Pre Congreso “Adolescencias: Compartiendo Miradas”

***Mesa**: La imagen corporal y actividad física en la adolescencia*

Adolescentes solicitando suplementación deportiva

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Esp. en Adolescencia

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Cuántas veces habrá pasado?

- “Vengo para que me des o le des vitaminas”
- “En el gimnasio me ofrecieron proteínas”
- “En Rugby me dijeron que tengo que incrementar el volumen muscular”
- “Hace danzas clásicas le dijeron que debe pesar 47kg para su altura hay algo para bajar de peso?”

Caso Marcos

- Marcos de 13 años y 8 meses concurre a la consulta porque desea tomar suplementos nutricionales para incrementar la masa muscular.
- Juega rugby desde los 8 años y hace 6 meses que además inició el gimnasio con sus compañeros de deporte y realiza actividades con pesas.
- Relata que no logra el objetivo deseado de incrementar su masa muscular, su instructor del gimnasio le recomendó un polvo que es una sustancia natural inocua usada por muchos adolescentes.

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Breve Análisis

A favor (Factores protectores)	En Contra (Factores de riesgo)
Concurrió a consulta médica	Inicio precoz de actividad física con pesas
No va con certezas, sino con consultas	Pares – presión social deportiva
Amigos / Pares	Entrenador recomienda suplemento
Actividad física regular	Autopercepción e imagen corporal

<u>Oportunidad en la consulta para</u>:

- Trabajar hábitos saludables
- Promover actividad física saludable
- Trabajar mitos

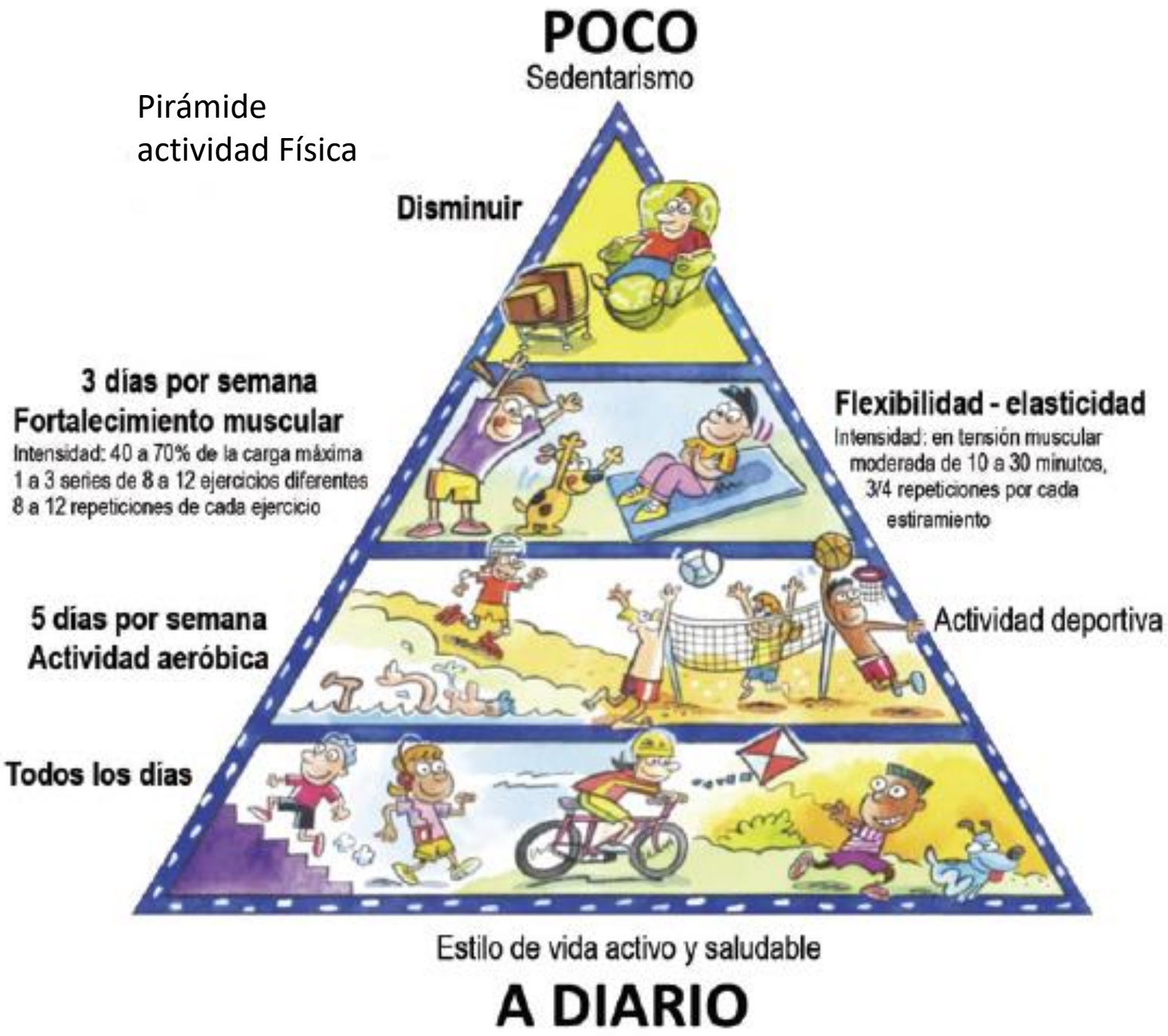
A considerar…

- Realizar anamnesis ampliada, Corroborar alimentación, consumos previos de suplementos, vitaminas y otras sustancias, escolaridad pares y referentes (imagen social deseada)
- Examen clínico completo, estadios de Tanner. Exámenes complementarios a criterio profesional

Anamnesis deportiva

- Historia deportiva previa
- De quien es la motivación por los suplementos, de los padres o del adolescente?
- Deporte individual o grupal?
- Indicios de sobre exigencia?
- Antecedentes de lesiones deportivas?
- Qué objetivos personales percibe con la actividad física? (relacionado a lo físico? A lo recreativo? A lo competitivo? A lo social? Etc.)

Pirámide
actividad Física



Hacer actividad física es parte de una vida saludable

60 minutos por día de actividad física los 7 días de la semana

Para ponerte en movimiento tenés varias opciones:

- ✓Caminar
- ✓Subir escaleras
- ✓Andar en bicicleta
- ✓Jugar al aire libre
- ✓Hacer tareas del hogar
- ✓Disminuir las actividades sedentarias
- ✓Usar menos tiempo el celular
- ✓Correr
- ✓Patinar
- ✓Bailar
- ✓Pasear las mascotas

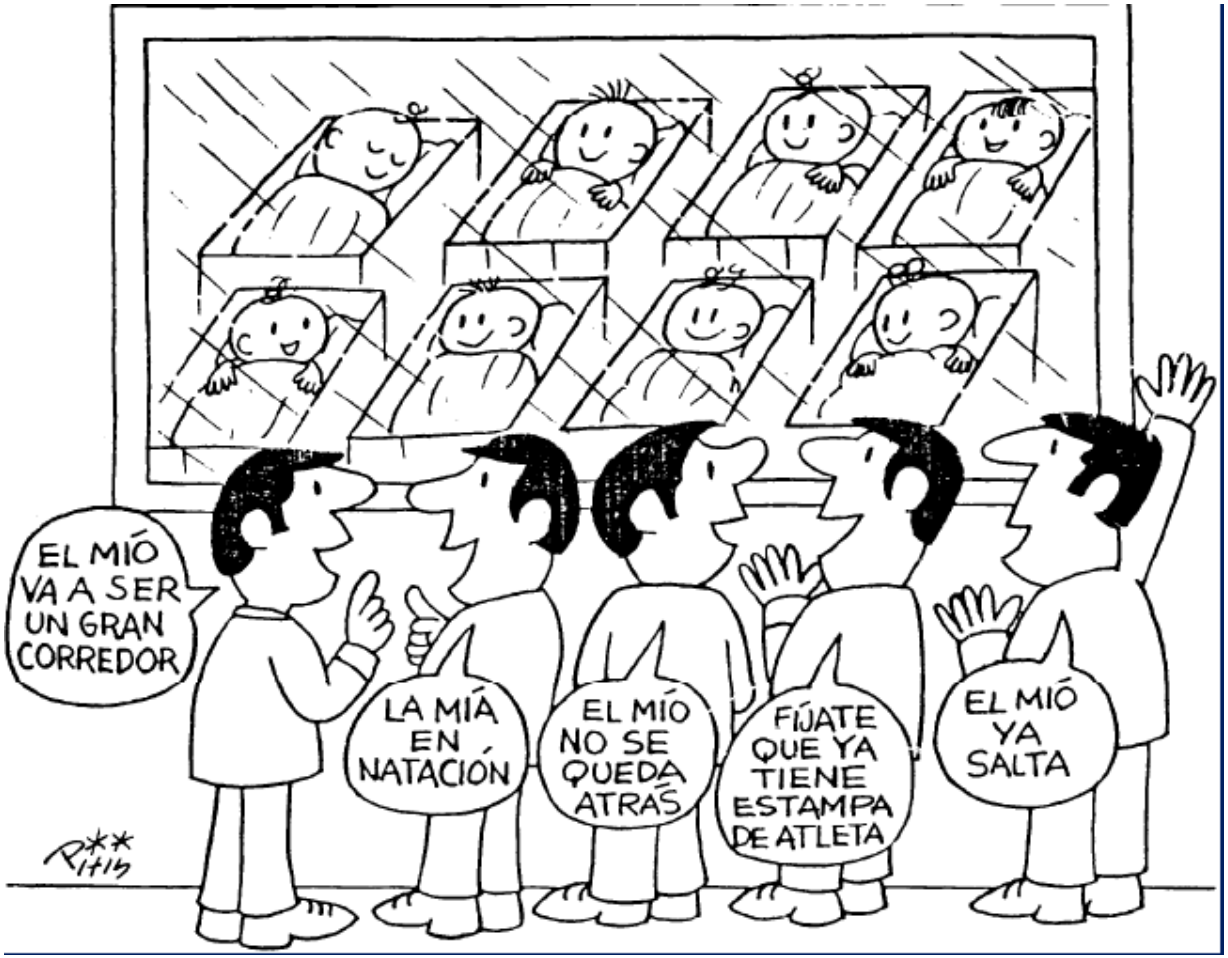
Y SIEMPRE practicar deportes con amigos y familiares

Los 60 minutos diarios pueden ser sesiones cortas o largas.
Por ejemplo: 2 sesiones de 30 minutos o 3 de 20 minutos.
¡¡O lo que sea posible!!

Quién está a cargo de la actividad física?

- Profesores de educación física con formación en crecimiento y desarrollo, aptos para prescribir actividad física adaptada a la condición de salud.

Cual es la mirada de los padres?
La mirada Social…



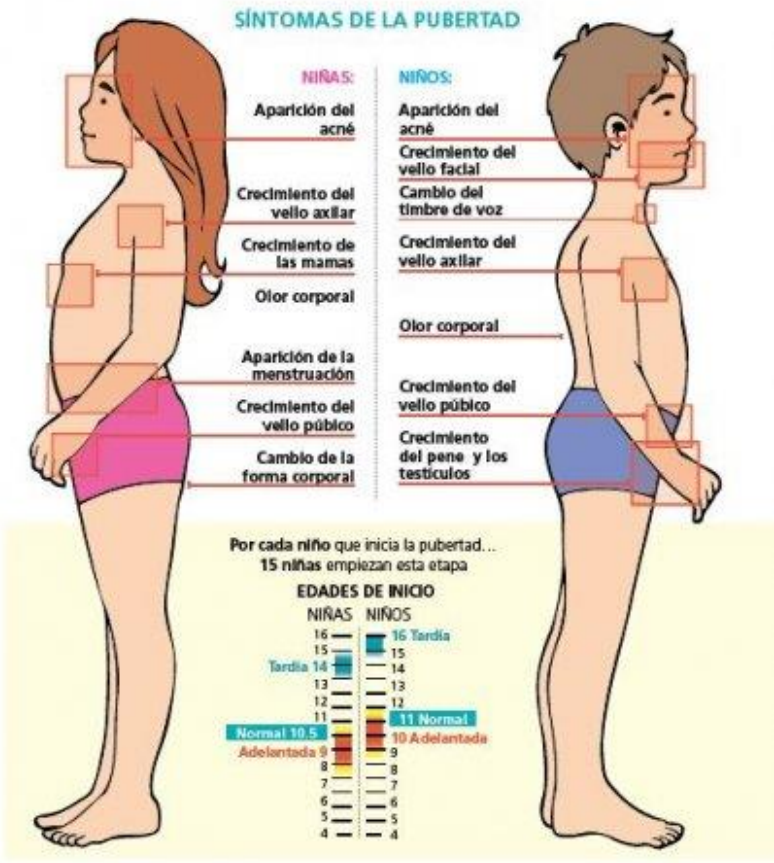
Pubertad

Varones:

- Incrementan el 50% de su peso y de su masa esquelética,
- Aumentan el 20% de su altura.
- Aumenta el requerimiento calórico, proteico, de calcio, hierro y zinc.
- Inicia con volumen testicular de 4 cm3 ó 2,5 cm (edad promedio 11,8 años)
- Crecen entre 25-30 cm

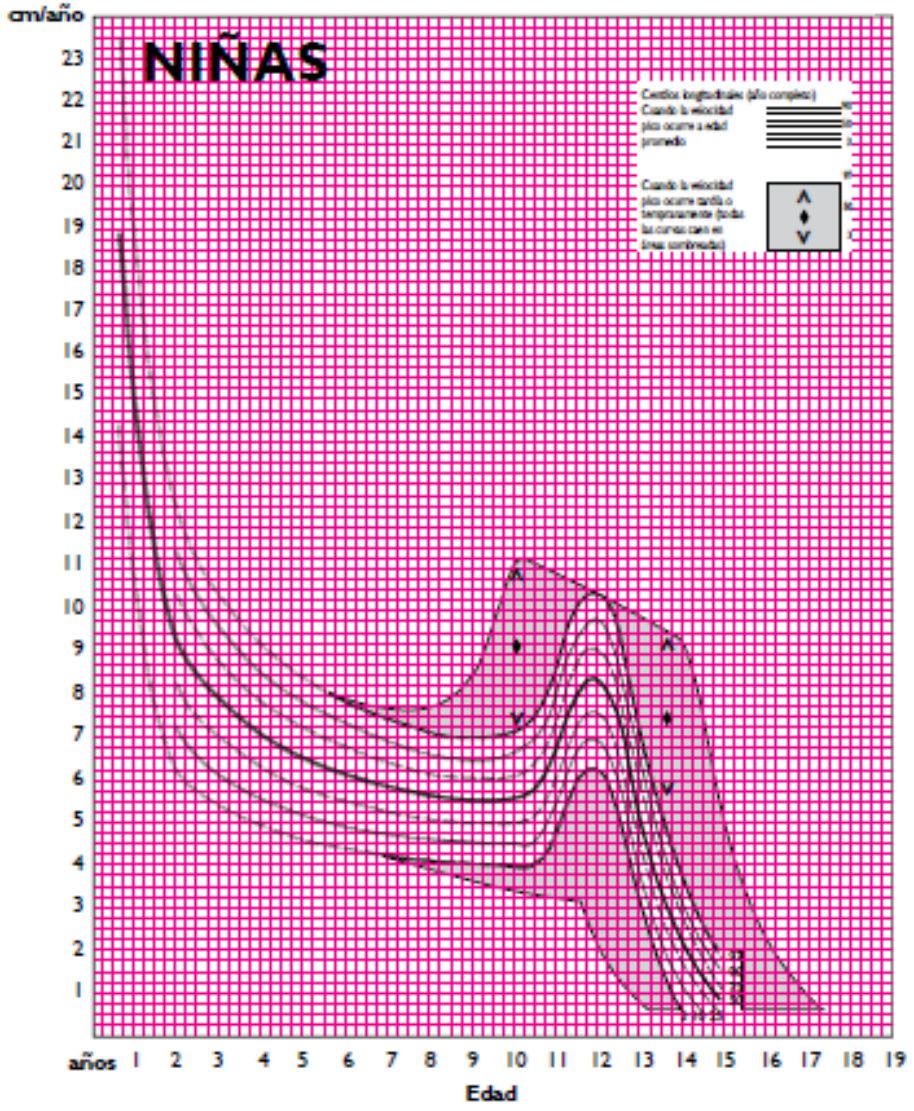
Mujeres:

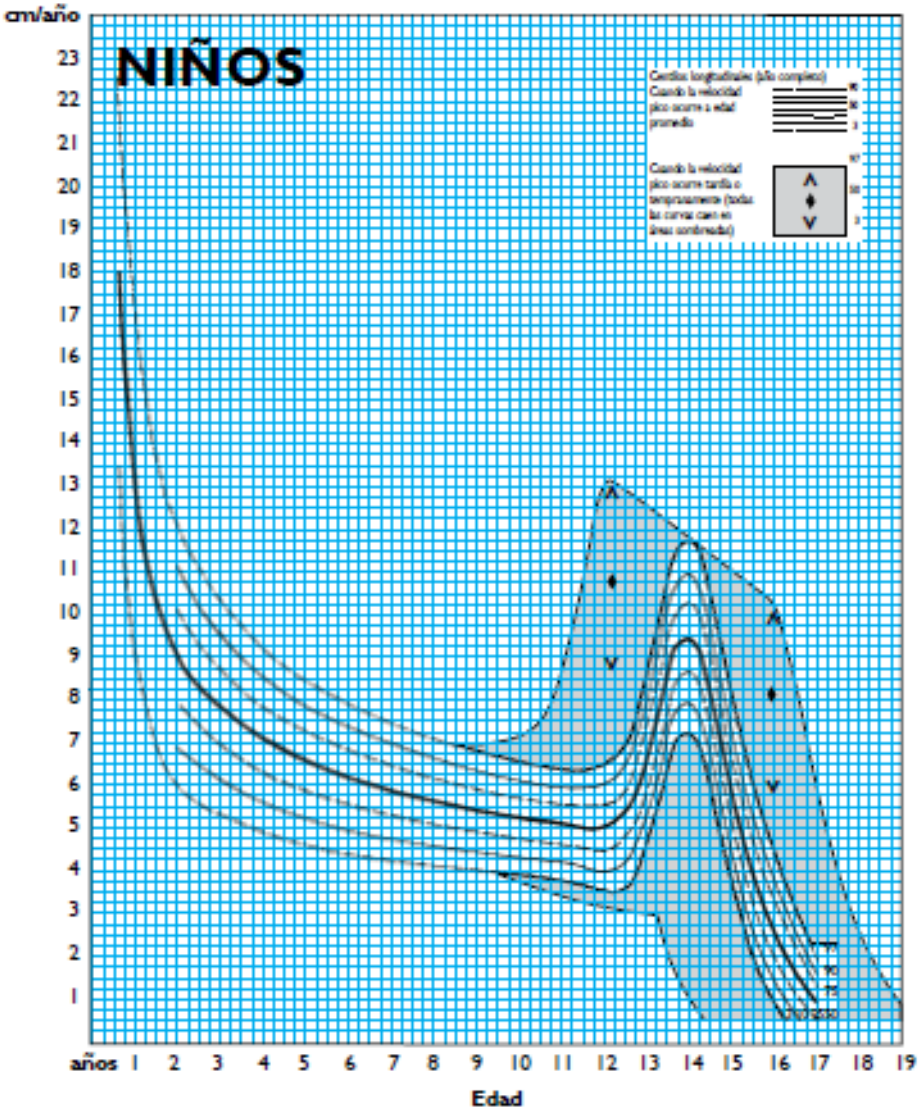
- Inicia con botón mamario (edad promedio 10,8 años)
- Crecen entre 20 y 25 cm
- Crecimiento post menarca 7 cm
- Aumenta la mineralización ósea
- Distribución de grasa corporal
- Modelación ósea – Caderas
- 17% masa magra para menstruar
- 22% masa magra para ovular



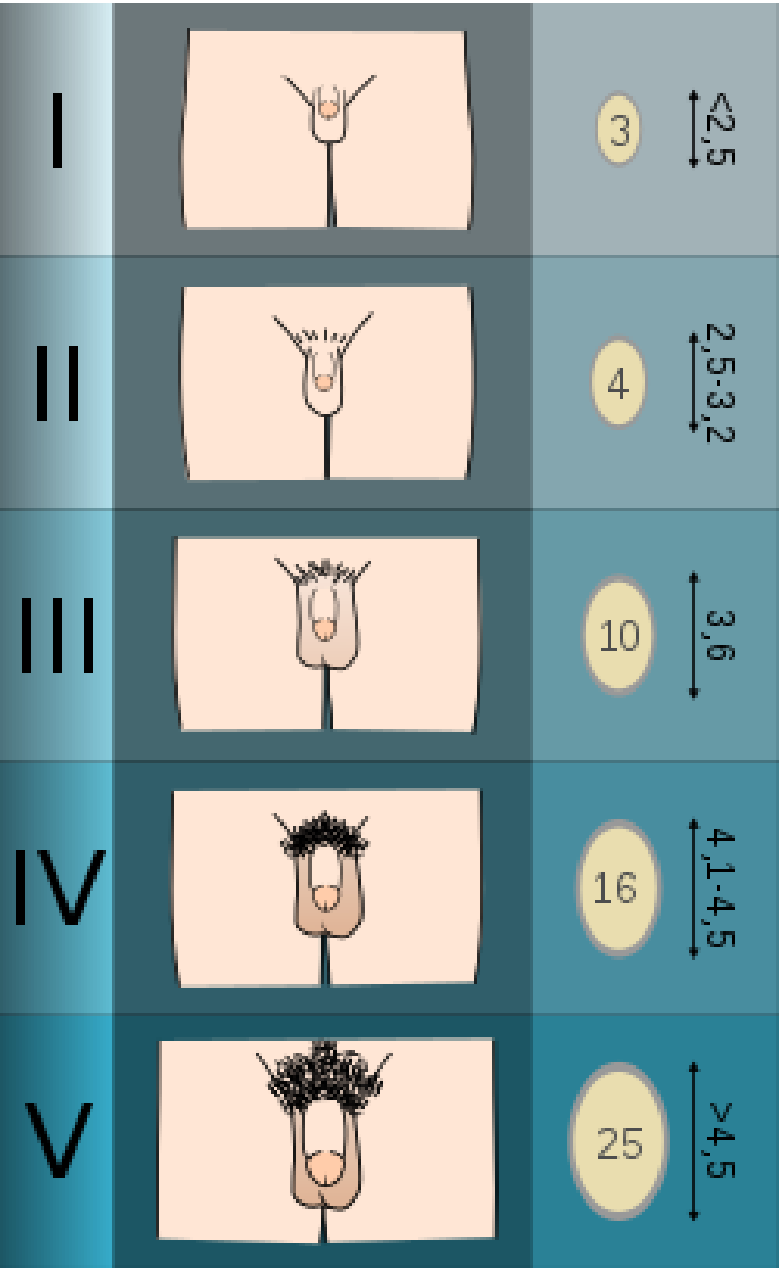
10% son delgados constitucionales
10% tienen contextura grande.

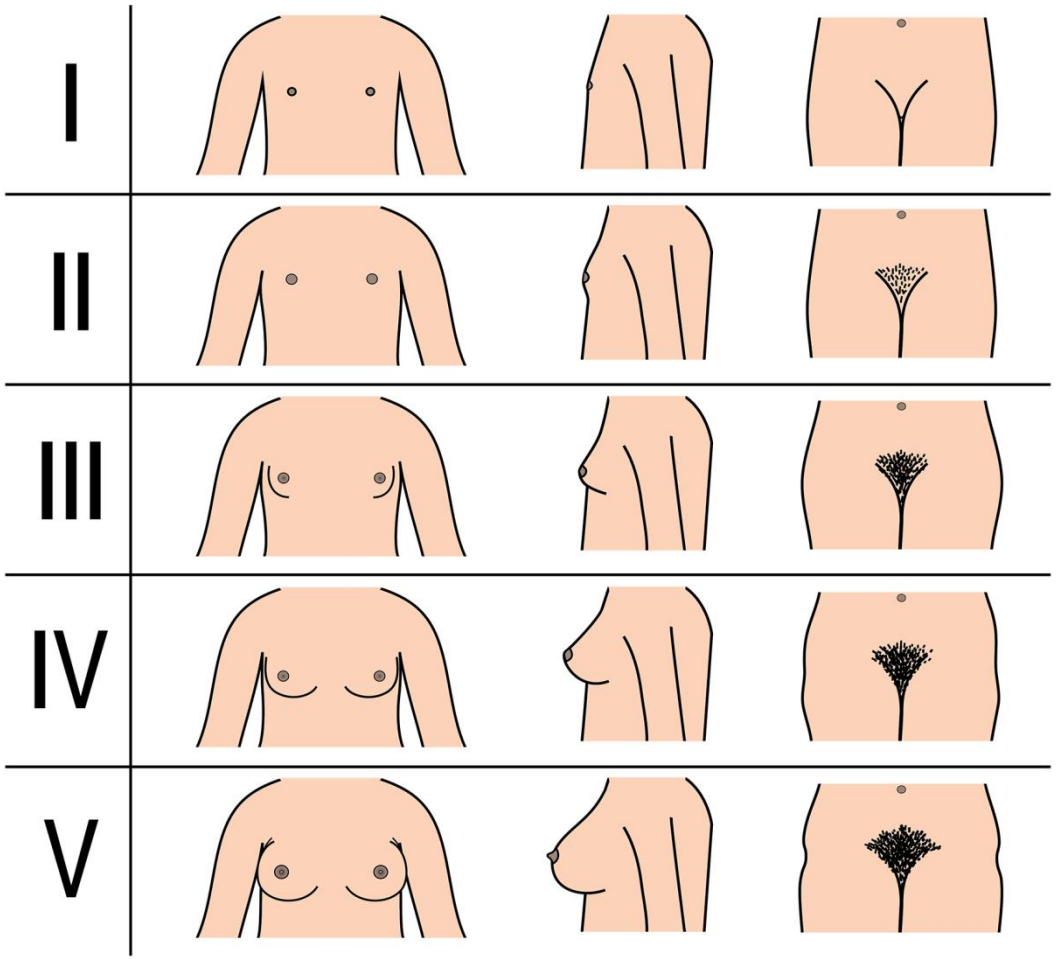
45% de la densidad mineral ósea se obtiene en la adolescencia





Velocidad de Crecimiento y Empuje puberal
(Niñas 9 cm/año. Niños 10 cm/año)





Estadios de Tanner

Actividad con sobrecarga: Tanner IV

Entrenamiento de fuerza

(Curso PRONAP adolescencia 2016)

- La OMS recomienda los ejercicios de fuerza en niños y adolescentes de entre 5-17 años.
- Requiere la supervisión de personal idóneo.
- Todo entrenamiento de fuerza debe ser coherente con los años de entrenamiento del participante, su destreza técnica y su estado de maduración.
- **A diferencia del adulto, la fuerza muscular recomendable a utilizar es la que sea menor al 80% de la capacidad máxima. En adultos se supera el porcentaje con el fin de lograr hipertrofia.**

Para tener en cuenta…

- Ayudas Mecánicas : Calzado Deportivo, Bicicletas aerodinámicas, rasurado en los nadadores ó vestimenta hidrodinámicas, etc.
- Ayudas Fisiológicas: Técnicas “físicas” que potencian el funcionamiento orgánico y disminuyen lesiones. Adecuar descanso y elongación
- Ayudas Psicológicas: control de stress, ansiedad, técnicas motivacionales, psicoterapia.
- Ayudas Nutricionales: Mejorar hábitos alimenticios en forma supervisada con profesional nutricionista.
- Ayudas Farmacológicas: Creatina, Proteinas, Cafeína, esteroides anabólicos, EPO, etc. (CUIDADO!!!!)

Que es un suplemento dietario?

Secretaría de Políticas, Regulación y Relaciones Sanitarias, y Secretaría de Agricultura, Ganadería, Pesca y Alimentos. Código Alimentario Argentino. Artículo 1381 (2003)

- “Podrán contener en forma simple o combinada: Péptidos, proteínas, lípidos (…), Aminoácidos, glúcidos o carbohidratos, vitaminas, minerales, fibras dietarias y hierbas (…) todas en concentraciones tales que no tengan indicación terapéutica o sean aplicables a estados patológicos.

Historia…

- Año 776 AC: Atletas Griegos usaban: “higos secos, hongos y hiervas” para intentar mejorar el rendimiento
- 1889 Dr Brown-Sequard se autoinyectó un extracto de testículos “guinea pig” (chanchitos de la india) observando cambios fisiológicos (que en 1905 fue confirmado por acción hormonal y aislamiento de testosterona en 1935).
- 1950: Levantadores olímpicos de pesas iniciaron las inyecciones de esteroides endovenoso
- 1959: primer caso de estudiante secundario reportado públicamente con uso de anabólicos
- 1960: Comité Olímpico prohíbe el uso de anabólicos e inicia testeo de dopping

Instituto Australiano del deporte

www.ausport.gov.au → Adultos…

Grupo A **Suplementos Aprobados**	**Grupo B** **Suplementos bajo observación / estudio**	**Grupo C** **Suplementos sin pruebas de beneficios**	**Grupo D** **Suplementos prohibidos**
Bebidas deportivas Suplementos dietarios bebibles Gel deportivos Barras deportivas Cafeína (bebidas energizantes) Creatina Bicarbonato / citrato Antioxidantes (vit. C y vit. E) Zinc Suplementos con hierro Suplementos con Calcio Glucosamina	Glutamina B-Hidroxi – metilbutirato HMB Calostro Probióticos Ribosa Melatonina	Aminoácidos Ginseng Coenzima Q10 Citocromo C Carnitina Suplementos estimulantes del óxido nítrico	Androstenediona DHEA 19-norandrostenediona y 19 norandrostenediol

TABLE 2 Common Anabolic-Androgenic Steroids

Oral Steroids	Injectable Steroids
Anadrol (oxymetholone)	Deca-durabolin (nandrolone decanoate)
Oxandrin (oxandrolone)	Durabolin (nandrolone phenpropionate)
Dianabol (methandrostenolone)	Depo-testosterone (testosterone cypionate)
Winstrol (stanozolol)	Equipoise (boldenone undecylenate)

Adapted from the National Institute of Drug Abuse, National Institutes of Health, public domain.

Suplementos mas usados y/o solicitados?

- Vitaminas
- Aminoácidos/Proteínas
- Creatina
- Cafeína

American College of Sport Medicine, American Dietetic Association and Dietitians of Canada, Canadian Paediatric Society. Academy of Nutrition and Dietetics. American Academy of Pediatrics.

- No se requieren suplementos de vitaminas y minerales si un deportista está consumiendo una adecuada energía proveniente de una variedad de alimentos, para mantener su peso corporal.
- Los suplementos deportivos no están indicados en menores de 18 años
- Un suplemento polivitamínico-mineral puede ser apropiado *si un deportista está a dieta, o si habitualmente elimina alimentos o grupos de alimentos, está lesionado o se está recuperando de una lesión, o tiene una deficiencia de micronutrientes específica*.

https://www.dietitians.ca/Media/News-Releases/2017/KidsDrinks.aspx
https://www.cps.ca/en/documents/position/energy-and-sports-drinks
https://www.eatright.org/fitness/sports-and-performance/fueling-your-workout/how-teen-athletes-can-build-muscles-with-protein

Por qué solicitan suplementos?

- Para mejorar el rendimiento deportivo
- Para lograr ganar una competencia/torneo
- Porque sus amigos también lo hacen
- Para lograr beneficios con menor esfuerzo
- Para lograr cambios físicos estéticos autoimpuestos o socialmente valorados

Why US children use dietary supplements

Volume 74, Number 6, December 2013. Pediatric Research

Regan L. Bailey[1], Jaime J. Gahche[2], Paul R. Thomas[1] and Johanna T. Dwyer[1,3]

BACKGROUND: Dietary supplements are used by one-third of children. We examined motivations for supplement use in children, the types of products used by motivations, and the role of physicians and health care practitioners in guiding choices about supplements.

METHODS: We examined motivations for dietary supplement use reported for children (from birth to 19 y of age; $n = 8,245$) using the National Health and Nutrition Examination Survey 2007–2010.

RESULTS: Dietary supplements were used by 31% of children; many different reasons were given as follows: to "improve overall health" (41%), to "maintain health" (37%), for "supplementing the diet" (23%), to "prevent health problems" (20%), and to "boost immunity" (14%). Most children (~90%) who use dietary supplements use a multivitamin–mineral or multivitamin product. Supplement users tend to be non-Hispanic white, have higher family incomes, report more physical activity, and have health insurance. Only a small group of supplements used by children (15%) were based on the recommendation of a physician or other health care provider.

CONCLUSION: Most supplements used by children are not under the recommendation of a health care provider. The most common reasons for use of supplements in children are for health promotion, yet little scientific data support this notion in nutrient-replete children.

Table 2. Prevalence (%(SE)) of reported motivations for use of dietary supplements among children (≤19 y of age) who reported dietary supplement use in the past 30 d in the United States, 2007–2010

Reason	All children (*n* = 2,044)
To improve overall health	41.1 (2.3)
To maintain health (stay healthy)	37.2 (1.4)
To supplement the diet	22.7 (2.2)
To prevent health problems	20.0 (1.7)
To boost immunity, prevent colds	13.9 (1.2)
For bone health	6.0 (1.1)
For teeth, to prevent cavities	4.9 (1.0)
To get more energy	4.2 (0.6)
For skin health, to alleviate dry skin	2.3 (0.5)
For anemia, to correct low iron levels	2.2 (0.4)
Other reasons	1.9 (0.4)
For mental health	1.6 (0.4)
For bowel/colon health	1.3 (0.3)

Data are presented as percentages (SE); participants can select more than one motivation for each product.

AMERICAN ACADEMY OF PEDIATRICS

POLICY STATEMENT

Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of All Children

Committee on Sports Medicine and Fitness

Use of Performance-Enhancing Substances

ABSTRACT. Performance-enhancing substances include dietary supplements, prescription medications, and illicit drugs. Virtually no data are available on the efficacy and safety in children and adolescents of widely used performance-enhancing substances. This statement is intended to provide a generalized but functional definition of performance-enhancing substances. The American Academy of Pediatrics strongly condemns the use of performance-enhancing substances and vigorously endorses efforts to eliminate their use among children and adolescents. *Pediatrics* 2005;115:1103–1106; *ergogenic, anabolic, performance enhancing, banned substance, athlete, adolescent, sport.*

RATIONALE FOR A BROAD-BASED STATEMENT ON PERFORMANCE-ENHANCING SUBSTANCES AND YOUTH

In the last 2 decades, a considerable amount of research has been conducted with performance-enhancing substances such as creatine, amino acids, androstenedione, and dehydroepiandrosterone. Virtually no experimental research on either the ergogenic effects or adverse effects of performance-enhancing substances has been conducted in subjects younger than 18 years. The amount of scientific data from well-designed studies on the effects of these substances in adults continues to accumulate at such a rate that systematic reviews are soon made obsolete.

Pediatric health care professionals should promote safe physical activity and sports participation by providing or making available sound medical information on exercise physiology, conditioning, nutrition, weight management, and injury prevention and by helping to care for sports-related medical conditions and injuries.

Sports Health. 2018 Jan/Feb;10(1):31-34. doi: 10.1177/1941738117737248. Epub 2017 Oct 23.

Creatine Use in Sports.

Butts J[1], Jacobs B[2], Silvis M[1].

Author information

Abstract

CONTEXT: The use of creatine as a dietary supplement has become increasingly popular over the past several decades. Despite the popularity of creatine, questions remain with regard to dosing, effects on sports performance, and safety.

EVIDENCE ACQUISITION: PubMed was searched for articles published between 1980 and January 2017 using the terms creatine, creatine supplementation, sports performance, and dietary supplements. An additional Google search was performed to capture National Collegiate Athletic Association-specific creatine usage data and US dietary supplement and creatine sales.

STUDY DESIGN: Clinical review.

LEVEL OF EVIDENCE: Level 4.

RESULTS: Short-term use of creatine is considered safe and without significant adverse effects, although caution should be advised as the number of long-term studies is limited. Suggested dosing is variable, with many different regimens showing benefits. The safety of creatine supplementation has not been studied in children and adolescents. Currently, the scientific literature best supports creatine supplementation for increased performance in short-duration, maximal-intensity resistance training.

CONCLUSION: While creatine appears to be safe and effective for particular settings, whether creatine supplementation leads to improved performance on the field of play remains unknown.

KEYWORDS: creatine; dietary supplements; ergogenic aids; performance; sports

Pediatrics. 2001 Aug;108(2):421-5.

Creatine use among young athletes.

Metzl JD[1], Small E, Levine SR, Gershel JC.

Author information

Abstract

OBJECTIVE: Creatine is a nutritional supplement that is purported to be a safe ergogenic aid in adults. Although as many as 28% of collegiate athletes admit taking creatine, there is little information about creatine use or potential health risk in children and adolescents. Although the use of creatine is not recommended in people less than 18 years of age, numerous anecdotal reports indicate widespread use in young athletes. The purpose of this study was to determine the frequency, risk factors, and demographics of creatine use among middle and high school student athletes.

METHODS: Before their annual sports preparticipation physical examinations, middle and high school athletes aged 10 to 18 in Westchester County, a suburb north of New York City, were surveyed in a confidential manner. Information was collected regarding school grade, gender, specific sport participation, and creatine use.

RESULTS: Overall, 62 of 1103 participants (5.6%) admitted taking creatine. Creatine use was reported in every grade, from 6 to 12. Forty-four percent of grade 12 athletes surveyed reported using creatine. Creatine use was significantly more common ($P < .001$) among boys (53/604, 8.8%) than girls (9/492, 1.8%). Although creatine was taken by participants in every sport, use was significantly more common among football players, wrestlers, hockey players, gymnasts, and lacrosse players ($P < .001$ for all). The most common reasons cited for taking creatine were enhanced performance (74.2% of users) and improved appearance (61.3%), and the most common reason cited for not taking creatine was safety (45.7% of nonusers).

CONCLUSIONS: Despite current recommendations against use in adolescents less than 18 years old, creatine is being used by middle and high school athletes at all grade levels. The prevalence in grades 11 and 12 approaches levels reported among collegiate athletes. Until the safety of creatine can be established in adolescents, the use of this product should be discouraged.

Creatine Use Among a Select Population of High School Athletes

JAY SMITH, MD, AND DIANE L. DAHM, MD

- *Objective*: To determine the prevalence, frequency, and patterns of creatine use among a local population of high school athletes.
- *Subjects and Methods*: Male and female high school athletes completed an anonymous questionnaire on creatine use during the August 1999 preparticipation examinations at a single institutional sports medicine center.
- *Results*: A total of 328 students (182 males and 146 females) aged 14 to 18 years (mean ± SD 15.2±1.3 years) completed the survey (100% response rate), although not all athletes answered each question. Twenty-seven athletes (8.2% of total group), 1 of whom was female, reported creatine use. Of these 27 athletes, 14 (52%) were taking creatine at the time of the survey. The frequency of creatine use among past and current users was equally distributed among rarely (30%), weekly (35%), and daily (35%). Creatine users were older than nonusers (mean 16.5±1.2 vs 15.0±1.3 years; $P<.001$). Of creatine users, 21 (78%) were male football players. Nineteen of 24 respondents (79%) believed creatine improved their performance. Overall, 78% of users either did not know how much creatine they were taking (12/22 respondents) or were taking greater than the recommended doses (5/22 respondents). Minor gastrointestinal side effects or muscle cramps were reported by 5 (20%) of 25 respondents. Creatine users were more likely than nonusers to know other creatine users (81% vs 22%; $P<.001$) and to use other supplements (67% vs 9%; $P<.001$). Creatine users obtained creatine information primarily from friends (74%) and purchased creatine predominantly from health food stores (86%).
- *Conclusions*: High school male and female athletes as young as 14 years use creatine. Of high school athletes participating in our study, 8.2% reported creatine use. Relatively minor side effects, diarrhea, cramps, and loss of appetite, were reported. Creatine users seem to believe that creatine improves their performance, but they may lack sufficient information to make informed decisions regarding creatine use. Further larger scale study is warranted.

Mayo Clin Proc. 2000;75:1257-1263

AAS = anabolic-androgenic steroid; FDA = Food and Drug Administration; NCAA = National Collegiate Athletic Association; PPE = preparticipation examination

Table 1. **Relevant Characteristics of Study Population and Creatine Users***

	Creatine		
	Users	Nonusers	Total group
No.	27	301	328
Total group (%)	8.2	91.8	100
Males (No.)	26	156	182
Females (No.)	1	145	146
Male/female†	26.00	1.08	1.25
Mean age (y)	16.5 (1.2)‡	15.0 (1.3)	15.2 (1.3)

*Numbers in parentheses represent SD.
†Ratio of males to females.
‡$P<.001$ for users vs nonusers.

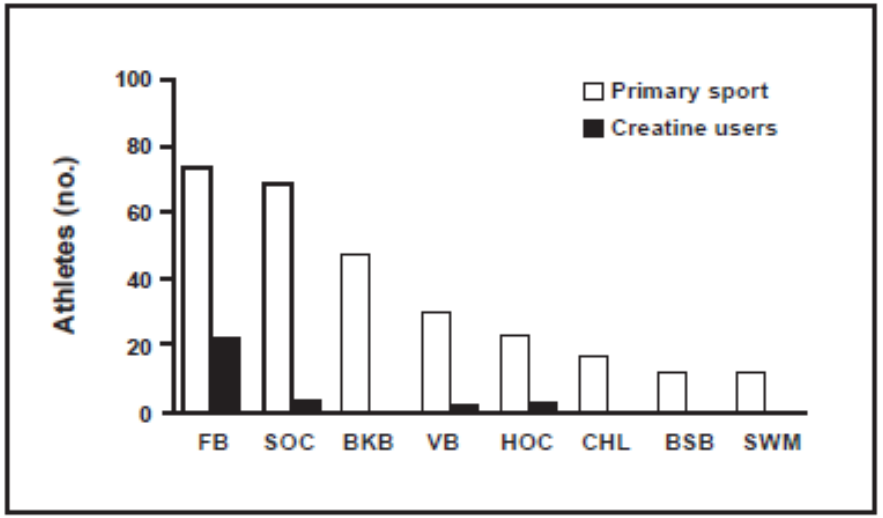


Figure 1. Creatine users are those listing the sport as their primary sport. The 8 sports listed are the most common primary sports. Additional primary sports reported included danceline (9), softball (9), tennis (8), golf (5), cross-country and track (4), and wrestling (1). BKB = basketball; BSB = baseball; CHL = cheerleading; FB = football; HOC = hockey; SOC = soccer; SWM = swimming; VB = volleyball.

Table 3. **Acquisition of Creatine by Users (N=27)**

Question	No. responding*	No. of users (%)
How did you learn about creatine	23	
Magazine		1 (4)
Friends		17 (74)
Coach		1 (4)
Other†		4 (17)
Where do you purchase creatine	22	
Health food store		19 (86)
Friends		1 (5)
Coach		0 (0)
Gym		0 (0)
Other†		2 (9)

*All 27 users did not answer each question.

†Athletes had the choice of an "other" category, but no athlete provided specific information.

Harefuah. 2007 Oct;146(10):794-9, 812.

[Banned performance enhancing ergogenic aids in children and adolescent athletes].

[Article in Hebrew]

Nemet D[1], Eliakim A.

Author information

Abstract

Ergogenic aids (from the Greek, ergon, meaning work) are ingested to enhance energy utilization in athletes. In recent years there has been an increase in youth participating in competitive sports and, as a consequence, a concomitant increase in the usage of performance enhancing substances. Ergogenic aid usage could influence, or its efficiency could be influenced, during this period of rapid growth and sexual maturation, and by the marked hormonal fluctuations. Ephedra alkaloids; pain relief medications, diuretics, anabolic steroids and protein hormones are among the ergogenic aids used by young athletes. While there is no scientific evidence to support the usage of these agents for enhancing performance in children and adolescents, using supra-physiological doses may be associated with undesired side effects.

PMID: 17990397

[Indexed for MEDLINE]

Muscle-enhancing Behaviors Among Adolescent Girls and Boys

Marla E. Eisenberg, Melanie Wall and Dianne Neumark-Sztainer

Pediatrics 2012;130;1019
DOI: 10.1542/peds.2012-0095 originally published online November 19, 2012;

OBJECTIVE: Media images of men and women have become increasingly muscular, and muscle-enhancing techniques are available to youth. Identifying populations at risk for unhealthy muscle-enhancingbehaviors is of considerable public health importance. The current study uses a large and diverse population-based sample of adolescents to examine the prevalence of muscle-enhancing behaviors and differences across demographic characteristics, weight status, and sports team involvement.

METHODS: Survey data from 2793 diverse adolescents (mean age = 14.4) were collected at 20 urban middle and high schools. Use of 5 muscle-enhancing behaviors was assessed (changing eating, exercising, protein powders, steroids and other muscle-enhancing substances), and a summary score reflecting use of 3 or more behaviors was created. Logistic regression was used to test for differences in each behavior across age group, race/ethnicity, socioeconomic status, BMI category, and sports team participation.

RESULTS: Muscle-enhancing behaviors were common in this sample for both boys and girls. For example, 34.7% used protein powders or shakes and 5.9% reported steroid use. Most behaviors were significantly more common among boys. In models mutually adjusted for all covariates, grade level, Asian race, BMI category, and sports team participation were significantly associated with the use of muscle-enhancing behaviors. For example, overweight (odds ratio = 1.45) and obese (odds ratio = 1.90) girls had significantly greater odds of using protein powders or shakes than girls of average BMI.

CONCLUSIONS: The use of muscle-enhancing behaviors is substantially higher than has been previously reported and is cause for concern. Pediatricians and other health care providers should ask their adolescent patients about muscle-enhancing behaviors. *Pediatrics* 2012;130:1019–1026

TABLE 1 Muscle-enhancing Behaviors Among Boys and Girls During the Past Year

	Never		Rarely		Sometimes		Often	
	n	%	*n*	%	*n*	%	*n*	%
Boys (*n* = 1307)								
Change eating	410	31.5	312	24.0	426	32.8	151	11.6
Exercise more	114	8.8	146	11.3	507	39.1	530	40.9
Protein powder/shake	845	65.3	208	16.1	160	12.4	81	6.3
Steroids	1213	94.1	36	2.8	30	2.3	10	0.8
Other muscle-enhancing substances	1152	89.5	52	4.0	52	4.0	31	2.4
Girls (*n* = 1486)								
Change eating	559	37.8	279	18.9	462	31.2	180	12.2
Exercise more	286	19.4	249	16.9	539	36.5	403	27.3
Protein powder/shake	1165	78.8	193	13.1	91	6.2	29	2.0
Steroids	1410	95.6	48	3.3	13	0.9	4	0.3
Other muscle-enhancing substances	1397	94.5	47	3.2	24	1.6	10	0.7

over time. Health care providers should counsel adolescent patients about appropriate exercise, general nutrition, and the lack of efficacy and potential dangers of muscle-enhancement products. Given the observed associa-

Société canadienne de pédiatrie

Paediatrics & Child Health, 2017, 406–410

Energy and sports drinks in children and adolescents

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Abstract

Sports drinks and caffeinated energy drinks (CEDs) are commonly consumed by youth. Both sports drinks and CEDs pose potential risks for the health of children and adolescents and may contribute to obesity. Sports drinks are generally unnecessary for children engaged in routine or play-based physical activity. CEDs may affect children and adolescents more than adults because they weigh less and thus experience greater exposure to stimulant ingredients per kilogram of body weight. Paediatricians need to recognize and educate patients and families on the differences between sport drinks and CEDs. Screening for the consumption of CEDs, especially when mixed with alcohol, should be done routinely. The combination of CEDs and alcohol may be a marker for higher risk of substance use or abuse and for other health-compromising behaviours.

Although sports drinks are marketed to optimize athletic performance, studies investigating positive benefits for children are sparse. Most research has been conducted using adult athletes. Sweat rates during exercise are variable within and among children (13), making it difficult to establish the specific exercise duration after which sports drinks are warranted. When sports drinks are used judiciously in children who are exercising vigorously for prolonged periods of time, dehydration rates rarely exceed 1% (13). Therefore, while sports drinks may have a specific role in supporting adequate hydration in young athletes during prolonged and vigorous activities (14), their use is generally unnecessary for the average child engaged in routine or daily play-based physical activity. For the average child, water should be the first choice for hydration before, during and after routine physical activity (1).

Studies have suggested that children are more likely than adults to develop caffeine dependence or to develop dependence at lower doses or frequencies of caffeine use (38). Consumption of caffeine in childhood and adolescence may be linked to a higher likelihood of developing dependence (31). Caffeine withdrawal is usually experienced as headaches. Other symptoms may include fatigue, decreased energy, decreased alertness, drowsiness, dysphoric mood, difficulty concentrating, irritability, flu-like symptoms, nausea and vomiting and muscle aches (39).

Some authors have suggested that children and adolescents who are not habitual caffeine users may be more vulnerable to caffeine intoxication, due to lack of pharmacological tolerance (40). Also, one review conducted by Health Canada found

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REVIEW Open Access

International Society of Sports Nutrition position stand: safety and efficacy of creatine supplementation in exercise, sport, and medicine

Richard B. Kreider[1*], Douglas S. Kalman[2], Jose Antonio[3], Tim N. Ziegenfuss[4], Robert Wildman[5], Rick Collins[6], Darren G. Candow[7], Susan M. Kleiner[8], Anthony L. Almada[9] and Hector L. Lopez[4,10]

If proper precautions and supervision are provided, creatine monohydrate supplementation in children and adolescent athletes is acceptable and may provide a nutritional alternative with a favorable safety profile to potentially dangerous anabolic androgenic drugs. However, we recommend that creatine supplementation only be considered for use by younger athletes who: a.) are involved in serious/ competitive supervised training; b.) are consuming a well-balanced and performance enhancing diet; c.) are knowledgeable about appropriate use of creatine; and d.) do not exceed recommended dosages.

Propone el uso de la creatina *como forma de evitar el consumo de anabólicos*. El documento expresa que no hay evidencia de daños causados por la creatina en niños y adolescentes.
Además promueve el uso ante enfermedades neurodegenerativas, neuromusculares, entre otras.

Y si hay que prescribir suplementos?

- Evitar el consumo de suplementos con sustancias peligrosas para la salud
- Consumir suplementos legales, seguros y efectivos.
- Deberían utilizarse suplementos de marcas reconocidas en el mercado
- Consumir las dosis recomendadas
- Considerar su uso cuando exista omisión de nutrientes o cuando el aporte nutricional sea insuficiente y no pueda suplirse con la alimentación

Tríada de la Atleta

- Desórdenes alimentarios, amenorrea y Osteoporosis.

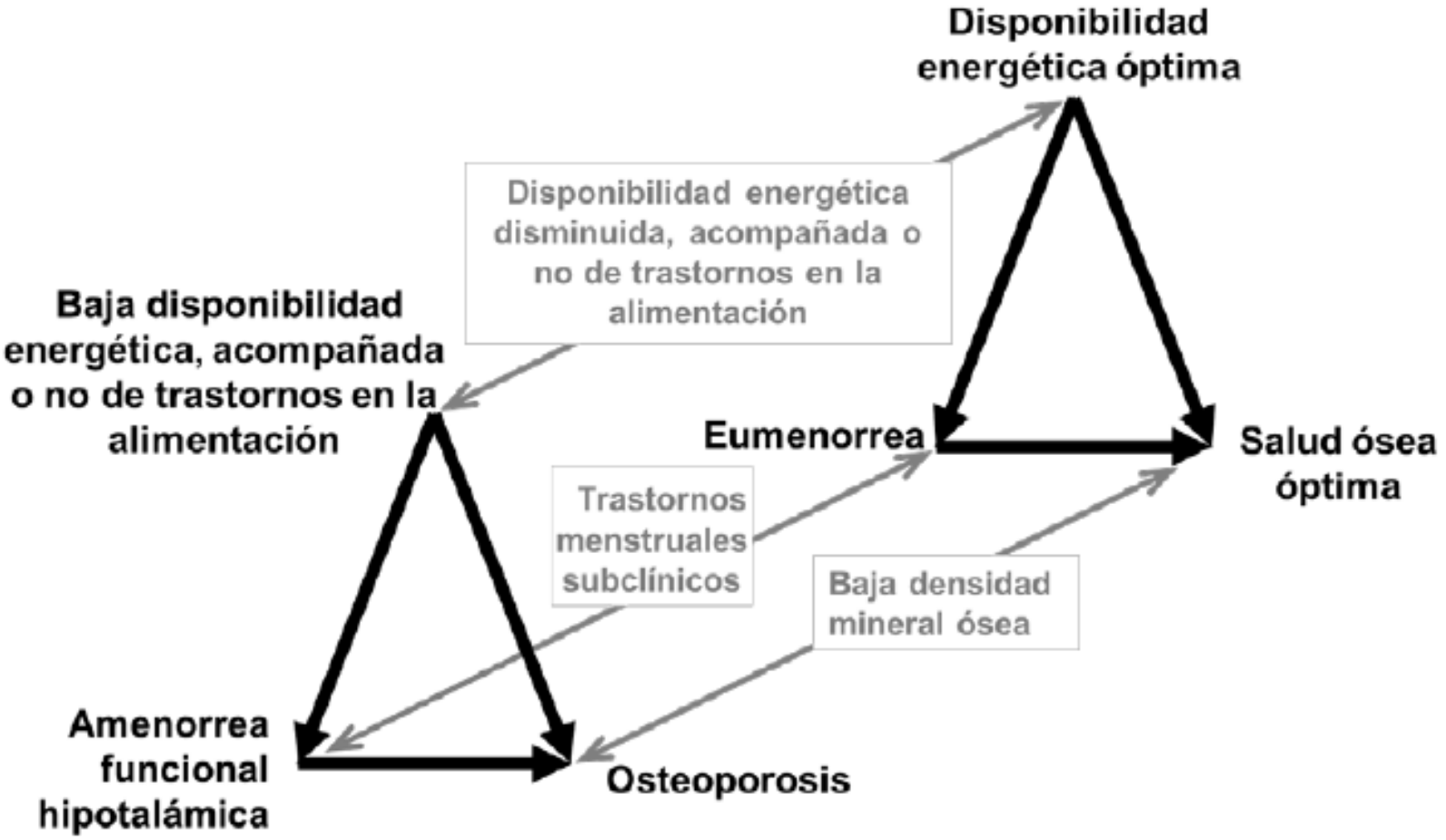
- La presión en adolescentes para que alcancen o mantengan un peso corporal bajo irreal sirve de base para que se desarrolle la Tríada

- En las adolescentes que presenta uno de los componentes de la Tríada debe buscarse si también coexisten los otros

https://journals.lww.com/acsm-msse/Fulltext/2007/10000/The_Female_Athlete_Triad.26.aspx

Deportes de riesgo para la tríada de atleta

1. Deportes en los cuales se otorga un puntaje subjetivo al rendimiento (danza, patinaje artístico, buceo, gimnasia, aeróbicos).
2. Deportes de resistencia en los cuales se resalta el peso corporal bajo (carreras a larga distancia, ciclismo, esquí a campo traviesa).
3. Deportes en los que se requiera para la competencia de ropa que revele la silueta (voleibol, natación, buceo, carreras a campo traviesa, esquí a campo traviesa y de pista y porristas.
4. Deportes en los que se utilicen categorías de peso para la participación (carreras de caballos, algunas artes marciales, lucha libre, remo).
5. Deportes en los que se resalta la condición del cuerpo prepúber para el éxito en el rendimiento (patinaje artístico, gimnasia, buceo).


Disponibilidad energética óptima
Disponibilidad energética disminuida, acompañada o no de trastornos en la alimentación
Baja disponibilidad energética, acompañada o no de trastornos en la alimentación
Eumenorrea
Salud ósea óptima
Trastornos menstruales subclínicos
Baja densidad mineral ósea
Amenorrea funcional hipotalámica
Osteoporosis

Vigorexia

Una adicción disfrazada en hábitos saludables?

- *vigor*: fuerza; y *exia:* estado corporal.

- Según el DSM V, la descripción se encuentra dentro de los “Trastornos dismórficos corporales” (300.7 (F45.22))

Trastorno Dismórfico Corporal DSM V

- A. Preocupación por uno o más defectos o imperfecciones percibidas en el aspecto físico que no son observables o parecen sin importancia a otras personas.
- B. En algún momento durante el curso del trastorno, el sujeto ha realizado comportamientos (p. ej., mirarse en el espejo, asearse en exceso, rascarse la piel, querer asegurarse de las cosas) o actos mentales (p. ej., comparar su aspecto con el de otros) repetitivos como respuesta a la preocupación por el aspecto.
- C. La preocupación causa malestar clínicamente significativo o deterioro en lo social, laboral u otras áreas importantes del funcionamiento.
- D. La preocupación por el aspecto no se explica mejor por la inquietud acerca del tejido adiposo o el peso corporal en un sujeto cuyos síntomas cumplen los criterios diagnósticos de un trastorno alimentario

Trastorno Dismórfico Corporal DSM V

- *Aclara que hay que Especificar* si existe "Dismorfia muscular":

Con Dismorfia Muscular: Al sujeto le preocupa la idea de que su estructura corporal es demasiado pequeña o poco musculosa. Este especificador se utiliza incluso si el sujeto está preocupado por otras zonas corporales, lo que sucede con frecuencia.

Vigorexia – Características Clínicas

- El intenso ejercicio compulsivo entorpece su vida social.
- Se creen débiles y delgados
- Sin objetividad del propio cuerpo
- Ansiedad y/o depresión por sentimientos hacia su cuerpo.
- Uso habitual de suplementos deportivos a veces esteroides.
- Puede asociarse a alimentación inadecuada
- Pendientes de su imagen: se pesan, miden lo que comen, se miran al espejo varias veces al día.
- Suelen convivir en entornos sociales competitivos
- Algunos introvertidos, no desean mostrar su cuerpo útilizan ropas amplias, inseguridad, baja autoestima.

Vigorexia

- Modelo cultural de belleza?: estereotipo estético, publicidad, clase social, modelaje, imaginarios asociados al éxito y el culto narcisista al cuerpo.
- Relación con los TCA (Solo proteínas… No H de C… restricción alimentaria) Alimentación estrictamente funcional al ejercicio.

Consideración final del caso

- Transmitir el valor de una alimentación e hidratación adecuada.
- Importancia de una preparación física óptima para su desarrollo considerando recuperación, elongación y descanso
- La motivación por el objetivo no debe ser la velocidad de los resultados ni el uso de suplementos a esta edad, la **construcción del hábito** es lo mas importante.

CONCLUSIONES

- Siempre debemos priorizar la construcción de los hábitos saludables en la adolescencia
- Se deben desaconsejar los suplementos siempre y cuando no exista omisión de nutrientes o bien el aporte alimentario sea insuficiente para el/la adolescente en cuyo caso requiere de prescripción por profesional idóneo
- Cuando un adolescente quiera suplementos evaluar bien por qué los solicita… (el mensaje oculto detrás de ese pedido…)
- Recordar lo que para un adolescente pueda significar «consumir suplementos» desde un enfoque psico-social

MUCHAS GRACIAS!

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