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Best of 2020: Réadaptation, Sport, et Prévention

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Pas de conflit d'intérêts pour cette présentation

Prevention

Received: 21 April 2020 | Revised: 28 May 2020 | Accepted: 29 May 2020
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REVIEW

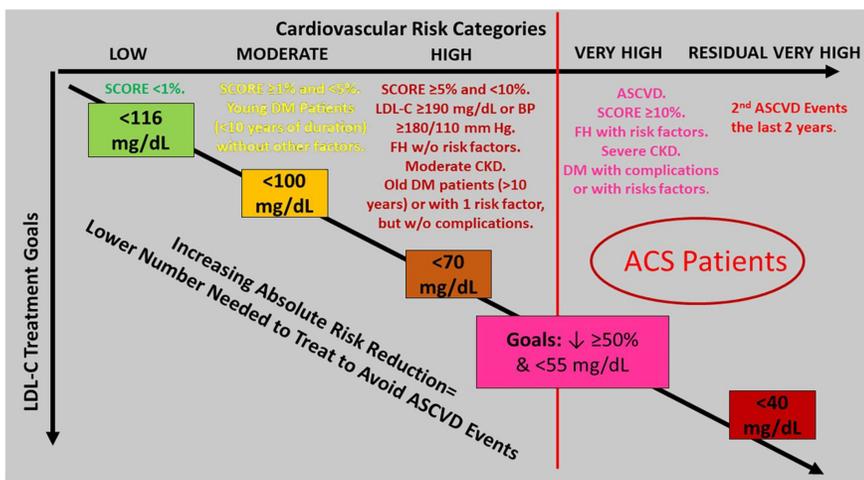
CLINICAL CARDIOLOGY WILEY

Management of LDL-cholesterol after an acute coronary syndrome: Key comparisons of the American and European clinical guidelines to the attention of the healthcare providers

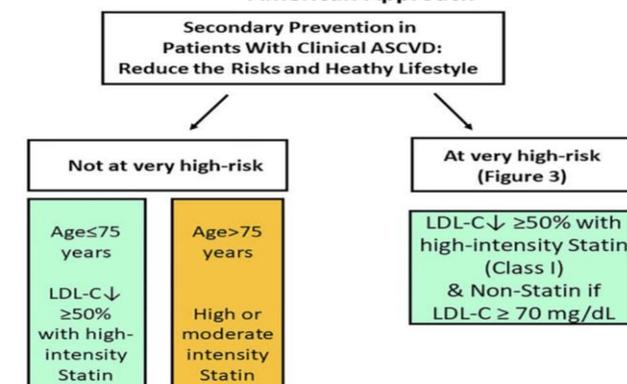
Baris Gencer^{1,2} | Robert P. Giugliano¹ 

Very-High Risk Criteria for Secondary Prevention after ACS	
AMERICAN GUIDELINES	EUROPEAN GUIDELINES
Recent ACS Patients With Multiple (exact number not specified) Major ASCVD Events History of myocardial infarction (prior to current ACS) History of ischemic stroke (prior to current ACS) Symptomatic peripheral arterial disease OR Multiple (exact number not specified) High-Risk Conditions Age ≥ 65 years Heterozygous familial hypercholesterolemia History of prior CABG or PCI (outside of the major ASCVD event) Diabetes mellitus Hypertension Chronic kidney disease (eGFR 15-59 mL/min/1.73 m ²) Current smoking Persistently elevated LDL-C (LDL-C ≥ 100 mg/dL despite maximally tolerated statin therapy and ezetimibe) History of congestive heart failure	All ACS Patients

FIGURE 3
Differences in risk stratification for patients with acute coronary syndromes as recommended by the American guideline for the management of cholesterol and European guideline for the management of dyslipidaemias.^{1, 2} ACS, acute coronary syndromes; ASCVD, atherosclerotic cardiovascular disease; CABG, coronary artery bypass graft; LDL-C, low-density lipoprotein cholesterol; PCI, percutaneous coronary intervention



Patient Managements Group in Secondary Prevention: American Approach



Patient management groups as recommended by the American guideline for the management of cholesterol.¹ Figure adopted from ref.¹ LDL-C, low-density lipoprotein cholesterol

Cardiovascular risk of electronic cigarettes: a review of preclinical and clinical studies

Nicholas D. Buchanan^{1,2}, Jacob A. Grimmer^{1,2}, Vineeta Tanwar^{1,2}, Neill Schwieterman^{1,2}, Peter J. Mohler^{1,3}, and Loren E. Wold^{1,2,3*}

¹Dorothy M. Davis Heart and Lung Research Institute, College of Medicine, The Ohio State University, 473 W. 12th Avenue, Columbus, OH 43210, USA; ²College of Nursing, The Ohio State University, Columbus, OH, USA; and ³Department of Physiology and Cell Biology, The Ohio State University College of Medicine and Wexner Medical Center, Columbus, OH, USA

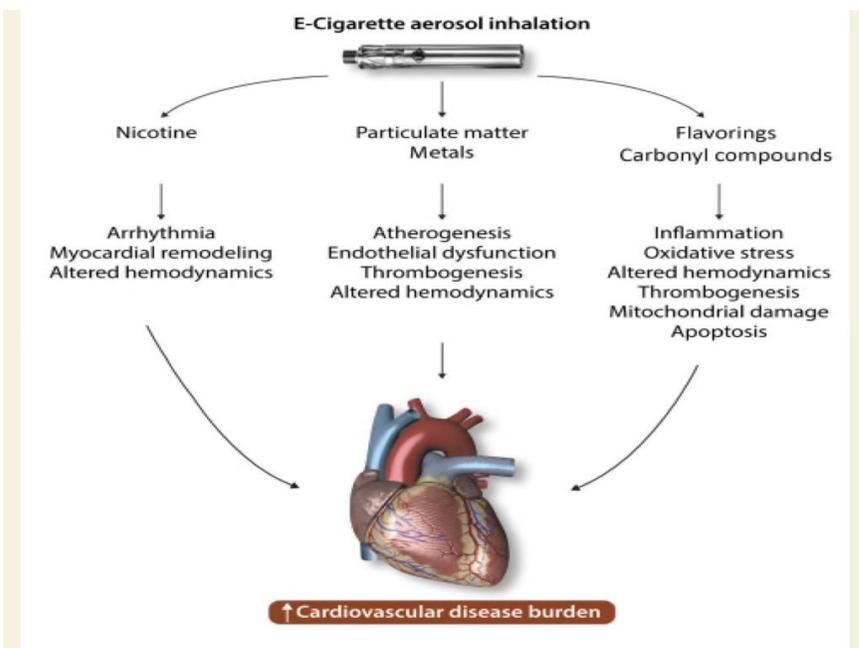


Figure 1 Potential adverse cardiovascular effects induced by various constituents of e-cigarette aerosol.

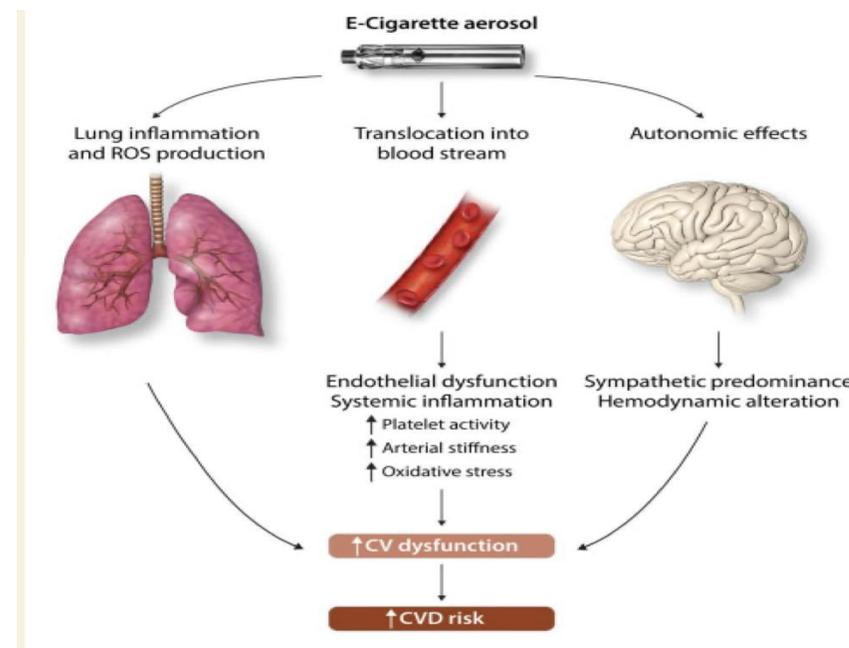
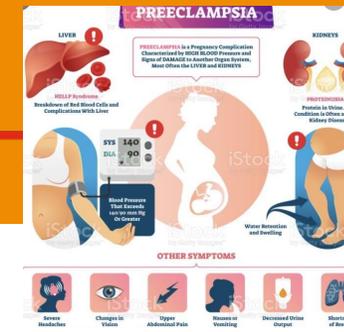


Figure 2 Mechanisms of e-cigarette induced cardiovascular dysfunction.

Hypertensive Disorders of Pregnancy and Future Cardiovascular Health

Karen Melchiorre,¹ Basky Thilaganathan,^{2,3} Veronica Giorgione,³ Anna Ridder,³ Alessia Memmo,¹ and Asma Khalil^{2,3,*}



Meta-analysis: 50 prospective studies and 28 retrospective studies
Follow up max 30 years
Cardiovascular prevention is essential after pre-eclampsy and eclampsy

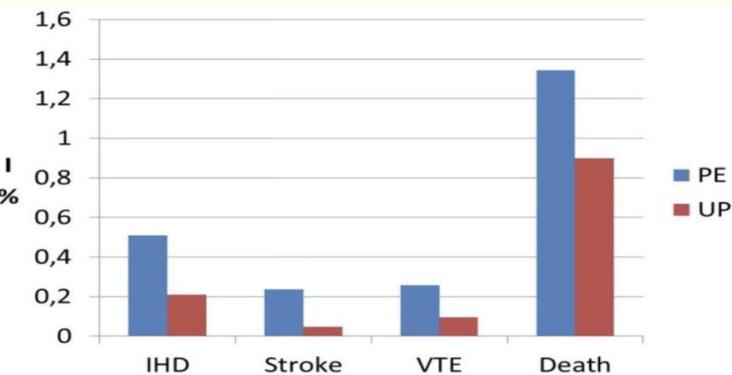


Figure 1
Incidence data (I) of ischemic heart disease (IHD), stroke, venous thromboembolism (VTE) and death from any cause in formerly PE women (PE) vs. women who had an uneventful pregnancy (UP). Modified from Bellamy et al. (1).

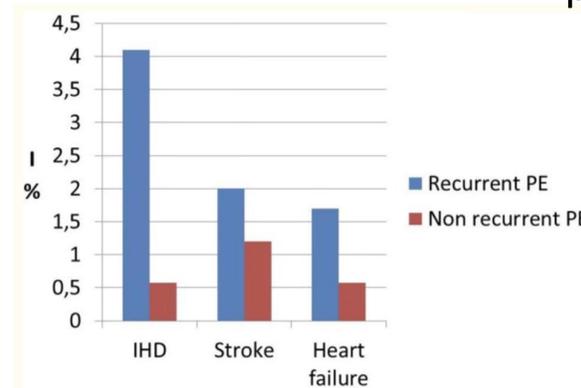


Figure 3
Incidence data (I) of ischemic heart disease (IHD), stroke and heart failure in recurrent preeclampsia women (recurrent PE) vs. women affected by a single pregnancy with PE and subsequent normal pregnancy (not recurrent PE) showing the "dose effect" response of recurrent preeclampsia. Modified from Brouwers et al. (24).

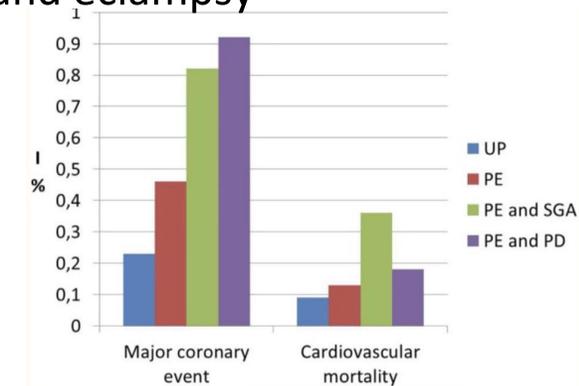
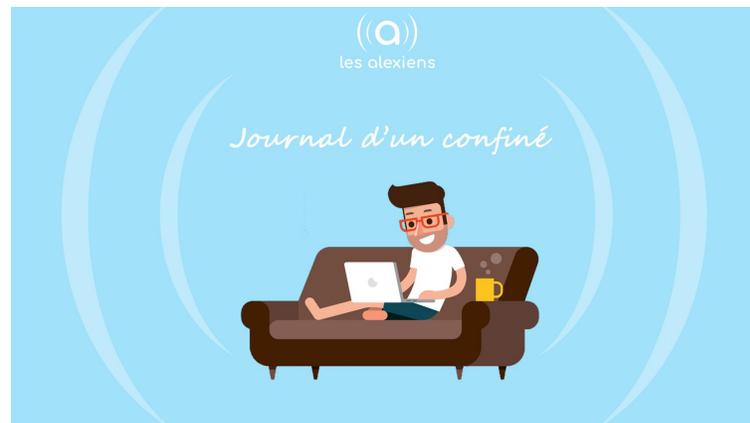


Figure 2
Incidence data (I) of future risk of major coronary events and cardiovascular mortality in formerly PE women (PE) vs. women who had an uneventful pregnancy (UP), showing the dose effect response of specific characteristics of pregnancy with preeclampsia such as small for gestational age (SGA) and preterm delivery (PD). Modified from Riise et al. (55).



Santé publique France: enquête Coviprev

- sédentaires: diminution activité physique
- sportifs: 45% idem, 18% augmentation, 37% diminution
- temps d'écran: en hausse pour 60%
- temps moyen assis: 6h30 (ados, jeunes adultes, télétravail, milieu urbain)



2020 ESC Guidelines on sports cardiology and exercise in patients with cardiovascular disease

The Task Force on sports cardiology and exercise in patients with cardiovascular disease of the European Society of Cardiology (ESC)

Authors/Task Force Members: Antonio Pelliccia* (Chairperson) (Italy), Sanjay Sharma* (Chairperson) (United Kingdom), Sabiha Gati (United Kingdom), Maria Bäck (Sweden), Mats Börjesson (Sweden), Stefano Caselli (Switzerland), Jean-Philippe Collet (France), Domenico Corrado (Italy), Jonathan A. Drezner (United States of America), Martin Halle (Germany), Dominique Hansen (Belgium), Hein Heidbuchel (Belgium), Jonathan Myers (United States of America), Josef Niebauer (Austria), Michael Papadakis (United Kingdom), Massimo Francesco Piepoli (Italy), Eva Prescott (Denmark), Jolien W. Roos-Hesselink (Netherlands), A. Graham Stuart (United Kingdom), Rod S. Taylor (United Kingdom), Paul D. Thompson (United States of America), Monica Tiberi (Italy), Luc Vanhees (Belgium), Matthias Wilhelm (Switzerland)

Experts opinion

Promote **physical activity** for everyone.....*competitive sport*

Patients must be advised of the possible risk: **split decision**

Asymptomatic cardiopathy: no contraindication

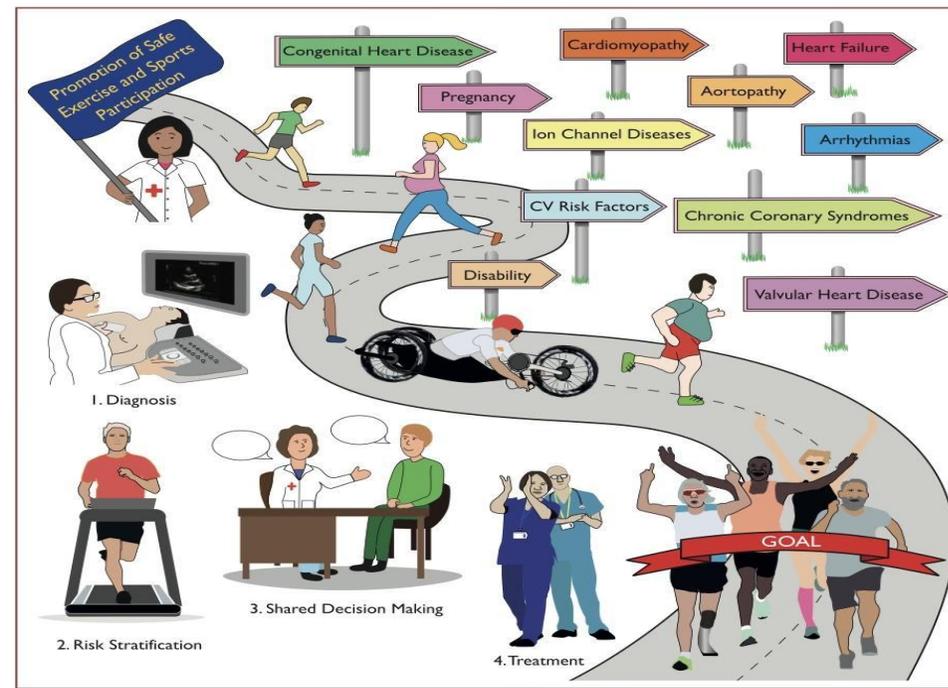


Figure Central illustration Moderate physical activity should be promoted in all individuals with cardiovascular disease. Appropriate risk stratification and optimal therapy are essential for providing exercise prescription for more vigorous activity. Individuals should be involved in the decision making process and a record of the discussion and exercise plan should be documented in the medical records.

2020 ESC Guidelines on sports cardiology and exercise in patients with cardiovascular disease

Table 3 Characteristics of exercise

Frequency:

- Sessions/week
- Bouts of exercise

Intensity:

- Endurance: %VO₂ peak or % peak HR or %HRR
- Strength or Power: % 1RM or % 5RM or %peak HR or %HRR for mixed exercise

Time:

- Duration of
 - ♦ exercise programme in weeks or months
 - ♦ training days per week
 - ♦ training session times per day
 - ♦ duration of training session in hours.

Type:

- Endurance (running, cycling, rowing, walking, swimming)
- Strength or resistance training
- Speed and speed endurance
- Flexibility (sit & reach, back stretch test, lateral mobility test)
- Coordination and balance

Mode of exercise training:

- Metabolic: *aerobic vs. anaerobic*
- Muscular work:
 - isometric – isotonic*
 - dynamic (concentric, eccentric) vs. static*
 - continuous vs. interval*
 - large or small muscular groups*

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HR = heart rate; HRR = heart rate reserve; RM = repetition maximum; VO₂ = oxygen consumption; VO_{2peak} = peak oxygen consumption.

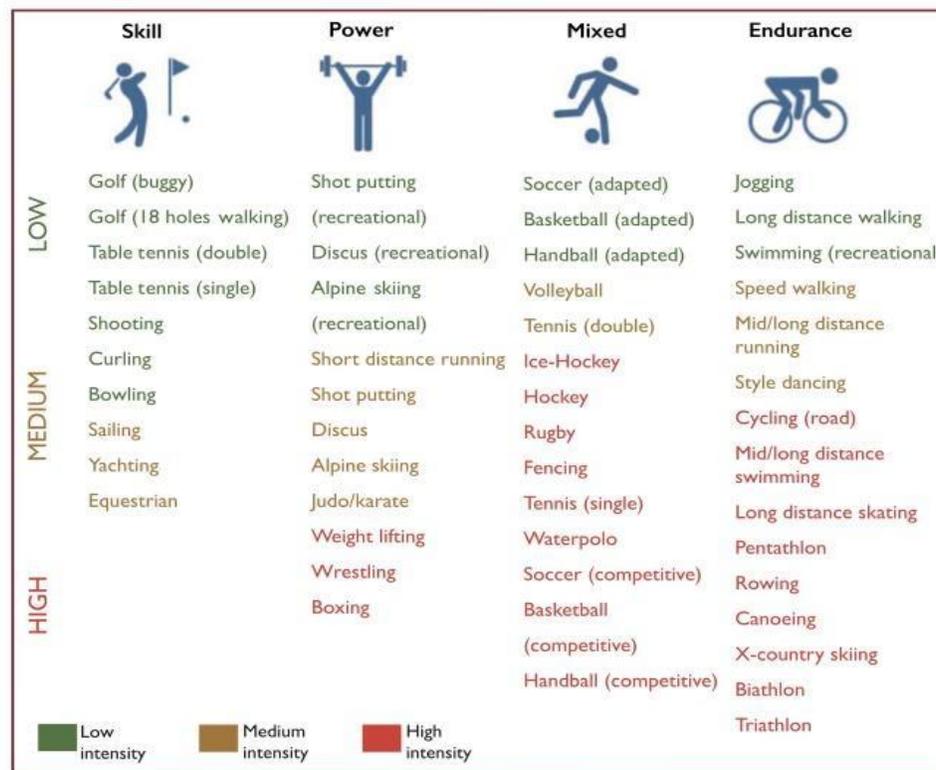


Figure 2 Sporting discipline in relation to the predominant component (skill, power, mixed, and endurance) and intensity of exercise. Intensity of exercise must be individualized after maximal exercise testing, field testing and/or after muscular strength testing (Table 2).

2020 ESC Guidelines on sports cardiology and exercise in patients with cardiovascular disease

Recommendations for participation in recreational/leisure-time sports in asymptomatic individuals with aortic regurgitation

	Aortic regurgitation ^c		
	Recommendation	Class ^a	Level ^b
Mild	Participation in all recreational sports, if desired, is recommended.	I	C
Moderate	Participation in all recreational sports, if desired, should be considered in asymptomatic individuals with a non-dilated LV with LVEF>50% and normal exercise stress test.	IIa	C
Severe	Participation in all recreational sports involving low and moderate intensity, if desired, may be considered with a mild or moderately dilated LV with LVEF>50% and normal exercise stress test.	IIb	C
	Participation in any moderate- or high-intensity recreational exercise is not recommended with LVEF≤50% and/or exercise-induced arrhythmias.	III	C

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LV = left ventricle; LVEF = left ventricular ejection fraction.

^aClass of recommendation.

^bLevel of evidence.

^cFor mixed valvular disease, the recommendation for the predominant lesion should be followed.

Recommendations for participation in competitive sports in asymptomatic individuals with aortic regurgitation

	Aortic regurgitation ^c		
	Recommendation	Class ^a	Level ^b
Mild	Participation in all competitive sports, if desired, is recommended.	I	C
Moderate	Participation in all competitive sports, if desired, should be considered in individuals with LVEF>50% and normal exercise test.	IIa	C
Severe	Participation in most competitive sports involving low to moderate intensity may be considered in individuals with a mild or moderately dilated LV with LVEF>50% and normal exercise stress test.	IIb	C
	Participation in any moderate- or high-intensity competitive sports is not recommended in individuals with severe AR and/or LVEF≤50% and/or exercise-induced arrhythmias	III	C

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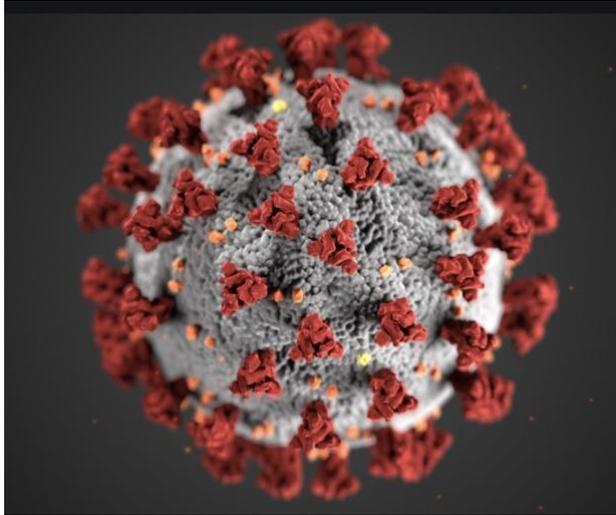
AR = aortic regurgitation; LV = left ventricle; LVEF = left ventricular ejection fraction.

^aClass of recommendation.

^bLevel of evidence.

^cFor mixed valvular disease, the recommendation for the predominant lesion should be followed.

Une année particulière...



Quoi de neuf en réadaptation en 2020?

- Cardiac rehabilitation: 2404
- Covid: 102
- Exercise Training: 839
- Heart Failure: 493
- Elderly: 540
- Oncology: 70
- Tele-rehabilitation: 232
- FA: 53



Secondary prevention through comprehensive cardiovascular rehabilitation: From knowledge to implementation. 2020 update. A position paper from the Secondary Prevention and Rehabilitation Section of the European Association of Preventive Cardiology

Marco Ambrosetti¹, Ana Abreu², Ugo Corrà³, Constantinos H Davos⁴,

European Journal of Preventive
Cardiology

0(0) 1–42

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Recommandations europeennes 2020 Réadaptation

Evaluation précise de chaque patient (cardiologique, biologique, fonctionnelle, diagnostic éducatif)

-Accompagnement activité physique: évaluation, motivation, progression, réduction temps inactif/assis, 150mn/ semaine ou 75mn/semaine selon intensité entraînement

-prescription exercice physique:

Fréquence (5/sem)

Intensité (Borg)

Type: aérobie/ résistance/ souplesse-équilibre

Durée: au moins 30mn

-conseils nutritionnels

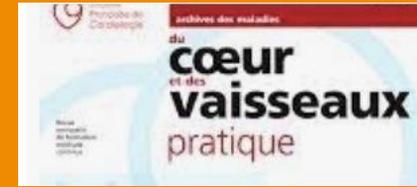
-sevrage tabac

-soutien psycho-social

Indications particulières détaillées

- post sca et post apc
- pac ou chirurgie valvulaire
- TAVI, mitraclip
- IC
- Transplantation
- CRT, DAI
- Assistances
- AOMI
- “challenging”: Sujets âgés, fragiles, femmes, diabétiques, avc, bpcO, IRC, cancer
- non adherents: 5A
 - Ask / Advise / Assess / Assist / Arrange
 - Interroger / Conseiller / Evaluer / Aider / Organiser

Réadaptation: les preuves scientifiques



- Arch Mal Cœur Vaiss Prat mai 2020, MC Iliou
- Coronariens: bénéfiques de l'exercice physique, la prise en charge psychologique, etp, frcv, nutrition, soutien social
 - baisse mortalité CV 26%
 - Baisse ré-hospitalisations 18%
- Insuffisants cardiaques
 - Baisse mortalité 12%
 - Baisse ré-hospitalisations 20-30% (ICFeVG altérée)
 - Amélioration capacités d'effort et QOL
 - HFPEF: QOL, études pronostic (ex DHF et Optimex-CLIN) en cours
- Effets de l'exercice physique
 - FRCV, fonction endothéliale, SNA, fonction respiratoire, effets musculaires



Covid et Réadaptation

- Covid 19: la cause principale de morbi-mortalité dans le monde reste les pathologies cardiovasculaires
- Effets négatifs du confinement:
 - psychologiques (stress, confusion, anxiété)
 - augmentation de la sédentarité et de l'inactivité (santé publique France)
 - augmentation du risque d'événement cardio-vasculaire
- **Besoin urgent de valider les stratégies de télé-réadaptation**
 - ETP
 - Observance médicamenteuse
 - Diététique
 - **Activité physique**



Arch Phys Med Rehabil. 2020 Oct; 101(10): 1835–1838.
Published online 2020 Jun 27. doi: [10.1016/j.apmr.2020.06.004](https://doi.org/10.1016/j.apmr.2020.06.004)

PMCID: PMC7319913
PMID: [32599060](https://pubmed.ncbi.nlm.nih.gov/32599060/)

Cardiac Rehabilitation During Quarantine in COVID-19 Pandemic:
Challenges for Center-Based Programs

Florent Besnier, PhD,^{a,b,*} Mathieu Gayda, PhD,^{a,b} Anil Nigam, MD,^{a,b} Martin Juneau, MD,^{a,b} and Louis Bherer, PhD^{a,b,c}



Téléréadaptation: une nécessité!



European Journal of
**Preventive
Cardiology**



Review

The future is now: a call for action for cardiac telerehabilitation in the COVID-19 pandemic from the secondary prevention and rehabilitation section of the European Association of Preventive Cardiology

**Martijn Scherrenberg^{1,2}, Matthias Wilhelm³,
Dominique Hansen^{4,5,6}, Heinz Völler^{7,8},
Véronique Cornelissen⁹, Ines Frederix^{10,11},
Hareld Kemps^{12,13} and Paul Dendale^{1,2}**

European Journal of Preventive
Cardiology

0(0) 1–21

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DOI: 10.1177/2047487320939671

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Réseaux sociaux, applications, vidéos,
télé-consultations, sites internet, sms

-activité physique

-sevrage tabac, hta, diabète, diététique, soutien
psychologique, ETP

-protection des données personnelles

Téléréadaptation



Smart phone based early CR in patients with Acute Coronary Syndromes: a randomized controlled trial (SMART-REHAB Trial)

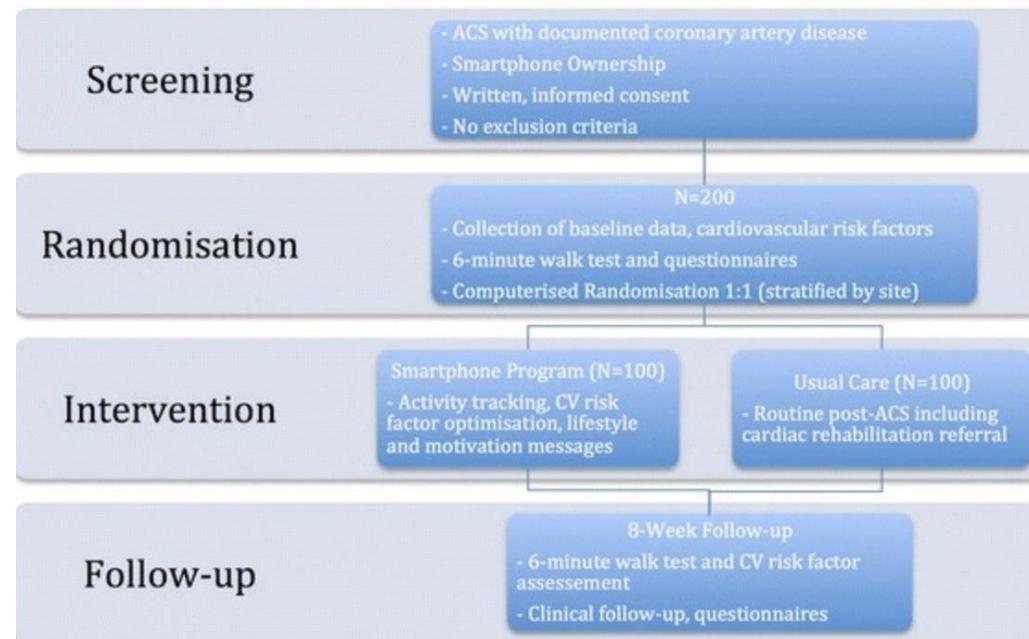
Coronary Artery Dis, august 2020, M.B.Yudi



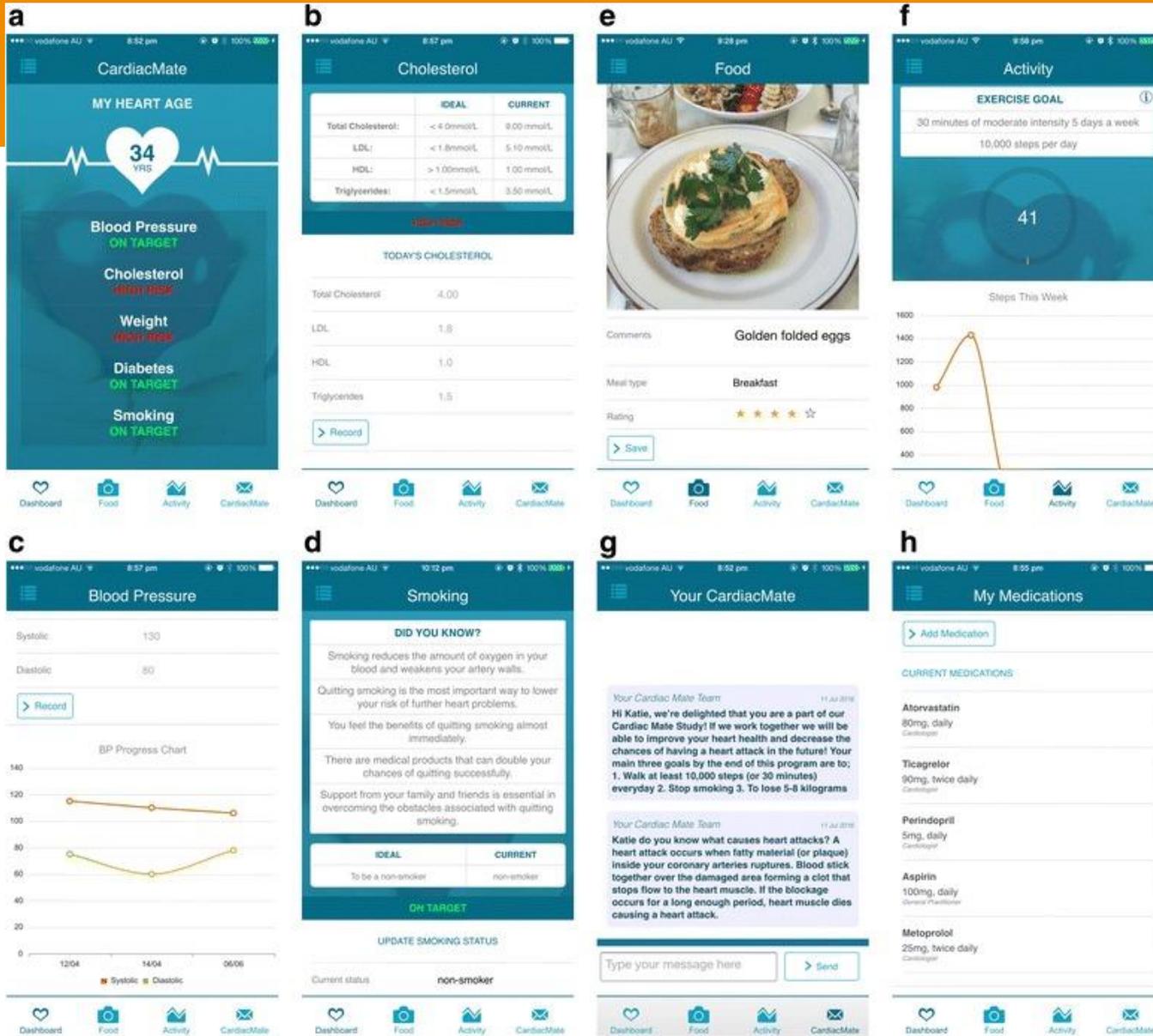
Etude australienne, n = 206

- prise en charge usuelle et réadaptation cardiaque présentielle
- CR par smartphone dès la sortie du CH

Evaluation par TM6 à 8 semaines
Âge 56 +/- 10 ans, 16% femmes



Smart Rehab Trial



A 8 semaines:

- TM6 significativement plus élevé dans le groupe smartphone

-participation et assiduité à un programme de réadaptation classique plus importantes dans le groupe smartphone

-pas de différence sur: sevrage tabac, LDL, PA, dépression, QOL

Etudes randomisées dans la FA



- CR for patients treated for atrial fibrillation with ablation has long term effects:
12 and 24 month follow up results from the randomized **CopenHeart** _{RFA} Trial

S.Risom and al, Arch Phys Med Rehab, Aug 2020

N= 210, FA ablatée, suivi 6 mois

- exercice physique + consultations psycho-éducatives + traitement
- traitement seul

Critères: Pic de vo₂, Questionnaire 12 et 24 mois (perception état de santé, anxiété, dépression), Ré- hospitalisation, Mortalité

Résultats:

- Pic VO₂ plus élevé et niveau d'anxiété dépression plus bas dans le groupe réadapté
- Pas de différence ré-hospitalisations décès

Archives of
Physical Medicine
and Rehabilitation

Cologne exAfib Trial: exercise training in the treatment of paroxysmal AF. Zacher and al, BMJ oct 2020

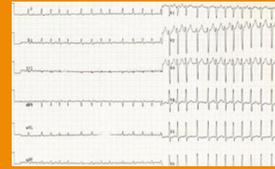
Comparaison HIIT/ MICT/ résistance, 60 patients, 12 semaines

Faisabilité, sécurité, pic VO₂, QOL

BMJ
Open

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Méta-analyse dans la FA



- Atrial fibrillation and CR: an overview

- Acta Cardiol, april 2020, B.Robaye



Méta-analyse des études prospectives randomisées sur 10 ans

- FA paroxystique: CR diminue le temps de FA
- FA chronique persistante: CR ralentit la réponse V et diminue les SF
- CR: safe
- Pas de démonstration de l'effet de la CR sur la mortalité ou les hospitalisations



Insuffisance cardiaque: méta-analyse CROS-HF

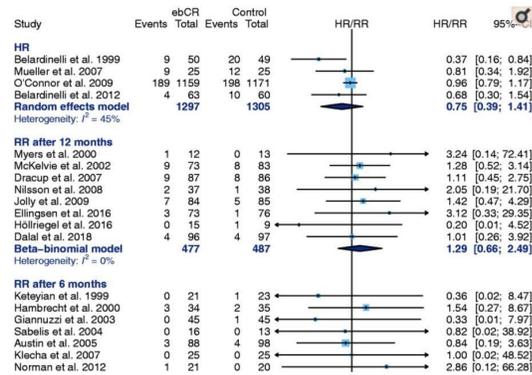


Exercise based CR in patients with reduced left ventricular ejection fraction: the CR Outcome Study in HF (CROS-HF): a systematic review and meta-analysis

Eur J Prev Cardiol, june 2020, Bjarnason-Wehrens

- Méta-analyse des essais randomisés depuis 1999 chez IC Fevg < 40% avec suivi >6 mois (HF action, smartex, reach HF...)
- N= 4481

CROS-HF



Primary endpoint: all-cause mortality, results of the primary analysis. CI: confidence interval; ebCR: exercise-based cardiac rehabilitation; HR: hazard

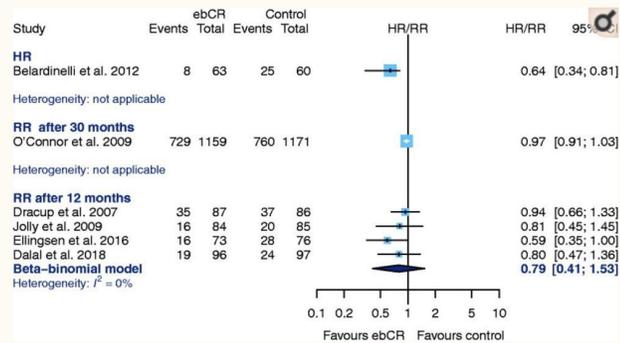


Figure 5.

Secondary endpoint: hospital admission for any reason. CI: confidence interval; ebCR: exercise-based cardiac rehabilitation; HR: hazard ratio; RR: relative risk.

• Résultat:

- -pas d'impact sur la mortalité ou les hospitalisations
- -amélioration de la capacité d'exercice et de la QOL

Hypothèses:

- traitements médicamenteux et électriques si puissants que la readaptation peine à prouver son impact
- faible compliance à l'activité physique au long cours

Extra Match et Cochrane 2019: baisse des ré-hospitalisations
Recos ESC: tous IC, ASAP

Quelle stratégie chez les plus âgés?



CR in older adults

Clin cardiol, feb 2020, KR.Kumar

- Home based CR avec monitoring (tel, appli)
- Center based CR
- Téléréadaptation: possible chez 53% des plus de 65 ans, 79% de 50 à 64 ans
- Nouvelles méthodes: circuit training, Tai Chi, art-thérapie...
- Privilégier un programme « mode de vie »
- Comorbidités, précarité, contexte social et financier

Table 2

Potential advantages and disadvantages of home-based cardiac rehabilitation vs center-based cardiac rehabilitation

Advantages	Disadvantages
Improvement in time to enrollment	Lack of reimbursement by all insurers
Individually tailored	Less intensive exercise training
Expanded capacity and access	Less social support
Patient friendly scheduling and flexibility	Heavier patient self-reliance
Minimal travel/transportation limitation	Lack of a standard HBCR protocol
Greater privacy	Less face-to-face monitoring and communication
Integrates with regular home routine	Safety concerns in higher risk patients

Note: Adapted from Thomas et al home-based cardiac rehabilitation.

Abbreviation: HBCR, home-based cardiac rehabilitation.

Cardio/Onco: même combat!



Oncology and CR: an underrated relationship

J Clin Med, June 2020, Venturini



Cancer et pathologies cv= causes prédominantes de morbi-mortalité avec nombreux FDR communs

RCV: effet protecteur sur

- l'évolution du K
- risque événement CV
- toxicité anthracyclines
- toxicité thérapies ciblées
- toxicité RTE

Baisse mortalité

Amélioration pic VO₂, QOL

Cardiac Rehabilitation	Cardio-Oncology Rehabilitation
Exercise training	Same
Physical activity counseling	Same
Nutrition counseling	Same
Psychosocial management	Same
Weight management	Same
Coronary Risk Factor management: hypertension and dyslipidemia Diabetes Smoking cessation	Useful before mandatory after oncology therapy
Some of these issue also in advanced Heart Failure	Effects after oncology therapy: fatigue, surgical and radiation related impairment, pain syndromes, deconditioning/weakness/balance issues

Cardiopathies congénitales: réadaptation efficace, trop rarement réalisée

CR for adults and adolescents with congenital heart disease

Journal of cardiopulmonary rehabilitation and prevention, Jan 2020

CR sous utilisée dans les cardiopathies congénitales: Evaluation du nombre d'admissions en RC dans le Michigan, étude monocentrique

N=36 patients en 4 ans, âge moyen 22 ans

61% post-opératoire, 30% insuffisance cardiaque, 9% après transplantation

Résultats:

Augmentation de la capacité d'effort de 1,6 met

Augmentation de la fc max de 13/mn

Augmentation du temps d'exercice

Augmentation de la vitesse sur tapis roulant de 0.7 mph

Aucun événement indésirable

Suivi médian: 17 mois, 0 décès

Freins: accessibilité, contexte social, coût



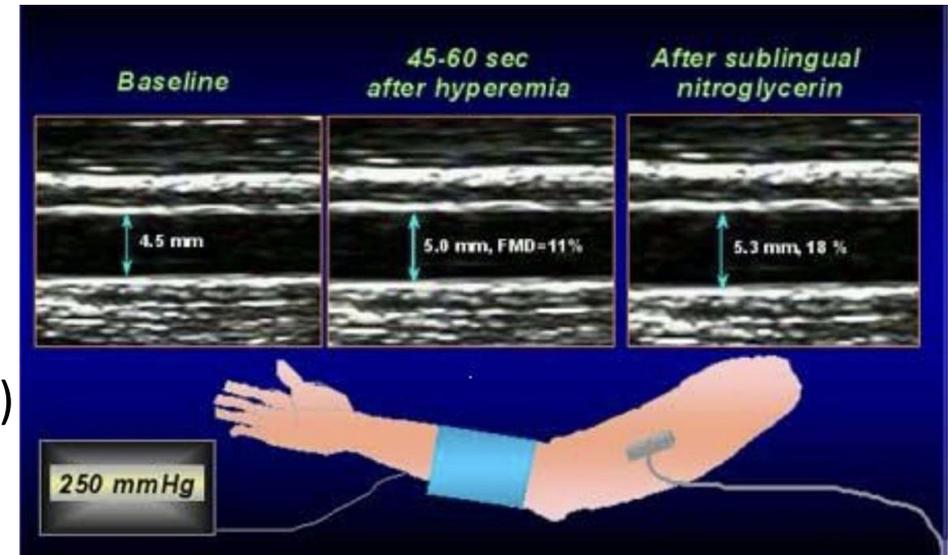
La réadaptation améliore la fonction endothéliale



CR and endothelial function

Lanza, J Clin Med, Aug 2020

Technique: mesure échographique du diamètre d'une artère périphérique suite à une élévation de débit (brassard gonflé 50 mm HG au dessus de la TA systolique)
N= 823



- CR améliore la fonction endothéliale surtout quand elle est très altérée
- Effet multifactoriel: exercice, hygiène de vie, FRCV, observance thérapeutique
- Amélioration de la fonction endothéliale indépendante du type d'exercice (vélo ou tapis, continu ou fractionné)
- Importance de l'**intensité** (70 à 80% FMT pendant 30 mn), de la **régularité** (3/semaine), et de la **durée** (12 semaines)
- Poursuite au long cours cruciale pour maintenir l'amélioration de la fonction endothéliale
- Implications cliniques de l'amélioration de la fonction endothéliale méconnues

Conclusion



- LDL: ESC/AHA
- Vapotage = danger
- HTA gravidique: suivi, prévention au long cours
- Confinement délétère

- Recommandations ESC Sport

- Recommandations ESC Readaptation

- Capacité d'effort et qualité de vie: toujours!
- Morbi-mortalité: souvent
- Covid: la réadaptation continue!
- Télé-réadaptation

Rendez-vous

PROGRAMME FINAL

JOURNÉES NATIONALES

DU **GERS-P**

19 ET 20
NOVEMBRE
2020

Société Française de Cardiologie

CONFÉRENCE EXCEPTIONNELLE :
Négociation médecin/ patient de

E-congrès

INSCRIVEZ-VOUS EN LIGNE

www.congres-gers.fr

JOURNÉES NATIONALES

DU **GERS-P**

GROUPE EXERCICE RÉADAPTATION SPORT PRÉVENTION

SAVE THE DATE

Société Française de Cardiologie

LA ROCHELLE
ESPACE ENCAN

16-17
SEPTEMBRE
2021

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