

## **JAMES WACHOB COVELL, M.D.**

### **Curriculum Vitae**

#### **Date and Place of Birth**

August 13, 1936  
San Francisco, CA

#### **EDUCATION**

Carleton College, B.A., 1958  
University of Chicago, School of Medicine  
M.D., 1962

#### **EMPLOYMENT AND POSTDOCTORAL TRAINING**

|                             |  |
|-----------------------------|--|
| July, 1962 - July, 1963     | Intern in Surgery, University of Chicago<br>Hospitals and Clinics, Chicago, IL   |
| July, 1963 - July, 1964     | Resident in Surgery, University of Chicago<br>Hospitals and Clinics, Chicago, IL   |
| July, 1964 - July, 1966     | Research Associate, Cardiology Branch,<br>National Heart Institute, Bethesda, MD   |
| July, 1966 - June, 1968     | Senior Investigator, Cardiology Branch,<br>National Heart Institute, Bethesda, MD  |
| June, 1968 - June, 1970     | Assistant Professor of Medicine and<br>Bioengineering, University of California,<br>San Diego, School of Medicine,<br>Department of Medicine, La Jolla, CA |
| July, 1970 - June, 1976     | Associate Professor of Medicine and<br>Bioengineering, University of California,<br>San Diego, School of Medicine,<br>Department of Medicine, La Jolla, CA |
| July, 1976 - November, 2001 | Professor of Medicine and Bioengineering,<br>University of California, San Diego,<br>School of Medicine, Department of Medicine,<br>La Jolla, CA           |
| January 2002 - present      | Professor of Medicine Emeritus<br>University of California, San Diego,<br>School of Medicine, Department of Medicine,<br>La Jolla, CA                      |
| Military Service            | S.A. Surgeon, U.S. Public Health Service, Bethesda,<br>MD  |
| Licensure                   | Diplomate - National Board of Medical Examiners, 1963  |

## **MEMBERSHIPS AND SERVICE**

### **Professional Memberships:**

American Physiological Society, Member #1255/013045  
    APS Circulation Group (1971), Fellow; Chair (1992)  
        Program Committee Representative (1984 - 85)  
        Section on Mechanics (1986 - 1991), Chair (1987 - 1991)  
        Section Affairs Committee (1992-1995)  
American Heart Association  
    AHA Council on Circulation (1978), Fellow  
        Executive Committee Council on Circulation (1990-94)  
        Nominating Committee Council on Circulation (1994)  
        Credentials Committee Council on Circulation (1994-96)  
    AHA Council on Basic Science (1983), Fellow  
        Katz Award Selection Committee (1987-88)  
    AHA San Diego Chapter Board of Directors (1984-90)  
    AHA California Affiliate Research Committee, (1985-91)  
        Vice President, Chair, (1989 - 1991)  
Cardiac Muscle Society (1971)  
    Cardiac Muscle Society (1987-88), Treasurer, Chair  
American Association for the Advancement of Science  
American Institute for Medical and Biological Engineering  
    Fellow of the Institute, 1992  
Cardiovascular Dynamic Society  
International Society for Heart Research, American Section  
Council of the American Society for Clinical Investigation, honorary member, 1995

### **Editorial Board Service:**

American Journal of Physiology (1972-75, 1976-78, 1986-1993)  
Circulation Research (1974-77)  
Circulation (1978-81) (1987-88); Associate Editor (1988-1993)  
Ad Hoc Referee-  
    American Journal of Physiology, Circulation Research, Circulation,  
    American Heart Journal, American Journal of Cardiology, Journal of  
    Clinical Investigation, Journal of American College of Cardiology

### **Other Service:**

National Heart, Lung and Blood Institute  
    Cardiovascular and Pulmonary Study Section (1978-82) (1998- Present),  
    Member  
    NIH Program Project Committee A (1988-92)  
Veterans Administration Cardiovascular Review Board, Member (1983-86), Chair  
(1987-88)

American Heart Association  
Abstract Reviewer  
Credentials Committee (1994-1996)  
Summer Laboratory Supervisor  
National Board of Medical Examiners  
Test Material Development Committee for Physiology (1995-97)  
UC Tobacco-Related Disease Research Program  
Scientific Advisory Committee (1995-2000t)

## **SCHOOL OF MEDICINE TEACHING AND ADMINISTRATIVE ACTIVITIES**

### **Past Teaching Responsibilities**

Organ Physiology and Pharmacology (SOM 206)  
Selected Topics in Cardiovascular Instrumentation (Med 221)  
Advanced Physiology (Med 240)  
Advanced Cardiovascular Physiology (Med 228)  
Introduction to Research in Physiology and Pharmacology (Phys/Pharm 297)  
Systemic Physiology (BMS 213)

### **Past - School of Medicine Committee Service**

Organ Physiology Core Course Committee (1968 - present)  
Hearing Panel for Non-senate Academic Appointees (1990 - present)  
Medical Scientist Training Program  
Executive Committee Program, Student Advisor (1994-1998)  
Informatics Curriculum Task Force  
Academic Senate  
Panel of Counselors (1995-present)  
Chairman, Faculty Committee of Animal Investigators (1995-96)  
Active learning in the Basic Clinical Context in the Basic Science Task Force (1996)  
NIH Summer Research Grant Advisory Committee (1996-present)  
Ombudsmen Committee (1996-present)  
Minor Propositions Committee (1997-1998)  
ISP Committee (1993-1994)  
Computing Advisory Committee, (Chair, 1987-1992)  
Committee on Education Policy, Chair (1986-88)  
Committee on Educational Policy (1981-83)  
Core Curriculum Committee (1979-83, V. Chairman 1981-82, Chairman 1982-83)  
Medical Students Advisory Council (Chairman 1976-78, Co-Chairman 1978-82)  
Biostatistics Core Course Committee (1978-86)  
Faculty Council (1974-76, 1978-81)  
Recruitment and Admissions Committee (1970-75, 1985-86, Chairman 1975-76)

### **Past - Campus Committee Service**

Animal Issues Advisory Committee (1991 - present)  
Institute for Biomedical Engineering (1992-present)  
Hearing Committee, grievance committee of non-senate Academic Appointees (1994-present)  
DOMCAP -Dept. of Med. Committee on Appointments and Promotions (1995-1998)  
Ad Hoc Promotions Committees  
Hearing Committee, Non-Senate Academic Grievance Committee, (1996-1998)  
Animal Subjects Committee, Chair (1996-1999)  
FBBS -Faculty of Basic Biomedical Sciences Committee,  
Steering Committee (1996-2000)  
Scientific Advisory Committee, UC Tobacco-Related Research Program (TRDRP) (1997-2000)  
Animal Care Advisory Committee (1998-present)  
Non-Senate Hearing Officer Panel (1999-present)  
Multi-Campus Organization Research Unit 2001  
Workgroup to Review Facilities Requirements for Biosafety Level 3 and Animal Research Activities 2001  
Specialists Appointment and Review Panel (1976-80)  
Personnel Appeals (1977-79)  
Bookstore Advisory Committee (1977-78)  
Animal Care Committee (1981-83)  
UCSD Cray Computer Time Allocation Committee (1986-90)  
CBS 48 Hours with Drs. Engler and Schmid-Schoenbein organized and presented segment on CBS 48 Hours (aired nationally in February of 1989) on The Use of Animals in Biomedical Research.  
Purchased Utilities Management Committee (1991-1992)  
Building Advisory Committee (1993-1994)

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## **Research Interests**

Dr. Covell retired from active teaching in 2001 and following a decade in the laboratory recently left the University. Dr. Covell now devotes his time to grandchildren (3), woodworking and keeping the fish population off the coast of San Diego under control <http://seabear.net>

**Graduate Students Supervised**

| <u>Student</u>        | <u>Degree</u> | <u>Program</u>      | <u>Role on Committee</u> | <u>Graduation</u> |
|-----------------------|---------------|---------------------|--------------------------|-------------------|
| Helene Hoffman        | Ph.D.         | Physiol/Pharmacol   | Chair                    | 1980              |
| Francisco Villarreal  | M.D./Ph.D.    | Physiol/Pharmacol   | Chair                    | 1989              |
| Devin Imoto           | Ph.D.         | Chemistry           | Member                   | 1987              |
| Joseph Higgins        | Ph.D.         | Bioengineering      | Member                   | 1987              |
| Kenneth Boheler       | Ph.D.         | Physiol/Pharmacol   | Member                   | 1988              |
| Brett Popovitch       | Ph.D.         | Physiol/Pharmacol   | Member                   | 1988              |
| Brian Guth            | Ph.D.         | Physiol/Pharmacol   | Co-Chair                 | 1983              |
| Primal Delanerolle    | Ph.D.         | Physiol/Pharmacol   | Member                   | 1979              |
| Timothy Gregory       | Ph.D.         | Physiol/Pharmacol   | Member                   | 1980              |
| Charles High          | Ph.D.         | Physiol/Pharmacol   | Member                   | 1980              |
| Randall Kaul          | Ph.D.         | Physiol/Pharmacol   | Co-Chair                 | 1980              |
| Jonathan Tepper       | M.D./Ph.D.    | Physiol/Pharmacol   | Member                   | 1986              |
| Margaret Barrington   | Ph.D.         | Physiol/Pharmacol   | Co-Chair                 | 1982              |
| David Levin           | M.D./Ph.D.    | Physiol/Pharmacol   | Member                   | 1989              |
| Jeffrey Omens         | Ph.D.         | Bioengineering      | Member                   | 1988              |
| Julius Guccione       | Ph.D.         | Bioengineering      | Member                   | 1989              |
| Ghassan Kassab        | Ph.D.         | Bioengineering      | Member                   | 1990              |
| Deidre MacKenna       | Ph.D.         | Bioengineering      | Chair                    | 1993              |
| Jack Rogers           | Ph.D.         | Bioengineering      | Member                   | 1993              |
| Karen May-Newman      | Ph.D.         | Bioengineering      | Member                   | 1993              |
| Ken Rodriguez         | Ph.D.         | Bioengineering      | Member                   | 1993              |
| Sandra VanLeuven      | Ph.D.         | Bioengineering      | Co-Chair                 | 1994              |
| Jeffrey Holmes        | M.D./Ph.D.    | Bioengineering      | Chair                    | 1995              |
| Kevin Costa           | Ph.D.         | Bioengineering      | Co-Chair                 | 1995              |
| Ann Lee               | Ph.D.         | Bioengineering      | Co-Chair                 | 1996              |
| Anne Marie Gallagher  | Ph.D.         | Biomedical Sciences | Co-Chair                 | 1997              |
| Sara Vaplon           | Ph.D.         | Bioengineering      | Member                   | 1997              |
| William Karlton       | Ph.D.         | Bioengineering      | Member                   | 1998              |
| Reza Mazhari          | Ph.D.         | Bioengineering      | Member                   | 1999              |
| Fred Vetter           | Ph.D.         | Bioengineering      | Member                   | 1999              |
| Gang Jin              | Ph.D.         | Bioengineering      | Member                   | 1999              |
| Keith Herrmann        | Ph.D.         | Bioengineering      | Member                   | 1999              |
| Ilka Lorenzen-Schmidt | Ph.D.         | Bioengineering      | Member                   | 1999              |
| Amy Cavalli           | Ph.D.         | Bioengineering      | Member                   | 1999              |

**Medical Student Independent Study Areas**

| <u>Student</u>      | <u>Date</u> | <u>Student</u>  | <u>Date</u> |
|---------------------|-------------|-----------------|-------------|
| Richard McPherson   | 1973        | Ronda Henry     | 1992        |
| Peter Libby         | 1973        | Sanjay Grover   | 1993        |
| Richard Kent        | 1975        | Ed Levine       | 1993        |
| Morris Balfour      | 1977        | David Youmans   | 1993        |
| Robert Raines       | 1975        | Linda Chu       | 1995        |
| John Wrench         | 1975        | David Milkes    | 1995        |
| William Wong        | 1976        | Robert Gallegos | 1995        |
| Steven Ung          | 1976        | Mark Davis      | 1995        |
| Dale Herriott       | 1976        | Steven Ryu      | 1996        |
| John Kroener        | 1976        | Jimmy Wong#     | 1996        |
| Victor Lopez-Cuenca | 1976        | Monica Kostelec | 1998        |
| Paul Boinay         | 1977        | Sara Robert     | 1998        |
| *Fred Greensite     | 1977        | Ken Abbey       | 1998        |
| Steven Brown        | 1978        | Peter Phan      | 1999        |

|                     |      |               |      |
|---------------------|------|---------------|------|
| MaryBeth Pereira    | 1978 | Sara Epperson | 2000 |
| David Tellez        | 1981 | Andrew Lu     | 2000 |
| Luis Lancer         | 1982 | Hoang Nguyen  | 2001 |
| Lawrence Cosner     | 1982 | Kris Brown    | 2001 |
| Joseph Kozima       | 1984 | Martin Laufik | 2001 |
| Wade Grindle        | 1986 | Gary Mak      | 2001 |
| William Fulcher     | 1987 | Lee Lovejoy   | 2001 |
| ***Elizabeth Gerard | 1987 | Janak Parikh  | 2001 |

\* Hamburger Award, \*\*Honorable Mention, Hamburger Award # Carew Award

## A. PUBLISHED WORK

### I. Original Articles

1. Lancaster JR, Stewart PB, Lennertz J, Covell JW, Moulder PV: Effects of hypoxia on the pulmonary vasculature of the dog. Arch Surg 87:485-488, 1963.
2. Sonnenblick EH, Ross J. Jr, Covell JW, Kaiser GA, Braunwald E: Velocity of contraction as a determinant of myocardial oxygen consumption. Am J Physiol 209:919-927, 1965.
3. Ross J Jr, Covell JW, Sonnenblick EH, Braunwald E: Contractile state of the heart characterized by force velocity relations in variable afterloaded and isovolumic beats. Circ Res 18:149-163, 1966.
4. Pool PE, Covell JW, Chidsey CA, Braunwald E: Myocardial high energy phosphate stores in acutely induced hypoxic heart failure. Circ Res 19:221-229, 1966.
5. Covell JW, Chidsey CA, Braunwald E: Reduction of the cardiac response to postganglionic sympathetic nerve stimulation in experimental heart failure. Circ Res 19:51-56, 1966.
6. Covell JW, Ross J Jr, Sonnenblick EH, Braunwald E: Comparison of the force-velocity relation and the ventricular function curve as measures of the contractile state of the intact heart. Circ Res 19:364-372, 1966.
7. Covell JW, Braunwald E, Ross J Jr, Sonnenblick EH: Studies on digitalis. XVI. Effects of myocardial oxygen consumption. J Clin Invest 45:1535-1542, 1966.
8. Sonnenblick EH, Ross J Jr, Covell JW, Braunwald E: Alterations in resting length-tension relations of cardiac muscle induced by changes in contractile force. Circ Res 19:980-988, 1966.

9. Covell JW, Pool PE, Braunwald E: Effects of acutely induced ischemic heart failure on myocardial high energy phosphate stores. *Proc Soc Exp Biol Med* 124:126-131, 1967.
10. Ross J Jr, Covell JW, Sonnenblick EH: The mechanics of left ventricular contraction in acute experimental cardiac failure. *J Clin Invest* 46:299-312, 1967.
11. Covell JW, Ross J Jr, Taylor R, Sonnenblick EH, Braunwald E. Effects of increasing frequency of contraction on the force velocity relation of left ventricle. *Cardiovasc Res* 1:2-8, 1967.
12. Pool PE, Covell JW, Levitt M, Gibb J, Braunwald E: Reduction of cardiac tyrosine hydroxylase activity in experimental congestive heart failure. *Circ Res* 20:349-353, 1967.
13. Buccino O, Covell JW, Sonnenblick EH, Braunwald E: Effects of serotonin on the contractile state of the myocardium. *Am J Physiol* 213:483-486, 1967.
14. Taylor RR, Ross J Jr, Covell JW, Sonnenblick EH: A quantitative analysis of left ventricular myocardial function in the intact, sedated dog. *Circ Res* 21:99-115, 1967.
15. Graham TP, Ross J Jr, Covell JW, Sonnenblick EH, Clancy RL: Myocardial oxygen consumption in acute experimental cardiac depression. *Circ Res* 21:123-138, 1967.
16. Taylor RR, Covell JW, Sonnenblick EH, Ross J Jr: Dependence of ventricular distensibility on filling the opposite ventricle. *Am J Physiol* 213:711-718, 1967.
17. Ross J Jr, Sonnenblick EH, Covell JW, Kaiser GA, Spiro D: The architecture of the heart in systole and diastole: technique of rapid fixation and analysis of left ventricular geometry. *Circ Res* 21:409-421, 1967.
18. Sonnenblick EH, Ross J Jr, Covell JW, Spotnitz HM, Spiro D: The ultrastructure of the heart in systole and diastole. Changes in sarcomere length. *Circ Res* 21:423-431, 1967.
19. Urschel CW, Covell JW, Sonnenblick EH, Ross J Jr, Braunwald E: Myocardial mechanics in aortic and mitral valvular regurgitation: the concept of instantaneous impedance as a determinant of the performance of the intact heart. *J Clin Invest* 47:867-883, 1968.
20. Graham TP, Covell JW, Sonnenblick EH, Ross J Jr, Braunwald E: Control of myocardial oxygen consumption: relative influence of contractile state and tension development. *J Clin Invest* 47:375-385, 1968.

21. Urschel CW, Covell JW, Sonnenblick EH, Ross J Jr, Braunwald E: Effects of decreased aortic compliance on performance of the left ventricle. *Am J Physiol* 214:298-304, 1968.
22. Glick G, Covell JW: Relative importance of the carotid and aortic baroreceptors in the reflex control of heart rate. *Am J Physiol* 214:955-961, 1968.
23. Pool PE, Norris GF, Lewis RM, Covell JW: A biopsy drill permitting rapid freezing. *J Applied Physiol* 24:832-833, 1968.
24. Taylor RR, Covell JW, Ross J Jr: Left ventricular function in experimental aorto-caval fistula with circulatory congestion and fluid retention. *J Clin Invest* 47:1333-1342, 1968.
25. Urschel CW, Covell JW, Graham TP, Clancy RL, Ross J Jr, Sonnenblick EH, Braunwald E: Effects of acute valvular regurgitation on the oxygen consumption of the canine heart. *Circ Res* 23:33-43, 1968.
26. Taylor RR, Covell JW, Ross J Jr: Influence of the thyroid state on left ventricular tension-velocity relations in the intact, sedated dog. *J Clin Invest* 48:775-784, 1969.
27. Taylor RR, Covell JW, Ross J Jr: Volume-tension diagrams of ejecting and isovolumic contractions in left ventricle. *Am J Physiol* 216:1097-1102, 1969.
28. Boerth RC, Covell JW, Seagren SC, Pool PE: High energy phosphate concentrations in dog myocardium during stress. *Am J Physiol* 216:1103-1106, 1969.
29. Boerth RC, Covell JW, Pool PE, Ross J Jr: Increased myocardial oxygen consumption and contractile state associated with increased heart rate in dogs. *Circ Res* 24:725-734, 1969.
30. Spotnitz HM, Covell JW, Ross J Jr, Braunwald E: Left ventricular mechanics and oxygen consumption during arterial counterpulsation. *Am J Physiol* 217:1352-1358, 1969.
31. Covell JW, Fuhrer JS, Boerth RC, Ross J Jr: Production of isotonic contractions in the intact canine left ventricle. *J Appl Physiol* 27:577-581, 1969.
32. Braunwald E, Covell JW, Maroko PR, Ross J Jr: Effects of drugs and of counterpulsation on myocardial oxygen consumption: observations on the ischemic heart. *Circulation* 39/40:IV220-IV228, 1969.
33. Gault JH, Covell JW, Braunwald E, Ross J Jr: Left ventricular performance following correction of free aortic regurgitation. *Circulation* 42:773-780, 1970.



34. Ross J Jr, Sonnenblick EH, Taylor RR, Spotnitz HM, Covell JW: Diastolic geometry and sarcomere lengths in the chronically dilated canine left ventricle. *Circ Res* 28:49-61, 1971.
35. Maroko PR, Kjekshus JK, Sobel BE, Watanabe T, Covell JW, Ross J Jr, Braunwald E: Factors influencing infarct size following experimental coronary artery occlusions. *Circulation* 43:67-82, 1971.
36. Coleman HN, Taylor RR, Pool PE, Whipple GH, Covell JW, Ross J Jr, Braunwald E: Congestive heart failure following chronic tachycardia. *Am Heart J* 81:790-798, 1971.
37. Burns JW, Covell JW, Meyers R, Ross J, Jr: Comparison of directly measured left ventricular wall stress and stress calculated from geometric reference figures. *Circ Res* 28:611-621, 1971.
38. Schelbert HR, Covell JW, Burns JW, Maroko PR, Ross J, Jr: Observations on factors affecting local forces in the left ventricular wall during acute myocardial ischemia. *Circ Res* 29:306-316, 1971.
39. Mason DT, Braunwald E, Covell JW, Sonnenblick EH, Ross J, Jr: Assessment of cardiac contractility: the relation between the rate of pressure rise and ventricular pressure during isovolumic systole. *Circulation* 44:47-58, 1971.
40. Boerth RC, Covell JW: Mechanical performance and efficiency of the left ventricle during stimulation. *Am J Physiol* 221:1686-1691, 1971.
41. Schelbert HR, Ashburn WL, Covell JW, Simon AL, Braunwald E, Ross J, Jr: Feasibility and hazards of the intracoronary injection of radioactive serum albumin macroaggregates for external myocardial perfusion imaging. *Invest Radiol* 6:379-387, 1971.
42. Maroko PR, Bernstein EF, Libby P, DeLaria GA, Covell JW, Ross J, Jr, Braunwald E: Effects of intra-aortic balloon counterpulsation on the severity of myocardial ischemic injury following acute coronary occlusion: counterpulsation and myocardial injury. *Circulation* 45:1150-1159, 1972.
43. Maroko PR, Libby P, Covell JW, Sobel BE, Ross J, Jr, Braunwald E: Precordial S-T segment elevation mapping: an atraumatic method for assessing alterations in the extent of myocardial ischemic injury. *Am J Cardiol* 29:223-230, 1972.
44. Watanabe T, Covell JW, Maroko PR, Braunwald E, Ross J, Jr: Effects of increased arterial pressure and positive inotropic agents on the severity of myocardial ischemia in the acutely depressed heart. *Am J Cardiol* 30:371-377, 1972.

45. Maroko PR, Libby P, Sobel BE, Bloor CM, Sybers HD, Shell WE, Covell JW, Braunwald E: Effect of glucose insulin-potassium infusion on myocardial infarction following experimental coronary artery occlusion. *Circulation* 45:1160-1175, 1972.
46. McCullagh WH, Covell JW, Ross J, Jr: Left ventricular dilatation and diastolic compliance changes during chronic volume overloading. *Circulation* 45:943-951, 1972.
47. Romero T, Covell JW, Friedman WF: A comparison of pressure volume relations of the fetal, newborn and adult heart. *Am J Physiol* 222:1285-1290, 1972.
48. Ginks WR, Sybers HD, Maroko PR, Covell JW, Sobel BE, Ross J, Jr: Coronary artery reperfusion. II. Reduction of myocardial infarct size at 1 week after the coronary occlusion. *J Clin Invest* 51:2717-2723, 1972.
49. Burns JW, Covell JW: Myocardial oxygen consumption during isotonic and isovolumic contractions in the intact heart. *Am J Physiol* 223:1491-1497, 1972.
50. Spann JF, Covell JW, Eckberg EL, Sonnenblick EH, Ross J, Jr, Braunwald, E: Contractile performance of the hypertrophied and chronically failing cat ventricle. *Am Physiol* 223:1150-1157, 1972.
51. McPherson RA, Lavelle JF, Friedman WF, Covell JW: A technique for the automated analysis of cardiac muscle function. *Computer Biomed Res* 5:684-699, 1972.
52. Libby P, Maroko PR, Covell JW, Malloch CI, Ross J, Jr, Braunwald, E: Effect of proctolol on the extent of myocardial ischemic injury after experimental coronary occlusion and its effects on ventricular function in the normal and ischemic heart. *Cardiovasc Res* 7:167-173, 1973.
53. Burns JW, Covell JW, Ross J, Jr: Mechanics of isotonic left ventricular contractions. *Am J Physiol* 224:725-732, 1973.
54. Lavelle JF, Bloor CM, Covell JW: A technique for processing coronary hemodynamic data with a small hybrid computing system. *Computer Biol Med* 3:47-54, 1973.
55. Yoran C, Covell JW, Ross J, Jr: Structural basis for the ascending limb of left ventricular function. *Circ Res* 32:297-303, 1973.
56. Yoran C, Covell JW, Ross J, Jr: Rapid fixation of the left ventricle: continuous angiographic and dynamic recordings. *J Appl Physiol* 35:155-157, 1973.

57. Kirkpatrick SW, Covell JW, Friedman WF: A new technique for the continuous assessment of fetal and neonatal cardiac performance. *Am J Obstet Gynecol* 116:963-972, 1973.
58. Shell WE, Lavelle JF, Covell JW, Sobel BE: Early estimation of myocardial damage in conscious dogs and patients with evolving acute myocardial infarction. *J Clin Invest* 52:2579-2590, 1973.
59. MacGregor DC, Covell JW, Mahler F, Dilley RB, Ross J, Jr: Relations between afterload, stroke volume and descending limb of Starling's curve. *Am J Physiol* 227:884-890, 1974.
60. Brown BG, Gundel WD, Gott VL, Covell JW: Coronary collateral flow following acute coronary occlusion: a diastolic phenomenon. *Cardiovasc Res* 8:621-631, 1974.
61. Davidson DM, Covell JW, Malloch CI, Ross J, Jr: Factors influencing indices of left ventricle contractility in the conscious dog. *Cardiovasc Res* 8:229-312, 1974.
62. Ross J, Jr, Covell JW, Mahler F: Contractile responses of the left ventricle to acute and chronic stress. *Eur J Cardiol* 1/3:325-332, 1974.
63. Ramakrishna NC, Sobel BE, Shell WE, Covell JW: Altered myocardial oxygen consumption after coronary occlusion in anesthetized dogs. *Am Heart J* 89:333-337, 1975.
64. Covell JW, Taylor RR, Sonnenblick EH, Ross J, Jr: Series elasticity in the intact heart, Evidence for the application of the Hill model for muscle to the intact left ventricle. *Pflegers Archives* 357:225-236, 1975.
65. Mahler F, Ross J, Jr, O'Rourke R, Covell JW: Effects of changes in preload, afterload and inotropic state on ejection and isovolumic phase measures of contractility in the conscious dog. *Am J Cardiol* 35:626-634, 1975.
66. Simon HJ, Covell JW: Performance of medical students admitted via regular and admission variance routes. *J Med Ed* 50:237-241, 1975.
67. Mahler F, Covell JW, Ross J, Jr: Systolic pressure diameter relations in the normal conscious dog. *Cardiovasc Res* 9:447-455, 1975.
68. LeWinter MM, Kent RS, Kreener JM, Carew TE, Covell JW. Regional differences in myocardial performance in the left ventricle of the dog. *Circ Res* 37:191-199, 1975.
69. Schelbert HR, Pavelec RS, Sandoval S, Covell JW: Cardiac norepinephrine stores and chronotropic reflex response after thoracotomy. *J Applied Physiol* 39:287-291, 1975.

70. Carew TE, Covell JW: Effect of intramyocardial pressure on the phasic flow in the intraventricular septal artery. *Cardiovasc Res* 10:56-64, 1976.
71. McPherson RA, Kramer MF, Covell JW, Friedman WF: A comparison of the active stiffness of fetal and adult cardiac muscle. *Pediat Res* 10:660-664, 1976.
72. Saliba MJ, Covell JW, Bloor CM: Effects of heparin in large doses on the extent of myocardial ischemia after acute coronary occlusion in the dog. *Am J Cardiol* 37:599-604, 1976.
73. Raines RA, LeWinter MM, Covell JW: Regional shortening patterns in canine right ventricle. *Am J Physiol* 231:1395-1400, 1976.
74. Theroux P, Ross J, Jr, Franklin D, Covell JW, Bloor CM, Sasayama S: Regional myocardial function and dimensions early and late after myocardial infarction in the unanesthetized dog. *Circ Res* 40:158-165, 1977.
75. Kent RS, Carew TE, LeWinter MM, Covell JW: Comparison of left ventricular free wall and septal diastolic compliance in the dog. *Am J Physiol* 234:H392-398, 1978.
76. Carew TE, Covell JW: Left ventricular function in exercise-induced hypertrophy in dogs. *Am J Cardiol* 42:82-88, 1978.
77. LeWinter MM, Karliner JS, Covell JW: Alteration in heart rate response to hemorrhage in conscious dogs with volume overload. *Am J Physiol* 235: H422-428, 1978.
78. Carew TE, Covell JW: Fiber orientation in the hypertrophied canine left ventricle. *Am J Physiol* 236: H487-493, 1979.
79. Badke FR, Covell JW: Early changes in left ventricular regional dimensions and function during chronic volume overloading in the conscious dog. *Circ Res* 45: 420-428, 1979.
80. Pouleur H, Covell JW, Ross J, Jr: Effects of alterations in aortic input impedance on force-velocity-length relationship in the intact canine heart. *Circ Res* 45: 126-135, 1979.
81. Pouleur H, Karliner JS, LeWinter MM, Covell JW: Diastolic viscous properties of the intact canine left ventricle. *Circ Res* 45:410-419, 1979.
82. Schelbert HR, Schuler G, Ashburn WL, Covell JW: Time course of "redistribution" of thallium-201 administered during transient ischemia. *Eur J Nucl Med* 40:351-358, 1979.

83. Henning H, Gilpin EA, Covell JW, Swan EA, O'Rourke RA, Ross J, Jr: Prognosis after acute myocardial infarction: a multivariate analysis of mortality and survival. *Circulation* 59:1124-1136, 1979.
84. Pouleur H, vanEyll C, Col J, Covell JW, Charlier AA: A model of circulatory regulation as a help system in therapy of acute myocardial infarction. *Computers in Cardiology*, 137-142, September, 1979.
85. Pouleur H, Covell JW, Ross J, Jr: Effects of nitroprusside on venous return and central blood volume in the absence and presence of acute heart failure. *Circulation* 61: 328-337, 1980.
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