



aptitude

ACTUAR PARA LA PREVENCIÓN  
TRANSPARENCIA DE LA DEPENDENCIA  
DE LAS PERSONAS MAYORES

Interreg  
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# Simposio II. Extensión para apoyo y vigilancia de los ancianos frágiles

Estado de la ayuda del dispositivo  
para la fragilidad en Navarra.  
Impulso de Aptitude

SMS  
SERVEI ANDORRÀ  
D'ATENCIÓ SANITÀRIA

OCCITANIE  
Equipe Regionale Vieillessement  
Et Prévention de la Dépendance  
ARS  
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DE NAVARRA

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Universidad Pública de Navarra  
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NAVARRABIOMED  
CENTRO DE INVESTIGACIÓN BIOMÉDICA



Jornada de lanzamiento de la red europea **APTITUDE** en Navarra

# Presentación de la red APTITUDE de Navarra

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NOTA: NO SE HA DE OLVIDAR EL  
TRÁNSITO RENAISSANCE DE LA DEPENDENCIA  
DE LAS PERSONAS MAYORES

# Creación del Equipo Móvil de Investigación Clínica

- Para permitir un acceso igualitario a la investigación clínica y a la innovación a todas las personas mayores
  - Centros hospitalarios /residenciales periféricos
  - Centros de atención primaria
  - Asociaciones de jubilados
  - Empresas
  - Entornos relacionados o con participación de personas mayores
- Composición del Equipo Móvil de Investigación Clínica
  - Puestos : médico, enfermera, terapeuta ocupacional, fisioterapeuta
  - Otras competencias según la necesidad de los estudios
- Identificar los entornos interesados en la investigación y en la implementación de investigación
- Encontrar e implementar proyectos de investigación adecuados y factibles

Medical evaluation prior to beginning the physical exercise programme is recommended for anyone aged 70 years and over.

However, if any of the following is true, a thorough medical evaluation is required/compulsory.

- Did the patient complain of chest/thoracic pain on exertion or at rest in the previous year?
- Has the patient experienced a faint (syncope episode), or loss of consciousness or a fall preceded by a feeling of dizziness in the previous year?
- Has the patient suffering from joint or bone disease, which is worsened by physical exercise?
- Does the patient have a medical condition which is a relative contraindication for doing physical exercise (see below)?

**ABSOLUTE CONTRAINDICATIONS**

- Worsening of exercise tolerance or dyspnoea at rest or on exertion over previous 3-5 days
- Significant ischaemia at low work rates
- Severe acute heart failure
- Severe acute respiratory failure
- Uncontrolled arrhythmias
- Atrial fibrillation of new onset
- Uncontrolled hypertension (SBP > 160 and/or DBP > 100)
- Symptomatic orthostatic hypotension
- Poorly controlled diabetes (glycaemia < 5 mmol/l (90mg/dl) or > 12 mmol/l (216 mg/dl))
- Recent embolism (< 1 year)
- Acute pericarditis, myocarditis or endocarditis
- Moderate to severe aortic stenosis
- Regurgitant valvular heart disease requiring surgery
- Myocardial infarction within previous 3 months
- Recent fracture during the last month

**RELATIVE CONTRAINDICATIONS**

- Recent fracture during the past three months
- Infection of acute systemic illness or fever affecting the general health status
- Any disease causing severe functional capacity limitation (Bartlett ACL index < 2)

If adverse symptoms occur during exercise (muscle or joint pain, dyspnoea, chest pain, new symptoms, etc.), the programme should be discontinued and a new medical evaluation should be performed.

Adverse events are minimized when programmes begin at low intensities and slowly progress.

Download the APP to know more about the multicomponent exercise programme.

**Frailty and Functional limitation assessment**

FUNCTIONAL LIMITATION SCREENING			
<p><b>Severe functional limitation</b> mobility impairment</p> <p>Severe walking impairment. The patient is confined to a wheelchair or bedridden, is not able to stand up or maintain a standing position.</p> <p>SPPB 0-3 VM (6m) &lt; 0.5 m/s</p>	<p><b>Moderate dependence</b> Fragile</p> <p>Limited mobility needing help to walk, stand or perform balance tests.</p> <p>SPPB 4-6 WS(6m) 0.5 - 0.8 m/s</p>	<p><b>Slight dependence</b> Pre-frail</p> <p>Independent in walking, subtle gait and balance disturbances. Unable to perform the chair squats.</p> <p>SPPB 7-9 WS(6m) 0.9 - 1 m/s</p>	<p><b>Autonomous</b> Non-frail</p> <p>The patient is autonomous.</p> <p>SPPB 10-12 WS(6m) &gt; 1 m/s</p>



**ASSESSMENT FOR DETERMINING RISK OF FALLS**

1. The patient has experienced two or more falls in the past year with at least one fall requiring medical attention.

2. TUG > 20s

3. WS(6m) < 0.8 m/s

4. Dementia

NO: Do you have one or more of the above characteristics? YES: E

**ABBREVIATIONS**  
 SPPB: Short Physical Performance Battery  
 VM: 6m Walking Speed  
 WS: Timed Up and Go

\*\*Multicomponent Physical Exercise Programme for Frailty and Falls, presented among people aged over 70. Medical evaluation prior to beginning the multicomponent exercise programme is recommended for anyone aged 70 years and over.

FUNCTIONAL ASSESSMENT			
<p><b>Serious limitation</b> DISABLED</p> <p>Cannot walk in a wheelchair or bed. They normally cannot remain standing up. Cannot sit up.</p> <p>SPPB 0-3 VM (6m) &lt; 0.5 m/s</p> <p><b>A</b></p> <p>Serious limitation Disabled</p> <p>Doing these exercises, you'll be able to get out of the chair</p>	<p><b>Moderate limitation</b> FRAGILE</p> <p>Walks with difficulty or help. Sometimes sits up. Completes balance tests with difficulty.</p> <p>SPPB 4-6 VM (6m) 0.5 - 0.8 m/s</p> <p><b>B</b></p> <p>Moderate limitation Fragile</p> <p>If you do these exercises, you will notice great improvement</p>	<p><b>Slight limitation</b> FRAGILE - PREFRAGILE</p> <p>Walks independently. Walking problems. Stable balance. Some difficulty sitting up 5 times</p> <p>SPPB 7-9 VM (6m) 0.9 - 1 m/s 10-30 / 30-45</p> <p><b>C1 C2</b></p> <p>Slight limitation Fragile</p> <p>The purpose of these exercises is to continue enjoying walking</p>	<p><b>Minimal limitation</b> or no limitation INDEPENDENT</p> <p>Walks independently. Walking problems. Stable balance. Some difficulty sitting up 5 times</p> <p>SPPB 10-12 VM (6m) &gt; 1 m/s</p> <p><b>D</b></p> <p>Minimal limitation or no limitation</p> <p>Don't let your guard down! If you stop, you may quickly get worse</p>

On the other hand and as already mentioned above, the adoption of the following additional measures is recommended if the patient has one or more high risk of falling characteristics. One of them which is highly important is reinforcing the multi-component exercise program (Program B) (See graph):

**EVALUATE FALL RISK**

1. 2 or more falls in the last year or one fall in the last year requiring medical attention

2. TUG > 20s

3. VM (6m) < 0.8 m/s

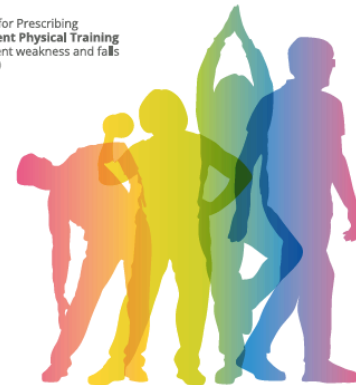
4. Dementia

Does the patient have one or more of the above characteristics?

YES: E

• Nutritional Status assessment and intervention  
 • Drug enhancement  
 • Intervention with environmental measures  
 • Reinforcement of the multi-component physical program

A Practical Guide for Prescribing a Multi-Component Physical Training Program to prevent weakness and falls in People over 70



**MULTICOMPONENT PHYSICAL EXERCISE PROGRAMME FOR FRAILTY AND FALLS PREVENTION AMONG PEOPLE AGED OVER 70\*\***

<p><b>A</b></p> <p>Severe functional limitation, mobility impairment</p> <p>IF YOU PERFORM THESE EXERCISES, YOU SHOULD BE ABLE TO STAND UP FROM A SITTING POSITION.</p>	<p>1. Lift your arms while holding a small water bottle.</p> <p>2. While sitting down, stretch your leg as much as possible.</p>	<p>3. Raise your arms above your head.</p> <p>4. Tilt your head to the right and left.</p>	<p><b>HOW TO PERFORM THESE EXERCISES</b></p> <ul style="list-style-type: none"> <li>Fit weight exercise, a weight or resistance band should be chosen that will allow the patient to perform the exercise without interruptions at least 30 times but with a certain degree of effort to complete the activity.</li> <li>The session should begin by performing one set of 10 repetitions (i.e., 10 repetitions of the selected movement).</li> <li>The goal is to perform three sets of 10 repetitions.</li> <li>A one to three minute break should be done between exercises.</li> <li>The exercises should be performed on two days per week.</li> <li>To be effective, this programme should be followed for 12 to 16 weeks. After that time, the tests the SPPB, Gait velocity and the assessment for determining risk of falls should be repeated. If your functional capacity has improved you can go through to the next level of exercises.</li> </ul>
<p><b>B</b></p> <p>Moderate dependence, frail</p> <p>IF YOU PERFORM THESE EXERCISES, YOU WILL NOTICE GREAT PHYSICAL IMPROVEMENT.</p>	<p>5. Squeeze a rubber ball with each hand as hard as you can.</p> <p>6. Flex your knees, as if you were about to sit down, while holding on to a table.</p>	<p>7. Hold the back of the chair and push your chest forward until your arms are stretched.</p> <p>8. Standing on one leg, cross your arms over your chest.</p>	<p>9. Walk, alone or with help, until you are able to walk for one minute without help.</p>
<p><b>C1 C2</b></p> <p>Slight dependence</p> <p>THE GOAL OF THESE EXERCISES IS THAT YOU WILL BE ABLE TO ENJOY WALKING.</p>	<p>10. Stretch an elastic band, wrapped around your wrists, opening your arms.</p> <p>11. While supporting your weight on the chair, stand up without leaning on the arms of the chair.</p>	<p>12. Lean on a table while standing on one foot and holding your other foot with your arm behind you, keeping your other leg stretched.</p> <p>13. Maintain your balance for 10 seconds while standing on the balls of your feet, and then support on yourself on your heels.</p>	<p>14. Begin by walking for four minutes until you are able to walk for 15 minutes.</p> <p>15. Begin by walking for eight minutes until you are able to walk for 30 minutes.</p>
<p><b>D</b></p> <p>Autonomous, non-frail</p> <p>DO NOT STOP EXERCISING! IF YOU STOP, YOUR GLOBAL HEALTH CAN QUICKLY GET WORSE.</p>	<p>16. Stretch an elastic band, wrapped around your wrists, separating your arms diagonally.</p>	<p>17. Walk on your toes and then on your heels for 10 seconds each.</p> <p>18. Walk in a straight line while pivoting objects from the floor.</p>	<p>19. Walk in sets of 15 minutes each, resting for 30 seconds between sets.</p>

• Perform these exercises three days per week.  
 • Evaluate the need for nutritional supplements and vitamin D if a deficiency is found.  
 • Reduce polypharmacy (especially psychotropic).  
 • Reduce environmental and architectural barriers.

**Exercises for patients with serious limitation (program A)**

TYPE OF TRAINING	TYPE OF EXERCISES
Strength and power	48, 48, 49, 49, 49, 50, 50, 51
Cardiovascular	54
Balance and walking	56, 56
Flexibility (standing or sitting)	58, 58, 59, 59, 59, 60, 60

**DAILY ORGANIZATION**

M	T	W	Th	F	Sat	Sun
Arm strength and legs	Cardiovascular	Balance and walking	Flexibility	arms	legs (optional)	
Once/day	Twice/day	Once/day	Twice/day	Once/day	Once/day	Twice/day

When the elderly person improves their muscular strength, the cardiovascular exercise program shall begin. Add the following exercises to the previous exercises:

# Nueva versión Vivifrail

**ACTIVIDAD C+**

REQUIERE DESCANSAR 2 MINUTOS ENTRE SERIES

CÓMO RESPIRAR DURANTE LA REALIZACIÓN DE EJERCICIO

- NO CONTENGAS LA RESPIRACIÓN DURANTE LOS EJERCICIOS. RESPIRE NORMALMENTE
- TU FRECUENCIA DE RESPIRACIÓN AUMENTARÁ PERO DEBES PODER HABLAR MIENTRAS REALIZAS LOS EJERCICIOS

**R** REPETICIONES  
**S** SERIES

**RUEDA DE EJERCICIOS**

1. CAMINAR 10 minutos - Series 3
2. LEVANTAR UNA BOTELLA - Repeticiones 12 - Series 3
3. ESTRUJAR UNA TOALLA - Repeticiones 12 - Series 3
4. LEVANTARSE DE LA SILLA - Repeticiones 12 - Series 3
5. OBSTÁCULOS - Repeticiones 5 - Series 8
6. CAMINAR HACIENDO OCHOS - Repeticiones 2 - Series 3
7. ESTIRAMIENTO DE BRAZOS - Repeticiones 3 - Series 3
8. ESTIRAMIENTO DE PIERNAS - Repeticiones 6 - Series 3

© Programa multidisciplinario de rehabilitación para la prevención de la fragilidad y el riesgo de caídas. Miel Injuriado

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SOCIETÀ PER LA RICERCA E L'INNOVAZIONE  
TECNOLOGICHE E PER LA  
SOSTENIBILITÀ DEL TERRITORIO

**vivifrail**  
INNOVATIVE CARE  
FOR THE ELDERLY

**Interreg**  
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# ACTIVIDAD C+

RECIBIR EDUCACIÓN Y ENTRENAR ENTRE OTROS:

- COMO RESPONDER BIEN A LA REALIZACIÓN DE TAREAS
- SE CONTROLA LA INFORMACIÓN SOBRE LAS EJERCICIOS, SIEMPRE MANEJÁNDOSE
- SE FAVORECE LA ADAPTACIÓN ANATOMICA PARA PODER REALIZAR LAS TAREAS

REPETICIONES  
SERIES

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### EJERCICIOS ANCIANO TIPO D

**Levantar una botella con cada mano**  
2-3 series / 12-15 repeticiones

**Estrujar una toalla**  
2-3 series / 12-15 repeticiones

**Levantarse de la silla**  
2-3 series / 12-15 repeticiones

**Subir y bajar escaleras**  
2-3 series / 12-15 repeticiones

**Caminar haciendo toques con una pelota**  
5 series / 5-10 segundos

**Caminar haciendo ocos**  
5 series / 5-10 segundos

ATE  
Estrujar

**Estiramiento piernas con silla**  
2-3 series / 3 repeticiones (10 segundos)

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**1**  
**Caminar**  
 5 series / 10 segundos  
 5 días

**2**  
**Levantar una botella**  
 3 series / 12 repeticiones  
 3 días

**3**  
**Apretar una pelota**  
 3 series / 12 repeticiones  
 3 días

**1**  
**Caminar**  
 5 series / 10 segundos  
 5 días

**2**  
**Levantar una botella**  
 3 series / 12 repeticiones  
 3 días

**3**  
**Apretar una pelota**  
 3 series / 12 repeticiones  
 3 días

**4**  
**Estiramiento de pierna**  
 12 repeticiones  
 3 días

**6**  
**Caminar con los pies en línea**  
 15 pasos / 3 veces  
 3 días

**6**  
**Estiramiento de brazos**  
 3 series / 3 repeticiones  
 3 días

**ATENCIÓN**  
Solo se iniciará cuando la persona mayor haya mejorado su fuerza muscular.

**Caminar**  
5 series / 15-20 minutos hasta conseguir caminar 60 minutos.

# borrador

## PASAPORTE

Interreg POCTEFA viviFrail aptitude

© Programa multicomponente de ejercicio físico para la prevención de la fragilidad y el riesgo de caídas. Mikel Izquierdo

de mm...

1m 2m 3m 4m

**(SPPB-TEST VM 4M)  
PRUEBA 2  
VELOCIDAD DE MARCHA**

Pídele que camine 4 metros a paso normal, 2 veces.

Mide el tiempo cada vez. Utiliza el menor de los tiempos para establecer la puntuación:

Tiempos	Puntos
< 4,82 s	4
4,82 - 6,20 s	3
6,21 - 8,70 s	2
> 8,7 s incapaz	1

12

# Gamification in geriatric wards for the prevention of nosocomial disability



# Implementación Terapia Ocupacional





# Algoritmo de intervención

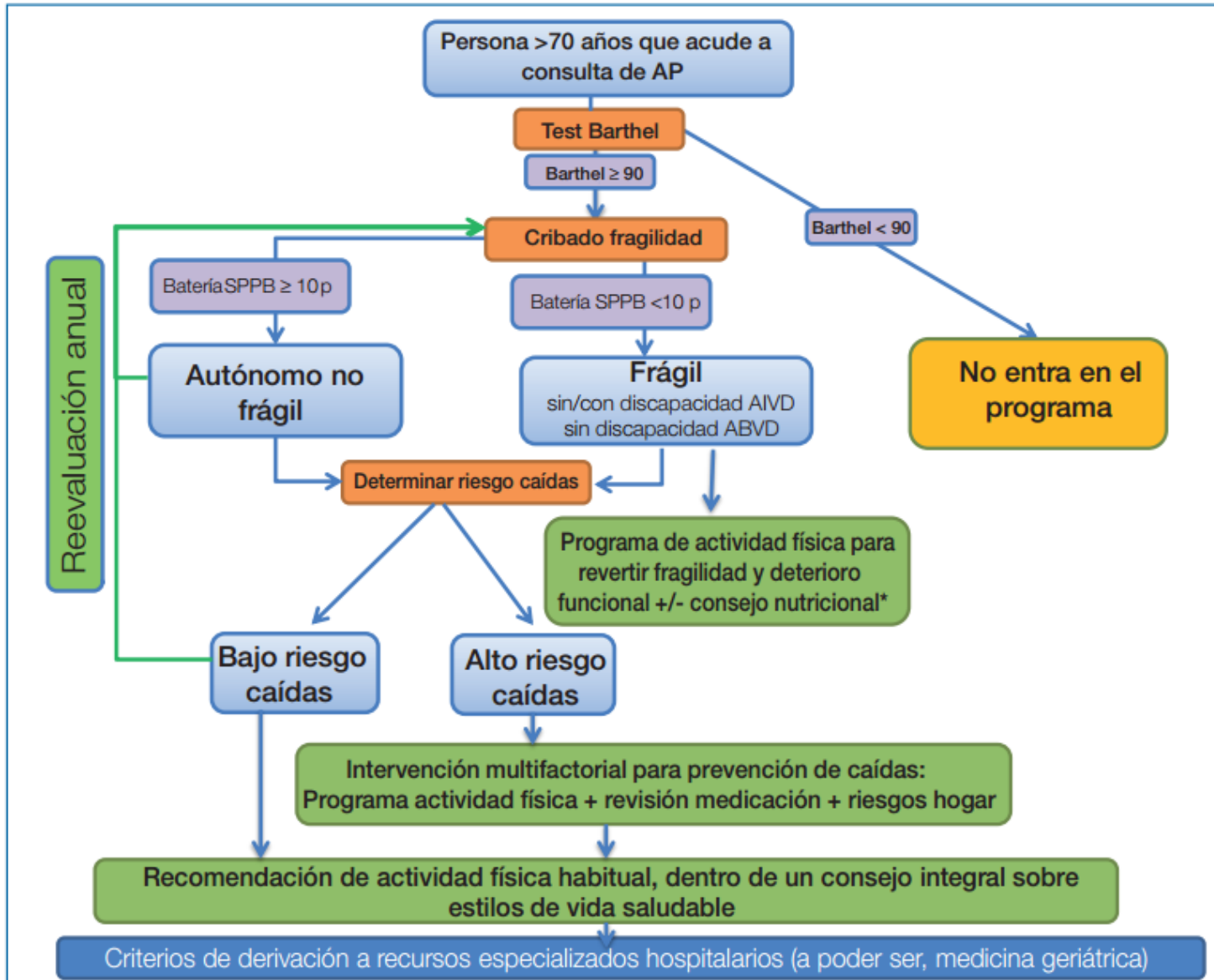
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\*Preferentemente enmarcado en una valoración multidimensional (valoración geriátrica integral "VGI")



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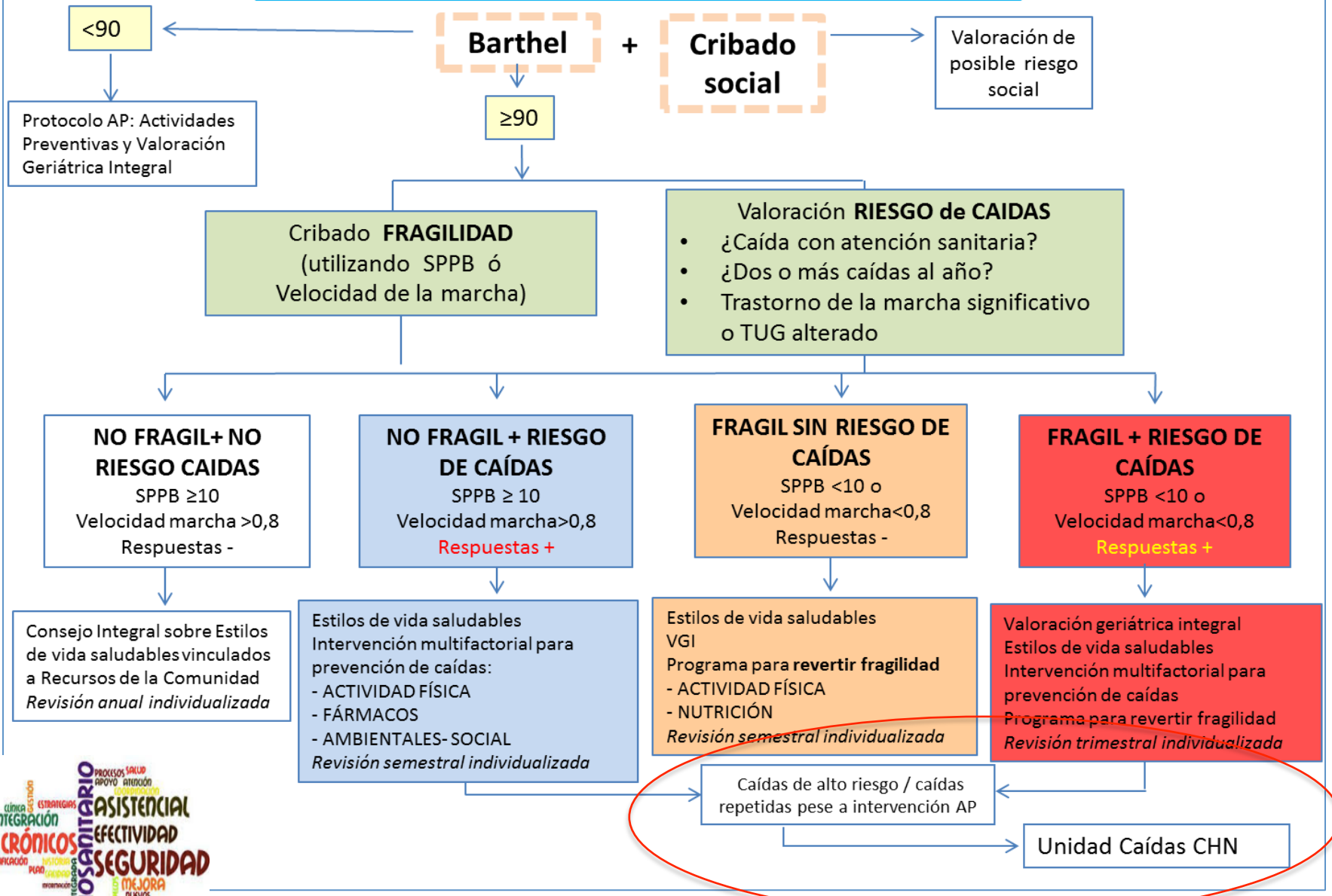
DOCUMENTO DE TRABAJO DEL GRUPO TÉCNICO DE TRABAJO

## **PREVENCIÓN DE FRAGILIDAD Y CAÍDAS**

Servicio Navarro de Salud - Osasunbidea

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**Cribado oportunisto en Atención Primaria en personas >70 años**  
De 70-79 cada 2 años; >80 anual



# Muchas gracias!



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