Envejecimiento saludable y atención primaria

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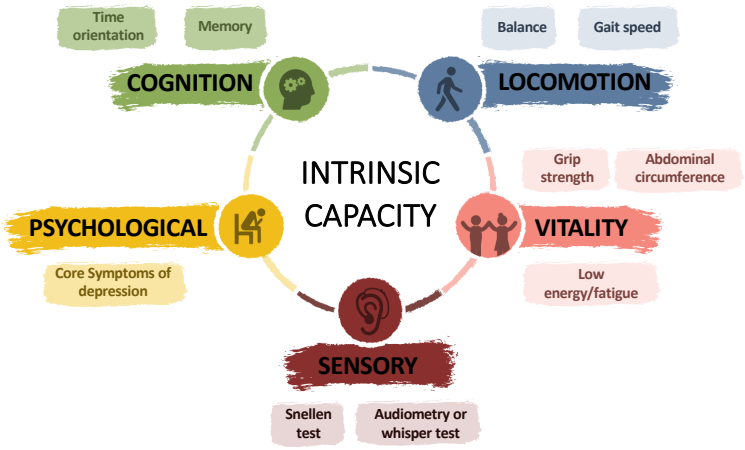
Optimizando capacidades y habilidades: Hacia un envejecimiento saludable para todos

Dominios de la capacidad intrínseca



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INTEGRATED CARE FOR OLDER PEOPLE

Older people are frequently faced with...

SPECIALIZED DOCTORS

HOSPITALS

PRIMARY HEALTH CLINIC

1 Fragmented services

2 Too far from where they live

3 Ageist attitudes of healthcare workers

4 Lack of interventions to optimize Intrinsic Capacity and Functional Ability

INTEGRATED CARE

is important to help older adults maximize their Intrinsic Capacity and Functional Ability in the community.

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HOW DOES INTEGRATED CARE WORK?

1 Providing care at the communities, close where people live

2 Comprehensive assessment and care plan shared with everyone involved

3 All professionals work together to maintain IC and FA

4 Engaging communities and supporting family care givers

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ICOPE APPROACH

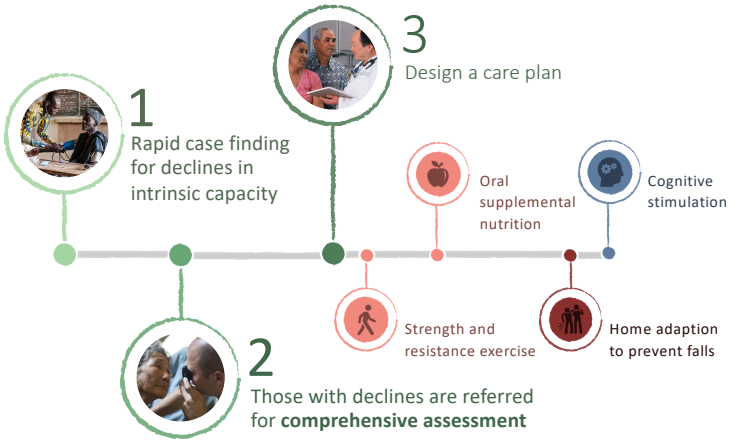

Photo credit:
1. National Cancer Institute/ Rhoda Baer
2. U.S. Air Force photo/Senior Airman Omari Bernard
3. Own work/ Ewien van Bergeijk - Kwant

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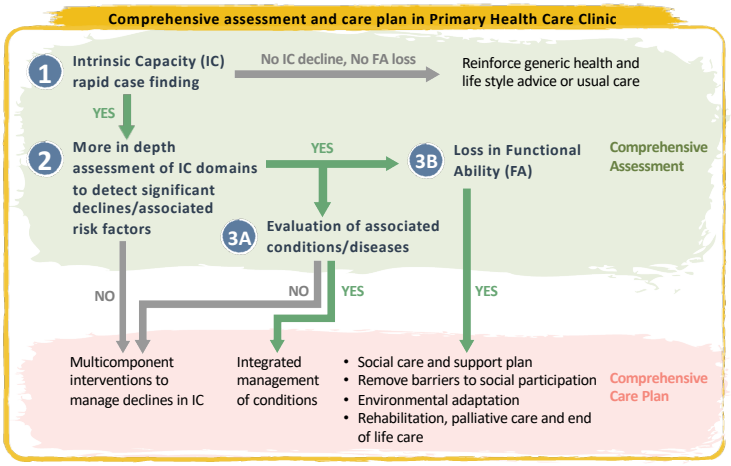

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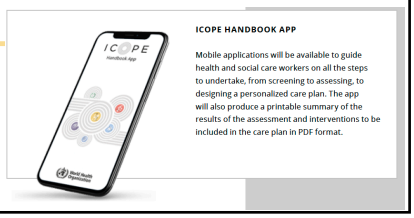
WHO ICOPE SCREENING TOOL

Priority conditions associated with declines in intrinsic capacity	Tests	Assess fully if any answer in each domain triggers this
COGNITIVE DECLINE (Chapter 4)	1. Remember three words: flower, door, rice (for example)	
	2. Orientation in time and space: What is the full date today? Where are you now (home, clinic, etc)?	Wrong to either question or does not know
	3. Recalls the three words?	Cannot recall all three words
LIMITED MOBILITY (Chapter 5)	Chair rise test: Rise from chair five times without using arms. Did the person complete five chair rises within 14 seconds?	No
MALNUTRITION (Chapter 6)	1. Weight loss: Have you unintentionally lost more than 3 kg over the last three months?	Yes
	2. Appetite loss: Have you experienced loss of appetite?	Yes
VISUAL IMPAIRMENT (Chapter 7)	Do you have any problems with your eyes: difficulties in seeing far, reading, eye diseases or currently under medical treatment (e.g. diabetes, high blood pressure)?	Yes
HEARING LOSS (Chapter 8)	Hears whispers (whisper test) *or* Screening audiometry result is 35 dB or less *or* Passes automated app-based digits-in-noise test	Fail
DEPRESSIVE SYMPTOMS (Chapter 9)	Over the past two weeks, have you been bothered by	
	– feeling down, depressed or hopeless?	Yes
	– little interest or pleasure in doing things?	Yes



ICOPE HANDBOOK APP

Mobile applications will be available to guide health and social care workers on all the steps to undertake, from screening to assessing, to designing a personalized care plan. The app will also produce a printable summary of the results of the assessment and interventions to be included in the care plan in PDF format.

Mejorar la función musculoesquelética, la movilidad y la vitalidad

1. Los **ejercicios multimodales**, que incluyen el **entrenamiento de fuerza con resistencia progresiva** y otras actividades (como el ejercicio del equilibrio y la flexibilidad y el entrenamiento aeróbico) están recomendados a las personas mayores que presentan un deterioro de la capacidad física, determinada a través de mediciones de la velocidad de la marcha, la fuerza de prensión y otros parámetros utilizados para conocer el rendimiento físico.
2. A las personas mayores que padecen desnutrición se les debe recomendar la **nutrición complementaria por vía oral con asesoramiento dietético**.

La pérdida de fuerza y masa muscular, la reducción de la flexibilidad y los problemas de equilibrio pueden dificultar la movilidad. Los cambios fisiológicos que acompañan al envejecimiento también pueden afectar negativamente al estado nutricional, y este, a su vez, puede repercutir en la vitalidad y la movilidad. Las intervenciones que mejoran la nutrición y fomentan el ejercicio físico, si se integran en los planes de atención y se prestan conjuntamente, pueden reducir, frenar o revertir el deterioro de la capacidad intrínseca.

Mantener las funciones sensoriales

3. Es necesario realizar **Cribados rutinarios** a las personas mayores en los centros de atención primaria y, si se les encuentran **deficiencias visuales**, prestarles sin demora servicios integrales de atención oftálmica.
4. Además, se debe someter a estas personas a **pruebas para detectar** a tiempo las pérdidas de audición y, si es necesario, suministrarles **audífonos** con el fin de contrarrestarlas.

El envejecimiento causa a menudo disminuciones de la visión y/o la audición que limitan la movilidad, reducen el compromiso y la participación social y aumentan el riesgo de caídas. Hay medidas sencillas y económicas para hacer frente sin dificultad a los problemas sensoriales, como las lentes correctoras y los audífonos, la cirugía de cataratas y las adaptaciones del entorno.

Prevenir el deterioro cognitivo grave y promover el bienestar psicológico

5. Se pueden ofrecer actividades de **estimulación cognitiva** a las personas mayores que presenten deterioro cognitivo, con independencia de si se les ha diagnosticado o no demencia.
6. Asimismo, se pueden ofrecer **intervenciones psicológicas breves y estructuradas** a otros adultos que experimenten síntomas depresivos, de conformidad con las directrices de Intervención mhGAP de la OMS. Estas intervenciones deben prestarlas profesionales sanitarios que conozcan bien la atención a la salud mental de las personas mayores.

Muy a menudo, una misma persona presenta deterioro cognitivo y dificultades psicológicas, problemas que afectan a su capacidad para llevar a cabo actividades cotidianas (como hacer la compra o manejar las finanzas personales) y a su socialización. Tanto la terapia de estimulación cognitiva (un programa compuesto por actividades centradas en temas diversos) como las intervenciones psicológicas breves son fundamentales para evitar que las personas mayores sufran pérdidas significativas de capacidad mental y tengan que depender de los servicios de asistencia.

Hacer frente a problemas asociados a la edad, como la incontinencia urinaria

7. Promover el vaciamiento motivado para manejar la incontinencia urinaria en las personas mayores con deterioro cognitivo
8. Las mujeres de edad avanzada que presentan incontinencia urinaria (ya sea de urgencia, de esfuerzo o mixta) pueden realizar un **entrenamiento muscular del suelo pélvico**, solo o combinado con técnicas de control vesical y de autovigilancia.

Una tercera parte de las personas mayores presentan incontinencia urinaria (es decir, pérdidas involuntarias de orina), un problema mundial con consecuencias psicosociales como pérdida de autoestima, reducción de la socialización y las relaciones sexuales, y depresión. El entrenamiento muscular del suelo pélvico refuerza los músculos de soporte de la uretra y aumenta su presión de cierre, limitando eficazmente las pérdidas de orina.

Prevenir las caídas

9. Es recomendable revisar los medicamentos que toman las personas expuestas al riesgo de caídas, así como retirar aquellos que sean innecesarios o puedan ser dañinos.
10. Otra intervención recomendada para estas personas son los ejercicios multimodales (equilibrio, fuerza, flexibilidad y entrenamiento funcional).
11. También se han de evitar las fuentes de peligro de caídas. Con este fin, un especialista debe llevar a cabo una evaluación que permita realizar cambios en el hogar para eliminar las fuentes de peligro de caídas presentes en el entorno.
12. Las intervenciones multifactoriales que integran la evaluación y las intervenciones adaptadas a cada individuo también pueden reducir el riesgo y la incidencia de las caídas en las personas mayores.

Las caídas son la principal causa de hospitalización y de muertes relacionadas con traumatismos en las personas mayores. Suelen producirse por una combinación de factores del entorno (alfombras sueltas, desorden en el hogar, mala iluminación, etc.) y factores individuales (anomalías de órganos o sistemas que afectan al control postural). El ejercicio, la fisioterapia, la evaluación y adaptación de las fuentes de peligro en el hogar y, cuando sea necesaria, la retirada de psicofármacos permiten reducir el riesgo de caídas en las personas mayores.

Apoyar a los cuidadores

13. Es necesario ofrecer **intervenciones psicológicas, formación y apoyo** a los familiares y otros cuidadores informales de personas mayores que necesitan atención, sobre todo – pero no exclusivamente – cuando estas necesidades son amplias y complejas y cuando los cuidadores están sometidos a una sobrecarga considerable.

Los cuidadores de personas con grandes reducciones de la capacidad funcional están expuestos a un riesgo más elevado de sufrir estrés patológico y depresiones. El estrés y la sobrecarga que puede producir esta actividad tienen un impacto profundo en el estado físico, emocional y económico de las mujeres y de otros cuidadores no remunerados. Es necesario ofrecer a los cuidadores sometidos a este estrés una evaluación de sus necesidades y el acceso a formación y apoyo psicosocial.

Hacia un Envejecimiento Saludable…

Mejorar la función musculoesquelética, la movilidad y la vitalidad

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Care pathways to improve mobility

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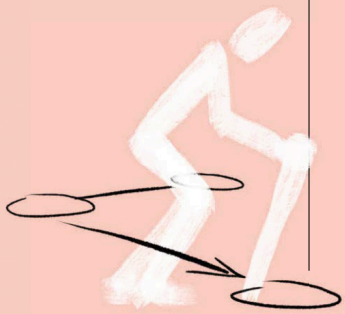
Locomotor capacity

Care pathways to improve mobility



Mobility is a critical determining factor for healthy ageing. It is important for maintaining autonomy and preventing dependence on care. A person's bodily capacity to move from one place to another is termed locomotor capacity.

Many older people and their families accept losses of locomotor capacity and the associated pain as inevitable. They are not. Indeed, there are effective strategies to improve and maintain mobility in older age.

KEY POINTS

- Limited mobility is common among older people but not inevitable.
- Community-level health-care workers can screen for limited mobility with simple tests.
- A programme of regular exercise, tailored to individual capacities and needs, is the most important approach to improve or maintain locomotor capacity.
- Adapting one's environment and using assistive devices are good ways to maintain mobility despite reduced locomotor capacity.

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Care pathways to improve mobility

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Locomotor capacity

Care pathways
to improve mobility

Multimodal exercise → 5.1

A multimodal exercise programme for people with limited mobility combines exercise and cross-training with emphasis on the core muscle groups of back, thigh, abdomen and lower body

A multimodal exercise programme should be tailored to suit individual capacities and needs. The **Vivifrail project** offers a practical guide to developing an exercise programme tailored to capacities
http://www.vivifrail.com/resources

For WHO global recommendations on physical activity, see box, page 30

✱ Specialized care needed

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SCREEN
FOR LOSSES IN MOBILITY
Chair rise test (i) 1

Able to complete five chair rises without using arms in 14 seconds?

YES
- Reinforce generic health and lifestyle advice or usual care

NO

ASSESS MOBILITY (i) 2
(SPPB or other physical performance test)

Limited mobility
(SPPB score 0–9 points)
- Provide multimodal exercise with close supervision
- Consider referral to rehabilitation
- ✱ Consider increasing protein intake
- ✱ Consider and provide assistive device to aid mobility

Normal mobility
(SPPB score 10–12 points)
- Recommend multimodal exercise at home
- Support self-management to increase adherence → 5.2

NO to all

✱ **ASSESS & MANAGE**
ASSOCIATED CONDITIONS

YES
- POLYPHARMACY → Review medication and aim to reduce → 5.3
- OSTEOARTHRITIS, OSTEOPOROSIS & OTHER BONE JOINT LIMITATIONS → Integrated management of diseases
- FRAILTY & SARCOPENIA → Integrated management of diseases
- PAIN → Consider pain management → 5.4

✱ **ASSESS & MANAGE**
SOCIAL AND PHYSICAL ENVIRONMENTS
- Assess physical environment to reduce risk of falls → 5.5
- Include falls prevention interventions such as home adaptations
- Consider and provide assistive device to aid mobility → 5.6
- Provide safe spaces for walking

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Care pathways to improve mobility

WHEN SPECIALIZED CARE IS NEEDED

Locomotor capacity should be assessed together with other aspects of intrinsic capacity, such as cognition, sensory, vitality and psychological capacities. If significant declines in physical or mental capacity or comorbidities make exercise prescription more complex, specialist knowledge may be needed to devise a suitable exercise programme. Referral to rehabilitation may be considered.

(i) 1

CHAIR RISE TEST

A simple test can decide whether an older person needs further assessment for limited mobility.

Instructions: Ask the person, "Do you think it would be safe for you to try to stand up from a chair five times without using your arms?" (Demonstrate to the person.)

If YES, ask them to:
– sit in the middle of the chair
– cross and keep their arms over their chest
– rise to a full standing position and then sit down again
– repeat five times as quickly as possible without stopping.

Time the person taking the test – further assessment is needed if they **cannot stand up five times within 14 seconds.**

(i) 2

SHORT PHYSICAL PERFORMANCE BATTERY (SPPB)

While a wide range of physical performance tests is available, the SPPB is recommended, as it has superior measurement properties and is useful across a range of abilities. The SPPB measures timed performance on three tasks, each scored out of four, to derive a score from zero (worst performance) to 12 (best performance).

First, describe each test and ask if the person feels able to do it. If not, score accordingly and move to the next step.

1. **Balance tests:** Stand for 10 seconds with feet in each of the following three positions. Use the sum of the scores from the three positions.
2. **Gait speed test:** Time to walk four metres. (If they use a cane or walking aid and feel they need it to walk a short distance, they may use it.)

   Time for four-metre walk:

< 4.82 seconds	**4** points
4.82 – 6.20 seconds	**3** points
6.21 – 8.70 seconds	**2** points
> 8.70 seconds	**1** point
Unable to complete	**0** points

3. **Chair rise test:** Time to rise from a chair five times

< 11.19 seconds	**4** points
11.2 – 13.69 seconds	**3** points
13.7 – 16.69 seconds	**2** points
16.7 – 59.9 seconds	**1** point
> 60 seconds or unable to complete	**0** points

Final SPPB score = sum of scores from the three tests above.

More detail on the SPPB test:
http://hdcs.fullerton.edu/csa/research/documents/sppbinstructions_scoresheet.pdf

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Locomotor capacity

Care pathways
to improve mobility

A. Side-by-side stand

Held for 10 seconds	**1** point
Not held for 10 seconds	**0** points
Not attempted	**0** points

If not attempted, end balance tests.

B. Semi-tandem stand

Held for 10 seconds	**1** point
Not held for 10 seconds	**0** points
Not attempted	**0** points

If not attempted, end balance tests.

C. Tandem stand

Held for 10 seconds	**2** points
Held for 3 to 9.99 seconds	**1** point
Held for < 3 seconds	**0** points
Not attempted	**0** points

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Care pathways to improve mobility

MANAGE
LIMITED MOBILITY

5.1 MULTIMODAL EXERCISE PROGRAMME

For those with limited mobility, a multimodal exercise programme should be tailored to suit individual capacity and needs.

The Vivifrail project offers a practical guide to developing a tailored exercise programme.
http://www.vivifrail.com/resources

A multimodal exercise programme for people with limited mobility can include:

- **strength/resistance training**, which requires muscles to work under load, using weights, resistance bands or body weight exercises such as squats, lunges and sit-to-stand exercises;
- **aerobic/cardiovascular training**, such as fast walking or cycling that increases heart rate until the person is slightly out of breath but can maintain a conversation;
- **balance training**, which challenges the balance system, including static and dynamic exercises; can progress to different surfaces and with eyes open and shut; examples are standing on one leg at a time and walking heel-to-toe in a straight line; and
- **flexibility training**, which improves the extensibility of soft tissues, such as muscle, and the range of joint movement; examples are stretching and other yoga and Pilates exercises.

Nutrition. Increased protein intake and other nutritional interventions can enhance the benefits of an exercise programme. See Chapter 6 on malnutrition. → 6

Safety of exercise. Before giving advice on exercise or planning an exercise programme, ask about health conditions that would affect the timing or intensity of the activity.

If the person answers yes to any of the following questions, a skilled health professional should develop a tailored exercise programme.

- *Have you had chest pain when at rest?*
- *Have you had a heart attack within the last six months?*
- *Have you fainted or lost consciousness?*
- *Have you fallen in the past 12 months?*
- *Have you broken a bone in the last month?*
- *Do you get out of breath doing ordinary daily activities at home, such as getting dressed?*
- *Do you have a joint or muscle disease that limits exercise?*
- *Has a health-care provider told you to limit exercise?*

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Locomotor capacity

Care pathways to improve mobility

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Care pathways to improve mobility

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Locomotor capacity

Care pathways to improve mobility

Managing limitations. Where pain limits mobility, pacing physical activity in manageable chunks of time and slowly increasing physical tasks helps to build the body's resilience and manage pain. For people with severely reduced mobility, exercise training in bed or seated on a chair can be a starting point. For people with limitations in cognition, such as dementia, a simple and less structured exercise programme may be more suitable.

5.2 SUPPORT FOR SELF-MANAGEMENT

Support for self-management increases adherence to and the benefits of a multimodal exercise programme. People whose SPPB scores are in the range of 10–12 can exercise at home and in the community. People with more severe mobility limitations may need supervision and guidance during exercise.

The WHO mobile health for ageing (mAgeing) handbook explains how a mobile phone app can complement health-care professionals' routine care by supporting self-care and self-management.

More information:
http://www.who.int/ageing/health-systems/mAgeing

WHO'S GLOBAL RECOMMENDATIONS ON PHYSICAL ACTIVITY

All older adults can benefit from advice on the physical activity recommended for their age, taking into consideration their health conditions. This box summarizes WHO's global recommendations on physical activity for people aged 65 years and older.

- Throughout each week, get at least 150 minutes of moderate-intensity aerobic physical activity or at least 75 minutes of intensive aerobic activity, or an equivalent combination.
- Exercise at least 10 minutes at a time.
- For additional benefit, do 300 minutes of moderate-intensity aerobic exercise per week or 150 minutes of intensive aerobic activity per week, or an equivalent combination.
- Do muscle-strengthening activities two days a week or more.
- If mobility is poor, perform physical activity that enhances balance on three days a week or more.
- If you cannot exercise as much as recommended, be as physically active as you can.

More information:
http://www.who.int/dietphysicalactivity/pa/en/index.html

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ASSESS & MANAGE
ASSOCIATED CONDITIONS

5.3 POLYPHARMACY

Some drugs can impair mobility or interfere with balance yet are sometimes unnecessary or ineffective for a specific person (8). These include, but are not limited to, the following:

- anticonvulsants
- benzodiazepines
- nonbenzodiazepine hypnotics
- tricyclic antidepressants
- selective serotonin reuptake inhibitor (SSRI) antidepressants
- antipsychotics
- opioids.

Eliminating unnecessary, ineffective medications as well as medications with a duplicative effect reduces polypharmacy. *If in doubt about whether a medication can be safely stopped, refer to an appropriate specialist.*

5.4 PAIN

Assess pain. Severe pain associated with movement can limit or even prevent exercise. It is helpful to rate the severity of pain related to mobility, both to help with designing an exercise programme and for managing the pain. You can use the brief pain inventory: https://www.acl.health.mil.gov.au/_data/assets/pdf_file/0013/212769/Brief_Pain_Inventory_Short.pdf

Manage pain (9). Musculoskeletal conditions that impair mobility often involve persistent pain. A specific biological cause of persistent pain can rarely be found, however. A best practice approach to pain management therefore addresses multiple factors that may be associated with pain – physical factors (such as muscle strength, range of movement and endurance), psychological well-being, nutrition and sleep. Where pain is a significant barrier to movement and activity, a health professional with specialized knowledge of pain management should develop the pain management plan.

Interventions for pain include:

- self-management → 5.2
- exercises and other physical activity
- medications ranging from paracetamol and nonsteroidal anti-inflammatory drugs to gabapentin and opioids
- manual therapy such as massage, joint manipulation and joint mobilization
- psychological therapy and cognitive behavioural therapy (see Chapter 9 on depressive symptoms) → 9
- acupuncture
- spinal injections/epidural injections
- radiofrequency denervation.

Some of these interventions can be made available in the community. Others would likely require referral to a central facility.

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Locomotor capacity

Care pathways to improve mobility

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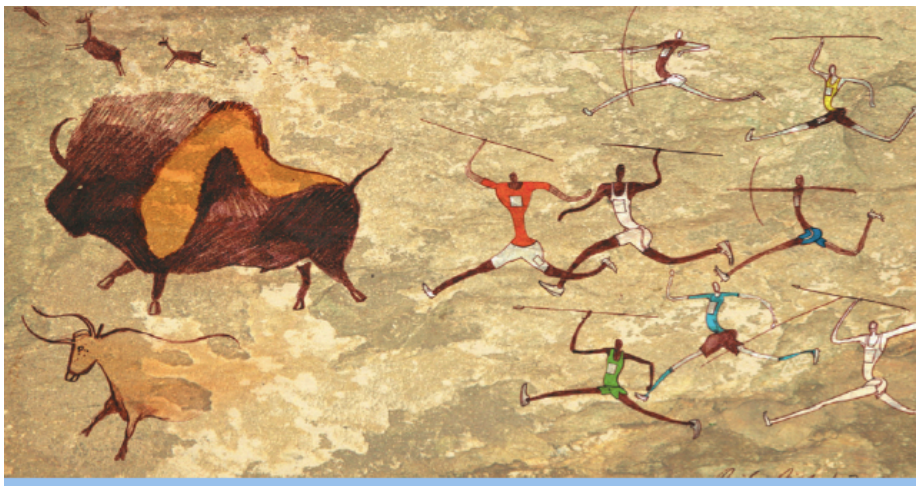
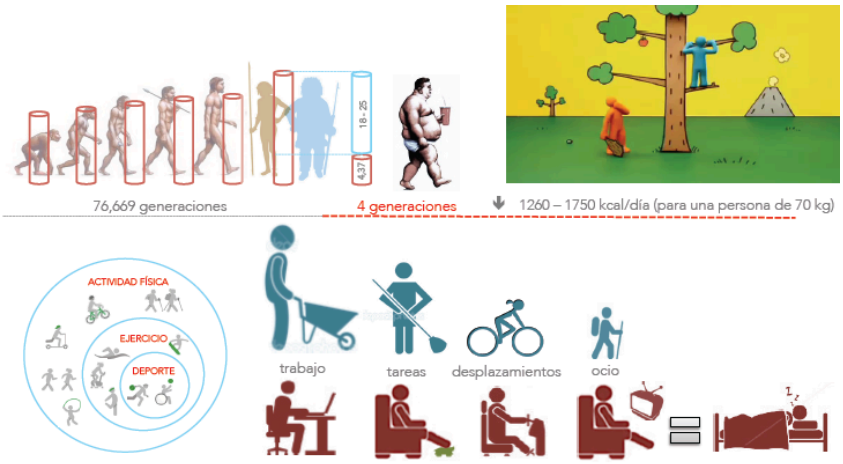
¿De qué manera estamos diseñados para movernos ?



"We are, deep down, still runners, whether or not we declare it by our actions"

Why We Run: A Natural History by Bernd Heinrich (May 7, 2002)

Hemos dejado de movernos y enfermamos



Khan KM, Thompson AM, Blair SN, Sallis JF, Powell KE, Bull FC, Bauman AE.
Sport and exercise as contributors to the health of nations. Lancet. 2012 Jul 7;380(9836):59-64

Ejercicio físico como fuente de salud

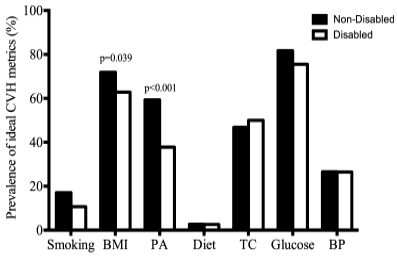
Actividad Física y riesgo cardiovascular

Menor mortalidad cardiovascular

(Morris et al. Lancet, 1953. Londres) (Paffenbarger N.Engl.J.Med. 1970)

Relationship Between Ideal Cardiovascular Health and Disability in Older Adults: The Chilean National Health Survey (2009–10)

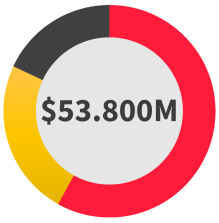
Antonio García-Hermoso, PhD, Robinson Ramírez-Vélez, PhD,† Rodrigo Ramírez-Campillo, PhD,‡ and Mikel Izquierdo, PhD§*



COSTE ECONÓMICO MUNDIAL DE LA INACTIVIDAD FÍSICA

Un estudio analizó los gastos sanitarios de 142 países (93,2% de la población mundial) derivados de cardiopatías, accidentes cerebrovasculares, diabetes tipo II, cáncer de mama y cáncer de colon atribuibles a la inactividad física.

Además de la morbilidad y la mortalidad prematura, la inactividad física es responsable de una enorme **carga económica**.



La **inactividad física** costó a los sistemas de salud mundiales **$53.800 millones** en 2013.

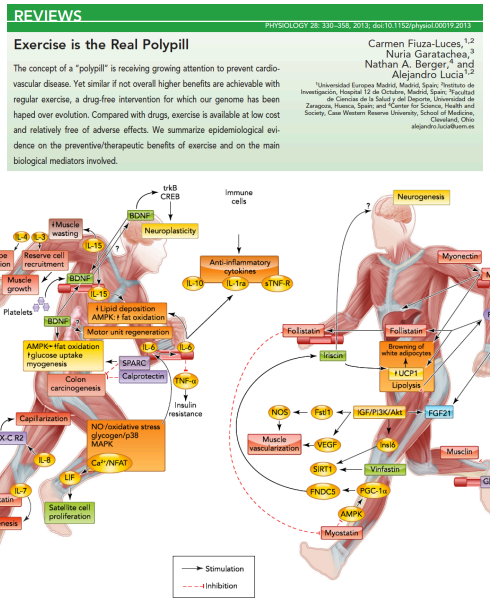
$31.200M Sector público
$12.900M Sector privado
$9.700M Hogares

Estos datos proporcionan una razón adicional para priorizar la **promoción de actividad física** en todo el mundo.

Ding, D., et al. The Lancet, 2016

fissac.com

Ejercicio, Fármacos y Mortalidad



REVIEWS

PHYSIOLOGY 28: 330–358, 2013; doi:10.1152/physiol.00019.2013

Exercise is the Real Polypill

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[1]Universidad Europea Madrid, Madrid, Spain; [2]Instituto de Investigación, Hospital 12 de Octubre, Madrid, Spain; [3]Facultad de Ciencias de la Salud y del Deporte, Universidad de Zaragoza, Huesca, Spain; and [4]Center for Science, Health and Society, Case Western Reserve University, School of Medicine, Cleveland, Ohio
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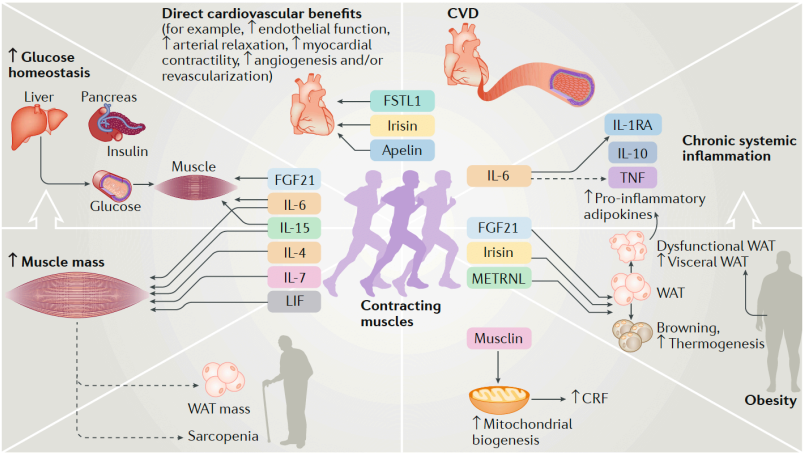
The concept of a "polypill" is receiving growing attention to prevent cardiovascular disease. Yet similar if not overall higher benefits are achievable with regular exercise, a drug-free intervention for which our genome has been haped over evolution. Compared with drugs, exercise is available at low cost and relatively free of adverse effects. We summarize epidemiological evidence on the preventive/therapeutic benefits of exercise and on the main biological mediators involved.

FIGURE 2. Summary of the main myokines, their putative effects, and the molecular signals/pathways involved

Exercise benefits for cardiovascular disease go beyond traditional risk factors

Fiuza-Luces C, Santos-Lozano A, Joyner M, Carrera-Bastos P, Zugaza J, Izquierdo M, and Lucia A 2018

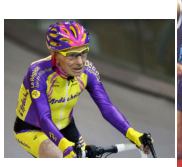
nature REVIEWS CARDIOLOGY



Main beneficial effects of muscle-released myokines on cardiovascular health.

¿ “Envejecimiento” o el estudio de las personas mayores?

Modelo óptimo de envejecimiento



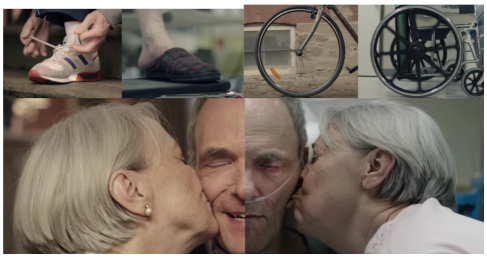
Dirección de la mayoría de los estudios de envejecimiento

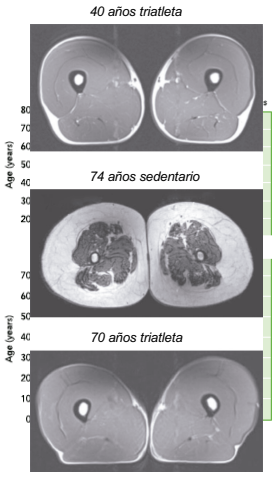
Exercise Continuum

- Inactividad es prejudicial para la salud y contamina la mayoría de los estudios de envejecimiento.
- Confunde nuestro entendimiento de los procesos biológicos inherentes del envejecimiento

Envejecimiento+Desuso ≠ Envejecimiento

Deficiencia de Ejercicio Físico: La verdadera causa de las enfermedades





Age and sex

REVIEWS
PHYSIOLOGY 32: 152–161, 2017. Published February 22, 2017; doi:10.1152/physiol.00029.2016

Physical Activity, Aging, and Physiological Function

Stephen D. R. Harridge and Norman R. Lazarus
Centre of Human & Aerospace Physiological Sciences, Faculty of Life Sciences & Medicine, King's College London,

Norman and Lazarus, 2016 Physiology

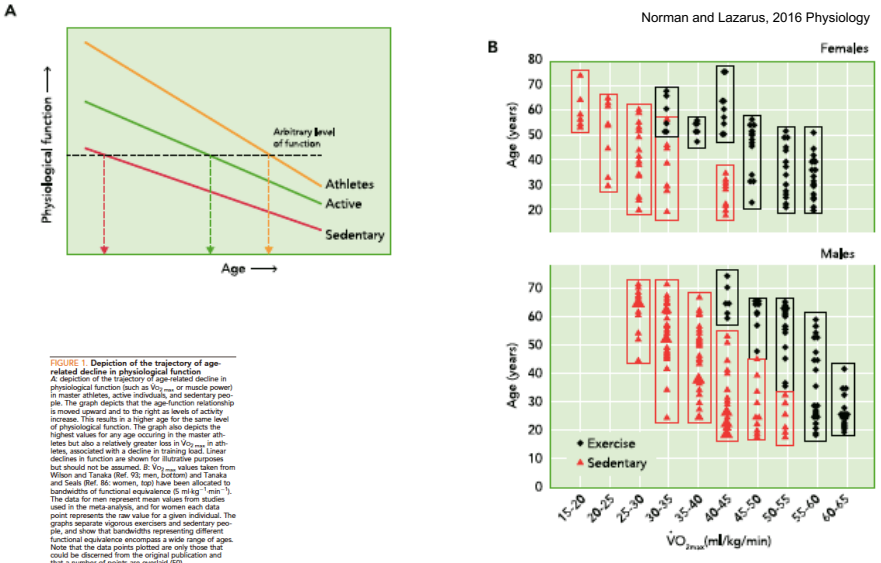
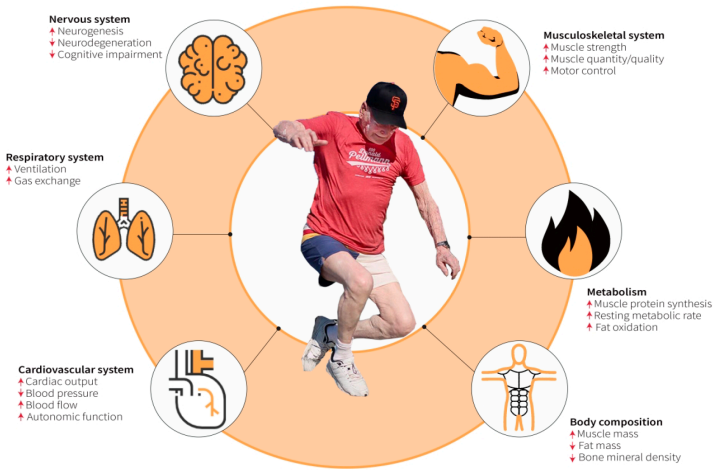


FIGURE 1. **Depiction of the trajectory of age-related decline in physiological function**
A: depiction of the trajectory of age-related decline in physiological function (such as $\dot{V}O_{2max}$ or muscle power) in master athletes, active individuals, and sedentary people. The graph depicts that the age-function relationship is moved upward and to the right as levels of activity increase. This results in a higher age for the same level of physiological function. The graph also depicts the highest values for any age occuring in the master athletes but also a relatively greater loss in $\dot{V}O_{2max}$ in athletes, associated with a decline in training load. Linear declines in function are shown for illutrative purposes but should not be assumed. *B:* $\dot{V}O_{2max}$ values taken from Wilson and Tanaka (Ref. 93; men, *bottom*) and Tanaka and Seals (Ref. 86; women, *top*) have been allocated to bandwidths of functional equivalence (5 ml·kg^{-1}·min^{-1}). The data for men represent mean values from studies used in the meta-analysis, and for women each data point represents the raw value for a given individual. The graphs separate vigorous exercisers and sedentary people, and show that bandwidths representing different functional equivalence encompass a wide range of ages. Note that the data points plotted are only those that could be discerned from the original publication and that a number of points are overlaid (50).

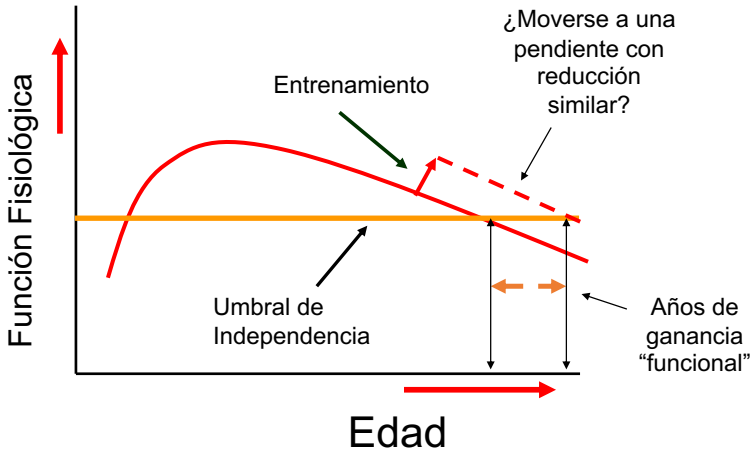
¿El ejercicio previene el efecto del envejecimiento?



COMPREHENSIVE PHYSIOLOGY

Valenzuela et al. 2019

¿El ejercicio previene el efecto del envejecimiento?



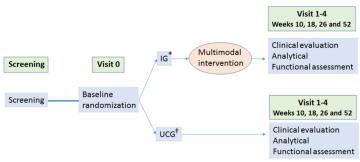
Harridge & Saltin (2007) – Adapted from Young (1995)
Encyclopaedia of Gerontology

ORIGINAL ARTICLE

Journal of Cachexia, Sarcopenia and Muscle (2019)
Published online in Wiley Online Library (wileyonlinelibrary.com) DOI: 10.1002/jcsm.12432

Effectiveness of a multimodal intervention in functionally impaired older people with type 2 diabetes mellitus

Leocadio Rodríguez-Mañas[1*], Olga Laosa[2], Bruno Vellas[3], Giuseppe Paolisso[4], Eva Topinkova[5], Juan Olive-Moreno[6], Isabelle Bourdel-Marchasson[7], Mikel Izquierdo[8], Kerry Hood[9], Andrej Zeyfang[10], Giovanni Gambassi[11], Mirko Petrovic[12*], Tim C. Hardman[13], Mark J. Kelson[14], Ivan Bautmans[15], Gabor Abellan[3], Michelangela Barbieri[4], Luz M. Peña-Longobardo[8], Sophie C. Regueme[7], Riccardo Calvani[11], Stefanie De Buyser[12], Alan J. Sinclair[16] & on behalf of the European MID-Frail Consortium



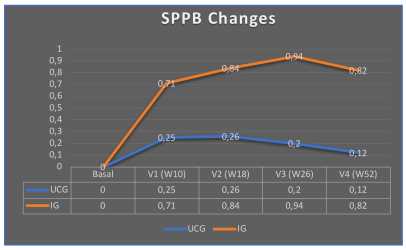
1• Exercise Intervention: 16 weeks of resistance training, twice a week, repeated in year 2

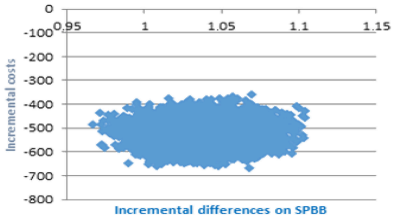
2• Nutritional and Educational Intervention: 7 Educational sessions

3• Optimisation of glycaemic and blood pressure control

HbA1c: 7-8% (9.6-11.6 mmol/L).
BP <150/90 mmHg.

Work Programme 2011





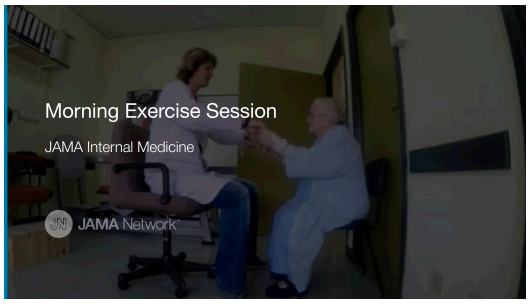
12 month structured multimodal intervention programme across several clinical settings in different European countries leads to a clinically relevant and cost-effective improvement in the functional status of older frail and pre-frail participants with type 2 diabetes mellitus

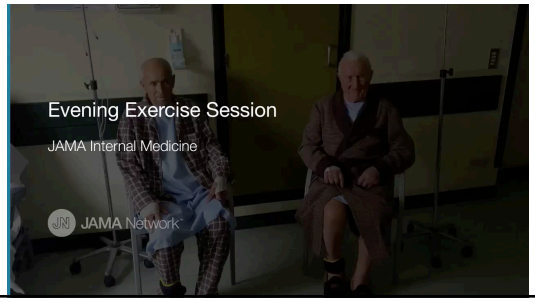
lower health care cost per patient vs. usual care of 428.02 € with incremental gain in SPPB score per patient included at the intervention programme vs. usual care during the follow-up period

MID Frail — EUROPEAN COMMISSION / European Research Area / Health & life sciences

JAMA Internal Medicine | Original Investigation

Effect of Exercise Intervention on Functional Decline in Very Elderly Patients During Acute Hospitalization
A Randomized Clinical Trial





JAMA Internal Medicine | Original Investigation

Effect of Exercise Intervention on Functional Decline in Very Elderly Patients During Acute Hospitalization
A Randomized Clinical Trial

Table 2. Results of Primary and Secondary End Points by Group[a]

Variable[a]	Control Group	Intervention Group	Between-Group Difference (95% CI)	P Value Between Groups
Primary End Point: Change in Functional Capacity				
SPPB scale (balance, gait ability, leg strength)	0.2 (−0.1 to 0.5)	2.4 (2.1 to 2.7)	2.2 (1.7 to 2.6)	<.001
Barthel Index (ADLs)	−5.0 (−6.8 to −1.2)	1.9 (0.2 to 1.7)	6.9 (4.4 to 9.5)	<.001
Secondary End Points				
Cognitive status				
MMSE	0.3 (−0.1 to 0.6)	2.1 (1.7 to 2.5)	1.8 (1.3 to 2.3)	<.001
Depression (GDS)	0.7 (0.4 to 0.9)	−1.3 (−1.7 to −1.1)	−2.0 (−2.5 to −1.6)	<.001
QoL (EuroQol-5D)	−2.2 (−5.8 to 1.3)	11.0 (7.5 to 14.5)	13.2 (8.2 to 18.2)	<.001
Incident delirium (CAM), %	8.3	14.6	OR, 1.9 (0.9 to 4.0)	.12
Handgrip strength, kg	−0.8 (−1.2 to −0.5)	1.5 (1.1 to 1.8)	2.3 (1.8 to 2.8)	<.001

Abbreviations: ADLs, activities of daily living; CAM, Confusion Assessment Method; EuroQol-5D, EuroQol Questionnaire-5 Dimensions; GDS, Yesavage Geriatric Depression Scale; MMSE, Mini Mental State Examination; OR, odds ratio; QoL, quality of life; SPPB, Short Physical Performance Battery.

[a] All data, except for CAM, were derived from linear mixed-effects model. For each group, data are expressed as change from baseline (admission) to discharge, determined by the time coefficients (95% CI) of the model. For example, for the SPPB scale, 0.2 corresponds to the coefficient estimated from the model. The between-group difference was determined with time × group interaction coefficient. For CAM, data are the proportion of patients in whom delirium developed.

[b] Explanations of scales used are given in the footnotes to Table 1.

Table 3. Results of Secondary End Points Indicative of Adverse Events or Hospitalization

End Point	Control (n = 185)	Intervention (n = 185)	P Value Between Groups
Length of hospital stay, median (IQR), d	8 (4)	8 (4)	.25[a]
Falls during hospitalization, No./No. (% per group experiencing ≥1 fall)	0/139	4/146 (2.7)	.12[b]
3-mo Hospital readmission rate (10-person/3-mo), median (IQR)	2.5 (1.8-3.3)	2.4 (1.7-3.2)	.82[c]
3-mo Mortality, %	9.7	11.9	.62[d]
Transfer, %			
Home	91.4	92.4	
Institutionalization	1.1	2.2	.55[b]
Other	7.6	5.4	

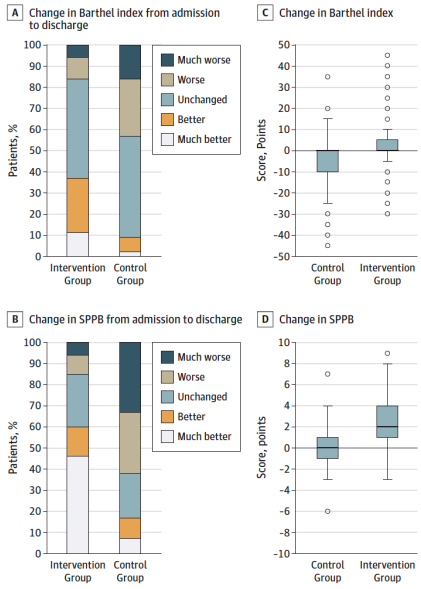
Abbreviations: ADL, activities of daily living; IQR, interquartile range.

[a] Mann-Whitney test.

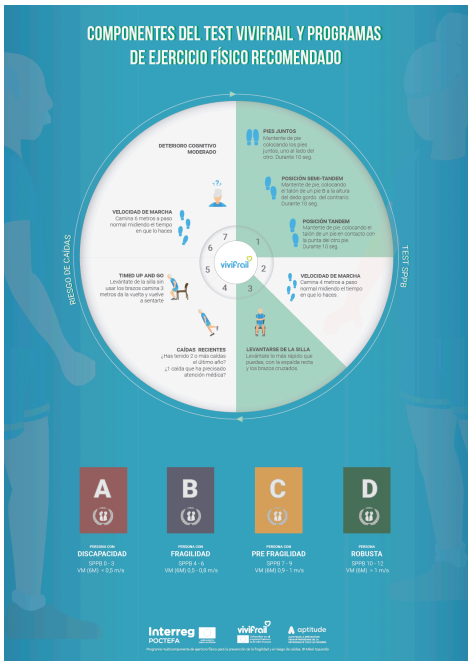
[b] Fisher exact test.

[c] Mid-P value exact test.

[d] χ^2 Test.



Vivifrail programa de intervención en la fragilidad y riesgo de caidas



TEST VIVIFRAIL

El test VIVIFRAIL te permite determinar el tipo de programa físico multicomponente más recomendable a la capacidad funcional y riesgo de caídas de la persona mayor.

El test VIVIFRAIL consiste en valorar la capacidad funcional mediante el SPPB y una batería de 4 pruebas que permiten evaluar el riesgo de caídas. En caso de tener limitaciones para realizar el SPPB, se recomienda medir la velocidad de marcha en 6 metros.

Este test se puede aplicar en un tiempo aproximado de 15 minutos. Se compone de 7 pruebas.
Una vez realizadas las pruebas puedes seguir el esquema que se muestra en la página 17 para obtener un resultado.

PASOS PARA LA PRESCRIPCIÓN DEL PROGRAMA DE EJERCICIO FÍSICO

1 SELECCIÓN DE DESTINATARIO
Pueden ser destinatarias del programa de ejercicio físico aquellas personas de 70 años o más; en adelante personas mayores. Revisa el listado de contraindicaciones antes de comenzar con la presentación del programa.

2 PRESENTACIÓN DEL PROGRAMA
Informa a la persona mayor sobre la necesidad de realizar el programa de ejercicio físico. Muéstrale el póster inicial.

3 TEST VIVIFRAIL
Realiza el test que se encuentra en la página 5 de esta guía, y muéstrale el póster de los componentes del Test Vivifrail y los programas de ejercicio físico recomendados.

4 PRESCRIPCIÓN
Comunícale el resultado que ha obtenido en el test. Entrégale el pasaporte correspondiente, y explícaselo.

2

viviFrail

PRESCRIPCIÓN DEL PASAPORTE TIPO B Y B+

ENTREGA DE PASAPORTE
Explícale que el tipo B (Frágil) se refiere a aquellas personas mayores que marchan con dificultad o con ayuda. Hazle saber que realizando el programa quizá pueda volver a caminar sin ayuda o al menos ganar autonomía y equilibrio. Comunícale que el programa tiene una duración de 12 semanas y que debe realizar una rueda diaria de aproximadamente 45-60 minutos.

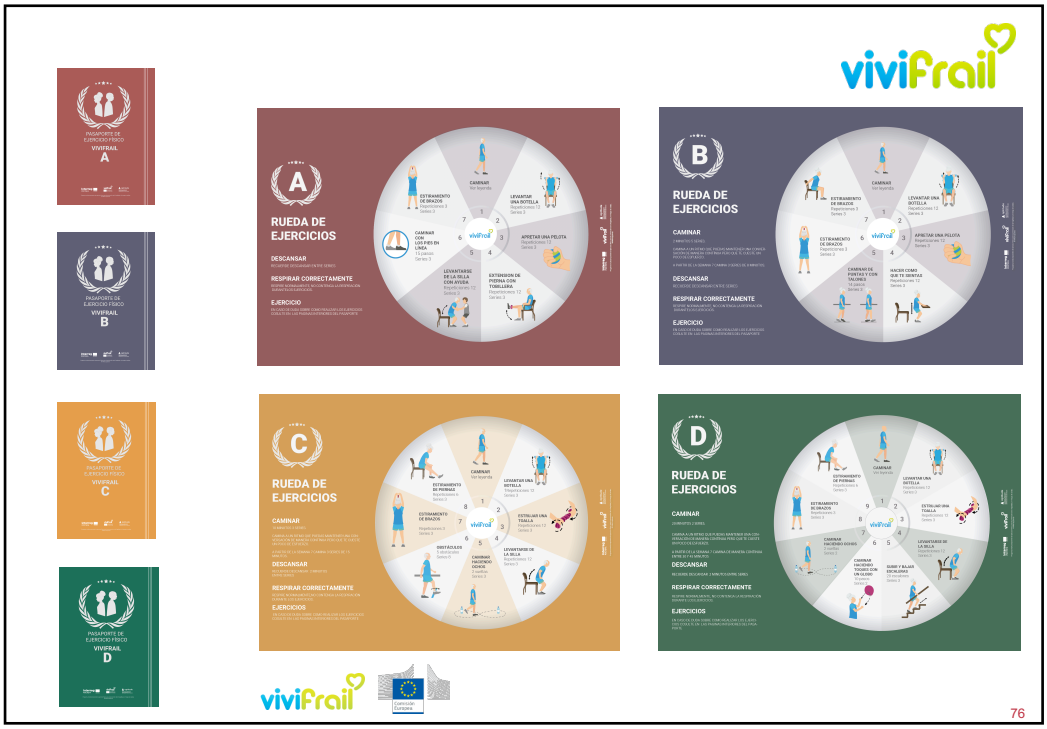
Tipo B+ se recomienda revisar las recomendaciones para personas con riesgo de caídas.

Revisa con cada persona el pasaporte, sección por sección, y completa la sección de datos personales.

Muéstrale tu interés porque se esfuerce en completar el programa hasta el final, y concreta una cita para ese momento.

18

viviFrail


viviFrail
RUEDA DE EJERCICIOS
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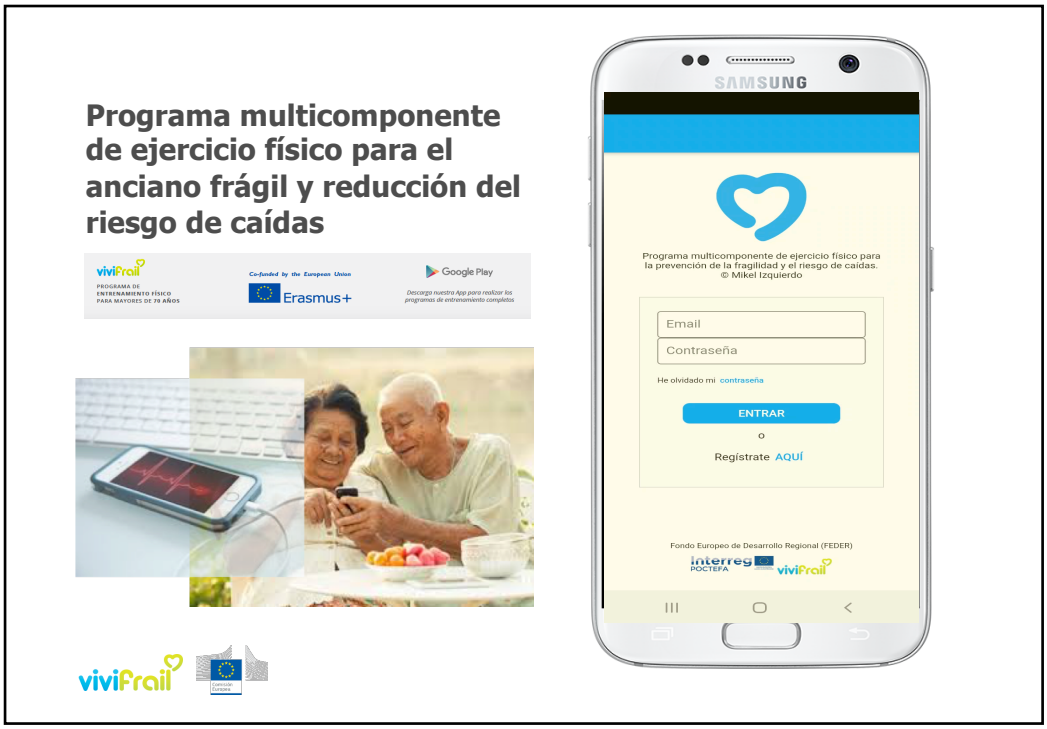
76


Programa multicomponente de ejercicio físico para el anciano frágil y reducción del riesgo de caídas
viviFrail
PROGRAMA DE ENTRENAMIENTO FÍSICO PARA MAYORES DE 70 AÑOS
Co-funded by the European Union
Erasmus+
Google Play
Descarga nuestra App para realizar los programas de entrenamiento completos
SAMSUNG
Programa multicomponente de ejercicio físico para la prevención de la fragilidad y el riesgo de caídas.
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Contraseña
He olvidado mi contraseña
ENTRAR
o
Regístrate AQUÍ
Fondo Europeo de Desarrollo Regional (FEDER)
Interreg POCTEFA
viviFrail

Resources

Home > Resources

Resources EN

Materials for professionals responsible for the prescription of a program of physical exercise

In this section you will find all the information and tools necessary for the individualized prescription of a multicomponent program of physical exercise.

Download the whole material package through this link, or download only that you need through the links shown below:

Vivifrail Physical Exercise Passport for Professionals

The passport of physical exercise is aimed at professionals and specialists in physical exercise. You can find all the necessary steps for the implementation of the Vivifrail program.

DOWNLOAD

Exercise wheels by functional level type

Download the specific exercise wheels for each functional level that include the exercises, series and repetitions that should be done every week.

DOWNLOAD

Vivifrail promotion poster for Exercise Prescription Centers

Download the poster to promote the participation in the Vivifrail program of elderly people who come to centers and consultations. Step by step the way to participate in the exercise program that best suits your initial situation is described.

DOWNLOAD

Vivifrail Test Poster

Download the poster that explains the components of the Vivifrail test and the recommended exercise programs. If you deploy it in your workplace, it will facilitate the prior assessment process necessary for the recommendation of an individualized program.

DOWNLOAD

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Prescription materials

Passports of Vivifrail Physical Exercise for Participants

Depending on the functional level and risk of falls that each participant has, up to six different types of physical exercise programs can be downloaded. Passports with the "+" symbol are for those with risk of falls.

Passports of Vivifrail Physical Exercise for Participants

Download the entire passport package through this link.

DOWNLOAD

Passport type A

Download the Passport type A for people with disabilities.

DOWNLOAD

Passport type B

Download the Passport type B for people with fragility.

DOWNLOAD

Passport type B+

Download the Passport type B for people with fragility and risk of falls.

DOWNLOAD

Passport type C

Download the Passport type C for people with pre-fragility.

DOWNLOAD

Passport type C+

Download the Passport type C+ for people with pre-fragility and risk of falls.

DOWNLOAD

Passport type D

Download the Passport type D for robust people.

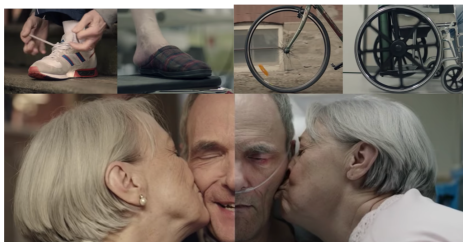
DOWNLOAD

App and e-book

Download e-book with videos of the exercises and extended information about Vivifrail. You can also install the Vivifrail App that will allow you to digitally track the exercise program.

vivifrail

¿Es Etico NO prescribir actividad física en las personas (a todas las edades)?



- ***Ausencia total de*** práctica semanal de actividad física (AF) responsable a nivel global de mas de 5 millones de muertes y, $120 Billones de costo por año
- **Inactividad Física** elemento clave a todas las edades:

  "Revertir el Síndrome de Deficiencia de Ejercicio, con especial atención en la mejora de la fuerza muscular"

- Promoción de PA todavía ***NO*** está incluido en la cartera ***de servicios para la prevención y manejo de enfermedades en el entorno de la medicina***
- Aunque puede ser un buen comienzo, la prescripción de AF and ejercicio como medicina ***es mucho mas que "usted camine" o "levante la pesa 5 veces".***

¿Quieres saber más?

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#mikelizquierdo_
#mikelizquierdo_

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http://www.vivifrail.com

Recent publications: https://www.researchgate.net/profile/Mikel_Izquierdo3/contributions

Publications on PubMed: http://goo.gl/zaiGw8

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Mikel Izquierdo
Universidad Pública de Navarra
Departamento de Ciencias de la Salud