

SUPPLEMENTAL APPENDIX (online)

2022 ACC Expert Consensus Decision Pathway on Cardiovascular Sequelae of COVID-19 in Adults: Myocarditis and Other Myocardial Involvement, Post-acute Sequelae of SARS-CoV-2 Infection (PASC), and Return to Play

A Report of the American College of Cardiology Solution Set Oversight Committee

WRITING COMMITTEE

Ty J. Gluckman, MD, MHA, FACC, Co-Chair
Nicole M. Bhave, MD, FACC, Co-Chair
Larry A. Allen, MD, MHS, FACC, Vice Chair
Eugene H. Chung, MD, MSc, FACC, Vice Chair
Erica S. Spatz, MD, MHS, FACC, Vice Chair

Enrico Ammirati, MD, PhD
Aaron L. Baggish, MD, FACC
Biykem Bozkurt, MD, PhD, FACC
William Cornwell, III, MD
Kimberly G. Harmon, MD
Jonathan H. Kim, MD, MSc, FACC
Anuradha Lala, MD, FACC
Benjamin D. Levine, MD, FACC

Matthew W. Martinez, MD, FACC
Oyere Onuma, MD, MSc
Dermot Phelan, MD, PhD, FACC
Valentina O. Puntmann, MD, PhD
Saurabh Rajpal, MD, FACC
Pam R. Taub, MD, FACC
Amanda K. Verma, MD, FACC

SOLUTION SET OVERSIGHT COMMITTEE

Ty J. Gluckman, MD, MHA, FACC, Chair

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Nicole M. Bhave, MD, FACC	Javier A. Sala-Mercado, MD, PhD
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Gregory J. Dehmer, MD, MACC	Megan Coylewright, MD, MPH, FACC – <i>Ex Officio</i>
Chayakrit Krittanawong, MD	

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Supplemental Table 1. Previous return to play recommendations for athletes with recent COVID-19*[†]

Guidance document	Asymptomatic	Mild symptoms	Moderate symptoms	Severe symptoms
Baggish et al. Applies to athletes	<ul style="list-style-type: none"> • Evaluation by a medical professional • Consider an ECG 	Defined as non-hospitalized <ul style="list-style-type: none"> • Evaluation by a medical professional • ECG 	Defined as moderate to severe <ul style="list-style-type: none"> • Comprehensive evaluation in conjunction with a sports cardiologist • hs-cTn, natriuretic peptide • ECG • Echocardiogram • Exercise stress test • Ambulatory rhythm monitor • CMR 	
Phelan et al. Applies to competitive athletes and highly active people	<ul style="list-style-type: none"> • No exercise x 2 weeks • Close monitoring • Resumption of exercise over 2 weeks 	Defined as non-hospitalized <ul style="list-style-type: none"> • No exercise while symptomatic • No exercise x 2 weeks after symptom resolution • hs-cTn • ECG • Echocardiogram 	Not addressed	Defined as hospitalized <ul style="list-style-type: none"> • No exercise while symptomatic • No exercise x 2 weeks after symptom resolution • Evaluation after a minimum of 2 weeks of convalescence • Convalescent cardiac testing if not done while hospitalized
Drezner et al. Applies to high school athletes	Not addressed	Defined as non-hospitalized <ul style="list-style-type: none"> • No exercise x 2 weeks and at least 7 days after symptom resolution • Consider ECG 		Defined as more severe illness, hospitalization, or ongoing symptoms <ul style="list-style-type: none"> • Comprehensive medical evaluation • Cardiology consultation

Guidance document	Asymptomatic	Mild symptoms	Moderate symptoms	Severe symptoms
<p>AMSSM</p> <p>Applies to college athletes</p>	<ul style="list-style-type: none"> • No exercise x 10 days • Consider: <ul style="list-style-type: none"> • Medical evaluation • hs-cTn • ECG • Echocardiogram 	<p>Defined as common cold-like symptoms without fever</p> <ul style="list-style-type: none"> • No exercise x 14 days or while symptomatic • Consider: <ul style="list-style-type: none"> • Medical evaluation • hs-cTn • ECG • Echocardiogram 	<p>Defined as flu-like symptoms, fever</p> <ul style="list-style-type: none"> • No exercise x 14 days or while symptomatic • Consider: <ul style="list-style-type: none"> • Medical evaluation • hs-cTn • ECG • Echocardiogram 	<p>Defined as hospitalized</p> <ul style="list-style-type: none"> • Comprehensive medical evaluation • Cardiology consultation
<p>Kim et al.</p> <p>Applies to adult athletes in competitive sports[‡]</p>	<p>Defined as mild symptoms, including anosmia, ageusia, headache, mild fatigue, mild upper respiratory tract illness, and mild gastrointestinal illness</p> <ul style="list-style-type: none"> • No exercise x 10 days • Slow and graded resumption of activity 	<p>Defined as persistent fever, chills, myalgias, lethargy, dyspnea, and chest tightness; cardiovascular symptoms include dyspnea, exercise intolerance, chest tightness, dizziness, syncope, and palpitations</p> <ul style="list-style-type: none"> • No exercise x 10 days after symptom resolution • Evaluation by a medical professional prior to exercise • hs-cTn • ECG • Echocardiogram 	<p>Defined as hospitalized</p> <ul style="list-style-type: none"> • No exercise while symptomatic • No exercise x 2 weeks after symptom resolution • Evaluation by a medical professional if testing was not done while hospitalized 	

* Athlete diagnosed in-season or while training on-site prior to return to full activity.

[†] Initial work-up only; algorithms suggest additional work-up if symptoms recur or persist.

[‡] Other algorithms available for youth sports and masters-level athletes.

AMSSM: American Medical Society for Sports Medicine; CMR: cardiac magnetic resonance imaging; ECG: electrocardiogram; hs-cTn: high-sensitivity cardiac troponin

Supplemental Table 2. Previous return to play recommendations for athletes with remote COVID-19.

Guidance document	Asymptomatic	Mild symptoms	Moderate symptoms	Severe symptoms
Bhatia et al. Applies to elite athletes	<ul style="list-style-type: none"> • Medical/pre-participation evaluation 		Defined as debilitating illness >7 days and/or symptoms compatible with myocarditis and/or pericarditis such as chest pain, breathlessness, palpitations, exertional dizziness, or syncope, but currently asymptomatic <ul style="list-style-type: none"> • ECG • Echocardiogram • Maximal effort exercise test 	Debilitating symptoms, hospitalized with COVID-19, persistent cardiac symptoms, or reduced performance <ul style="list-style-type: none"> • Cardiology consultation • hs-cTn • ECG • CMR • Consider <ul style="list-style-type: none"> • ECG monitor • Maximal effort exercise test
AMSSM Applies to college athletes	<ul style="list-style-type: none"> • Medical/pre-participation evaluation 			<ul style="list-style-type: none"> • Cardiology consultation • ECG • hs-cTn • Echocardiogram • Consider additional testing as indicated
Wilson et al. Applies to elite athletes	<ul style="list-style-type: none"> • Medical/pre-participation evaluation 			<ul style="list-style-type: none"> • Cardiology consultation • ECG • 24-hr Holter monitor • CMR • CPET

CMR: cardiac magnetic resonance imaging; CPET: cardiopulmonary exercise testing; ECG: electrocardiogram; hs-cTn: high-sensitivity cardiac troponin

Supplemental Table 3: Author Relationships With Industry and Other Entities (Comprehensive)—
2022 ACC Expert Consensus Decision Pathway on Cardiovascular Sequelae of COVID-19 in Adults:
Myocarditis and Other Myocardial Involvement, Post-acute Sequelae of SARS-CoV-2 Infection
(PASC), and Return to Play.

Committee Member	Employment	Consultant	Speakers Bureau	Ownership/ Partnership/ Principal	Personal Research	Institutional, Organizational, or Other Financial Benefit	Expert Witness
Ty J. Gluckman (Co-Chair)	Providence Heart Institute Providence St. Joseph Health— Medical Director, Center for Cardiovascular Analytics, Research, and Data Science (CARDS)	<ul style="list-style-type: none"> Knowledge to Practice† Premier, Inc. 	None	<ul style="list-style-type: none"> Doximity† 	None	None	<ul style="list-style-type: none"> Defendant, Iron Deficiency Anemia, 2021†
Nicole Martin Bhave (Co-Chair)	University of Michigan Medical School— Associate Professor of Medicine Cardiovascular Medicine	<ul style="list-style-type: none"> Knowledge to Practice† 	None	None	None	None	None
Larry A. Allen (Vice Chair)	University of Colorado School of Medicine— Professor of	<ul style="list-style-type: none"> Abbott Laboratories ACI Clinical† 	None	None	<ul style="list-style-type: none"> American Heart Association† NIH NHLBI† 	<ul style="list-style-type: none"> Colorado Program for Patient Centered Decisions* 	None

	Medicine Kenneth Poirier Chair Associate Head for Clinical Affairs, Cardiology Medical Director, Advanced Heart Failure	<ul style="list-style-type: none"> American Heart Association, Circulation: Heart Failure, Associate Editor† Amgen Inc. Boston Scientific† Cytokinetics Medscape Novartis Corporation UpToDate 			<ul style="list-style-type: none"> PCORI† 	<ul style="list-style-type: none"> Janssen Pharmaceuticals, Inc Medtronic Vascular CHAMP-HF, Novartis Corporation‡ GUIDE-HF, Abbott Laboratories‡ MANAGE-HF, Boston Scientific‡ 	
Eugene H. Chung <i>(Vice Chair)</i>	University of Michigan Medical School— Professor of Medicine, Director, Sports Cardiology Clinic	None	None	None	None	None	None
Erica Sarah Spatz <i>(Vice Chair)</i>	Yale Univ School of Medicine— Associate Professor, Section of Cardiovascular Medicine Director, Preventive Cardiovascular Health Program	None	None	None	<ul style="list-style-type: none"> Centers for Medicare and Medicaid Services† Food and Drug Administration† 	None	None
Enrico Ammirati	Niguarda Hospital, Milan, Italy. Cardiologist, Advanced Heart Failure, LVAD	<ul style="list-style-type: none"> American Heart Association Circulation: Heart Failure, Associate Editor† Cytokinetics 	None	None	None	<ul style="list-style-type: none"> Myocarditis Foundation 	None

	and Cardiac Transplant						
Aaron L. Baggish	Massachusetts General Hospital-- Cardiovascular Performance Program Director	None	None	None	None	None	None
Biykem Bozkurt	Baylor College of Medicine and DeBakey VA Medical Center Cardiology Department— Mary and Gordon Cain Chair; W.A. “Tex” and Deborah Moncrief, Jr., Chair; Professor of Medicine Medical Care Line Executive, DeBakey VA Medical Center; Director, Winters Center for Heart Failure Research; Associate Director, Cardiovascular Research	<ul style="list-style-type: none"> • Amgen • Relypsa/Vifor Pharma • scPharmaceuticals, Inc 	None	None	<ul style="list-style-type: none"> • LivaNova USA (DSMB) 	<ul style="list-style-type: none"> • Abbott Laboratories† • ACC/AHA Task Force for Data Standards* • ACC/AHA Task Force for Performance Measures* • Circulation • Heart Failure Society of America, Immediate Past President* 	None

	Institute; Vice-Chair of Medicine, Baylor College of Medicine						
William Cornwell, III	University of Colorado Anschutz Medical Campus—Cardiologist, Advanced Heart Failure, LVAD and Cardiac Transplant	None	None	None	None	None	None
Kimberly G. Harmon	University of Washington—Team Physician	None	None	None	None	<ul style="list-style-type: none"> • 98point6* 	None
Jonathan H. Kim	Emory Clinical Cardiovascular Research Institute, Emory School of Medicine—Associate Professor of Medicine, Director of Sports Cardiology	None	None	None	None	None	None
Anuradha Lala	Icahn School of Medicine at Mount Sinai—Associate Professor, Cardiology & Population	None	None	None	<ul style="list-style-type: none"> • Susquana (DSMB) 	<ul style="list-style-type: none"> • Bioventrix* • Zoll* • HEART-FID, American Regent‡ • PARAGLIDE, Novartis Corporation‡ 	None

	Health Science; Program Director, Advanced HF & Transplant Fellowship					<ul style="list-style-type: none"> TRANSFORM, NHLBI† 	
Benjamin D. Levine	Institute for Exercise & Environmental Medicine— Director; Texas Health Presbyterian Dallas—Chair for Wellness and Chair for Cardiovascular Research; The University of Texas Southwestern Medical Center— Professor of Medicine and Cardiology	None	None	<ul style="list-style-type: none"> Amgen Inc. † 	None	None	None
Matthew M. Martinez	Morristown Medical Center —Director, Sports Cardiology and Hypertrophic Cardiomyopathy center	<ul style="list-style-type: none"> Bristol Myers Squibb Major League Soccer 	None	None	None	None	None
Oyere Onuma	Yale University School of Medicine— Assistant	None	None	None	None	None	None

	Professor of Cardiology						
Dermot Phelan	Sanger Heart and Vascular Institute, Atrium Health— Director of Sports Cardiology	<ul style="list-style-type: none"> • Bristol Myers Squibb 	None	None	None	None	None
Valentina Puntmann	University Hospital Frankfurt— Associate Professor Consultant Cardiologist (Cardiovascular Magnetic Resonance Imaging)	<ul style="list-style-type: none"> • Bayer AG • CMR International 	None	None	None	None	None
Saurabh Rajpal	The Ohio State University Wexner Medical Center— Assistant Professor	None	<ul style="list-style-type: none"> • Simply Speaking 	None	None	<ul style="list-style-type: none"> • ADAPT Trial, United Therapeutics‡ 	None
Pam R. Taub	University of California San Diego Medical Ctr— Professor of Medicine; Director of Step Family Foundation Cardiovascular	<ul style="list-style-type: none"> • Amgen • Boehringer Ingelheim Pharmaceuticals, Inc† • Esperion† • Medtronic • Novo Nordisk Inc.† 	None	<ul style="list-style-type: none"> • Epirium Bio* 	None	None	None

	Rehabilitation and Wellness Center	<ul style="list-style-type: none"> • Sanofi-Aventis 					
Amanda Verma	Washington University School of Medicine-- Assistant Professor of Medicine, Advanced Heart Failure and Transplant Cardiology; Director of COVID Cardiology Clinics	None	None	None	None	None	None

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* No financial benefit.

† Significant relationship

‡ This disclosure was entered under the Clinical Trial Enroller category in the ACC's disclosure system. To appear in this category, the author acknowledges that there is no direct or institutional relationship with the trial sponsor as defined in the ACC Disclosure Policy for Writing Committees.