deprivation mental fatigue, hypoxia)
 - CS results vary based on test performed, degree & duration of stress, age, diet, sex and dosage (higher doses such as 20g/d may be more effective in certain conditions)

Potential effects of CS on measures of brain function.



CREATINE AND BRAIN



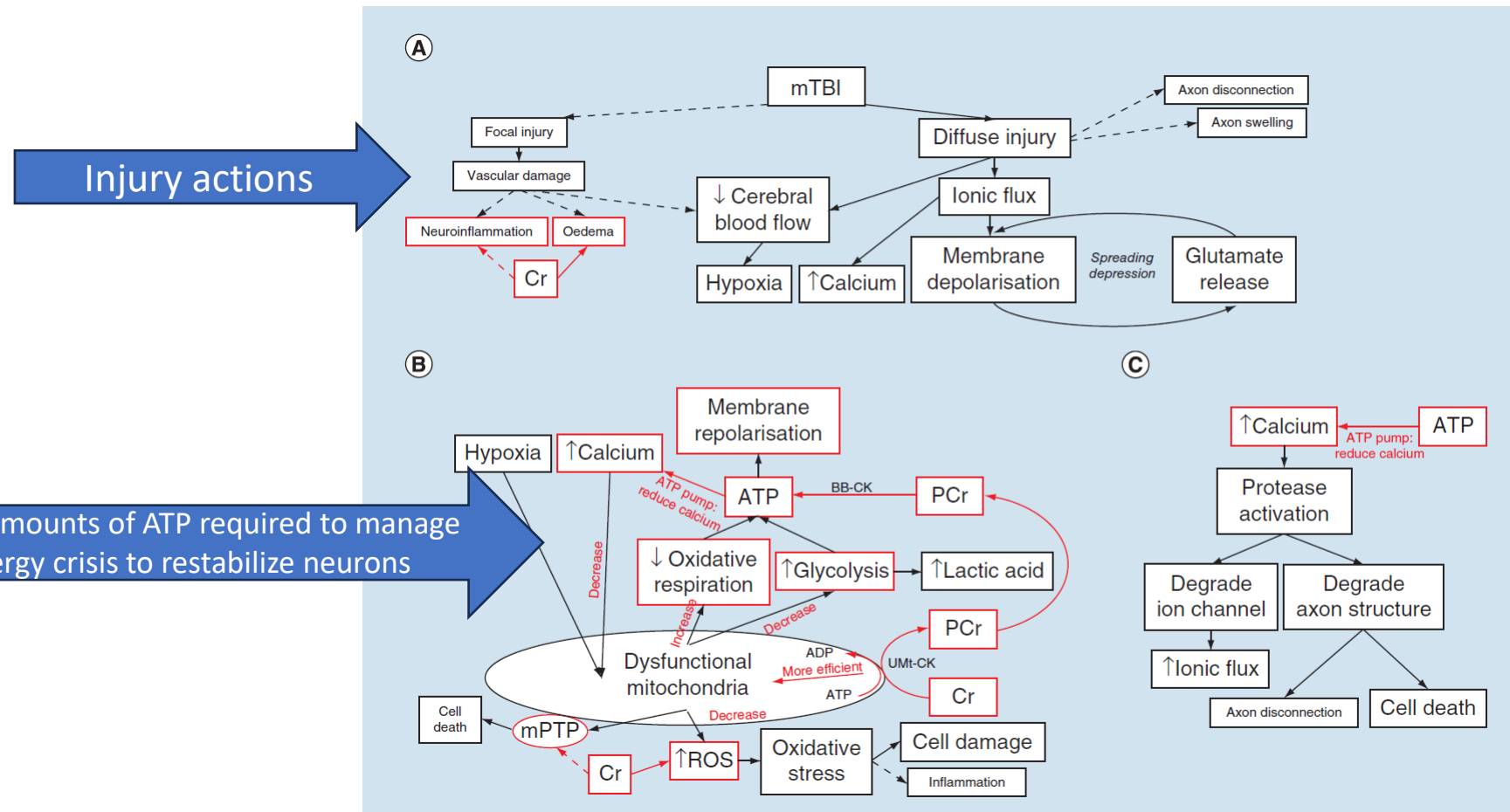
Cr in traumatic brain injury (TBI), e.g., concussions

- CS has emerged as therapeutic intervention for TBI by increasing BCr content and purported to be protective prior to and potentially enhance recovery following TBIs
 - ✓ CS mechanisms may be from altering brain pathophysiology (abnormal state) and neurometabolic events induced by TBIs since TBIs cause an uncoupling of energy supply and demand due to altered cerebral energy availability and injury induced blood flow
 - ✓ Reduces cortical (CC)* damage; neuroprotective effects against ischemic and oxidative insults appear due to the maintenance of mitochondrial membrane potentials and ability of PCr system to act as a time & space energy (ATP) buffer.
- CS in TBI has demonstrated positive effects
 - ✓ Children (1-18yr, CS 6mo) reduced post-traumatic amnesia, intensive care; improved overall recovery including behavior, communication, sociability, locomotion, neurophysical and cognitive and function, reduced headaches, dizziness, etc.
- Summary
 - ✓ Evidence on CS after TBI is sparse, but existing studies suggest a useful role in alleviating secondary damage after injury as well as protecting against damage if used pre-injury
 - Increasing Cr stores in the brain could aid in neurodevelopmental, psychiatric and acquired injury-based disorders where there is evidence of dysfunctional energy processing or altered creatine homeostasis. Higher doses (20gm/d) may be necessary.

*Cerebral cortex: outer layer of brain's surface, on top of the cerebrum. The CC carries out essential brain functions, e.g., memory, thinking, learning, reasoning, problem-solving, emotions, consciousness, and sensory functions.

CS in may minimize brain injury before & after the event by maximizing total brain energy availability, subsequent mitochondria functioning and improved cell membrane polarization (important to proper current flow and related mood state)

The neurometabolic cascade after Mild TBI, and its overlap with creatine biology (in red).



Red boxes and arrows indicate the role and influence of creatine within mTBI neuropathology.

(A) How diffuse injury after mTBI results in **large-scale membrane depolarization** (a 'spreading depression'-like state), reduced blood flow and increased intracellular calcium. **(B)** The generalized cellular **energy crisis**, where large amounts of ATP are required to **repolarize the membranes and counteract the 'spreading depression'-like state**. This occurs in a low oxygen environment, with dysfunctional mitochondria (due to calcium sequestering), resulting in increased glycolysis and lactic acid formation, along with increased oxidative stress and potential formation of mPTP. **(C)** The secondary effects of **increased intracellular calcium, which CS can help stabilize**.

ADP: Adenosine di-phosphate; ATP: Adenosine tri-phosphate; BB-CK: Braincreatine kinase; Cr: Creatine; mPTP: Mitochondrial permeability transition pore; mTBI: Mild traumatic brain injury; PCr: Phosphocreatine; ROS: Reactive oxygen species; uMt-CK: Ubiquitous mitochondrial creatine kinase.

CREATINE AND BRAIN



Cr and mood disorder (MD) including major depressive disorders (MDD)

- CS has emerged as a therapeutic intervention for MD because current therapies (behavioral or drugs) for mood related disorders often fail and research studies suggest that creatine levels in the brain, particularly in the frontal cortex, may be linked to mood disorder symptoms (**low levels in prefrontal cortex are associated with depression & anxiety**)
 - ✓ (1) CS **mechanisms** may stem from increasing Cr levels in specific brain regions. Because ATP is used to convert Cr to PCr*, low Cr concentrations are associated with **lower release of ATP from astrocytes** which then can promote symptoms of depression & anxiety**
 - ✓ (2) Since neuronal Cr is released from neurons, **researchers consider Cr to also be neurotransmitter, thus alterations in this function may promote depression**, that CS may ameliorate.
 - ✓ (3) CS can **increase levels of brain-derived-neurotrophic factor (BDNF)**, which is known to have antidepressant effects.
- CS in mood disorders has demonstrated positive effects
 - ✓ 20g/d for 4wk or 5gm/d for 8wk was shown to raise total brain Cr by ~9% and alleviate symptoms of MDD
 - ✓ Females have been reported to have lower levels of Cr in the brain, particularly the frontal lobe (controls mood, cognition, memory, and emotion). These **sex-differences in brain concentrations may make CS more effective for females for supporting a pro-energetic environment in the brain and ameliorating depressive systems**
- Summary
 - ✓ Overall, increasing Cr levels in the brain shows promise as a supplementary treatment for mood disorders at 5-20gm/d over at least 8weeks. More studies are required to determine optimal dosages and treatment durations, understand creatine's impact across different brain regions, and identify individual differences (like age and sex) that may affect treatment outcomes.

CS can increase PCr/ATP/BDNF levels in specific brain regions and act as a neurotransmitter to potentially mitigate depressive symptoms

* The role of creatine in the body is to store energy. Creatine accepts a phosphate from ATP forming creatine phosphate. This molecule can then be quickly used to convert ADP to ATP during times of energetic need

**Cell that holds nerve cells in place and helps them develop and work the way they should and make up most of the cells in the CNS. They perform metabolic, structural, homeostatic, and neuroprotective tasks such as clearing excess neurotransmitters, stabilizing and regulating the blood-brain barrier, and promoting synapse formation.

CREATINE AND BRAIN



CS has shown potential as a neuroprotective agent in neurodegenerative diseases – recent findings include*:

- Huntington's disease (HD)
 - ✓ Demonstrated potential benefits in improving motor function, cognitive performance, and brain bioenergetics. Cr may help enhance energy metabolism and protect against excitotoxicity, oxidative stress, and mitochondrial dysfunction, which are implicated in the pathogenesis of HD
- Parkinson's disease (PD)
 - ✓ Study's show CS may have neuroprotective effects in Parkinson's disease. Shown to improve motor symptoms, increase BCr levels, and enhance brain bioenergetics. May help protect dopaminergic neurons, enhance mitochondrial function, and reduce oxidative stress, which are key factors in PD progression.
- Alzheimer's disease (AD)
 - ✓ Emerging evidence suggesting CS may have potential benefits in (AD). Shown to improve brain function, enhance cognitive performance, and protect against neuronal damage. Cr may help maintain brain energy metabolism, reduce amyloid-beta toxicity, and modulate neurotransmitter systems involved in(AD)

*Research in this area is still evolving, and more studies are needed to establish the efficacy of CS as a neuroprotective strategy in neurodegenerative diseases

Summary on CS and brain health*

CS can increase brain creatine content over time and because Cr is involved in brain energy metabolism, CS can play a role in maintaining optimal brain function when levels are compromised for any reason.

CS in brain health:

- Found to increase brain creatine levels, which can **enhance brain energy metabolism** to improve brain health
- **Improve measures of cognition and memory**, primarily in aging adults, and learning
- **Decrease symptoms of sleep deprivation.**
- Show promise for **alleviating some symptoms of traumatic brain injury (TBI)**, including concussion.
- Encouraging evidence demonstrates it may **alleviate symptoms of depression and anxiety.**
- Have **benefits in muscular dystrophy** and yield potential neuroprotective effects
- Studied as a potential **treatment for neurodegenerative diseases** such as Alzheimer's Parkinson's, and Huntington's diseases.
- CS is generally **safe and well-tolerated**, with few reported side effects including in youth.

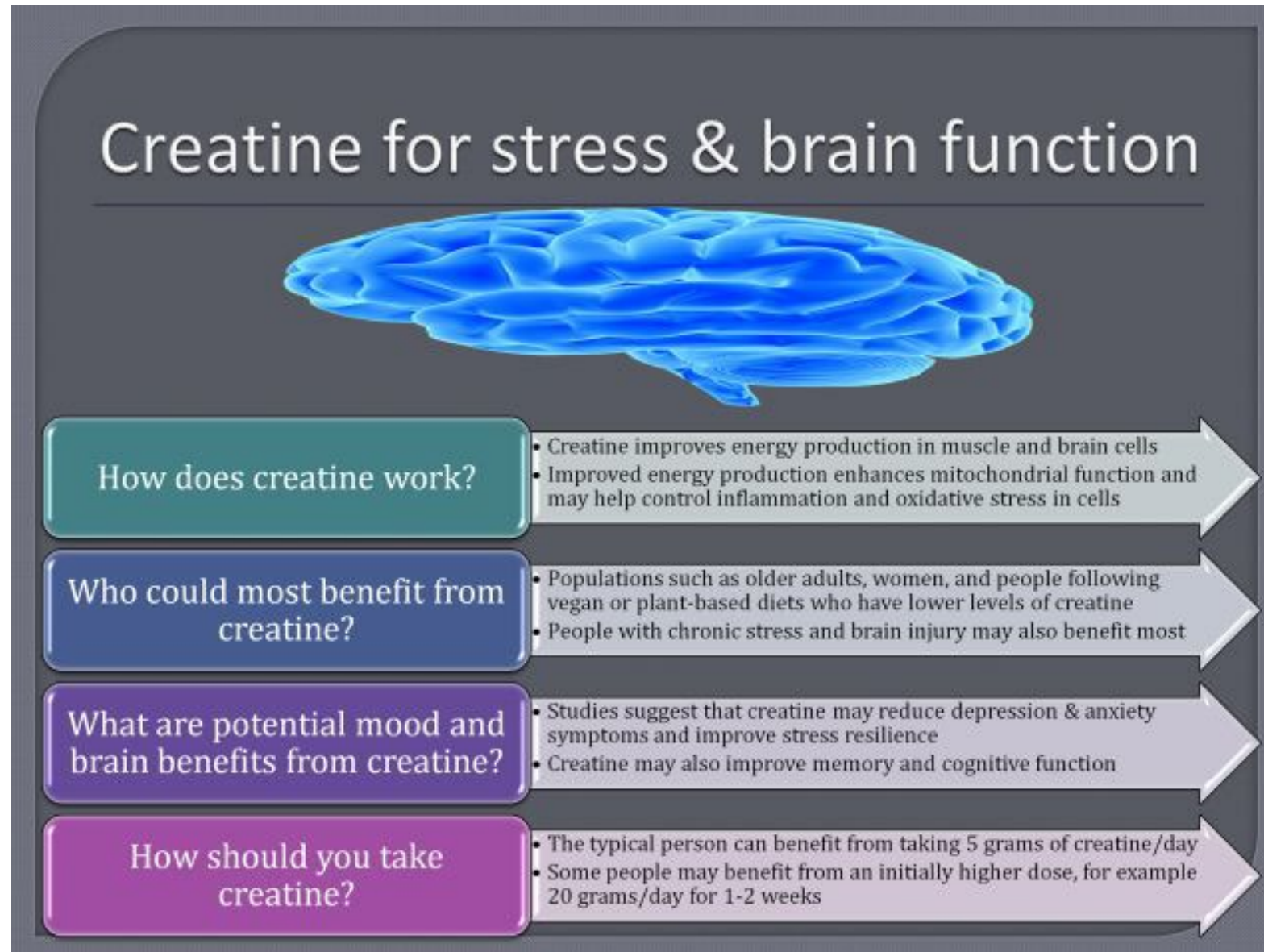
Under further investigation

- Exact mechanisms by which creatine exerts its neuroprotective and cognitive/mood-enhancing effects
- Variables in response to CS including sex and age-related differences.*
- Ideal dosing to maximize the brain creatine pool based on individuality and disorder/condition studied

***Effects of CS on all aspects of brain health may vary among individuals and depend on factors such as dosage, duration of supplementation, testing protocols, overall health (including degree of disorder or injury), individual physiology/genetics, sex and/or diet**

With nearly two decades of creatine research on brain function now complete, the initial results appear promising

Summary diagram





CREATINE IN OLDER ADULTS

CREATINE FOR HEALTH

**Creatine in aging
(beyond brain)**
Muscle, strength, bone, & functionality



CREATINE IN AGING MUSCLE AND BONE



Accumulating research on CS, primarily when combined with resistance training (RT), has some favorable effects on muscle accretion and bone mineral density, bone and muscle strength, and tasks of functionality in older adults

Effects of CS shown in multiple meta-analysis on aging muscle & bone in older adults (50-80yrs) include*:

1. **Muscle Accretion:** particularly when combined with resistance training (RT), has been shown to increase muscle mass .
2. **Muscle Strength:** improving muscle strength including enhancing muscle power and force production, allowing older individuals to maintain or increase strength levels.
3. **Muscle Quality:** improving muscle quality (architecture and composition of muscle tissue), Including enhancing the structural integrity of muscle fibers while promoting the growth of healthier muscle tissue.
4. **Muscle Function:** improving tasks of physical performance, including improvements in functional movements, such as walking, stair climbing, and sit-to-stand transitions. Enhanced muscle function can contribute to better mobility and overall physical performance in daily activities.
5. **Muscle Protein Metabolism:** influencing muscle protein metabolism by enhancing MPS and reducing muscle protein breakdown, helping to maintain or increase muscle protein content, longer lasting muscle health
6. **Bone health:** may increase bone mineral density (BMD), improve bone strength, stimulate bone formation, regulate bone resorption, and influence hormonal factors important for bone health

All benefits came with no effects on kidney or liver functions

CS Goal: help counteract the inevitable age-related decline in the musculoskeletal system (characteristic of sarcopenia) to stay independently active – i.e., a Playspan® equal the lifespan

CREATINE IN AGING MUSCLE AND BONE



Mechanisms of action that protect aging muscle (same as in performance & hypertrophy for all)

- Cr supplementation (CS) increases anaerobic capacity²⁰⁻⁴⁶
 - ✓ Increases intracellular levels of PCr allowing intracellular levels of ATP to be maintained at higher levels for longer periods of time, permitting athletes to maintain a greater training intensity and quality of each workout throughout an entire training period leading to greater overall performance gains^{25,29,Ref}
 - ✓ Delay fatigue by attenuating exercise induced decreases in muscle pH –buffering lactate and/or less reliance on glycolysis^{30,45}
- CS shown to
 - ✓ Increase satellite cell proliferation (responsible for the further growth and development of skeletal muscle)²⁷
 - ✓ Enhance insulin-like growth factor signaling⁴¹
 - ✓ Increase growth hormone²⁷
 - ✓ Alter myogenic transcription factors leading to a reduction in serum myostatin (muscle growth inhibitor)⁴³
 - ✓ Improve neuromuscular function (facilitating the reuptake of Ca²⁺ into sarcoplasmic reticulum)⁴⁴
 - ✓ Reduce muscle damage from high intensity training and endurance exercise⁴⁶

CS increases the metabolic capacity of the target tissues- e.g., the capability of a muscle to contract more powerfully longer & heal faster

CREATINE IN AGING MUSCLE AND BONE



Mechanisms of action in **Muscle Recovery from Exercise Damage or Injury** protecting aging muscle

Proposed **mechanisms similar to muscle hypertrophy in all subjects** ⁽⁴⁶⁾

- CS has been shown to improve recovery from injury, muscle damage by post-exercise ingestion **enhancing the regenerative** process thru:
 - ✓ Ameliorating inflammatory response & oxidative stress reducing damage to sarcolemma ^(73,95,102-8)
 - ✓ Supporting calcium homeostasis ^(96,99,109)
 - ✓ **Improvement in anabolic environment including hormone & satellite cell activity** ⁽⁴⁶⁾
- Athletes who supplement with creatine **experience fewer musculoskeletal injuries and accelerated recovery time** from injury [Ref1](#)

Benefit: a more complete or enhanced recovery before each exercise bout

Table 1. Summary of studies examining creatine and resistance training on muscle (e.g., strength, lean mass, etc.) outcomes in older adults (55-84yrs). Dosing same as generally recommended for all.

+ denotes positive results

*Effects on aging muscle & bone may vary depending on CS dosage/duration, exercise regimen, overall health, individual physiology/genetics, sex and/or diet. Effects may be more pronounced when CS is combined with resistance training.

First Author, Year	Population	Supplement Dose	Resistance Training	Duration	Outcomes
Aguiar et al. 2013 [18] +	N = 18; healthy women; Mean age = 65 y	CR (5 g/day), PLA	RT = 3 x/wk	12 wks	CR ↑ gains in fat-free mass (+3.2%), muscle mass (+2.8%), 1 RM bench press, knee extension, and biceps curl compared to PLA
Alves et al. 2013 [19]	N = 47; healthy women, Mean age = 66.8 y (range: 60–80 y)	CR (20 g/day for 5 days, followed by 5 g/day thereafter), PLA with and without RT	RT = 2 x/wk	24 wks	↔ 1 RM strength compared to RT + PLA
Bemben et al. 2010 and Eliot et al. 2008 [20,21]	N = 42; healthy men; age = 48–72 y	CR (5 g/day), PRO (35 g/day), CR + PRO, PLA	RT = 3 x/wk	14 wks	↔ lean tissue mass, 1 RM strength
Bermon et al. 1998 [22] +	N = 32 (16 men, 16 women); healthy; age = 67–80 y	CR (20 g/day for 5 days followed by 3 g/day), PLA	RT = 3 x/wk	7.4 wks (52 days)	↔ lower limb muscular volume, 1- and 12-repetitions maxima, and isometric intermittent endurance ↔ muscle thickness, physical performance, upper-body muscle strength; CR ↑ leg press strength, total lower body strength
Bernat et al. 2019 [23] +	N = 24 healthy men; age = 59 ± 6 y	CR (0.1 g/kg/day), PLA	High-velocity RT = 2 x/wk	8 wks	CR ↑ gains in lean tissue mass and isometric knee extension strength; ↔ type 1, 2 a, 2 x muscle fibre area
Brose et al. 2003 [24] +	N = 28 (15 men, 13 women); healthy; age: men = 68.7, women = 70.8 y	CR (5 g/day), PLA	RT = 3 x/wk	14 wks	CR ↑ muscle thickness compared to PLA. CR ↑ 1 RM bench press ↔ 1 RM leg press
Candow et al. 2008 [25] +	N = 35; healthy men; age = 59–77 y	CR (0.1 g/kg/day), CR + PRO (PRO: 0.3 g/kg/day), PLA	RT = 3 x/wk	10 wks	CR after RT ↑ lean tissue mass, 1 RM leg press, 1 RM chest press compared to PLA
Candow et al. 2015 [26] +	N = 39 (17 men, 22 women); healthy; age = 50–71 y	CR (0.1 g/kg) before RT, CR (0.1 g/kg) after RT, PLA	RT = 3 x/wk	32 wks	↔ lean tissue mass, muscle thickness, or muscle strength
Candow et al. 2020 [27]	N = 38; healthy men; age = 49–67 y	CR (On training days: 0.05 g/kg before and 0.05 g/kg after exercise) + 0.1 g/kg/day on non-training days (2 equal doses) or PLA	RT = 3 x/wk	12 months	↔ lean tissue mass and muscle thickness gains between groups; ↑ relative bench press strength compared to PLA.
Chilibeck et al. 2015 [28] +	N = 33; healthy women; Mean age = 57 y	CR (0.1 g/kg/day), PLA	RT = 3 x/wk	52 wks	CR ↑ gains in lean tissue mass; CR ↑ 1 RM leg press, 1 RM knee extension, leg press endurance, and knee extension endurance; ↔ 1 RM bench press or bench press endurance.
Chrusch et al. 2001 [29] +	N = 30; healthy men; age = 60–84 y	CR (0.3 g/kg/d for 5 days followed by 0.07 g/kg/day), PLA	RT = 3 x/wk	12 wks	

Table 1. Cont....

Summary of studies examining creatine and resistance training on muscle (e.g., strength, lean mass, etc.) outcomes in older adults (55-84yrs). Dosing same as generally recommended for all.

+ denotes positive results

*Effects on aging muscle & bone may vary depending on CS dosage/duration, exercise regimen, overall health, individual physiology/genetics, sex and/or diet. Effects may be more pronounced when CS is combined with resistance training.

Cooke et al. 2014 [30]	N = 20; healthy men; age = 55-70 y	CR (20 g/day for 7 days followed by 0.1 g/kg/day on training days)	RT = 3 x/wk	12 wks	↔lean tissue mass, 1 RM bench press, 1 RM leg press
Deacon et al. 2008 [31]	N = 80 (50 men, 30 women); COPD; age = 68.2 y	CR (22 g/day for 5 day followed by 3.76 g/day), PLA	RT = 3 x/wk	7 wks	↔lean tissue mass or muscle strength
Eijnde et al. 2003 [32]	N = 46; healthy men; age = 55-75 y	CR (5 g/day), PLA	Cardiorespiratory + RT = 2-3 x/wk	26 wks	↔lean tissue mass or isometric maximal strength
Gualano et al. 2011 [33]	N = 25 (9 men, 16 women); type 2 diabetes; age = 57 y	CR (5 g/day), PLA	RT = 3 x/wk	12 wks	↔lean tissue mass
Gualano et al. 2014 [34] +	N = 30; "vulnerable" women; Mean age = 65.4 y	CR (20 g/day for 5 days; 5 g/day thereafter), PLA with and without RT	RT = 2 x/wk	24 wks	CR + RT ↑ gains in 1RM bench press and appendicular lean mass compared to PLA + RT
Johannsmeyer et al. 2016 [35] +	N = 31 (17 men, 14 women); healthy; age = 58 y	CR (0.1 g/kg/day), PLA	RT = 3 x/wk	12 wks	CR ↑ gains in lean tissue mass; ↔ 1RM strength and endurance; CR attenuated magnitude increase in time to complete balance test compared to PLA
Neves et al. 2011 [36] +	N = 24 (postmenopausal women with Knee osteo-arthritis); Age = 55-65 y	CR (20 g/day for 1 week, followed by 5 g/day), PLA	RT = 3 x/wk	12 wks	CR ↑ gains in limb lean mass. ↔ 1RM leg press
Pinto et al. 2016 [37] +	N = 27 (men and women); healthy; age = 60-80 y	CR (5 g/day), PLA	RT = 3 x/wk	12 wks	CR ↑ gains in lean tissue mass; ↔ 10 RM bench press or leg press strength
Smolarek et al. 2020 [38] +	N = 26 (5 men, 21 women); long-term care residence; age = 68.9 ± 6.8 y	CR (5 g/day), PLA	RT = 2 x/wk	16 wks	CR ↑ dominant and non-dominant handgrip strength

CR = creatine; PRO = protein; RM = repetition maximum; ↑ = significant greater; ↔ no difference between conditions; wk = weeks; y = years; g = grams; kg = kilograms

Table 2. Study characteristics and outcomes of research examining the influence of creatine with a resistance training program on bone (49-80yrs- similar dosing as recommended for all)

First Author, Year	Study Population	Intervention	Duration	Outcomes
Brose et al. 2003 [24]	N = 28; healthy (15 men, 13 women); age ≥ 65 y (men = 68.7 y, women = 70.8 y)	RCT; CR + RT, PLA + RT. CR = 5 g/day; RT = 3 x/wk	14 wks	↔ on osteocalcin
Candow et al. 2008 [25] +	N = 35; older men (age: 59–77 y)	RCT; CR + PRO + RT; CR + RT, PLA + RT; CR = 0.1 g/kg/day; RT = 3 x/wk	10 wks	CR ↓ NTx
Candow et al. 2019 [5]	N = 39; healthy (17 men; 22 women); age ≥ 50 y (mean ~55 y)	RCT; CR-Before + RT, CR-After + RT, PLA + RT; CR = 0.1 g/kg/day; RT = 3 x/wk	8 mths	↔ BMD and BMC of the whole-body, limbs, femoral neck, lumbar spine, and total hip
Candow et al. 2020 [27] +	N = 38; healthy men; age = 49–67 y	RCT; CR + RT, PLA + RT; CR = 0.1 g/kg/day; RT = 3 x/wk	12 mths	↔ BMD and geometry, bone speed of sound; CR ↑ (p = 0.06) section modulus of the narrow part of the femoral neck
Chilibeck et al. 2005 [45] +	N = 29; older men (71 y).	RCT; CR + RT, PLA + RT; CR = 0.3 g/kg/day for 5 days followed by 0.07 g/kg/day for the remaining; RT = 3 x/wk	12 wks	↑ arm BMC greater in the CR group compared to PLA; ↔ between groups for whole-body and leg BMD
Chilibeck et al. 2015 [28] +	N = 33; postmenopausal women; age: 57 ± 6 y	RCT; PLA + RT, CR + RT; CR = 0.1 g/kg/day (0.05 g/kg provided immediately before and 0.05 g/kg after training on training days and with two meals on non-training days); RT = 3 x/wk	12 mths	CR attenuated rate of femoral neck BMD loss compared to PLA and CR ↑ femoral shaft subperiosteal width; ↔ between groups on all other outcome measures
Gualano et al. 2014 [34]	N = 60; older vulnerable women (age: 66 y)	RCT; PLA, CR, PLA + RT, CR + RT; CR = 20 g/day for 5 days followed by 5 g/day for the remaining; RT = 2 x/wk	24 wks	↔ bone mineral and serum bone markers between groups
Pinto et al. 2016 [37]	N = 32; healthy, non-athletic men and women between 60–80 y	RCT; PLA + RT, CR + RT; CR = 5 g/day; RT = 3 x/wk. Muscle groups (i.e., upper and lower body) alternated between training days, 1.5 x/wk per muscle group	12 wks	↔ BMD and BMC of all assessed sites between groups

RCT = randomized controlled trial; PLA = placebo; RT = resistance training; CR = creatine; PRO = protein; RM = repetition maximum; NTx = cross-linked N-telopeptides of type I collagen; BMD = bone mineral density; BMC = bone mineral content; ↑ = significant greater; ↔ no difference between conditions; wk = weeks; mth = months; y = years; g = grams; kg = kilograms.

Creatine Supplementation in aging frailty/sarcopenia

Effectiveness of Creatine Supplementation on Aging Muscle and Bone: Focus on Falls Prevention and Inflammation

Creatine Supplementation

may help combat **Sarcopenia**

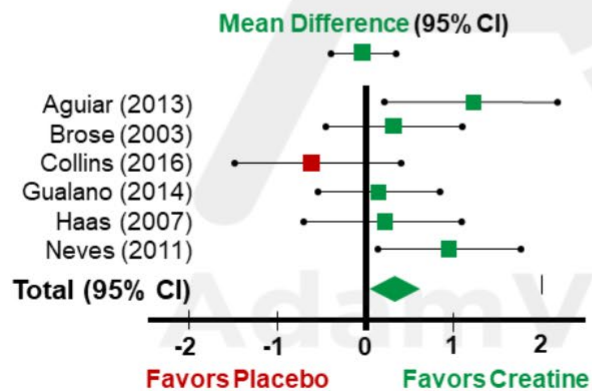


Sarcopenia is the age-related decrease in muscle mass, strength and physical performance



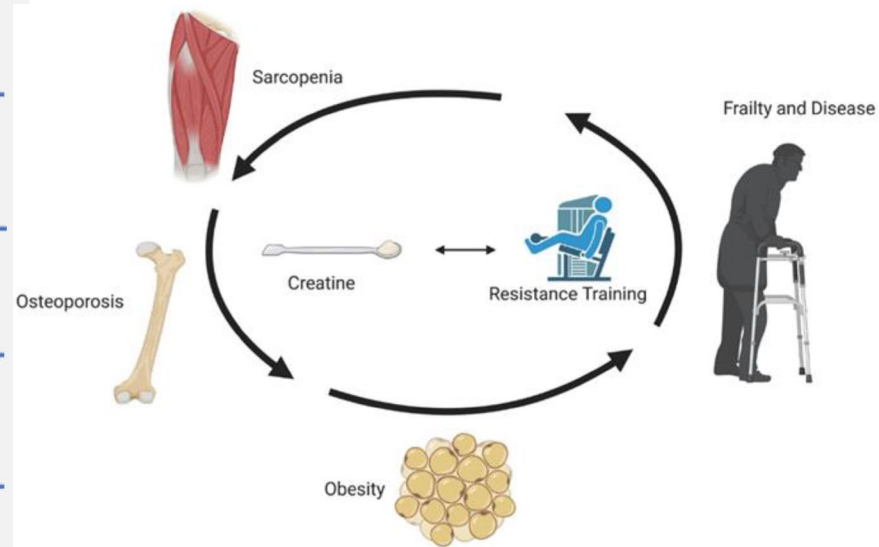
Effects of Creatine on Sit-to-Stand Performance

Sit-to-stand performance is a commonly-used test for risk of falls. It's a timed test that involves getting up from a chair, walking a set distance, and turning around and returning to a sitting position

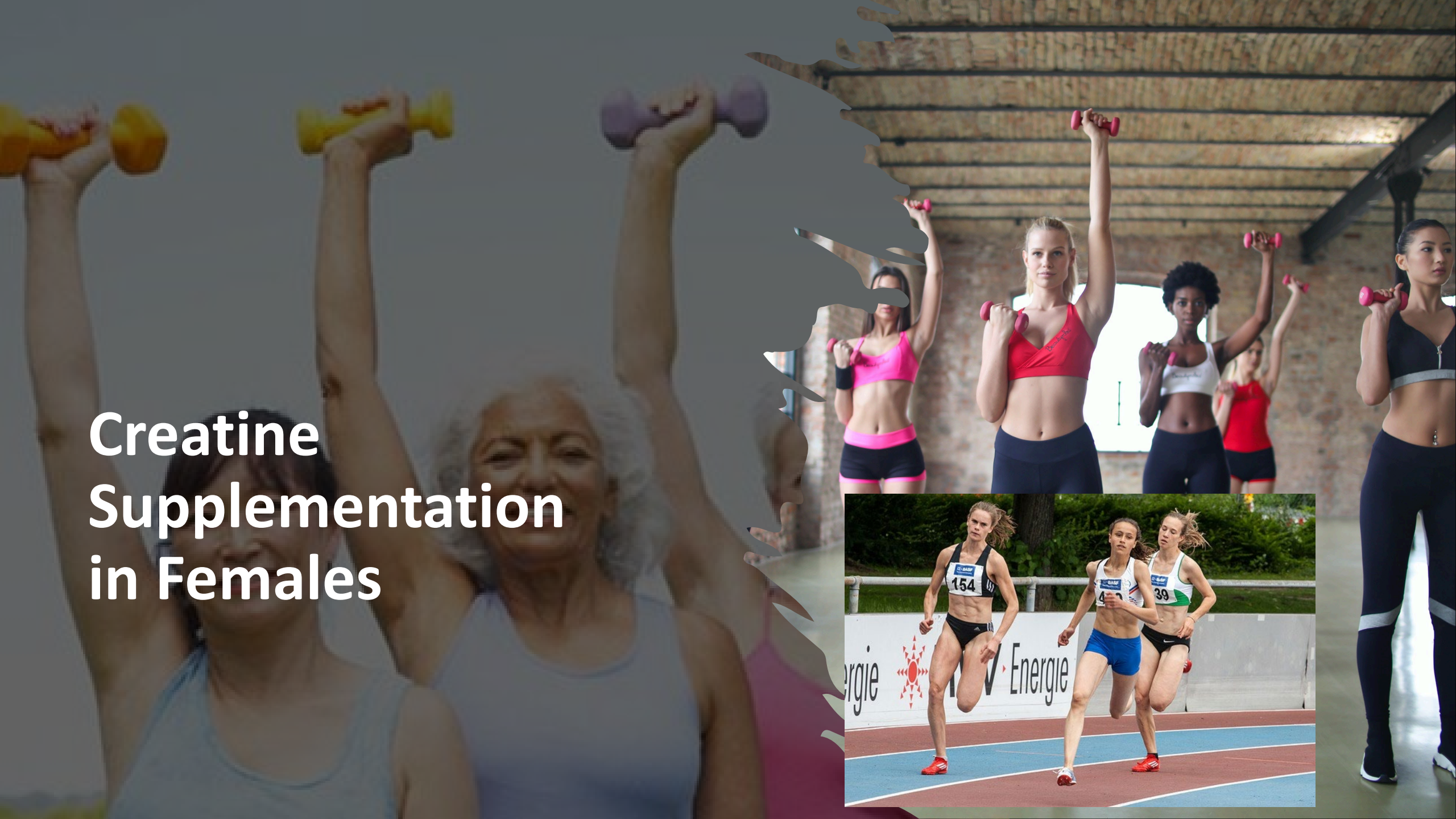


5 Major Take Home Points

- 1 Creatine With Resistance Training** Creatine and resistance training increases aging muscle mass and muscle performance
- 2 Creatine Without Resistance Training** Creatine without resistance training has only small effects on neuromuscular performance
- 3 Creatine and Bone Health** Creatine has promise for improving bone mineral and bone strength
- 4 Creatine and Fall Risk** Creatine increases performance in tasks that are associated with reduction in the risk of falls
- 5 Creatine and Kidney Health** Creatine is safe, with no direct evidence that it adversely affects kidney or liver function in aging adults



Creatine Supplementation in Females



CREATINE IN FEMALES



The primary benefits of CS for females are similar to males

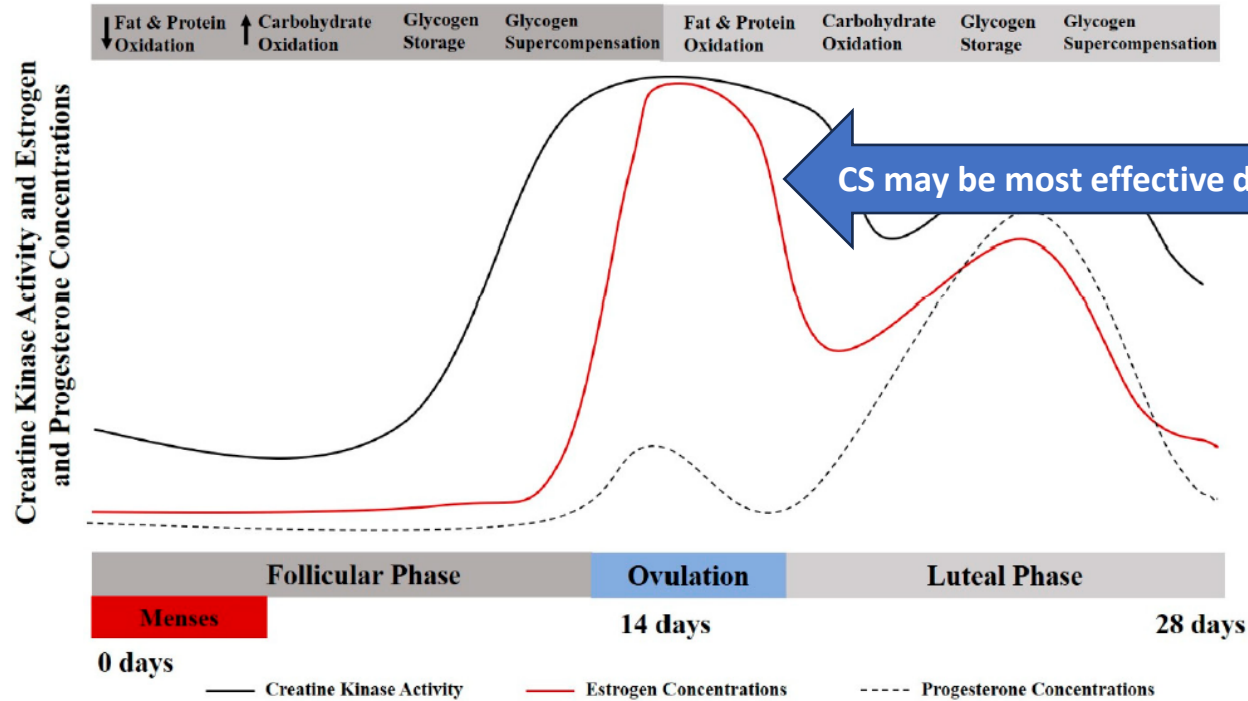
Females have lower Cr stores and consume less dietary creatine compared to males. Further, because of changes in Cr homeostasis across the female lifecycle, particularly as it relates to estrogen, CS at normal recommended dosing appears to provide many safe and potential benefits including:

- Improved strength & sports performance including increased anaerobic capacity
- Increased muscle size and function
- Positive effects on bone health including BMD
- **Enhanced body composition while improving** exercise performance
- Enhanced recovery and possibly aerobic performance
- **Mood and cognition enhancement**
- **Support during hormonal changes**

CREATINE IN FEMALES



Creatine Kinase Activity Throughout the Menstrual Cycle



Sex hormones, predominantly estrogen and progesterone, shown to effect CK activities and the expression enzymes for the endogenous synthesis of Cr

CS may be most effective during the luteal phase due to highest estrogen

Theoretical model for the interplay between creatine kinase (CK)* and menstrual cycle hormones. Cr metabolism and CK concentrations vary throughout the menstrual cycle and lifecycle. These alterations may also influence metabolic characteristics of protein and carbohydrate oxidation, which provides a physiological basis for the potential use of CS for females.

*Enzyme that adds the phosphate group to Cr

Estrogen is considered a master regulator of bioenergetics (transforming energy), with the highest levels occurring during the luteal phase of the cycle. Protein catabolism and oxidation is elevated, while CHO storage is reduced. Mechanistic support for CS involves muscle protein kinetics, growth factors, satellite cells, myogenic transcription factors, glycogen and calcium regulation, oxidative stress and inflammation. Given increased protein turnover and challenges with glycogen saturation, **CS may be even more effective in the high estrogen/luteal phase.**

Relative effects* of CS vs placebo on sports performance in females

+ Almost 100% positive outcomes

Effects of Creatine Supplementation on Strength Performance

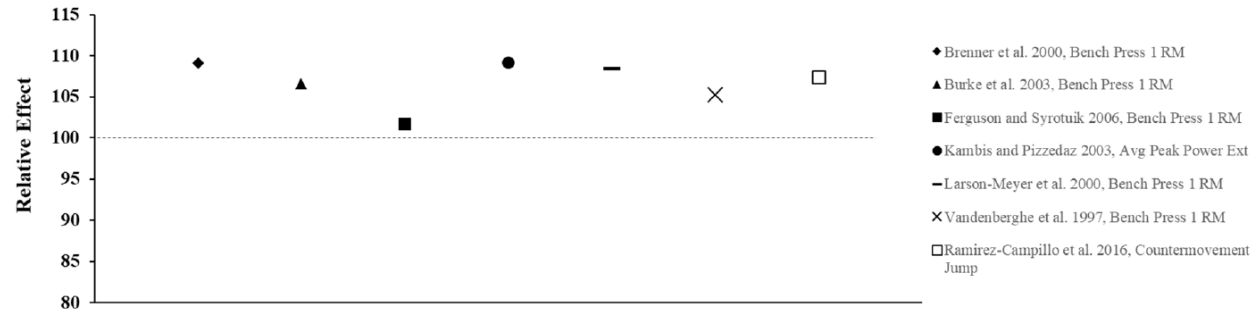


Figure 2. The relative effects of creatine supplementation in comparison to placebo for strength performance in females.

Effects of Creatine Supplementation on Exercise Performance

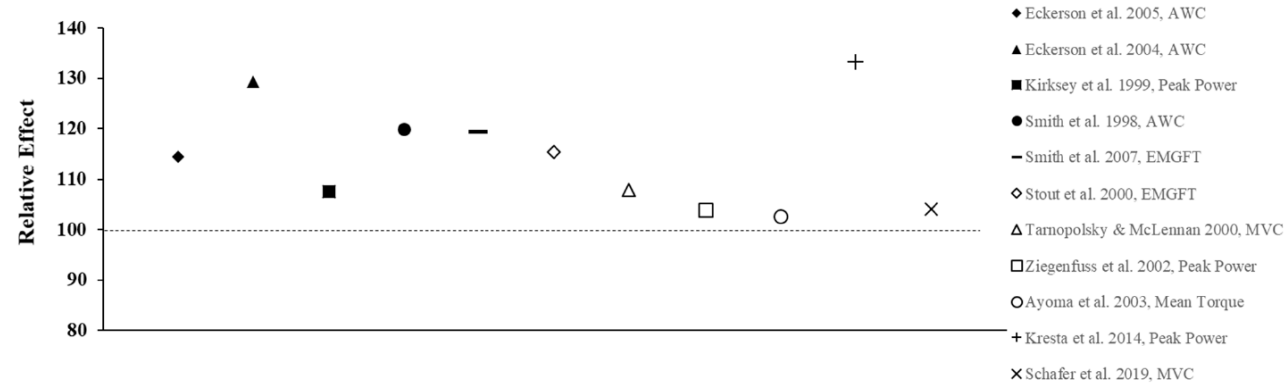
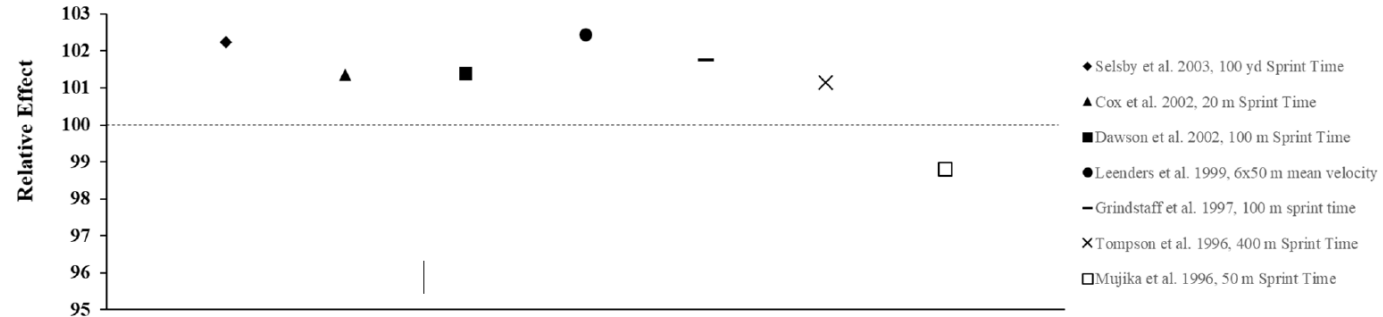


Figure 3. The relative effects of creatine supplementation in comparison to a placebo on exercise performance in females.

Effects of Creatine Supplementation on Sport Performance



*Relative effects are ratios of outcome measures between treatment comparison groups in a study.



GENERAL CREATINE SUPPLEMENTATION NOTES RELATED TO ALL USAGE



Your Fitness. Connected.

dotFIT™

CS OUTCOME VARIABLES



Responders, partial and non- responders

Some subjects demonstrate lesser improvements, which has been attributed to:

- Genetics (Type II fiber populations, gene polymorphisms, Cr transporters, etc.)^{127,128}
- Individual physiological state and overall health or disorder status
- Diet (vegetarian vs. omnivore) & gender differences⁶⁹
- CS protocols (daily dosages, durations, loading, etc.), subject compliance and testing modalities^{129,130}

Large majority are notable responders, others may be more subtle with no adverse reactions beyond placebo

*Effects of CS in all related studies may vary among individuals and depend on factors such as dosage, duration of supplementation, testing protocols, overall health (including degree of disorder or injury), individual physiology/genetics, sex and/or diet

GENERAL Cr DOSING



CM Dosing Protocols in Science*

Most common quickest method to full saturation^{35, Ref2}

- Loading phase first 4-7days: 20 g/d or 0.14 g CM/LB/d split 4Xs 5g
- Maintenance phase of 5 g/d or 0.045g/LB/d (larger athletes may need 5-10gm/d^{Ref2;#7,8,10,46-48}) for the duration of the supplementation period
 - ✓ Dosing by weight probably not necessary for brain health- standard recommendation to maximize creatine brain pool in studies sufficient for now; studies treating disorders are generally unique recommendations
 - Much TBD

Other protocols

- Daily single dose of ~3–10g (.045/lb/d) but possibly 21-28days to maximum load, thus delayed ergogenic benefit^{25,26,35, Ref2} (175LBS =8gm/d)
- Interestingly, in older adults, CS only on RT days increased measures of LBM and strength compared to placebo.

*For use in improving musculoskeletal outcomes (performance, size, preservation, etc.) take CS with some carbohydrate and/or protein for max uptake^{12,Ref2} (Not shown necessary for brain/mental health outcomes)

CREATINE MONOHYDRATE SAFETY



Safety is Well Established^{25,35,132,133*} [Ref](#) [Ref1](#),[Ref2](#),[Ref3](#)

30yrs successful safe use in performance, recovery time and recently brain/health including in youth/adolescence

- No progressive effect to cause negative consequences to renal function and health in already healthy individuals with proper dosage¹³⁵⁻¹⁴⁰
- No negative renal effects found in any age group^{25,35,132,133,141}
- Long-term clinical therapies including in children and older adults (e.g., 10g/day for over 5yrs) have yielded no significant detectable adverse effects¹³³ [Ref](#) [Ref1](#),[Ref2](#),[Ref3](#)
- Blood test note: spontaneous normal conversion of Cr into creatinine from diet (e.g., high in animal protein), proper use of CS and/or vigorous exercise, may lead to a creatinine level reading at or above the normal (>1.5 mg/dL), which in healthy persons, is generally a harmless temporary result
 - ✓ Exercisers avoid or lightly train day before, and **CS users cease use ~2-4days before test**

CREATINE MONOHYDRATE -YOUTH



Children and Teens

No study has found CS to have adverse effects in children.^{147,153,154, Ref1} ([brief review](#))

- CS offers health benefits as adjunct clinical therapy for specific affected youth populations^{Ref1}
 - ✓ 4-8g/d up to 3yrs used safely as therapy for synthesis deficiency & neuromuscular disorders in children^{153,154}

Position (no safety or efficacy reason for position, only business decision)

- Shortage of data in youth sports leads to dF recommending usage only in “Super” post-pubescent athletes* with parent’s consent; otherwise ≥18yr with ISSN* position stand caveat
 - ✓ *“If proper precautions and supervision are provided, CS in children and adolescent athletes is acceptable and may provide a nutritional alternative with a favorable safety profile to potentially dangerous anabolic androgenic drugs”*^{25,31, Ref2, Ref1}
 - Mindful proper diet and training are employed

* Puberty usually occurs in girls between the ages of 10 and 14; boys 12 and 16

- Interested persons referred the [Jagim et al. review “Safety of CS in Active Adolescents and Youth”](#)^{Ref3}
 - ✓ [2024 study](#) on youth soccer players – safe and effective in improving recovery and subsequent performance
 - ✓ CS safely improved all jumping tests vs placebo in under 16yrs basketball players – [CS=better jumpers](#)

[*International society of sports nutrition position](#)

CREATINE FORMS



Other Forms of CS

Creatine monohydrate is only form with sufficient safety & efficacy research to support the use of CS related to claimed benefits^{25,31, [Ref1](#)}

- Search is for a form that has greater functional absorption because of Cr's hydrophilic nature (actions with H₂O) so less can deliver more⁷
 - ✓ None have proven better than properly dosed CM to increase muscle Cr^{132, [Ref1](#)}

Other commercially available forms:

- Creatine salt forms
 - ✓ Cr malate, phosphate, magnesium Cr, Cr citrate, pyruvate, orotate, etc.
- Creatine ester forms
 - ✓ Cr ethyl ester, Cr gluconate, etc.
- Guanidinoacetic acid (GAA) is a natural precursor of creatine was shown to raise muscle Cr levels 16% higher than equal amounts of CM (3gm each); possibly due to more transport available, but not ready for primetime¹⁶¹ ([may be beneficial in raising brain creatine levels](#))

Other Cr forms are basically marketing spins



Most Common Myths

Long Term use, muscle cramps, water and injury¹⁴⁷

- CS has positive effects on muscle cramps and dehydration¹⁴⁸
 - ✓ Shown to **reduce** muscle cramps by ~60%¹⁴⁹
 - ✓ CS can increase total body water, reduce sweat rate, lower core temp & exercise heart rate¹⁵⁰
 - **Improves hydration and thermoregulation in athletes exercising in heat**^{83,150,151}
- Doesn't lead to unnecessary water retention
 - ✓ Increases in muscle mass (MM) induced by Cr & training occurs without alteration of the ratio of intracellular (ICW) to MM (matching gain). Further, ECW/MM decreased suggesting improved MM quality – i.e., structural/size improvements (not just water)^{Ref4}
- Athletes who supplement with creatine **experience fewer musculoskeletal injuries and accelerated recovery time from injury**^{Ref1}

Decreases kidney or liver functions (see previous slide)

- **No negative effects on kidney or liver health** in any age group of healthy users^{25,35,132,133,141}

Summary of common questions & lingering myths

“Common questions and misconceptions about creatine supplementation: what does the scientific evidence really show?” [Ref1](#) Antonio et al. ISSN

From ISSN 2021 on Creatine supplementation:

1. Does not always lead to water retention (i.e., proportionate to skeletal muscle gain)
2. Not an anabolic steroid.
3. Recommended dosages do not result in kidney damage and/or renal dysfunction in healthy users
4. No link between creatine supplementation and hair loss/baldness.
5. Does not cause dehydration or muscle cramping.
6. Appears generally safe and potentially beneficial for children and adolescents.
7. Does not increase fat mass.
8. Smaller, daily dosages of creatine supplementation (3-5g or 0.1 g/kg of body mass) are effective. Thus Creatine ‘loading’ phase may be not required depending on desired ergogenic effect timing needs
9. Combined with resistance training, CS produces the vast majority of musculoskeletal and performance benefits in older adults. Alone CS can provide some muscle and performance benefits for older adults.
10. Can be beneficial for a variety of athletic and sporting activities.
11. Provides a variety of benefits for females across their lifespan.
12. Other forms of creatine are not superior to creatine monohydrate.

EXPERT DOSING INSTRUCTIONS



dotFIT CM Dosing Instructions

Programs total daily CM first 5days: 20g/d. Maintenance phase: 5-10g all days. To maximize uptake, CM intake should be spread as evenly as possible throughout the day with carb and/or protein containing meals or shakes

Creatine Loading & Maintenance Strategy (Also Refer to Mix Dosing & Stacking Instructions at end of PDSRG document)

- Mix one (scoop (5g) with 4-8 oz. fluid/shake and take 4Xs daily for first 5days. Thereafter, throughout the supplementation period,* take .5-1scoop 2Xs daily to maintain stores (under 175LBS may use the ½ scoop dose for total of 5gms/d)
- On training days, use one dose before workout and one after with meals/drinks. May mix with your pre/post training formula

Dosing by body weight:

- Loading phase 0.14g/lb/d split 4Xs daily for 5days; Maintenance phase .045g/LB[LBM]/d based on experience as larger athletes may need 5-10gm/d ^{Ref2;#7,8,10,46-48} for the duration of the supplementation period*
 - At .045g/lb, maintenance dose for 200LBS (175LBS LBM) = ~8gms

Single dose usage

- 3–10g/d or between 0.014 to 0.05g/lb/d; On training days always take dose following workout (use with post workout shake)

Dosing for cognitive functioning only (discussed throughout)

- **Appears the same for now unless instructed differently by experts and future studies**

The length of the supplementation period would be based on the goal, but generally last 12-16 weeks and cycled throughout the year for competitive athletes based on training periodization/intensity cycles; **CS used in healthy aging populations can be daily*



Simple/Effective Creatine dosing: load 5g 4xd for first 5-7d; 5-10g/d maintain till end of training phase cycle





Creatine in Health Performance & Muscle Gain Bundle

Click on product links for a brief product description including short video



Daily:

OR

[dotFIT Multivitamin & Mineral](#) for your age and gender. If 50yrs or older use [Over50](#) unless noted below; if female under 50 use [Women's](#); Males and very active females (competitive training protocols) under 50 use 2-[Active](#), with both genders continuing use till 65yrs if still training competitively at which time every person will use Over50; children under 12yr use [Kids](#); children 12-17yr use 1-Active). All vegans use [VeganMV](#)



- Take as directed with meals

[CreatineMonohydrate](#) Loading & Maintenance* Strategy

- Mix 1 scoop (5gms) with 4-8oz of favorite fluid/shake and take 4 times daily with a protein and/or carbohydrate containing meal/drink for first 5 days. Thereafter take 1-scoop twice daily to maintain stores. To help maximize creatine uptake, split doses throughout the day with meals/drinks containing protein and/or carbohydrate
- Training days: 1 dose before workout & 1 after with meals/drinks. May mix with your pre & post training formula
- Non-training days take 1-dose with AM meal and 1-dose with PM meal

Daily as needed:

[FirstString \(or WheySmooth depending on caloric needs/allotment\) or favorite dotFIT protein](#)

- Use as directed to make sure you get [~1gm of protein per pound of LBM](#) (or weight if not overweight) from all sources including foods divided 3-5 times daily
- Can be used as a supplement to a meal or by itself (or mixed with desired supporting contents) to shore up total daily protein & calorie needs

Workout days

- [FirstString](#) or [favorite dotFIT protein](#)
 - Take as directed (25-35gm protein) 30-40min before workout & repeat immediately post exercise
- [Creatine Monohydrate](#)
 - On training days, use one dose before workout and one after with meals/drinks. May mix with your pre & post training formula

***If under 175LBS you can cut the daily maintenance dose in half - i.e., after loading period, take a total of 5gms daily and split as described or all in 1 dose daily**

DOTFIT CREATINE MONOHYDRATE



Unique Features

- Contains NSF Certified pure CM, which may be important in long-term use. Manufacturing process allows stability, yields more Cr/gm and vegan friendly
- Unique accurate dosing instructions based on expert experience
- Convenient powdered form **with relatively neutral flavoring** allows for easy mixing alone or with other products such as pre/post workout shakes
- NSF Certified for Sport (NSFCS), an independent third party test which provides an additional product guarantee to ensure purity and potency for drug tested athletes. Click [here](#) for the dotFIT NSFCS section
- Formulated & manufactured for taste and pleasing texture in a regularly inspected NSF certified facility, in compliance with Good Manufacturing Practices (GMPs) exclusively for dotFIT, LLC



CREATINE MONOHYDRATE EXPERT PRESENTATIONS



CREATINE PRESENTATIONS - SIZE AND PERFORMANCE



Headlines:

- 1) Take your workout and game day to the next level*
- 2) Be bigger, stronger, faster and more focused longer – make every day a PR!*

- Cr provides an immediate and prolonged energy source (PCr) for brain and muscles and therefore, by supplementing you will improve motivation, strength & performance each workout so they build on each other to grow muscle much faster and avoid plateaus.
- Cr is the most safe and effective muscle building supplement available and ours is NSF-CS - and it's not available in stores
- Cr supplementation is especially helpful for older athletes trying to maintain or build muscle

Improve size & performance to maximize every training session and results and transfer to your field of play (activities that include weightlifting, sprinting, jumping, etc.) - be better than the best you can be



Size & Performance

Take your workout and game day to the next level and get bigger and stronger faster
especially important for experienced and/or older athletes both male and female



Directly feeds your explosive energy system to improve/prolong strength & power movements and training intensity so you can make every workout & game day a PR!

Cr leads to stronger workouts and faster recovery generating rapid increases in muscle size and/or performance so you avoid plateaus and can't wait to train. NSF-CS, not found in stores

Supplement Facts

Serving Size: 6.8g (1 heaping scoop) Servings Per Container: 60

	Amount Per Serving	% Daily Value*
Calories	5	
Total Carbohydrate	1g	<1%*
Creapure® Creatine Monohydrate	5g	**

PURE CREATINE – NSF-CS TESTED

CREATINE PRESENTATIONS - SIZE AND PERFORMANCE



Eve

Creatine (PC) is an energy system in our body. The creatine phosphate is your body's simplest, most immediate energy source. However, your body only uses this system for a short period of time (usually 10 seconds or less depending on our fitness). Using creatine allows us to open that window for an extended time frame, thus allowing us to stay under load for an extended period which in turn stimulates a greater response from your muscles and promotes growth. BASICALLY, it's like adding a fuel booster to your car to get the most out of it.

Brian

- Creatine recycles your immediate energy system (your ATP system) which is great for athletes with more explosive movements and weight training.
- Mr/Mrs/Miss Jones, creatine will...
 - Enhance your anaerobic system. It will let you go LONGER and STRONGER in your first immediate energy system.
 - Creatine volumizes the cells by driving more water and nutrients into the muscle cells

Kat

- The most effective supplement to help build muscle, strength, and power
- Raises your body's natural level of creatine so you have more fuel for high-intensity activities
- Vegan friendly and safe for women

LET'S TAKE YOUR RESULTS WELL BEYOND DIET & EXERCISE ALONE! WE WILL DIRECTLY FEED YOUR MUSCLES THEIR BUILDING BLOCKS, SO THEY GROW BIGGER FASTER WITHOUT ADDING BODYFAT AND OPTIMIZE DAILY ENERGY LEVELS AND WORKOUT INTENSITY – GET BIGGER, STRONGER & FASTER - AND KEEP GOING

MUSCLE/PERFORMANCE BUNDLE SUMMARY PAGE

Delicious ideal active youth nutrition to maximize energy, growth & development to make them better on the field and in the classroom

~60% carbs, 30% protein, 10% fat= current science recommendation that supports maximizing muscle building, energy & performance for athletes of all ages. *Especially for increasing size, strength & speed*



VMs are actuators of all human metabolism

Optimize all VM activities to help **maximize energy & all muscle building mechanisms to optimize muscular development & performance-NSF-CS**

Only 4in1 complete MVM (high C&D) built specifically for athletes and exercisers & why it is NSF-CS and the most recommended/used MVM in high school, college, pro and Olympic sports



Cr leads to stronger workouts and faster recovery generating rapid increases in muscle size and/or performance so you avoid plateaus you can't wait to train

Directly feeds your explosive energy system to improve/prolong strength & power movements and training intensity so you can make every workout & game day PR!



Items Left in the Gym



CREATINE PRESENTATIONS – HEALTHY AGING



Headlines:

1) Support healthy aging including muscle and brain functioning

- Cr provides an immediate and prolonged energy source (PCr) for brain and muscles. Especially helpful for older exercisers trying to maintain or build muscle and stay motivated to exercise
- Shown to support overall brain health and helping manage stress, mood and normal cognitive task when challenged.
- Cr is the most studied, safe and effective human performance supplement available and ours is NSF-CS - and it's not available in stores
- Cr supplementation is especially helpful for older athletes trying to maintain or build muscle and support healthy aging

Improve exercise results, at all ages and genders while potentially contributing to brain functions including managing stress and mood when the brain's energy is challenged. CS can be part of a healthy aging program to keep us active and independent



**Helping stay forever young and active
Keep thinking and moving better throughout a lifespan**

especially important for experienced and/or older athletes both male and female that desire to remain active

With nearly two decades of creatine research on brain function now complete, the initial results appear promising.



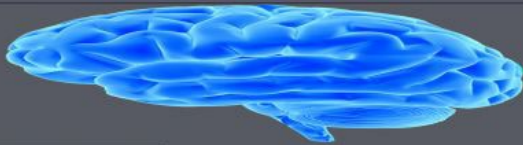
Healthy aging

Help counteract the inevitable age-related decline in the musculoskeletal system to help stay independently active or help your Playspan® equal your lifespan

Brain energy/functioning

Directly feeds the brain's immediate energy system. When brain energy levels are stressed/compromised, CS has shown to improve overall brain health and functioning, including positively managing mood

Creatine for stress & brain function



How does creatine work?

- Creatine improves energy production in muscle and brain cells
- Improved energy production enhances mitochondrial function and may help control inflammation and oxidative stress in cells

Who could most benefit from creatine?

- Populations such as older adults, women, and people following vegan or plant-based diets who have lower levels of creatine
- People with chronic stress and brain injury may also benefit most

What are potential mood and brain benefits from creatine?

- Studies suggest that creatine may reduce depression & anxiety symptoms and improve stress resilience
- Creatine may also improve memory and cognitive function

How should you take creatine?

- The typical person can benefit from taking 5 grams of creatine/day
- Some people may benefit from an initially higher dose, for example 20 grams/day for 1-2 weeks

Supplement Facts

Serving Size: 6.8g (1 heaping scoop) Servings Per Container: 60

	Amount Per Serving	% Daily Value*
Calories	5	
Total Carbohydrate	1g	<1%*
Creapure® Creatine Monohydrate	5g	**

PURE CREATINE – NSF-CS TESTED

Creatine monohydrate – plus.....

Beyond creatine: multi-ingredient pre/post-workout supplement (MIPS) to take your workout and game day to the next level – and avoid plateaus. Stronger, faster and more focused longer – making everyday better



NSF-CS size & performance enhancement product to maximize each training session & results that also translates to your field of play/game day – **not found in stores**

Convenient MIPS that takes creatine to the next level for added size, strength, performance and muscle endurance – **not found in stores**

Supports intestinal health and muscle recovery related to exercise, diet and physical induced stresses, including exercise/diet-induced immune suppression

Same Creatine plus

Proper doses of beta-alanine, glutamine added to creatine for bigger longer muscular explosions, pumps & added recovery!

2scoops daily Supplement Facts

Serving Size: 1 Rounded Scoop (10.7g)
Servings Per Container: 60

	Amount Per Serving	% Daily Value
Calories	5	
Total Carbohydrate	1 g	0%
Creapure® Creatine Monohydrate	2.5 g	*
CarnoSyn® Beta-Alanine	1.6 g	*
L-Glutamine	3.5 g	*

1) **creatine** for size, strength & performance; 2) **beta-alanine** for intensity and muscle endurance; 3) **glutamine** for muscle recovery and immune support

Improve performance to maximize every training session and results to *always be better than the best you can be*

FAQ

Q: What is the difference between the dotFIT ExtremeCreatineXXXL and CreatineMonohydrate?

A: CreatineMonohydrate is simply the creatine monohydrate. ExtremeCreatineXXXL is the same creatine monohydrate (NSF-CS) but also contains beta-alanine and glutamine for their respective additive performance benefits. For a product description including short video go to the dotFIT website store and click on the product you would like to learn about. Here are the direct links to the 2 products you requested <https://www.dotfit.com/creatine-monohydrate>, <https://www.dotfit.com/extreme-creatinexxl>. Once you click in then go to “Overview” to get product details and video.

More Info

Dosing ExtremeCreatineXXXL as a Standalone Product

- Take two scoops daily (5 g creatine, 3.2 g beta-alanine, 7 g L-glutamine) to achieve immediate training benefits and reach near maximum creatine and beta-alanine supplemented levels within 28 days and continue throughout the desired training period (always take with some protein and carbs but within allotted calories based on body composition goal).
 - o Training days take 1scoop before training and one after. May mix in your pre and post workout shake containing protein with some carbohydrate.
 - o Non-training days, take1 scoop with morning meal or shake and one (1) scoop with evening meal or shake

Dosing ExtremeCreatineXXXL within Size and Performance Stacking Protocols See complete supplement stacking programs for competitive size and performance athletes here: [Creatine Muscle & Performance Stacks](#)

CreatineMonohydrate as a standalone product

Creatine Loading & Maintenance Strategy* (*Refer to Mix Dosing & Stacking Instructions in Appendix*)

- Mix one (scoop (5 g) with 4-8 oz. of favorite fluid/shake and take four times daily with a carbohydrate containing meal/drink for first five days. Thereafter take one scoop twice daily to maintain stores. To help maximize creatine uptake, split doses throughout the day with meals/drinks containing carbohydrate and/or protein (depending on size and caloric allotment)
- On training days, use one dose before workout and one after with meals/drinks. May mix with your pre/post training formula
- Dosing by body weight:
 - o Loading phase 0.14g/lb/d split in 4xs daily of 5g each; maintenance phase 0.014 g/lb/d (dotFIT prefers .04 g/lb/d based on experience) for the duration of the supplementation period

*If under 175LBS you can cut the daily maintenance dose in half - i.e., after loading period, take a total of 5gms daily and split as described or all in 1 dose daily

Combining CM & ExtremeCreatineXXXL+ (EC) for Loading and Maintenance

Loading with **CreatineMonohydrate** & Using **ExtremeCreatineXXXL+** to Maintain Creatine and Beta-alanine Levels



Loading phase: CreatineMonohydrate (CM)* 20g/d for first 5 days to load

- mix 1 scoop (5g) with 4-8 oz of favorite fluid/shake and take four (4) times daily with a carbohydrate and/or protein containing meal/drink for the first 5 days.
 - Training days, use 1-dose before workout & 1-after with meals/drinks. May mix with your pre/post training formula.



***Maintenance phase:** after 5-day loading phase: ExtremeCreatineXXXL+ to maintain all till end of cycle

- Take 2-scoops/d (always with some protein and/or carbs but within allotted calories based on body composition goal)
- Training days: 1-scoop before training with pre-workout shake or full meal. 1-scoop post workout with meal or shake
- Non-training days: 1-scoop with morning meal or shake & 1-scoop with evening meal or shake to maintain Cr & BA levels

If ≥ 175 lb, may want to maintain 1-scoop CM/d in protocol: take anytime when not taking EC



(no loading period)

Just ExtremeCreatineXXXL+ as the sole creatine source (-plus)



Dosing ExtremeCreatineXXXL+ as a Standalone Product

- Take 2-scoops/d (5 g creatine, 3.2 g beta-alanine, 7 g L-glutamine) to achieve immediate training benefits and **reach near maximum creatine and beta-alanine supplemented levels within 28 days and continue throughout the desired training period (always take with some protein and carbs but within allotted calories based on body composition goal).**

- Training days: 1scoop before training and 1-after. May mix in pre & post workout shake containing protein with some carbohydrate.
- Non-training days, take 1-scoop with morning meal or shake and 1-scoop with evening meal or shake

Sales & Marketing assets for your supplements of the month

Click the links into your dotFIT Marketing Console in the next 2-slides, then click CreatineMonohydrate for all related promotional materials including supporting video assets



1 Pagers

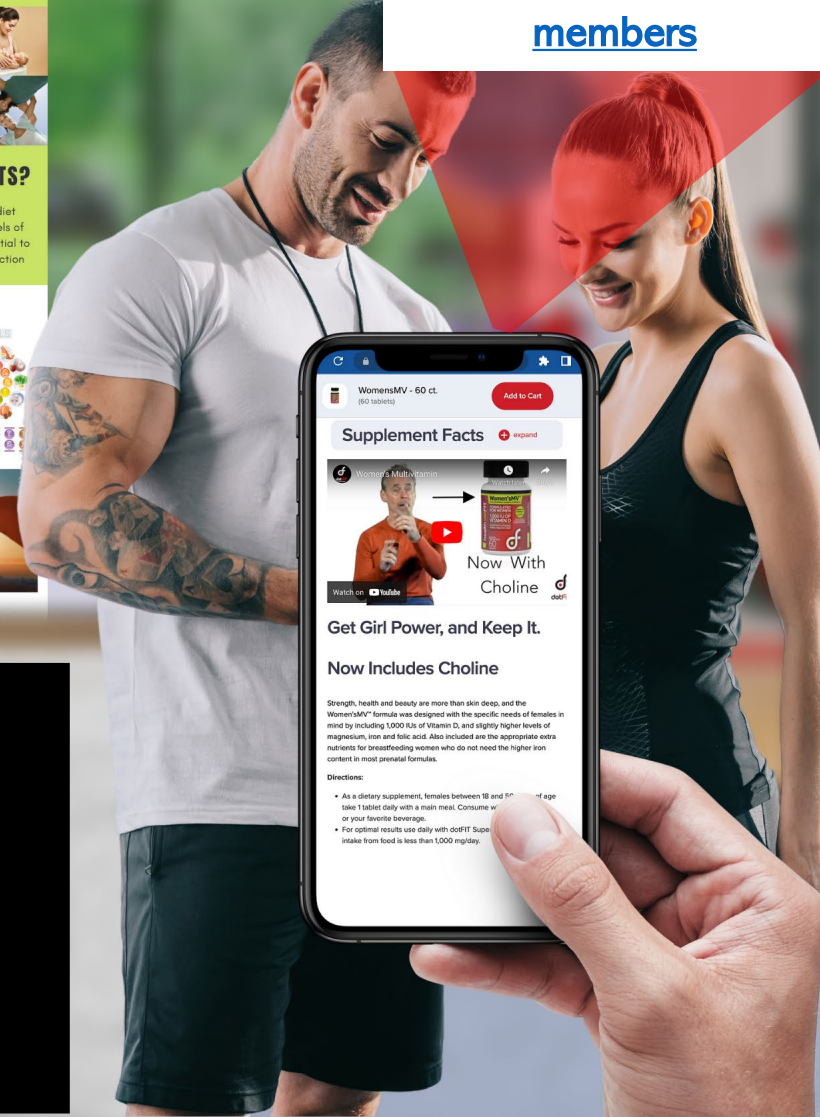
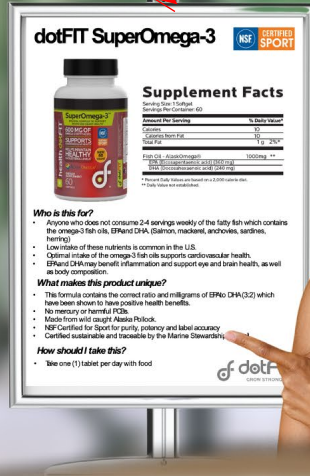
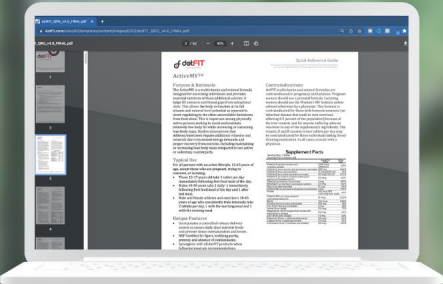
Print and display
consumer friendly
guide

Infographics

Print or
share on social to
educate

Store Description & Video

Watch & share with
members



QRG

Learn product
science, benefits &
unique features on
one page

dotFIT + Digital Marketing Resources

Infographics | Logo | Social Media

One-Pager Flyers | 4 Pillar Posters

4 Pillar Posters

[Display in your club for branding and education](#)

Preserving & Building Muscle Tissue

dotFIT

1 NUTRITION
You can't out-exercise this. Fuel your transformation with foods you actually enjoy.

2 EXERCISE AND MOVEMENT
Customized workouts stimulate progress and keep your body changing.

3 SUPPLEMENTATION
Customized workouts stimulate progress and keep your body changing.

4 COACHING & ACCOUNTABILITY
Regular feedback makes all the difference. Our Coaches will get you there.

Nutrition is 100% responsible for exercise-induced results. If you don't eat, bad things happen. If you eat the wrong things, bad things happen. There is a right way if you're exercising, you're an athlete, and your body needs to be fueled properly during the other 23 hours a day to maximize results.

Exercise is the body's stimulus for change. Whether you choose strength training, endurance training or a combination of both, there are four variables that will ensure that your body is given the appropriate stimulus for change.

Exercise increases the body's nutrient needs, but it's difficult to meet those needs without gaining weight. Safe and effective supplementation can satisfy your nutrient needs without adding calories, negative your workouts, speed recovery and avoid plateaus.

The right coach can help you get consistent results week after week. Learn how to fit all 4 pillars of a safe, effective program into your lifestyle, how to stay motivated and how to avoid plateaus.

1 Min. Promotional Videos

[Download and display on your club TVs](#)

Infographics | Logo | Social Media
One-Pager Flyers | 4 Pillar Posters